

Strategic
**Transportation
& Development**

Analysis



Final Report
February 14, 2025



Department of
Transportation

Governor DeWine and General Assembly,

I am pleased to officially submit the Statewide Transportation and Development Analysis as directed by House Bill 23. This report fulfills the requirement to identify how Ohio's transportation system can support statewide economic growth.

The Study examined state and regional demographics, economic development opportunities, transportation system congestion risks, and passenger and freight travel needs over the next 10, 20, and 30 years. It focused on how the state's major interregional highways can support statewide economic goals in the context of ODOT's broader mission to provide a transportation system that is safe, accessible, well-maintained, and positioned for the future.

ODOT maintains the state's network of major highways and bridges, the backbone for moving people and goods within Ohio, through Ohio, and across the nation. This network supports state and global trade, enhances access to major development sites, enables workforce access, and supports local economic development priorities.

ODOT invests billions annually to achieve its mission. Approximately 90% of those funds are dedicated to maintaining the existing infrastructure. The Study helps ODOT, our partners, and state and local officials understand future needs and provides a roadmap for the state's transportation investment priorities to align with development goals.

ODOT analyzed risks associated with congestion in seven geographic/economic regions and studied interregional connections along six focus corridors. These corridors included Toledo to Columbus and Sandusky to Columbus, as specified in H.B. 23. The analysis identified locations across the state with congestion risks, referred to as "hotspots." Most of these hotspots will be managed through ODOT projects that are already partially or fully funded. The Study shows that, overall, the strategic highway network is mostly performing well. The proposed recommendations will help the state continue to meet the transportation, workforce, and economic development needs of our residents and businesses in the decades to come.

ODOT very much appreciates the efforts of our staff and local, regional, and statewide partners who contributed to this Study. We also value our partnership with the Ohio Department of Development and the Governor's Office of Workforce Transformation. Their input was critical to shaping the data and recommendations. ODOT looks forward to working with the Administration and the Legislature as we consider implementing these recommendations to support Ohio's economic prosperity.

Sincerely,

Pamela Boratyn
Director
Ohio Department of Transportation



Table of Contents

- 1. Introduction.....1-1**
 - Strategic Transportation and Development Analysis.....1-1
 - Objectives.....1-1
 - Context.....1-3
 - Partner Engagement.....1-4
 - The Intersection Between Transportation and Economic Growth.....1-5

- 2. Existing and Future Conditions2-1**
 - Demographics2-1**
 - Introduction.....2-1
 - Key Findings2-1
 - Demographic Overview.....2-2
 - Households and Socioeconomics.....2-5
 - Historical Population Trends2-13
 - Key Factors Impacting Future Population.....2-16
 - Economics.....2-27**
 - Introduction.....2-27
 - Key Findings2-27
 - Economic Overview.....2-28
 - Industry Characteristics2-32
 - Target Industries and Employment.....2-40
 - Tourism.....2-59
 - Regional Economies.....2-62



Workforce 2-75

- Introduction..... 2-75
- Key Findings 2-75
- Workforce Overview 2-76
- Current and Potential Workforce Challenges..... 2-86
- Impact of National and Global Workforce Trends on the State..... 2-87
- Commute Patterns and Workforce Access 2-88
- Impact of Commute and Transportation on Employment 2-100

Development..... 2-103

- Introduction..... 2-103
- Key Findings 2-103
- Land Use and Development Trends..... 2-104
- Future Development 2-111
- Site Development 2-118
- Stakeholder Insight on Development..... 2-128
- Statewide Development Areas..... 2-129

3. Transportation System..... 3-1

- Key Findings..... 3-1**
- Transportation Context..... 3-4**

 - Ohio’s Transportation System 3-4
 - Ohio’s Highway Network..... 3-6
 - Strategic Transportation and Development Analysis Network 3-15
 - Regional Networks 3-25
 - Northwest Ohio 3-36
 - Northeast Ohio 3-55
 - East Ohio..... 3-75
 - Southeast Ohio..... 3-90
 - Central Ohio..... 3-109



West Ohio..... 3-130
 Southwest Ohio 3-148
 Interregional Connections 3-169

4. Needs and Findings 4-1

Overview 4-1
Key Findings..... 4-1
Strategic Transportation and Development Analysis Needs Assessment..... 4-3
Regional Hotspot Needs 4-4
 Managed and Gap Hotspot Assessment 4-8
Focus Corridor Needs 4-16
 Corridor Needs and Priority Areas 4-16

5. Actionable Recommendations 5-1

Overview of Recommendations 5-1
Priority Areas with Projects in Progress 5-3
 Toledo-Columbus Focus Corridor..... 5-4
 Columbus-West Virginia Focus Corridor..... 5-4
Priority Areas with Studies in Progress 5-7
Priority Areas that Need Projects 5-8
 Sandusky-Columbus Focus Corridor 5-8
 Columbus-Kentucky/West Virginia (US23,US52) Focus Corridor 5-9
 Cincinnati-Dayton (I-75) Focus Corridor 5-9
 Canton/Youngstown-West Virginia/Pennsylvania (US30,SR11) Focus Corridor 5-9
Next Steps 5-14



Glossary and Acronyms G-1

 Glossary..... G-1

 Acronyms..... G-5

Appendix A. Toledo-Columbus Focus Corridor

Appendix B. Sandusky-Columbus Focus Corridor

Appendix C. Dayton-Cincinnati Focus Corridor

Appendix D. Columbus-West Virginia Focus Corridor

Appendix E. Columbus-Kentucky/West Virginia Focus Corridor

Appendix F. Canton/Youngstown-West Virginia/Pennsylvania Focus Corridor

Appendix G. Study Methodology

Appendix H. Study Engagement

Appendix I. Development Process

Appendix J. Priority Areas and Projects



Strategic
**Transportation
& Development**
————— **Analysis**

Chapter 1: Introduction



Department of
Transportation

1. Introduction

STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS

In March 2023, the Ohio Legislature enacted the biennial transportation budget, House Bill (H.B.) 23, which was signed into law and went into effect on July 1, 2023. Appropriation item 776672 in the budget, the **Strategic Transportation and Development Analysis** (the Study), directed the Ohio Department of Transportation (ODOT) to execute the direction from the Governor and Legislature. The statute assigned ODOT the lead role in collaboration with the Ohio Department of Development (ODOD) and the Governor's Office of Workforce Transformation (GOWT) to deliver the Study by December 31, 2024.

This comprehensive analysis examined statewide and regional demographics, economic development opportunities, transportation system congestion risks, and travel needs.

OBJECTIVES

Consistent with H.B. 23 language, the Strategic Transportation and Development Analysis examined factors such as statewide and regional demographics, economic development growth opportunities, current transportation systems and capacities, and passenger and freight travel needs over 10, 20, and 30 years. The Study lays out actionable recommendations for transportation system projects to support statewide economic growth, including improving links between Toledo and Columbus and Sandusky and Columbus. The legislative requirements and ODOT's approach to address them within the Report are described in **Table 1.1**.

H.B. 23 Section 203.47. STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS

The foregoing appropriation item 776672, Strategic Transportation and Development Analysis, shall be used for a statewide study of the Ohio transportation system, in collaboration with the Department of Development and the Governor's Office of Workforce Transformation.

The study shall analyze statewide and regional demographics, investigate economic development growth opportunities, examine current transportation systems and capacities, forecast passenger and freight travel needs over a ten, twenty, and thirty year timeframe, identify current and future transportation links, evaluate and rank current and potential risks of future system congestion, and make actionable recommendations for transportation system projects to support statewide economic growth, including improving links between Toledo and Columbus and between Sandusky and Columbus. At any time, individual hotspot locations may receive advanced analysis of conceptual remedies with planning level costs.

The Department of Transportation may contract with third parties as necessary to execute this study. The study shall be completed by December 31, 2024.



TABLE 1.1—H.B. 23 REQUIREMENTS AND APPROACH WITHIN THE STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS

| Approach | Report Organization |
|--|--|
| “...a statewide study of the Ohio transportation system, in collaboration with the Department of Development and the Governor's Office of Workforce Transformation.” | |
| <p>For this Study, ODOT collaborated with the ODOD and the GOWT; statewide, regional, and local partners; and stakeholders including Ohio’s regional planning organizations and JobsOhio regional partners.</p> | <p>Insights gathered through this collaboration are shared in Chapter 2 and Chapter 3, including perspectives on statewide and regional transportation and development trends and needs.</p> |
| “The study shall analyze statewide and regional demographics, investigate economic development growth opportunities, examine current transportation systems and capacities, forecast passenger and freight travel needs over a ten-, twenty-, and thirty-year timeframe, identify current and future transportation links, evaluate and rank current and potential risks of future system congestion ...” | |
| <p>ODOT analyzed statewide and regional demographic, economic, workforce, and development trends and used this information to assess the current and future operations of Ohio’s transportation system, including various views of congestion risk on the highway network. These activities are referred to as the existing conditions and stress test analysis. The analysis found 72 congestion risks, or hotspots, that represent current or future congestion risks.</p> | <p>The analysis results are shared in Chapter 2 and Chapter 3. Chapter 4 compares current and future congestion hotspots to existing and planned transportation investments to identify gaps in managing these risks. More detail on the Study methodology is provided in Appendix G.</p> |
| “...make actionable recommendations for transportation system projects to support statewide economic growth, including improving links between Toledo and Columbus and between Sandusky and Columbus. At any time, individual hotspot locations may receive advanced analysis of conceptual remedies with planning level costs.” | |
| <p>ODOT conducted a stress test analysis to identify how to manage congestion risks and support statewide economic growth. Statewide strategies include policy and program improvements as well as strategic infrastructure investments supporting interregional commerce and intraregional economic activities. ODOT focused on the Toledo to Columbus and Sandusky to Columbus corridors, as well as four other corridors potentially facing risks. These analysis activities are referred to as the actionable recommendations.</p> | <p>Chapter 4 identifies improved and new strategies such as enhanced policies and programs, and specific transportation projects to address hotspot locations. These actionable recommendations are presented in Chapter 5. Six focus corridor needs assessments are in Appendices A–F and include more detail on findings and actionable recommendations within these corridors.</p> |



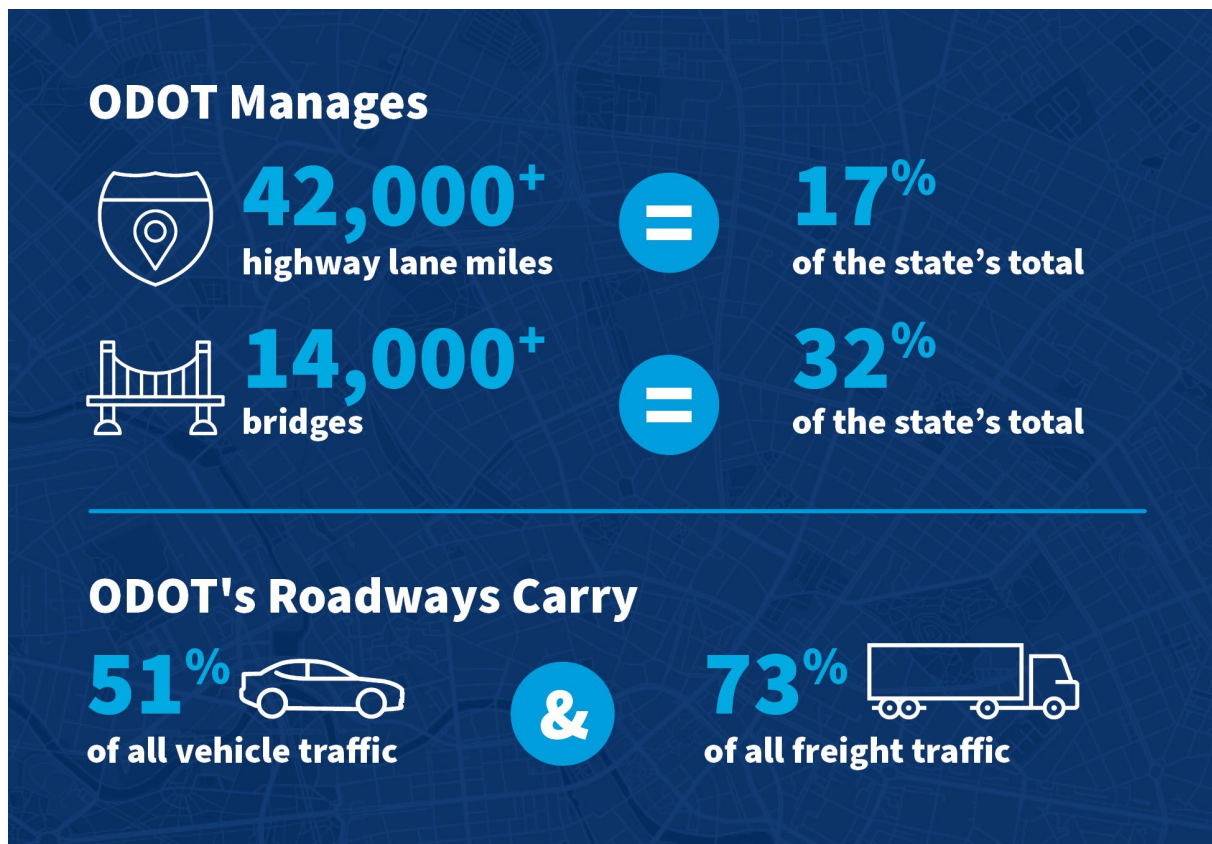
CONTEXT

This Study focuses on existing and possible future congestion challenges to economic growth. At the same time, ODOT’s broader mission is to provide a transportation system that is safe, accessible, well-maintained, and positioned for the future—supporting both economic growth and high standards for service and safety. The mission, vision, and goals identified in ODOT’s Strategic Plan guided the approach to meeting the legislative requirements.

Preservation of the existing system is critical to achieving these goals. ODOT dedicates most of its resources to essential maintenance, system management, rehabilitation, and daily operations, including snow and ice operations during winter. This focus keeps Ohio’s roads, bridges, and vital infrastructure—such as signage and culverts—in reliable, safe, and functional condition year-round, ready to support Ohio’s dynamic economy. Through this commitment to “taking care of what we have,” ODOT ensures that the transportation system meets today’s needs while preparing for future demands across Ohio. **Figure 1.1** illustrates the number of bridge and roadway assets ODOT manages compared to the state total.

In addition to system preservation, ODOT is committed to collaborating with state agencies and local Ohio communities. Partnerships are essential in Ohio’s home-rule structure, where over 2,300 agencies, counties, cities, villages, and townships maintain responsibility for the state’s transportation system. Working closely with local entities allows regional needs to be managed while advancing statewide priorities.

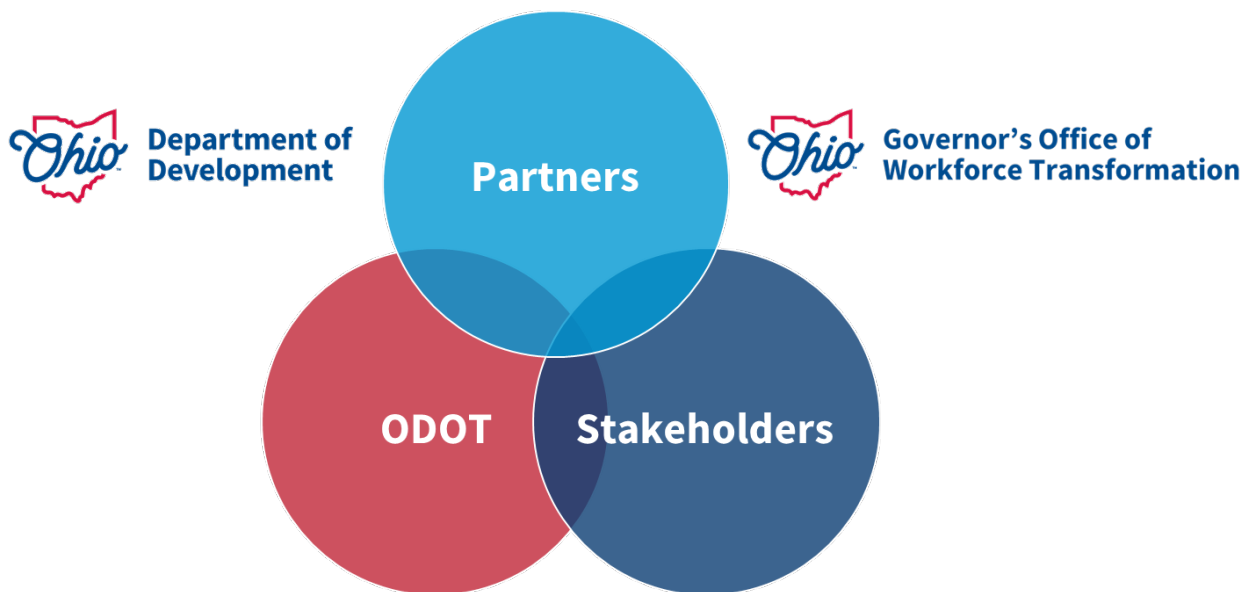
FIGURE 1.1—ODOT BRIDGES AND ROADWAYS



PARTNER ENGAGEMENT

The Strategic Transportation and Development Analysis study engaged state agencies, local Ohio communities, and business leaders to inform the analysis. Engagement groups are shown in **Figure 1.2**. The insights and feedback gathered through the engagement process are presented throughout this report and summarized in **Appendix H, Study Engagement**.

FIGURE 1.2—STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS ENGAGEMENT GROUPS



ODOT—The ODOT Executive Leadership team and an Internal Advisory Committee comprised of ODOT managers and subject matter experts regularly met throughout the Study. In addition, [ODOT's Districts](#) reviewed transportation system hotspots and actionable recommendations along six focus corridors. ODOT's Districts oversee local operations and construction projects in their counties.

Partners—ODOT, ODOD, and GOWT coordinated throughout the Study to review analysis and to make strategic decisions about actionable recommendations.

Stakeholders—Forty stakeholders were interviewed, including Ohio's 17 metropolitan planning organizations (MPOs) and six rural transportation planning organizations (RTPOs), JobsOhio and each of the six JobsOhio regional partners (before the seventh region was announced in April 2024), statewide economic development and workforce organizations, and site selector firms working in Ohio. The project team also convened 10 listening sessions, a statewide webinar, and a statewide survey that directly engaged over 500 transportation and economic development stakeholders across Ohio, including elected officials, business owners, and representatives from regional and local governments.

THE INTERSECTION BETWEEN TRANSPORTATION AND ECONOMIC GROWTH

The data analysis and stakeholder input helped identify five opportunity areas at the intersection between transportation investments and economic growth. These are presented in **Figure 1.3** and are referenced throughout this report, particularly in the transportation existing conditions and stress test analysis in **Chapter 3** and the actionable recommendations in **Chapter 5**.

FIGURE 1.3—TRANSPORTATION SYSTEM OPPORTUNITIES TO SUPPORT ECONOMIC GROWTH



- The transportation system creates and sustains **Market Connections** within and between Ohio and other states and nations.
- The transportation system stimulates **Site Development** and capital investment by providing sites with the capacity to move goods and workers.
- The transportation system provides **Workforce Access** for employers and employees, connecting people safely and reliably to Ohio jobs.
- The transportation system creates **Business & Logistics Efficiency** in goods and worker movement, boosting Ohio's economic competitiveness for businesses.
- The transportation system contributes to **Quality Places** with investments in safety, mobility, and quality of life amenities that help Ohio retain and attract residents, visitors, and employers.

Strategic
**Transportation
& Development**

Analysis

**Chapter 2:
Existing and
Future Conditions**



Department of
Transportation

2. Existing and Future Conditions

Understanding the opportunities for Ohio’s transportation system to support statewide economic growth first requires synthesizing demographic, economic, workforce, and development trends; examining existing conditions; and evaluating forecasts statewide and by region. This chapter identifies how Ohio’s current and future transportation system will be impacted by changing population and household characteristics and trends; historical and emerging economic conditions and interstate and regional commerce patterns; locations, skills, and needs of employers and workers; and land use changes, development patterns, and forecasts. **Chapter 2** and **Chapter 3** set the stage for assessing hotspots and documenting the Study’s actionable recommendations.

DEMOGRAPHICS

Introduction

Ohio’s demographics are directly tied to development patterns, economic outcomes, workforce locations and skills, and the resulting travel demand. This section of **Chapter 2** analyzes the state’s historical, current, and projected demographic trends.

Key Findings

- Ohio's population has grown by approximately 1 million over the last 30 years, with the most significant growth occurring between 1990 and 2000.
- Ohio's population is aging, and fertility rates are decreasing. This will profoundly affect personal mobility, healthcare, retirement planning, and the labor market.
- Ohio’s population had been projected to see a natural decline eventually, but the COVID-19 pandemic accelerated this timeline.
- As of 2020, Ohio's net migration is increasing, showing the first net positive change over a decade since 1950 to 1960.
- If current fertility, mortality, and migration rates continue, Ohio could lose 810,000 people, nearly 7% of the current population, by 2055.
- Alternative scenarios based on economic revitalization and job opportunities, proximity to markets, affordable housing and cost of living, and environmental-induced migration could lead to medium- and high-population growth scenarios, with the high growth scenario representing a positive net change in the population.
- The rate of population change is not projected to be uniform across regions, with Central and Southwest Ohio showing the highest potential for driving positive population growth.
- The share of housing and transportation costs to household income varies significantly throughout the state. All regions show a wide spectrum of cost burden ranging from 20% to more than 60% of household income, but large areas in Southeast, East, and Northeast Ohio show costs at 60% of income or more.



Demographic Overview

As of the latest estimates in 2023, Ohio's total population is 11.785 million, positioning it as the seventh most populous state in the nation, behind Illinois and ahead of Georgia. The state's population density is 289 persons per square mile, ranking 11th in the nation. This indicates a high concentration of residents in urban and suburban areas. **Figure 2.1** shows population density across Ohio.

Regional Demographics

Ohio's seven JobsOhio economic regions are shown in **Error! Reference source not found.** Population patterns in each region vary, including the total population by rural and urban areas and by population density, as shown in **Table 2.1**. Northeast Ohio, with cities such as Cleveland, Akron, and Canton, has the highest total population, with most of its 3.5 million residents living in urban areas. Central, West, and Southwest Ohio also have high urban populations, including Columbus, Dayton, and Cincinnati. Despite having a lower total population, Southwest Ohio has the highest percentage of urban population and population density. It is nearly three times greater than Ohio's average. This is in part due to the smaller size of the region and its primary focus on the Cincinnati metropolitan area. Northwest, East, and West Ohio are approximately two-thirds to three-quarters urban; Northwest and West Ohio have population densities under Ohio's average; and East Ohio has a population density slightly higher than Ohio's average. Southeast Ohio is primarily rural, at 66%, and has a population density three times lower than the state's average.

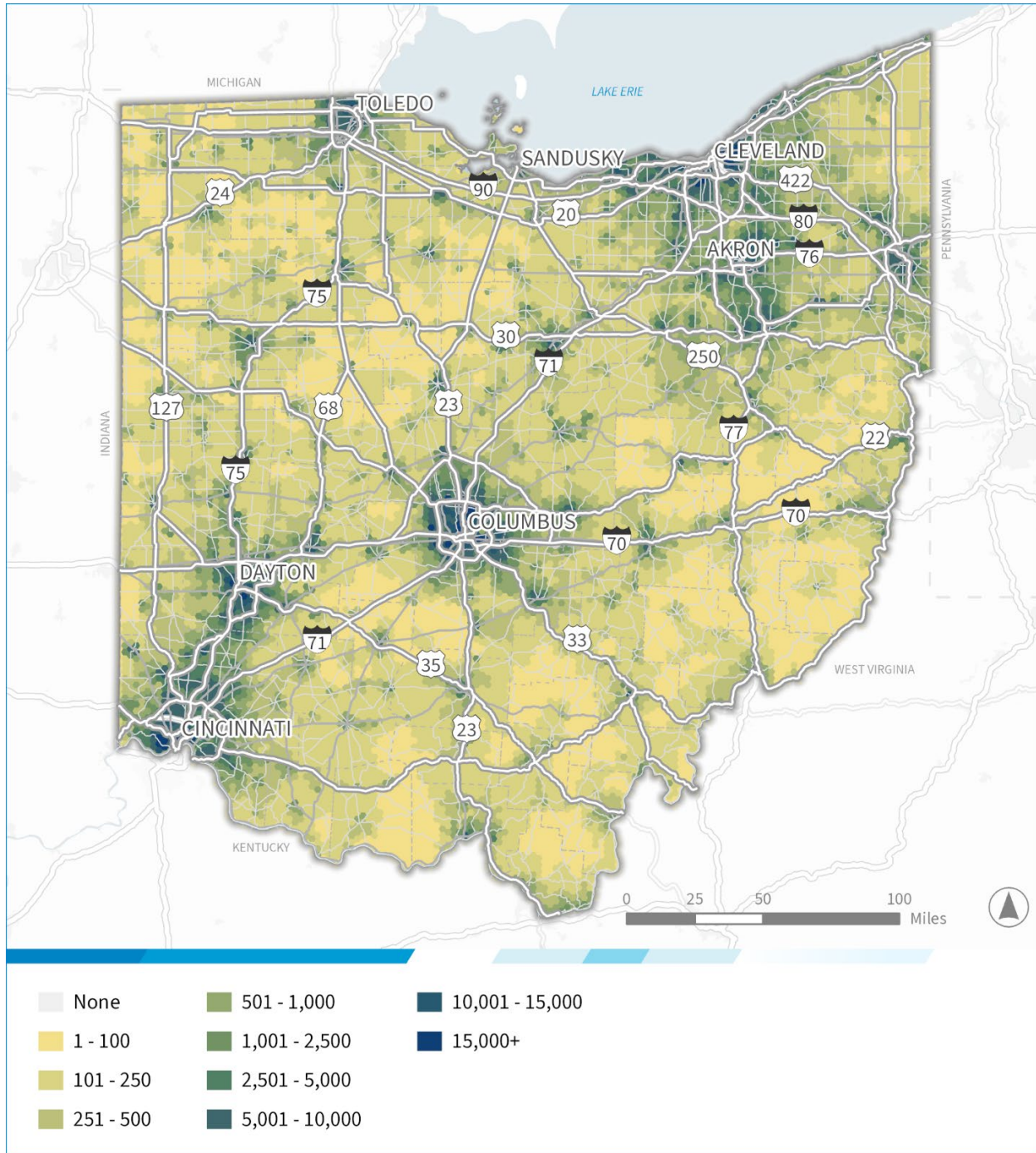
TABLE 2.1—REGIONAL DEMOGRAPHIC PROFILES, 2020

| Region | Total Population | Urban | Rural | Population Density |
|--------------|-------------------|------------------------|------------------------|----------------------|
| Central | 2,249,698 | 1,851,472 (82%) | 398,226 (18%) | 397 per sq/mi |
| East | 630,042 | 432,121 (69%) | 197,921 (31%) | 303 per sq/mi |
| Northeast | 3,687,050 | 3,104,984 (84%) | 582,066 (16%) | 611 per sq/mi |
| Northwest | 1,217,554 | 813,413 (67%) | 404,141 (33%) | 179 per sq/mi |
| Southeast | 1,009,701 | 340,356 (34%) | 669,345 (66%) | 79 per sq/mi |
| Southwest | 1,715,610 | 1,519,219 (89%) | 196,391 (11%) | 808 per sq/mi |
| West | 1,289,793 | 939,534 (73%) | 350,259 (27%) | 246 per sq/mi |
| Total | 11,799,448 | 9,001,099 (76%) | 2,798,349 (24%) | 289 per sq/mi |

Source: US Census Bureau, 2020 Census Demographic Data Map Viewer (<https://maps.geo.census.gov/ddmv/map.html>)



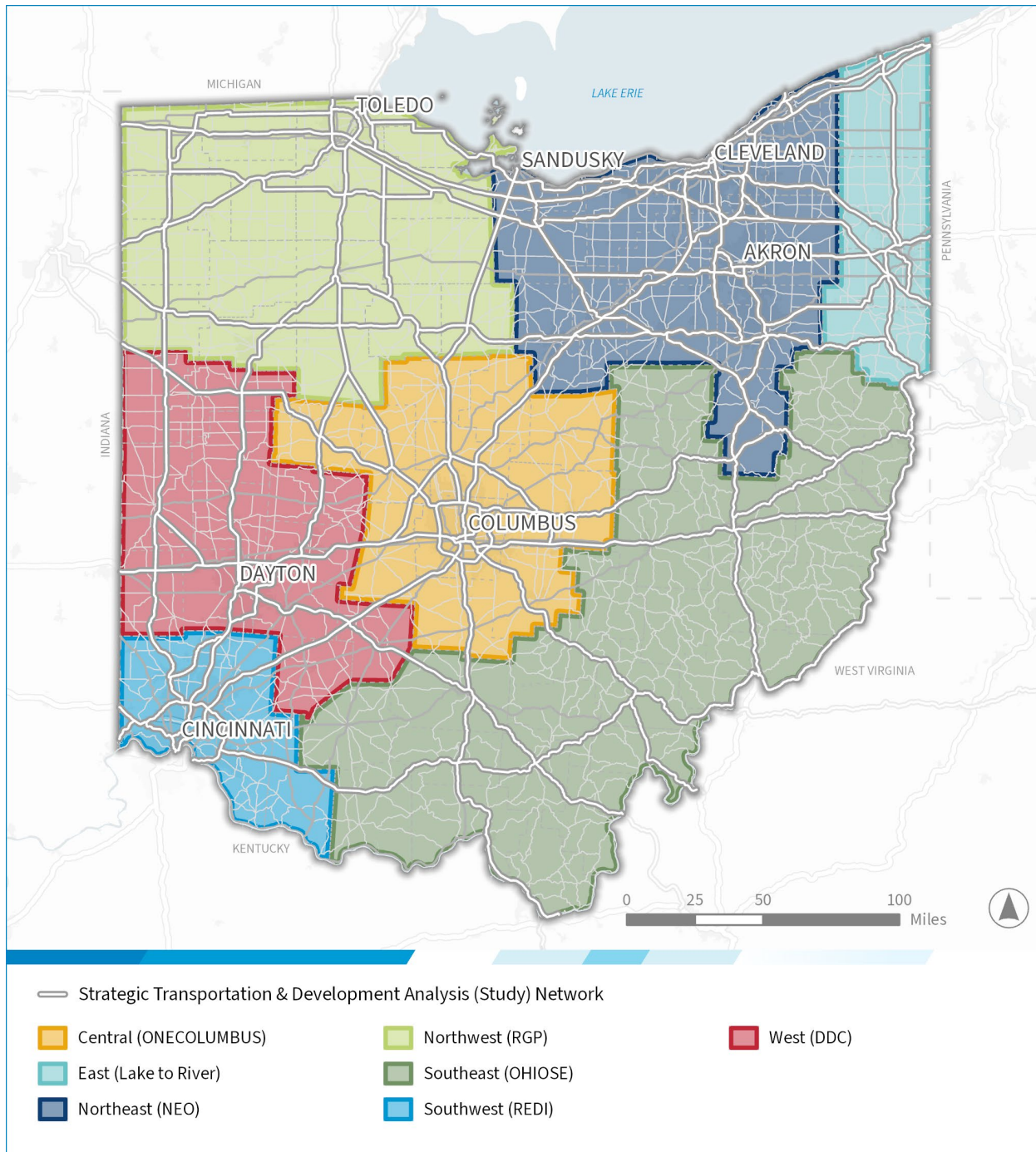
FIGURE 2.1—OHIO POPULATION DENSITY (POPULATION PER FIVE SQUARE MILES), 2020



Source: IPUMS NHGIS, University of Minnesota, www.nhgis.org. US Decennial Census, 202—JobsOhio Regions



FIGURE 2.2—JOBSSOHIO REGIONS



Source: JobsOhio, Ohio Regional Network, 2024 (<https://www.jobsohio.com/ohio-regional-network>)



Households and Socioeconomics

Key household and socioeconomic indicators help tell the story of Ohio's population. These characteristics explain geographic travel demand and are related to workforce size and skills. For instance, smaller household sizes and renter-occupied housing typically indicate higher geographic mobility, flexibility on where they live, and lower average transportation mobility, less overall daily travel. Based on 2022 US Census data, the 11.785 million residents in Ohio occupied 5.29 million housing units. Nearly 67% of these housing units were owner-occupied. These housing units supported 4.78 million households based on the 2018-2022 five-year average, resulting in an average household size of 2.4 persons. Compared to 2010, this is an increase of over 237,000 households in Ohio, with a decline in average household size from 2.46 in 2010 to 2.40 in 2022.

The average household size in Ohio is 2.4 people, with 67% of households being owner-occupied.

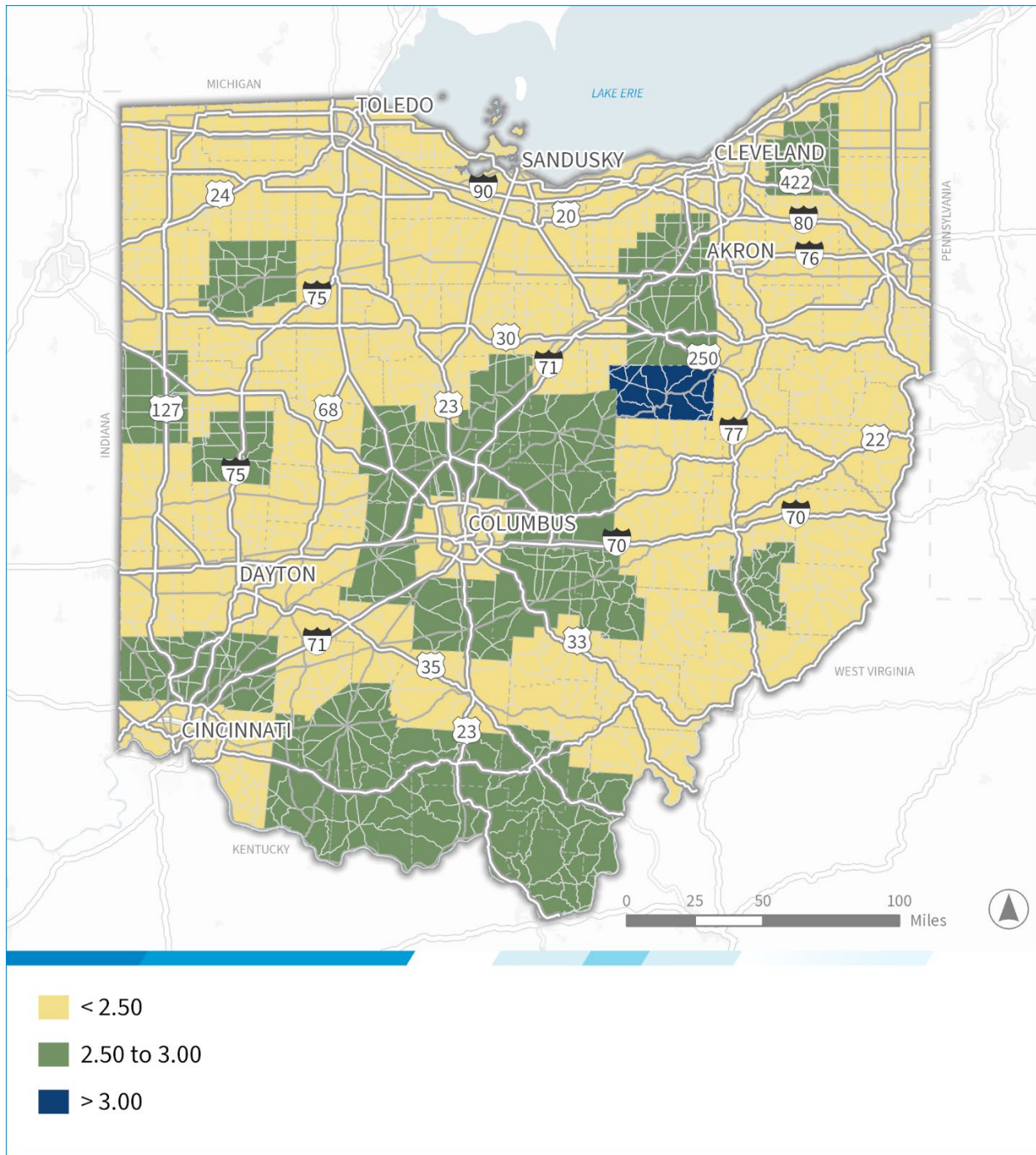
Household Characteristics

Household characteristics that relate to mobility needs and workforce access requirements include:

- **Average Household Size:** Average household size, or occupancy, is a key indicator of travel demand. Suburban counties in Central, Southwest, East, and Northeast Ohio have average household sizes of 2.5 or higher. Southeast Ohio, primarily Brown, Highland, Adams, Pike, Scioto, Lawrence, Gallia, and Jackson counties, also have above-average household sizes. Holmes County, home to a significant Amish population, has an average 3.35 household size. Urban counties, such as Franklin, Hamilton, and Cuyahoga, have some of the lowest household sizes in the state, typically averaging between 2.3 and 2.4 occupants. **Figure 2.3** illustrates the average household size by county, based on five-year estimates for 2018-2022.
- **Renter-Occupied Units:** Renter-occupied housing units indicate smaller, more geographically mobile households. In urban areas, these households also tend to have younger residents and may potentially, depending on location, have lower automobile ownership rates. Statewide, 33% of housing units are renter occupied. Hamilton, Franklin, and Cuyahoga counties have more than 40% of renter-occupied housing units in 2022. Other counties at or above the statewide average include Montgomery and Greene counties in West Ohio; Summit and Stark counties in Northeast Ohio; Mahoning County in East Ohio; and Lucas, Wood, and Hancock counties in Northwest Ohio. Other areas, such as Athens County, where Ohio University is located, also show above-average renter-occupied units. **Figure 2.4** is a map of the percentage of renter-occupied units by county based on five-year estimates for 2018-2022.
- **Zero-Car Households:** A variety of factors shape the location and distribution of the state's zero-car households, including household size, income, and access to alternative transportation such as walking, biking, and transit. Automobile ownership in Ohio is the same as the national average, with an average of two cars per household. Holmes, Geauga, and Trumbull counties are areas where 50% or more households have zero cars. These counties are home to large Amish populations. Urban neighborhoods in Cincinnati, Columbus, Cleveland, Toledo, and Canton have between 26% to 50% zero-car households, partly due to income disparities and preference for a car-free lifestyle. **Figure 2.5** shows zero-car households by census tract.



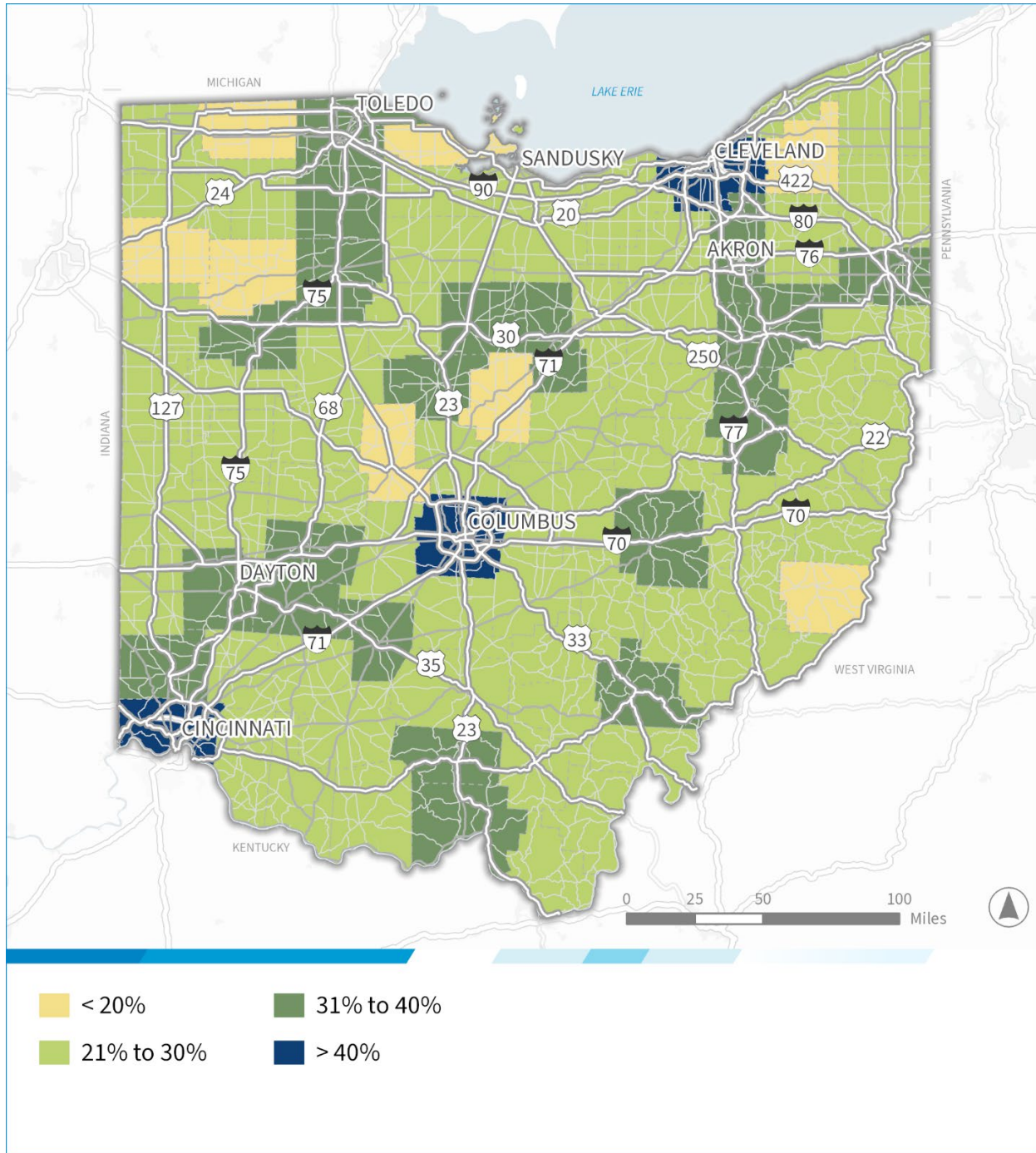
FIGURE 2.3—AVERAGE HOUSEHOLD SIZE BY COUNTY, 2018–2022



Source: US Census Bureau, 2018-2022 American Community Survey (ACS) 5-Year Estimates, 2024



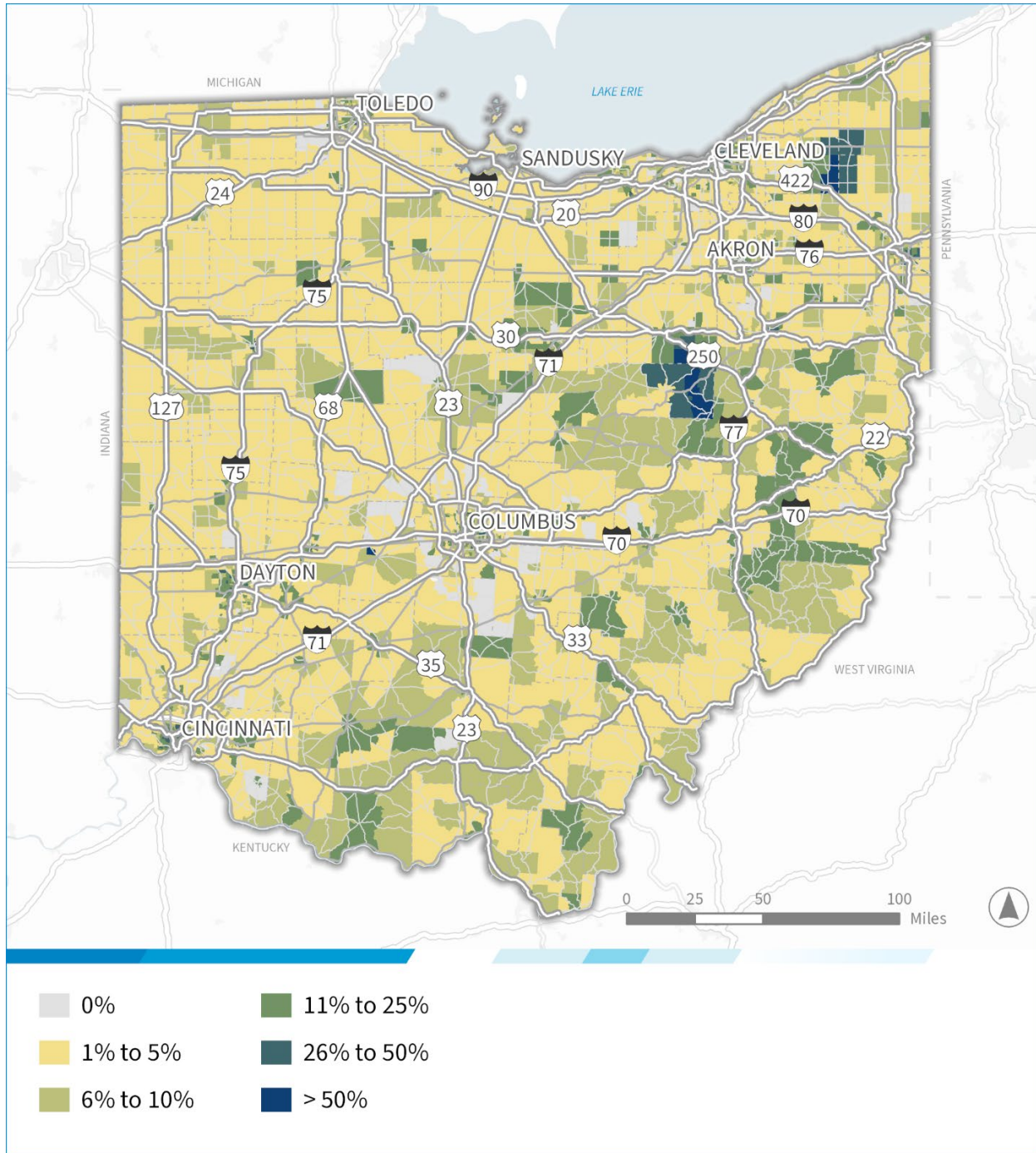
FIGURE 2.4—PERCENT OF RENTER-OCCUPIED HOUSING UNITS BY COUNTY, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



FIGURE 2.5—SHARE OF ZERO CAR HOUSEHOLDS BY CENSUS TRACT, 2020



Source: US Department of Transportation (USDOT) Equitable Transportation Community (ETC) Explorer



Two nationally available data sets, the Center for Neighborhood Technology (CNT) and the United For ALICE (Asset Limited, Income Constrained, Employed), reflect other household dynamics that impact household location and transportation decisions. They use a mix of US Census and Bureau of Labor Statistics (BLS) data to provide insights into multiple transportation needs across Ohio, particularly workforce access to job opportunities.

CNT provides household measures related to affordability and transportation costs. **Figure 2.6** shows housing and transportation costs as a percentage of total income by household in 2019. Areas in Ohio where housing and transportation costs are 60% or more of income place significant pressures on household location and job decisions. Large areas in East, Southeast, and Northeast Ohio show costs at 60% of income or more. Areas in the urbanized centers of Cincinnati, Columbus, Cleveland, and Toledo have lower housing and transportation costs as a percentage of total income, at 20% or less. The contrast in Central Ohio is notable, as most areas inside I-270 show combined costs of less than 40% of income; while areas in Delaware, Union, and Madison counties outside of I-270 show combined costs at 60% or higher of income.

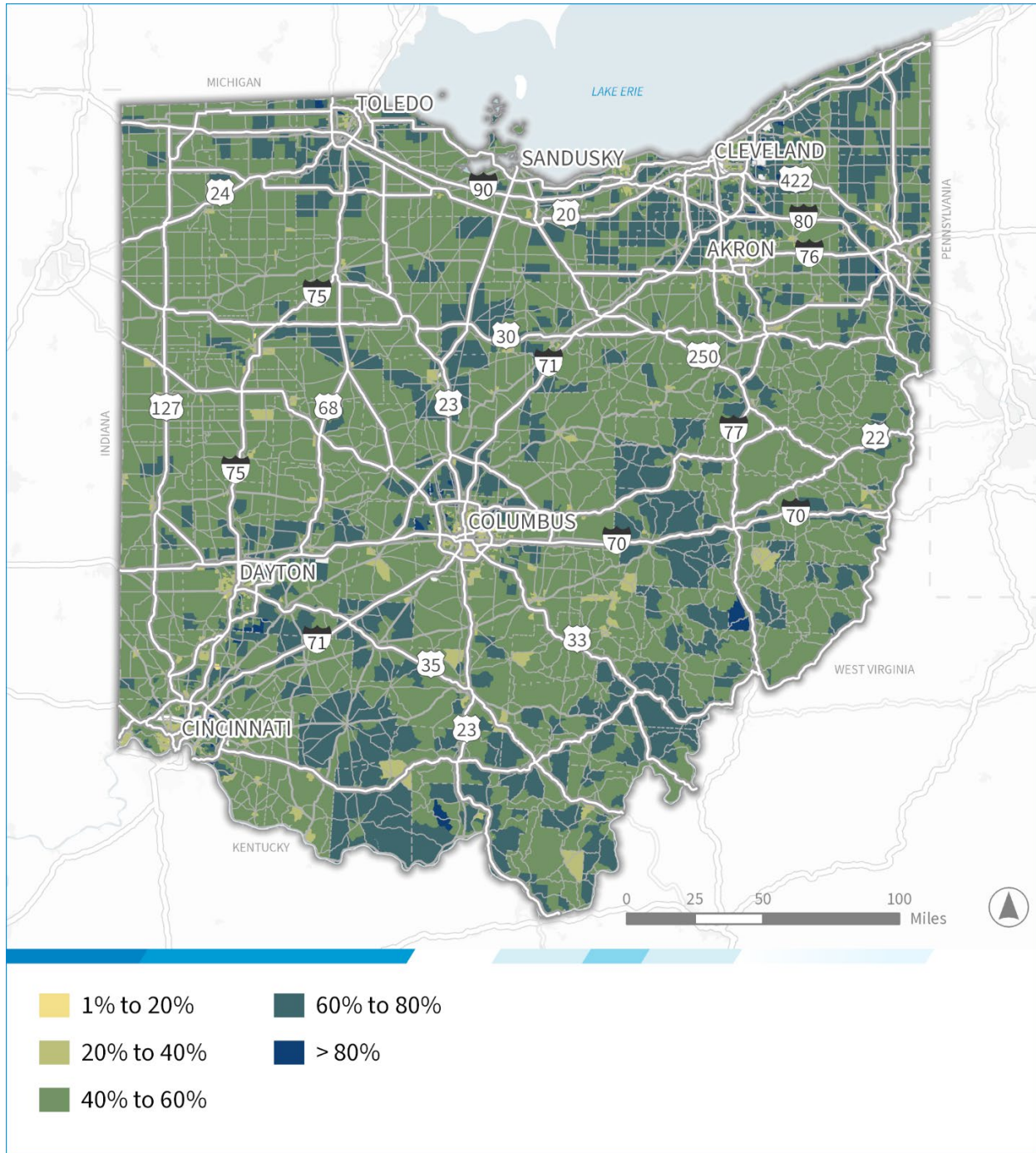
United For ALICE provides a comprehensive picture of financial hardship. United Way and its partners use the ALICE measures to highlight the challenges these households face to inform community solutions that promote financial stability. These programs, practices, and policies improve access to affordable housing, high-quality childcare and education, healthy food, healthcare, transportation, workforce training, and more. The share of households below the ALICE threshold represents a measure of the minimum income level necessary for survival, as shown in **Figure 2.7**. The ALICE threshold extends the poverty line to provide a realistic and context-sensitive perspective of household needs.

Median household income (**Figure 2.8**) is another helpful travel demand indicator. Many above-average median-income households are also multi-car households, typically have a lower propensity for transit use and experience less impact from commute distance or cost. Ohio's highest average median household incomes are in suburban counties around Cincinnati and Columbus, including Warren, Greene, Madison, Union, Delaware, Licking, and Fairfield; and the outer ring suburbs of Cleveland in eastern and southern Cuyahoga County. Pockets of southern Ohio, including Adams, Pike, Lawrence, Gallia, Vinton, and Meigs counties, show an average household income below \$50,000. Many of these areas face housing and transportation cost challenges and are characterized by communities falling below the ALICE threshold.

There are widespread areas across the state where 40% or more of households are below the ALICE threshold. This includes every county in Southeast Ohio, the Mahoning Valley, and other rural areas including Allen, Hardin, Marion, Crawford, and Richland counties.



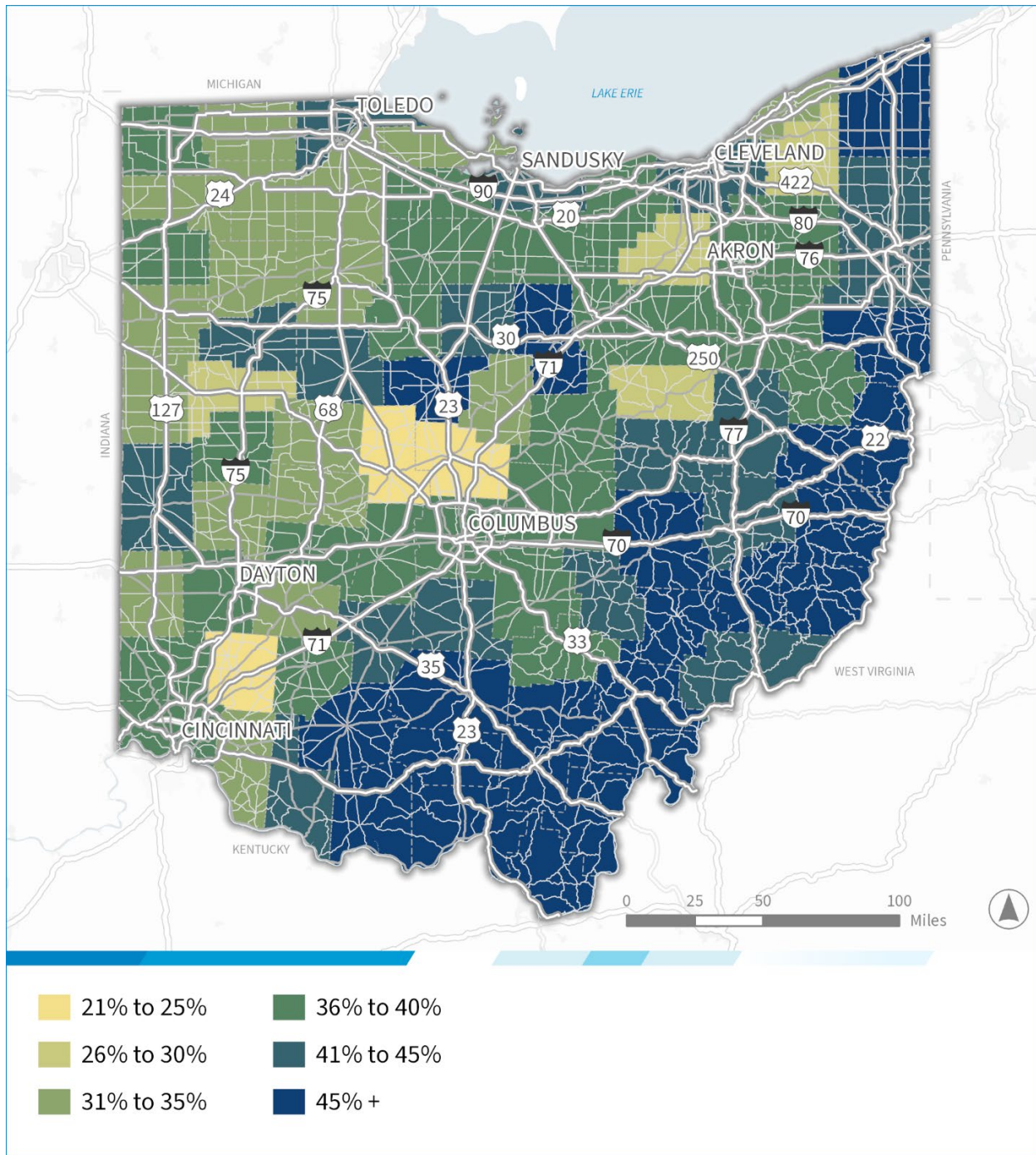
FIGURE 2.6—HOUSING AND TRANSPORTATION COST AS PERCENT OF INCOME BY CENSUS BLOCK GROUP, 2019



Source: CNT, Housing + Transportation (H+T) Index



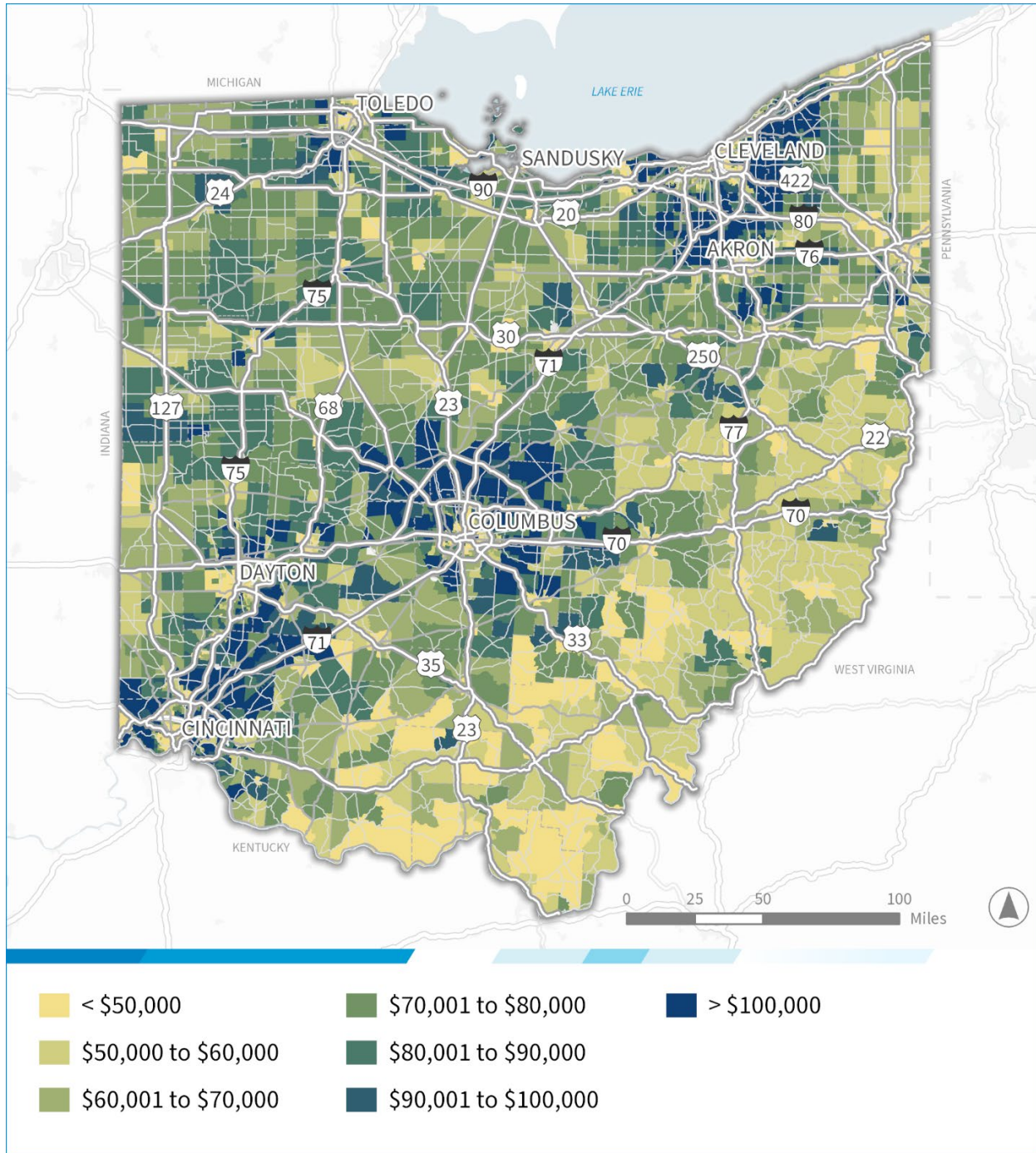
FIGURE 2.7—PERCENT OF HOUSEHOLDS BELOW ASSET LIMITED, INCOME CONSTRAINED, EMPLOYED (ALICE) THRESHOLD, 2021



Source: United For ALICE, <https://www.unitedforalice.org/maps/ohio>



FIGURE 2.8—MEDIAN HOUSEHOLD INCOME BY CENSUS TRACT, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



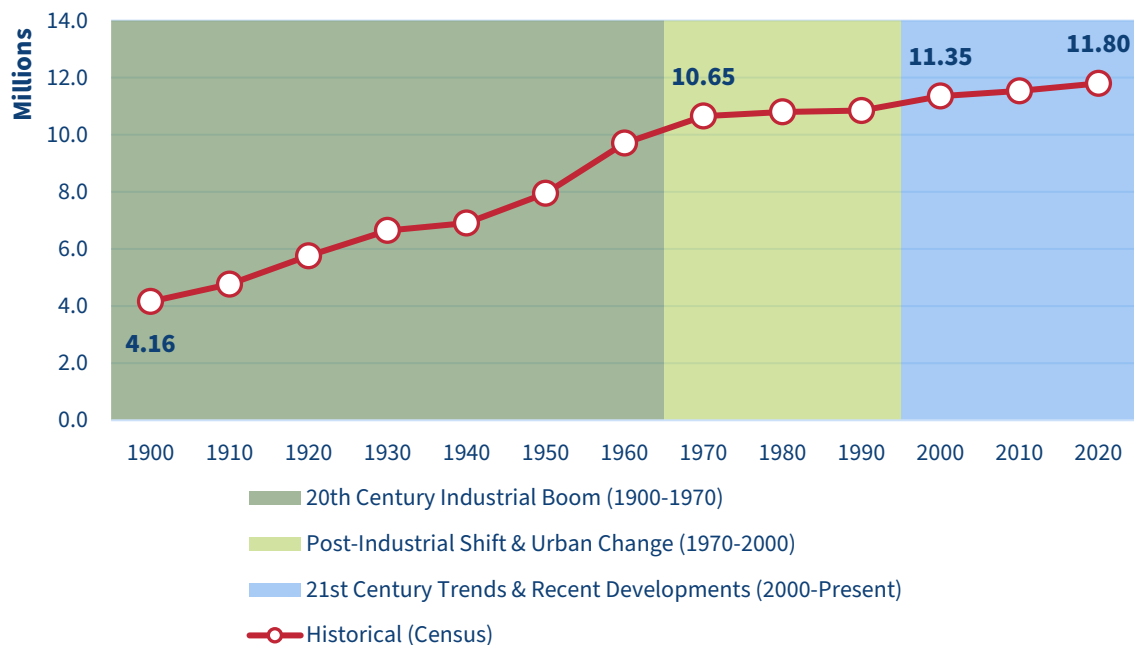
Historical Population Trends

To understand Ohio’s population today, it is important to understand where it has been. Historical population trends help explain why growth occurred where it did and provide insight into where it will occur in the future. Ohio’s population trends reflect industrial growth, migration patterns, and economic changes that have shaped the state’s demographics. These dynamics have been linked to macroeconomic forces, from industrialization’s boom days to post-industrial transition challenges. The changes in Ohio’s total population from 1900 can be classified into three periods of economic change:

- 20th Century Industrial Boom, 1900-1970
- Post-Industrial Shift and Urban Change, 1970-2000
- 21st Century Trends and Recent Developments, 2000-present

The analysis in **Figure 2.9** and **Table 2.2** starts at the beginning of the 20th Century Industrial Boom in 1900.

FIGURE 2.9—PERIODS OF POPULATION CHANGE



Source: US Decennial Census

The 20th Century Industrial Boom in Ohio saw the state’s population grow from 4,157,545 in 1900 to 10,652,017 in 1970, a 156% increase. Flourishing manufacturing sectors in cities like Cleveland, Cincinnati, Columbus, and Toledo bolstered this robust population increase. Most of Ohio’s interstate and US highway systems were built during this time. By 1920, the US Census found that more than half of Ohio’s population lived in urban areas, a trend that has continued through today. This era also coincided with the Great Migration, from 1910-1970, when African Americans moved northward to seek better opportunities.



TABLE 2.2—POPULATION GROWTH BY REGION (AVERAGE ANNUAL GROWTH RATE)

| JobsOhio Region | 1900-1970 | 1970-2000 | 2000-2020 |
|------------------------|------------------|------------------|------------------|
| Ohio | 1.35% | 0.21% | 0.19% |
| Central | 1.55% | 1.02% | 1.18% |
| East | 1.65% | -0.21% | -0.51% |
| Northeast | 1.94% | -0.08% | -0.08% |
| Northwest | 0.87% | 0.11% | -0.13% |
| Southeast | 0.23% | 0.35% | -0.11% |
| Southwest | 1.29% | 0.46% | 0.49% |
| West | 1.36% | 0.09% | 0.00% |

Source: US Decennial Census

The industrial boom was not uniformly experienced across the state. Northeast Ohio, notably Cleveland, emerged as a national manufacturing leader. Cities like Youngstown and Akron in East Ohio became synonymous with steel production and rubber manufacturing, respectively. At the same time, Central Ohio, anchored by the state capital in Columbus, began to diversify with growth in education, government, and service sectors. In contrast, less touched by industrialization, the Appalachian Region in Southeast Ohio leaned on agriculture, coal mining, and timber to support its economy.

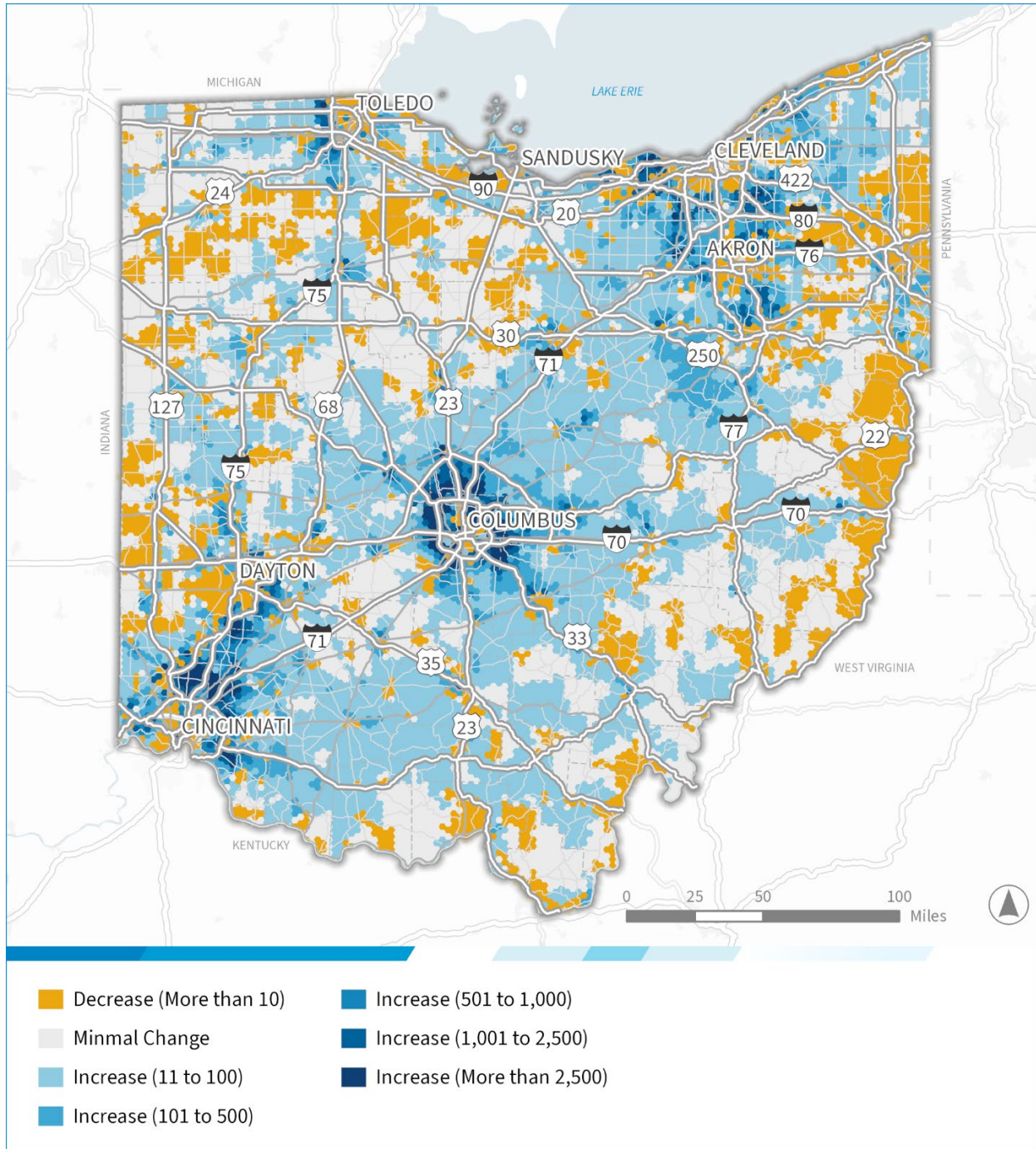
The latter half of the 20th century marked a transition period for Ohio due to the post-industrial shift and urban change. The decline of traditional manufacturing industries led to job losses, and as a result, many urban areas experienced population decline, with residents moving to suburbs or other states. This period also saw the state's economic base shift toward services and technology.

Ohio's population growth has been modest in the early 21st century. Some urban areas have started to rebound, benefiting from economic diversification, revitalization efforts, and new industries. However, many rural and former industrial areas continue to face declining populations.

As presented in **Figure 2.10**, between 1990 and 2020, population growth occurred in the suburban and exurban areas due to several factors, including available and inexpensive developable land and the expansion and modernization of highway networks. These factors, combined with industry departures or downsizing, led to population decreases in Toledo, Cleveland, Akron, and Cincinnati, while Columbus remained stable. Rural areas also saw a decrease in population, primarily in Southeast, Northeast, East, and Northwest Ohio. During the Study engagement period, participants in Central Ohio stated that rapid population growth is leading to housing shortages and growing traffic congestion. In contrast, participants in Northeast, East, Northwest, and Southeast Ohio considered population loss a barrier to growth.



FIGURE 2.10—POPULATION CHANGE, 1990–2020



Source: IPUMS NHGIS, University of Minnesota, www.nhgis.org. US Decennial Census, 1990, 2020



Key Factors Impacting Future Population

Ohio's future population will be shaped by factors, such as fertility, mortality, age distribution, and migration patterns.

Fertility Rates: According to Ohio's 2023 Population Projection Report, there were approximately 129,300 births in Ohio in 2020, with a total fertility rate of 1.7 per 1,000 females between the ages of 14 and 44. This is a decrease of 10% compared to the total fertility rate of 1.9 in 2010. This follows the national trend of steadily decreasing fertility rates, with women having fewer children on average and later in life. Between 2010 and 2020, births increased 7% to 20% among women aged 30 to 44, while births decreased 12% to 48% among younger women.

Mortality Rates: In 2019, Ohio ranked ninth among all states in deaths per 100,000 residents. Between 2010 and 2019, Ohio saw an overall slight increase in annual mortality rates, with a sharp increase in 2020 and 2021 during the COVID-19 pandemic. Ohio mortality decreased among its youngest and oldest residents between 2010 and 2019, with increased mortality rates for people aged 25 to 44. The leading causes of death included heart disease and cancer, though there has been an increase in deaths caused by accidental drug overdose since 2016 for people aged 25 to 34 and 35 to 44, particularly for non-Hispanic Black males.

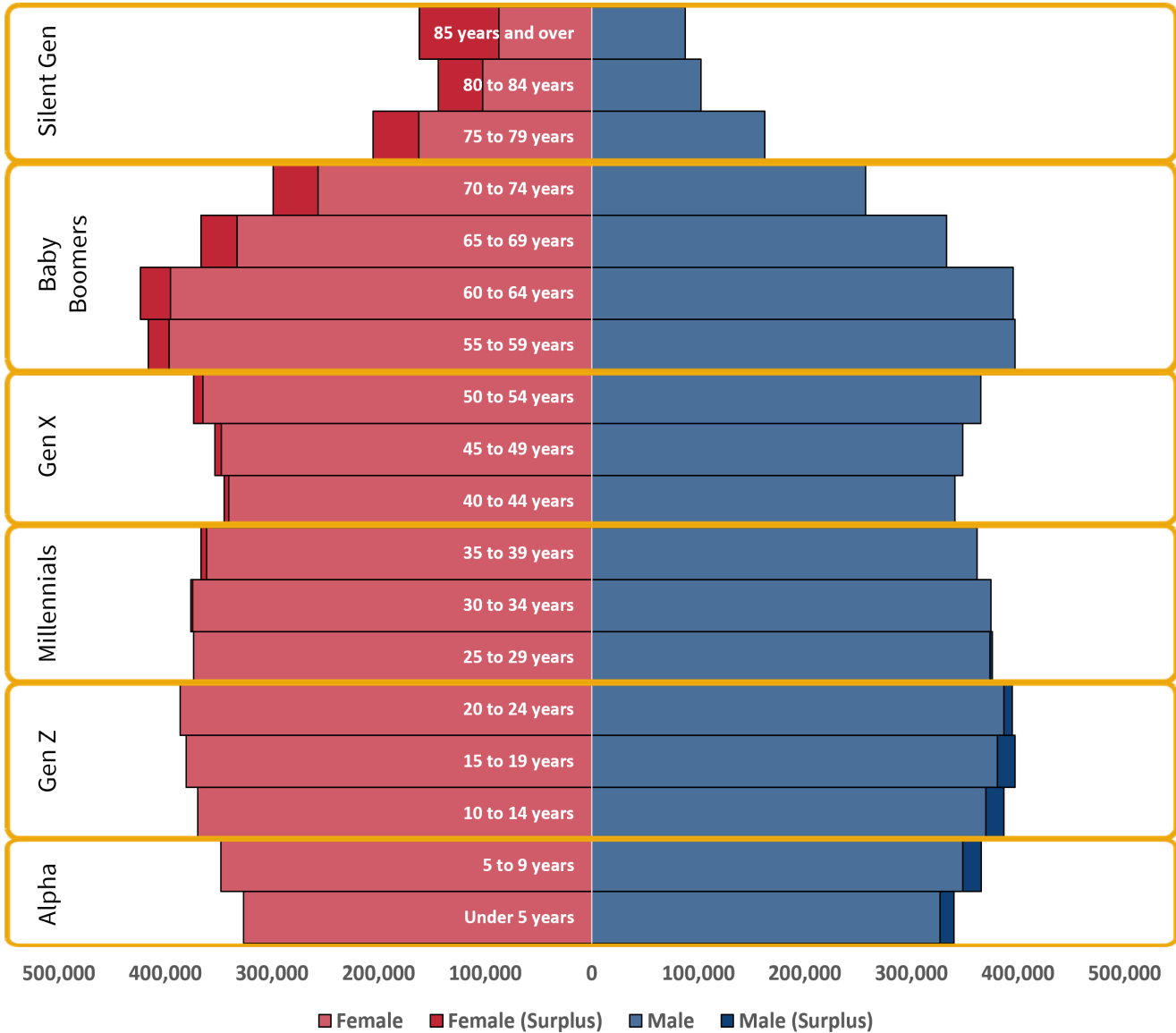
Natural Change: Due to the high mortality rate and the declining birth rate, in 2020, Ohio deaths outnumbered births by about 14,000. This was the first natural decline on record and is projected to continue through at least 2050. As of 2021, only eight of 88 counties had a natural increase, compared to 69 counties in 2011. These counties, Delaware, Franklin, Hamilton, Holmes, Mercer, Putnam, Union, and Warren, are primarily located in Central, Southwest, and West Ohio and have larger shares of younger people.

Age Distribution: Ohio's demographic profile reveals an aging population with a median age of 39.6 years based on US Census data. The age structure, with its broader base in the older Baby Boomer generation, suggests that Ohio will continue to face the challenges and opportunities of an aging population. This will affect personal mobility, healthcare, retirement systems, and the labor market.

Figure 2.11 shows Ohio's population pyramid in 2020. There is a stable distribution across most age groups, with a slight bulge in the 55 to 64 and 65 to 74 age groups, reflecting aging Baby Boomers. The symmetric shape in the younger age groups indicates a balance between male and female populations, suggesting stability in birth rates and potentially in migration patterns among these age groups. The relative narrowness of the base, which corresponds to the under-5 age group, points to a lower birth rate. The broadening of the pyramid in the older age categories, particularly from age 50 and older, indicates a substantial aging population. "Surplus" populations represent the difference between males and females in each age group. During the Study, stakeholder engagement in Northwest, Southeast, and West Ohio, participants noted that population growth is flat or declining and the workforce is aging. A slightly higher male surplus exists in the ages 0 to 24 groups. In contrast, the female surplus grows as the age groups increase, starting with Baby Boomers, age 55-plus, and extending through the Silent Generation, reflecting a higher life expectancy for females than males.



FIGURE 2.11—2020 OHIO POPULATION PYRAMID



Source: US Census Bureau, 2020



Migration and Geographic Mobility: Three-quarters of the state’s population was born in Ohio, making it the third highest state behind Louisiana, at 78%, and Michigan, at 76%, in terms of the share of its population to be born and remain in the state. This indicates an overall low geographic mobility. Average geographic mobility from 2018 to 2022 is limited, with 1.7% of the total population moving to a different state, 3.3% moving in Ohio to a different county, and 7.7% moving within a county. Individuals with geographic mobility tend to be in the 25 to 34 age group, below the average age in Ohio, 40 years old in 2022, although this varies by county. **Figure 2.10** shows population change across the state between 1990 and 2020.

Between 2010 and 2020, Ohio gained approximately 60,000 (net) new residents through domestic and international migration, as shown in **Table 2.3**. This was the first decade since the 1950s that Ohio experienced net positive migration.

Due to the decreasing natural change in population based on projected birth and death trends, Ohio’s net migration will be a key factor in determining the state’s population growth in the coming years.

TABLE 2.3—INTERCENSAL NATURAL CHANGE AND MIGRATION

| US Census—Ohio | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
|--------------------------|-----------|------------|------------|------------|------------|------------|------------|
| Total Population | 9,707,136 | 10,657,423 | 10,797,604 | 10,847,115 | 11,353,140 | 11,536,504 | 11,799,448 |
| Population Change | 1,760,509 | 950,287 | 140,181 | 49,511 | 506,025 | 183,364 | 262,944 |
| Natural Change | 1,441,674 | 1,060,945 | 692,104 | 637,822 | 532,055 | 413,011 | 202,128 |
| Net Migration | 318,835 | -110,658 | -551,923 | -588,311 | -26,030 | -229,647 | 60,816 |

Source: US Census Bureau, Intercensal Estimates of the Resident Population for Counties of Ohio

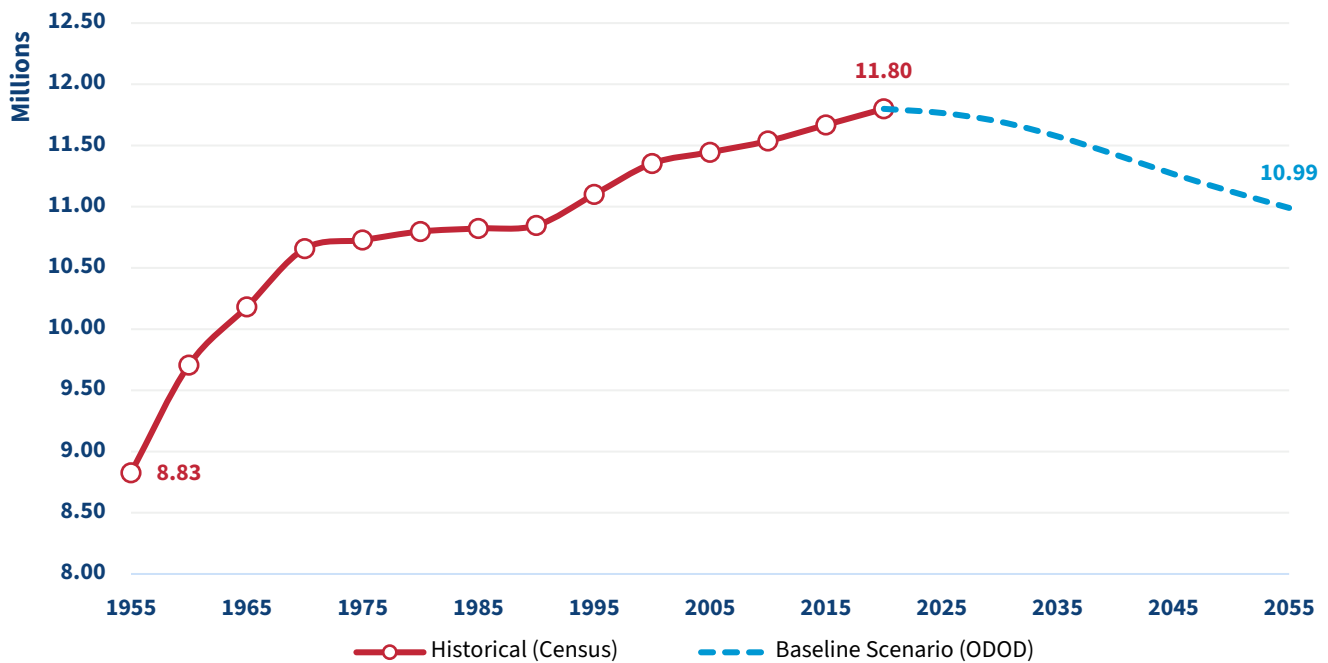


Baseline Population Scenario

Ohio’s historical and projected population allows for comparisons over time and signals decline or acute changes in the population. In spring 2023, ODOD conducted an exercise to extend the official projection, described as the baseline through 2050, out another five years to 2055. Should current trends continue, Ohio is anticipated to be within the initial stage of gradual statewide population loss due to an aging population, declining fertility, and stagnant migration patterns, as represented in **Figure 2.12**. In this projection, Ohio’s population is anticipated to decline by approximately 810,000 residents, 6.9%, by 2055.

In the baseline scenario, Ohio’s population is forecast to decrease by 810,000 residents by 2055.

FIGURE 2.12—STATEWIDE HISTORICAL AND PROJECTED POPULATION, BASELINE SCENARIO



Source: US Census, Ohio Department of Development (2023)



This population projection is not uniform across Ohio. Central and Southwest Ohio are the only areas with population growth, while other regions are projected to lose population, as presented in **Table 2.4**. Based on the projected percent population change by county from 2020 to 2055, counties projected to have the most significant population growth are urban and urban fringe counties in Central and Southwest Ohio, including:

- Licking, Delaware, Fairfield, Union, and Warren counties are projected to grow by more than 15%.
- Clermont, Franklin, Pickaway, Miami, and Geauga counties are projected to grow between 5% and 15%.
- Green, Hamilton, Wood, and Lorain counties are projected to grow by less than 5%.

The state’s 74 other counties are projected to lose population, ranging from less than a 1% decline in Knox County to nearly a 36% decline in Morgan County. **Figure 2.13** shows the projected baseline population change from 2020 to 2055.

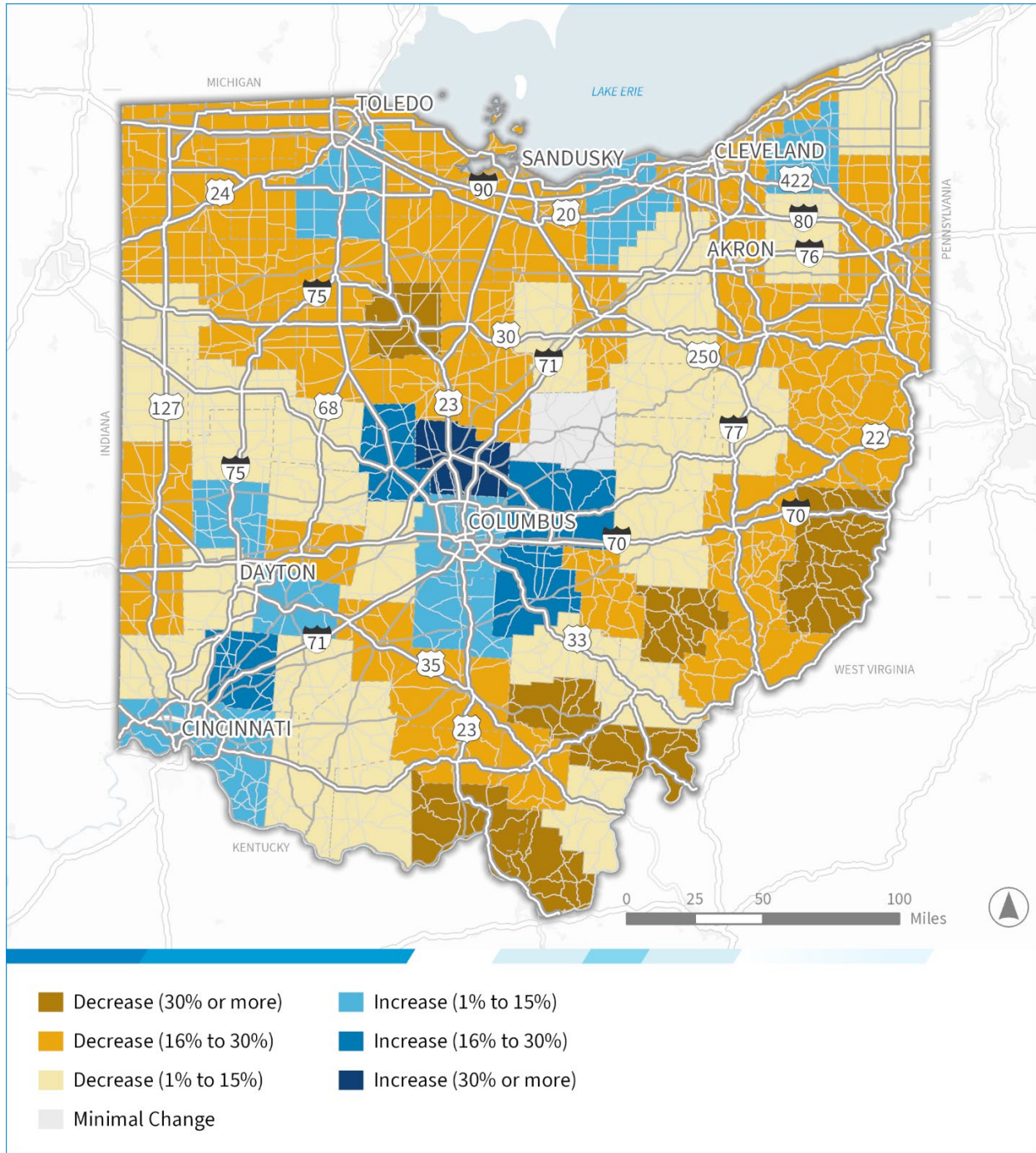
TABLE 2.4—POPULATION CHANGE BY REGION, BASELINE SCENARIO

| JobsOhio Region | 2020 to 2025 | 2025-2035 | 2035-2045 | 2045-2055 | Total Change | Average Annual Change |
|------------------------|---------------------|------------------|------------------|------------------|---------------------|------------------------------|
| Ohio | -0.29% | -1.63% | -2.65% | -2.46% | -6.86% | -0.20% |
| Central | 3.49% | 5.28% | 3.68% | 3.38% | 16.78% | 0.44% |
| East | -3.05% | -7.20% | -7.99% | -7.47% | -23.41% | -0.76% |
| Northeast | -1.39% | -4.02% | -5.53% | -5.36% | -15.38% | -0.48% |
| Northwest | -2.06% | -5.46% | -6.64% | -6.51% | -19.91% | -0.61% |
| Southeast | -2.61% | -6.23% | -6.75% | -6.44% | -20.32% | -0.65% |
| Southwest | 1.15% | 1.85% | 0.96% | 0.61% | 4.65% | 0.13% |
| West | -0.78% | -2.34% | -3.09% | -2.86% | -8.78% | -0.26% |

Source: Ohio Department of Development Population Projections, 2023



FIGURE 2.13—BASELINE POPULATION GROWTH SCENARIO BY COUNTY, 2020-2055



Source: Ohio Department of Development Population Projections, 2023



Alternative Scenarios

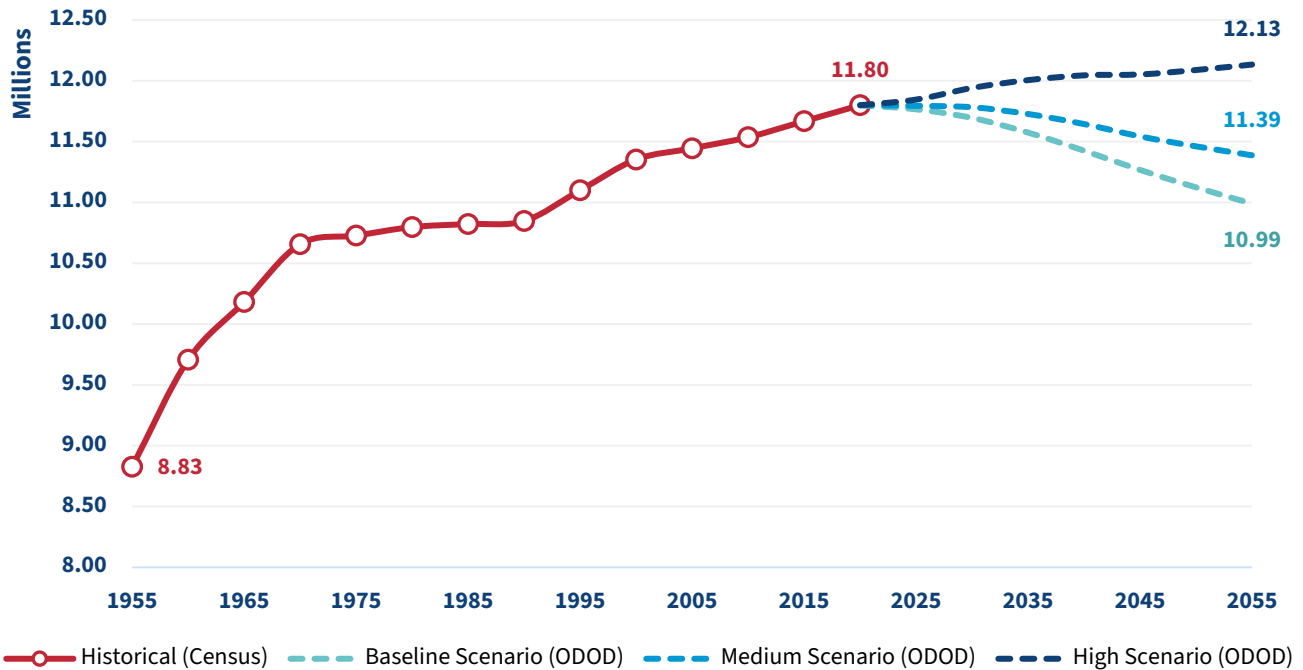
Ohio's net migration will be the key factor in determining the state's population growth trends. Several factors could contribute to higher-than-expected migration into Ohio. These include:

- **Economic Revitalization and Job Opportunities:** If Ohio's economy experiences significant growth, especially in emerging sectors like technology, healthcare, and energy, it could attract new workforce from neighboring states, the rest of the United States, and the world. Economic incentives for businesses, investment in high-growth industries, and the presence of research and development hubs could create appealing job prospects that draw people to Ohio.
- **Proximity to Markets:** With access to several interstates across its geography, Ohio is within a one-day drive of 60% of the US and Canadian populations. Shippers, carriers, manufacturers, and producers from multiple sectors can rely on Ohio's transportation network for access to several major US and Canadian markets. This favorable proximity reduces dependency on long, complex supply chains vulnerable to international conflicts, weather events, supply chain shocks, and other disruptions.
- **Affordable Housing and Cost of Living:** Ohio is known for its low cost of living and affordable housing compared to other states. If this affordability is maintained or improved, it could attract individuals and families seeking a higher quality of life without the financial burdens associated with more expensive regions. This is particularly appealing in a post-pandemic world where remote work has become more prevalent, allowing people to choose where they live based on factors other than proximity to employment. However, listening session participants questioned the supply of affordable housing, and participants across Ohio indicated insufficient housing stock lags behind community needs.
- **Environmental-Related Migration:** Certain regions in the US and globally are becoming increasingly vulnerable to extreme weather events, sea-level rise, and other environmental stressors. With its temperate climate and lower risk of natural disasters compared to coastal regions or those prone to droughts and wildfires, Ohio could become an attractive location for those looking to avoid extreme weather conditions. People and businesses looking to relocate to areas with less climate-related risk might consider Ohio a viable option.

ODOD's analysis considers several alternative population scenarios based on these factors and general future uncertainty, shown in **Figure 2.14**. They are a powerful tool for quantifying the impacts of future uncertainty and informed the analysis of existing and future travel demand and risk of congestion presented in **Chapter 3**.



FIGURE 2.14—STATEWIDE HISTORICAL AND PROJECTED POPULATION SCENARIOS



Source: US Census, Ohio Department of Development (2023)

Medium Growth Scenario: Much like the baseline scenario, projected growth is mostly limited to the urban/suburban areas within Central and Southwest Ohio, with some growth in the suburbs of Toledo, Wood County, in Northwest Ohio and Cleveland, Lorain, Geauga, and Medina counties, in Northeast Ohio. Five counties shift from population declines or stagnant growth in the baseline to growth in this scenario, including Highland, Butler, Mercer, Knox, and Medina counties. The remaining 69 counties are projected to lose population, ranging from 2% in Madison County to 34% in Morgan County. The largest population loss occurs in Northeast Ohio, a loss of 454,000 residents, while the largest relative loss is in East Ohio (-21%). **Figure 2.15** shows the population change for the medium growth scenario by county.

High Growth Scenario: Projected growth areas are similar to the medium growth scenario, with the addition of Madison and Holmes counties. In Central Ohio, growth ranges from 81% in Delaware County to 33% in Licking County, with Franklin County projected to grow by 22% to 1.6 million. The remaining 67 counties are projected to lose population, ranging from less than 1% in Wayne County to 30% in Morgan County. **Figure 2.16** shows population change for the high growth scenario by county.

Table 2.5 shows the total and annual change for the three population scenarios. The medium growth scenario nearly reduces the baseline population decrease in half, a 411,000 resident decrease, while the high growth scenario eliminates the decrease and shows an increase of 334,000 residents. Population growth is projected in Central and Southwest Ohio for all three scenarios. Statewide growth is forecasted only in the high growth scenario, with an average annual growth of 0.08% compared to a 0.20% decrease in the baseline scenario. All remaining regions forecast population loss, but that loss is nearly 10% less in the high growth scenario compared to the baseline scenario. For areas like East Ohio, this is the difference between losing approximately 97,000 residents in the high growth scenario versus 147,000 residents in the baseline.

The medium growth scenario nearly reduces the baseline population decrease in half, a 411,000 resident decrease, while the high growth scenario eliminates the decrease and increases Ohio population by 334,000 residents.

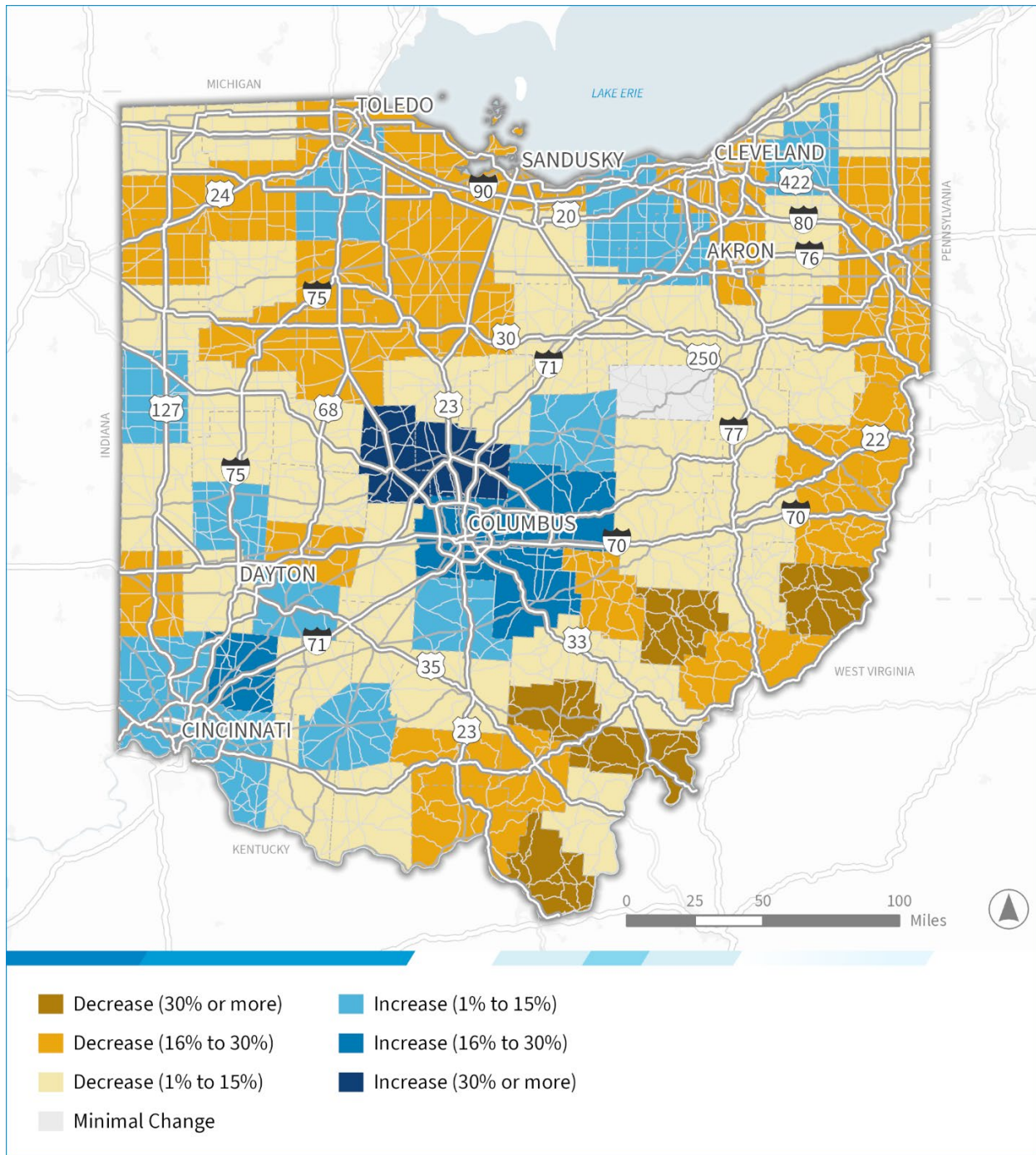
TABLE 2.5—POPULATION CHANGE SCENARIOS BY REGION

| JobsOhio Region | Total Change | Avg. Annual Change | Total Change | Avg. Annual Change | Total Change | Avg. Annual Change |
|------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|
| Scenarios | Baseline | | Medium | | High | |
| Ohio | -6.86% | -0.20% | -3.49% | -0.10% | 2.83% | 0.08% |
| Central | 16.78% | 0.44% | 21.00% | 0.55% | 28.93% | 0.73% |
| East | -23.41% | -0.76% | -20.64% | -0.66% | -15.44% | -0.48% |
| Northeast | -15.38% | -0.48% | -12.32% | -0.38% | -6.58% | -0.19% |
| Northwest | -19.19% | -0.61% | -16.26% | -0.51% | -10.78% | -0.33% |
| Southeast | -20.32% | -0.65% | -17.44% | -0.55% | -12.03% | -0.37% |
| Southwest | 4.65% | 0.13% | 8.43% | 0.23% | 15.54% | 0.41% |
| West | -8.78% | -0.26% | -5.48% | -0.16% | 0.71% | 0.02% |

Source: Ohio Department of Development Population Projections, 2023



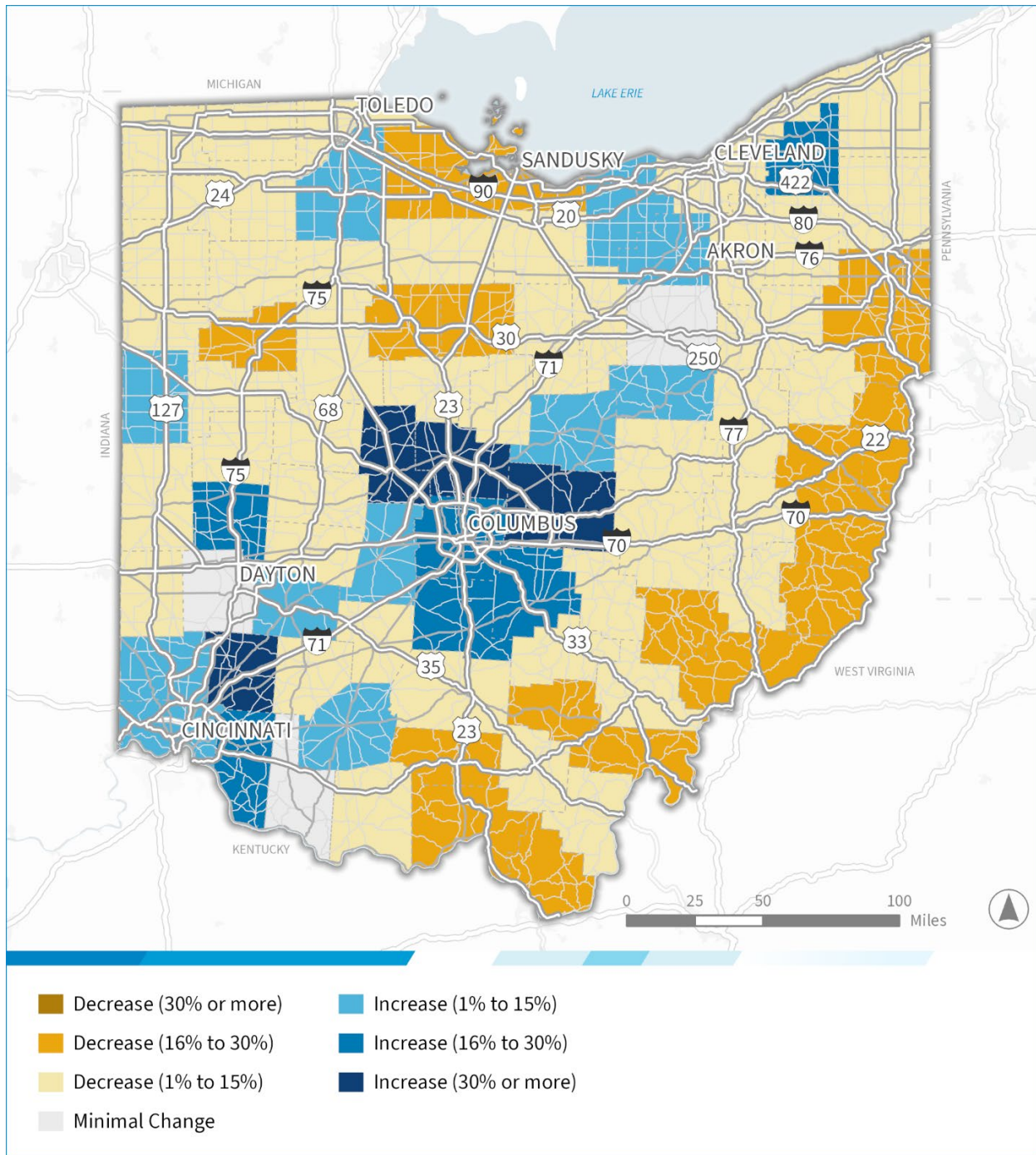
FIGURE 2.15—MEDIUM POPULATION GROWTH SCENARIO BY COUNTY, 2020–2055



Source: Ohio Department of Development Population Projections, 2023



FIGURE 2.16—HIGH POPULATION GROWTH SCENARIO BY COUNTY, 2020–2055



Source: Ohio Department of Development Population Projections, 2023



ECONOMICS

Introduction

Understanding economic trends in Ohio provides critical insights supporting the comprehensive assessment of the state's transportation system. The analysis in this section of **Chapter 2** highlights historical, current, and projected economic trends within the state and their impacts on the transportation system.

Key Findings

- Ohio's economy is dominated by the following broad industry categories: education and health services, professional and business services, leisure and hospitality, and manufacturing. In the last decade, trade, transportation and utilities, professional and business services, and construction have contributed the greatest increases in employment.
- Each region has a unique economy and employment drivers. Central Ohio has a high concentration of professional and business services and jobs in financial activities. East Ohio has a high concentration of education and health services employment. Northeast Ohio's distribution of jobs across industries aligns with state averages. Northwest Ohio has a greater share of manufacturing jobs. Southeast Ohio has a greater concentration of education and health services, government, trade, transportation and utilities, and natural resources and mining jobs. Southwest Ohio has a higher share of professional and business services jobs. West Ohio is closely aligned with the rest of the state, focusing uniquely on subsectors such as aerospace and aviation.
- JobsOhio has identified 11 sectors intentionally focusing on growth: advanced manufacturing, advanced mobility, aerospace and aviation, automotive, energy and chemicals, financial services, food and agribusiness, healthcare, logistics and distribution, military and federal, and technology. Each of these sectors is already more concentrated in Ohio than the national average, with automotive, logistics and distribution, and advanced manufacturing standing out.
- In the last decade, Ohio's freight-dependent industries grew by 8% in employment, growing faster than total employment in the state, and are concentrated at twice the nation's rate. Many of the industries that are growing the fastest in Ohio are transportation dependent. This includes trade, transportation and utilities, and construction for broad industry categories. Among the industries that JobsOhio targets, logistics and distribution, food and agribusiness, and energy and chemicals are freight dependent.



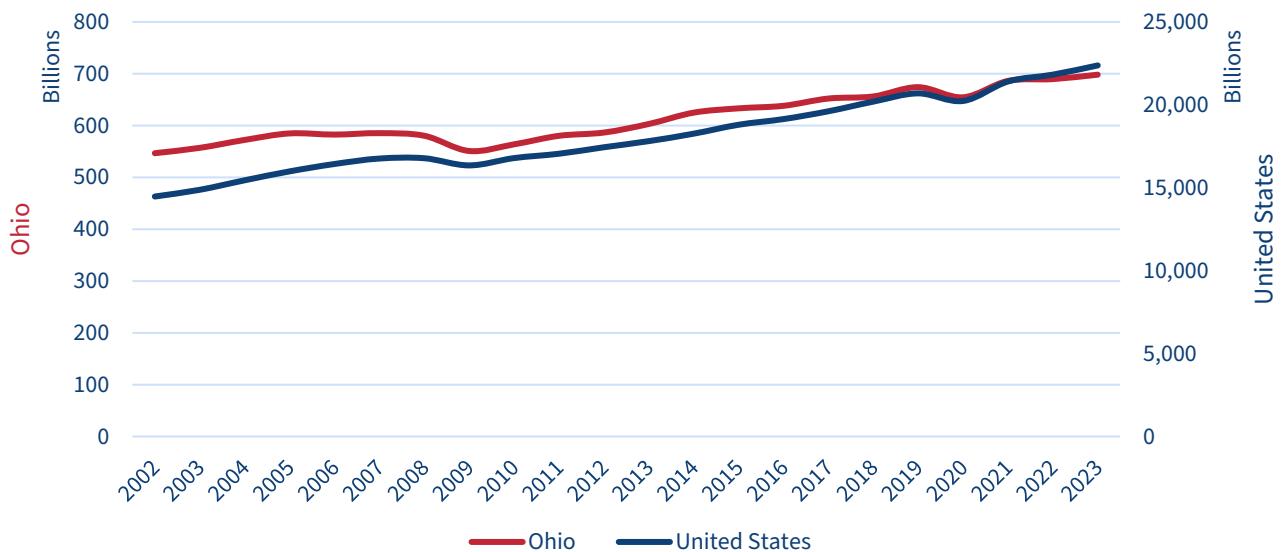
Economic Overview

Ohio’s economy and transportation system are closely connected. Ohio is sixth in the nation in freight volume with nearly 1.4 billion tons moved to and from Ohio annually. A safe and efficient transportation system is vital to the state’s current and future economy. Ohio’s multimodal transportation system, including its highways, rail corridors, airports, transit systems, and ports, is critical to supporting the industries, particularly manufacturing, that drive the state’s economy. The following key statistical indicators characterize Ohio’s economic centers and markets.

Ohio has the 7th largest economy in the nation, based on total Gross Domestic Product.

Gross Domestic Product (GDP) is the total value of goods and services produced, including consumer spending; private investment in fixed assets such as land and buildings; and government spending, including infrastructure and net exports. In 2023, Ohio’s GDP was \$698.2 billion in chained 2017 dollars, the seventh highest in the nation. This was a 1.2% increase over 2022; higher than the Great Lakes Region GDP, which grew by 1.5%, while lower than the national total, which grew by 2.5%. Following a 2.9% decline in GDP in 2020, Ohio’s GDP has grown by 6.7% over the last three years. Over the past two decades, Ohio’s GDP grew by 3% or less annually, shown in **Figure 2.17**. This culminated in the state’s GDP increase by over a quarter between 2002 and 2023. For most of this period, Ohio’s GDP grew slightly slower than the nation’s, which increased 54%. During periods of economic contraction over the past two decades, Ohio’s GDP decreased more than the national GDP.

FIGURE 2.17—GROSS DOMESTIC PRODUCT, 2002–2022

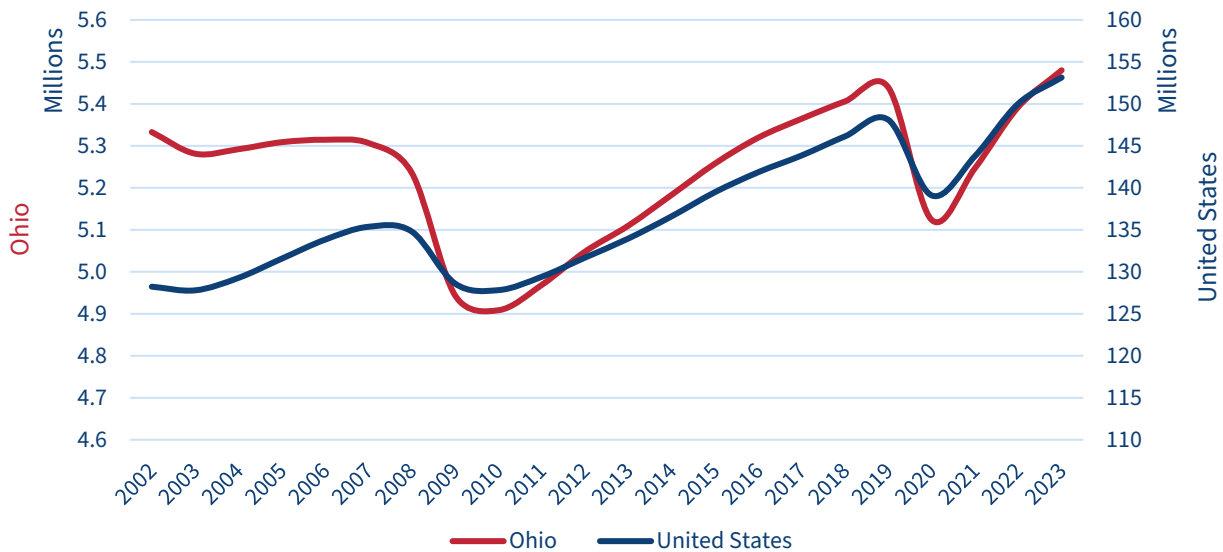


Source: Bureau of Economic Analysis (BEA), Chained 2017 Dollars



Employment is the most direct measure of a job market. From 2002 to 2023, employment increased in Ohio by 11%, shown in **Figure 2.18**, while total employment in the US grew by 16%. During economic downturns, Ohio’s employment was more sharply impacted and took longer to recover. According to the BLS, total nonagricultural employment in Ohio has increased from 5.12 million in 2020 to 5.48 million in 2023, while the nation’s total non-farm employment has surpassed its pre-pandemic level. **Figure 2.19** shows the distribution of jobs by work location across Ohio in 2021. Jobs tend to concentrate in urban areas and along major roadway facilities, highlighting the critical importance of the transportation system in connecting workers to jobs.

FIGURE 2.18—TOTAL EMPLOYMENT, 2002–2022

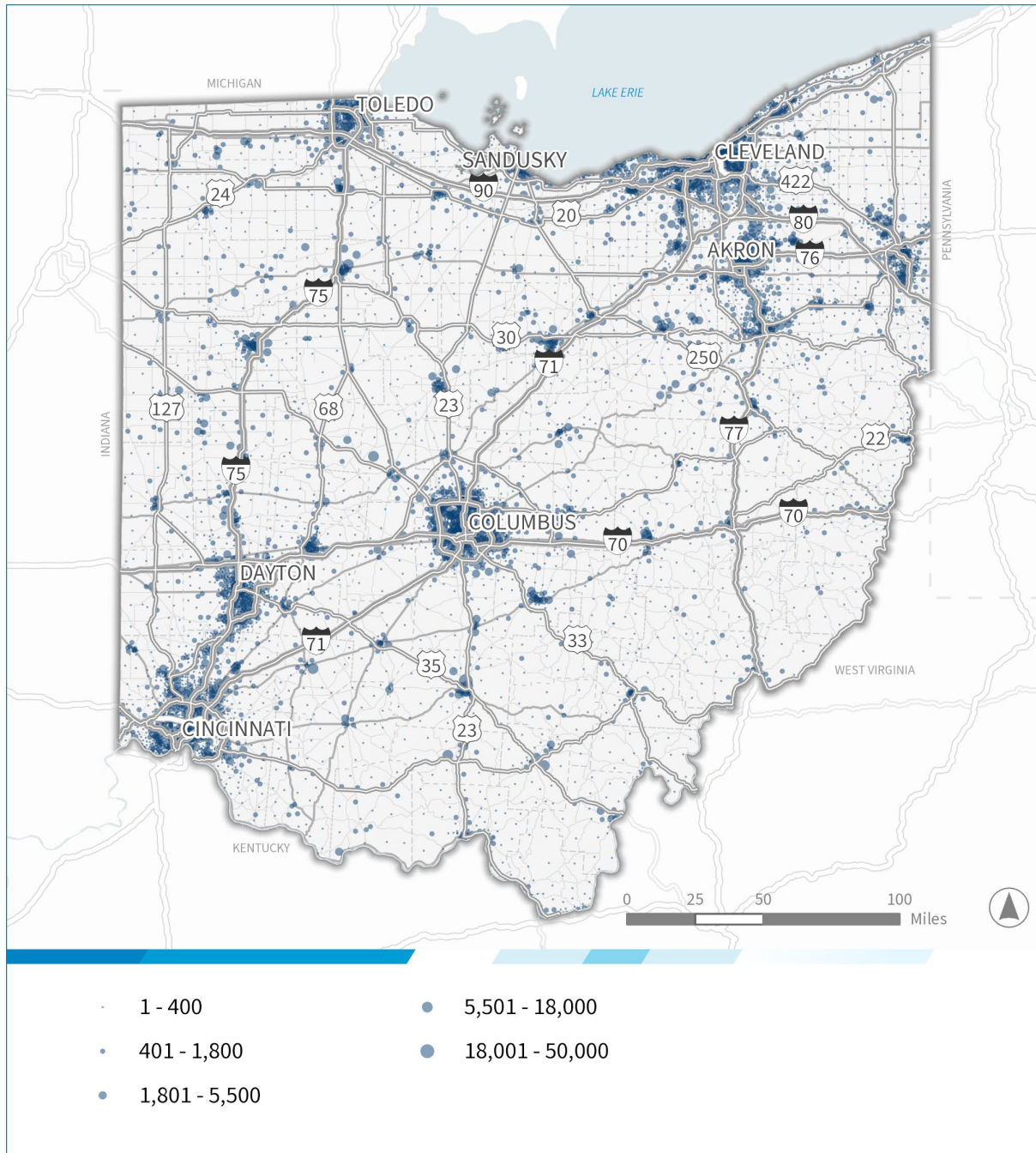


Source: US BLS, Quarterly Census of Employment and Wages (QCEW)

Between 2003 and 2011, Ohio’s unemployment rate, shown in **Figure 2.20**, was higher than the nation’s. During the following decade, Ohio and national unemployment rates showed similar trends and were nearly aligned from 2019 through 2021. The annual unemployment rate in 2023, as estimated by BLS but not shown in **Figure 2.20**, was 3.5%, representing the lowest yearly rate within Ohio over the prior two decades and a more than 50% decrease from the 2020 average unemployment rate of over 8%.



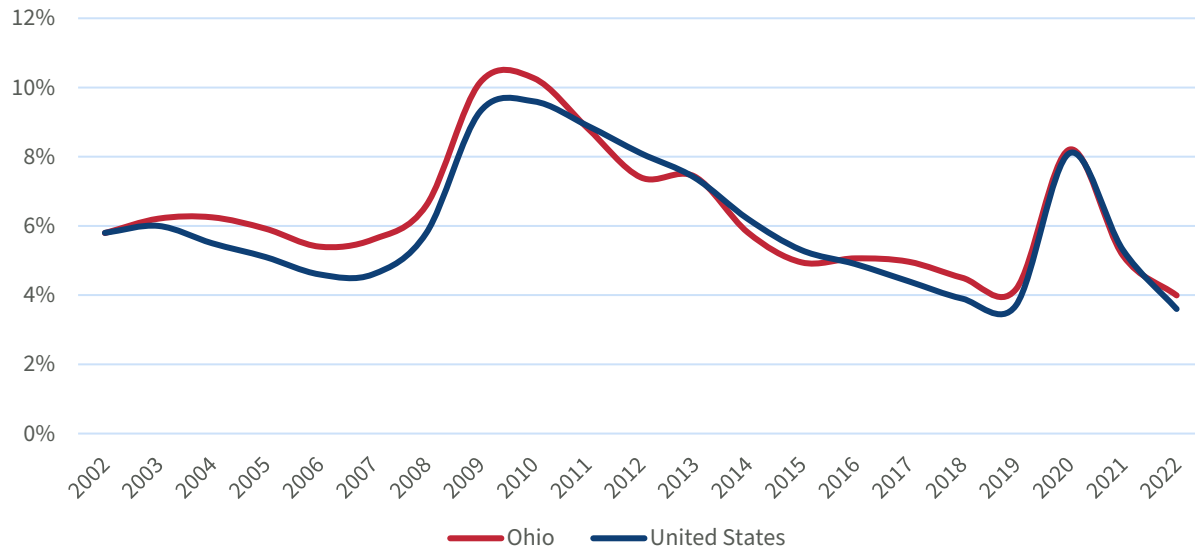
FIGURE 2.19—TOTAL JOBS BY WORK LOCATION, 2021



Source: US Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) OnTheMap <https://onthemap.ces.census.gov/>



FIGURE 2.20—TOTAL UNEMPLOYMENT RATE, 2002–2022

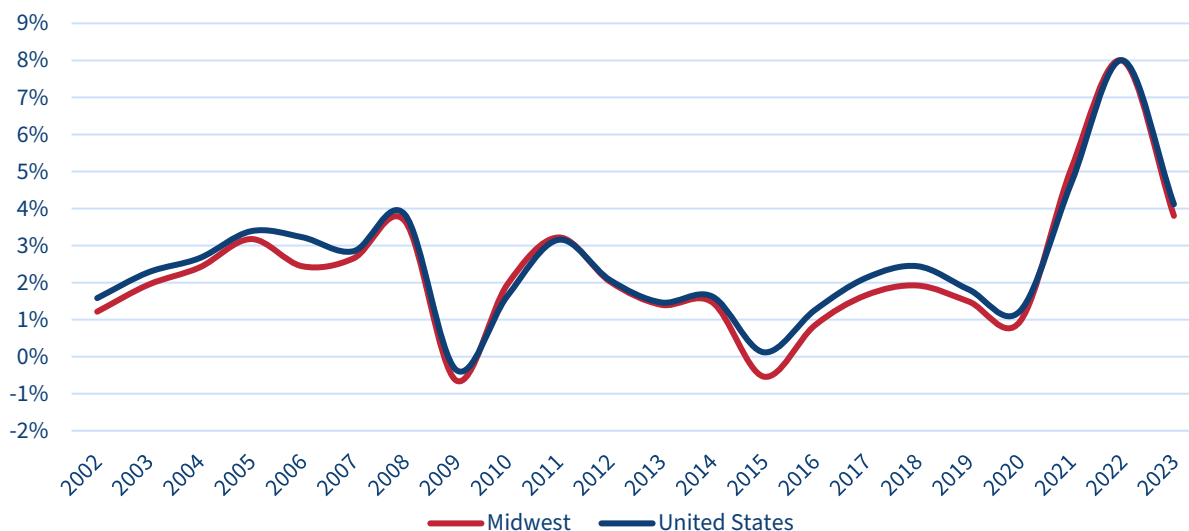


Source: BLS, Current Population Survey and Local Area Unemployment Statistics

Inflation in the Midwest remained lower than the national rate except for two years: 2010 and 2021, shown in **Figure 2.21**. The impacts of inflation on Ohio’s economy include lost purchasing power for businesses and consumers and higher prices for goods and services. Additionally, during periods of high inflation, central banks may increase interest rates to reduce borrowing and spending. This can contribute to increased costs for transportation infrastructure projects, particularly for materials and labor. Inflation can also impact business expansion or relocation decisions and hinder consumer spending, particularly in tourism-related industries, where such spending is often one of the first household budget items that families or individuals reduce when responding to more challenging economic conditions. Inflation, as measured by the consumer price index, rose as high as 9.5% year-over-year in June 2022; since June 2023, it has decreased back to the long-term trend of around 3%.



FIGURE 2.21—INFLATION RATE, 2002–2023



Source: BLS, Consumer Price Index for All Urban Consumers (CPI-U)

Industry Characteristics

Trade, transportation and utilities, professional and business services, and construction have driven Ohio’s employment growth over the last decade. Construction employment grew more than four times the rate for all industries. Employment in the information and government sectors has declined. Employment by industry in Ohio from 2012 to 2022 is shown in **Figure 2.22** and the growth for each industry is displayed in **Figure 2.23**.

Location quotients measure the concentration of an industry in a region compared with a larger geographic unit. Location quotients for Ohio are shown in **Figure 2.25**. A value of one indicates that Ohio has the same share of employment as the national average. Values greater than one indicate a greater share of employment, while values less than one indicate a smaller share of employment. For example, a location quotient of 0.35 in natural resources and mining means that Ohio has a smaller share of jobs in this sector than the national average.

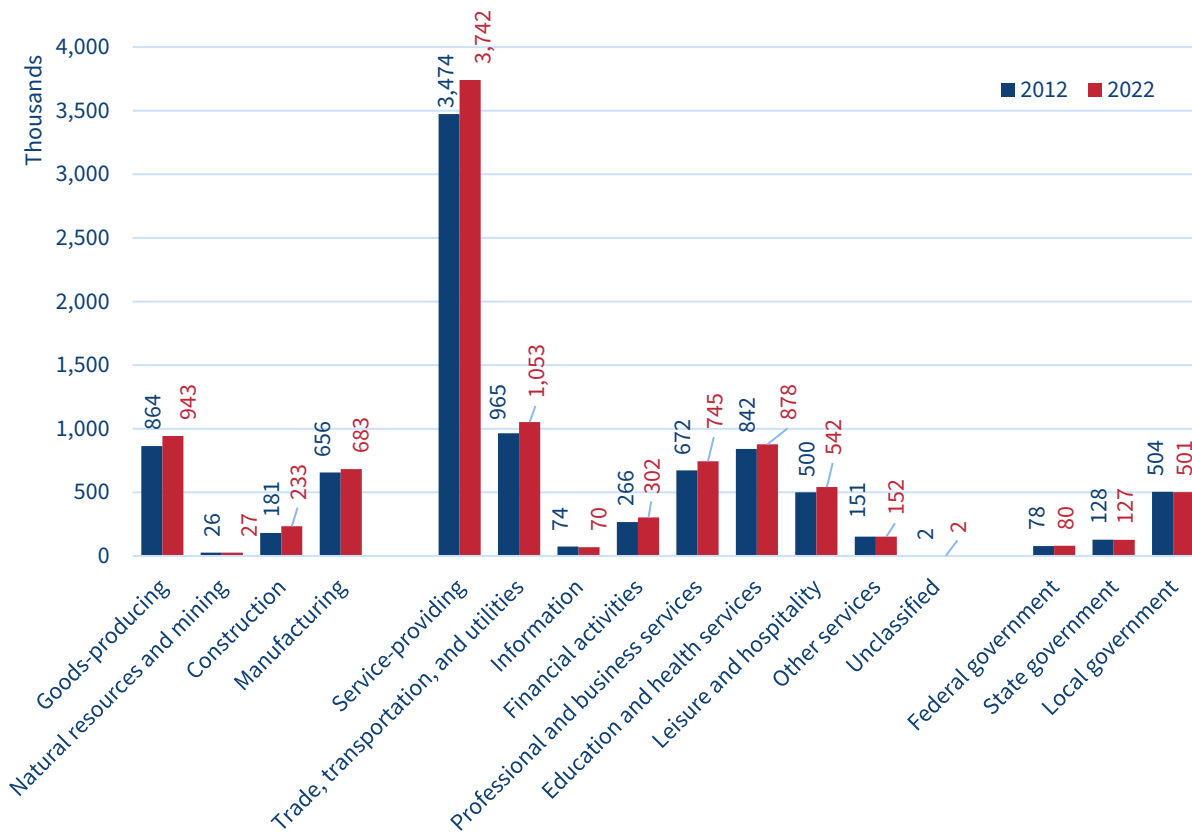
Employment in manufacturing has increased at a slower rate, by 4%, than all industries combined, by 7%, shown in **Figure 2.24**. Manufacturing employment still has the highest location quotient among all industries in Ohio, and it increased between 2012 and 2022, shown in **Figure 2.25**. This indicates that manufacturing is more concentrated in Ohio than in the rest of the nation.

While manufacturing employment is increasing more slowly than other industries in the state, it continues to grow faster than the nation. While education and health services had a high location quotient in 2012, it declined to 1.05 in 2022. Except for manufacturing, trade, transportation and utilities, and education and health services, there is no other sector with a higher concentration of jobs when compared with the nation.



Figure 2.26 highlights the share of private sector GDP and employment by industry. Shares between the two are similar for several industries. However, about a third of the industries show marked differences between their contribution to jobs and GDP. For example, financial activities contributed 10% of jobs but 22% of GDP; this partially represents the higher salaries paid to employees in this industry. Conversely, education and health services represented 14% of jobs but only 9% of the GDP. The same pattern is found for leisure and hospitality, contributing 9% of jobs but only 4% of GDP. Education and health services jobs often pay lower wages and salaries yet are essential to the economy.

FIGURE 2.22—EMPLOYMENT BY INDUSTRY

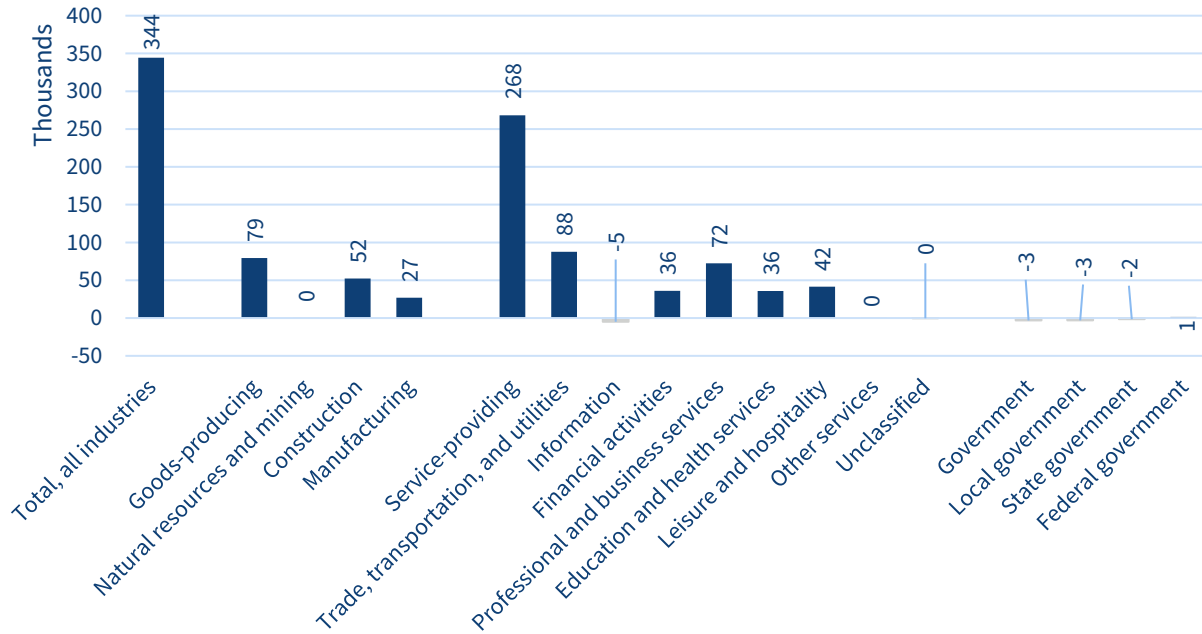


Source: BLS, QCEW

Note: Private sector estimates are reported for goods-producing to unclassified. Public sector estimates are reported in federal, state, and local government categories.

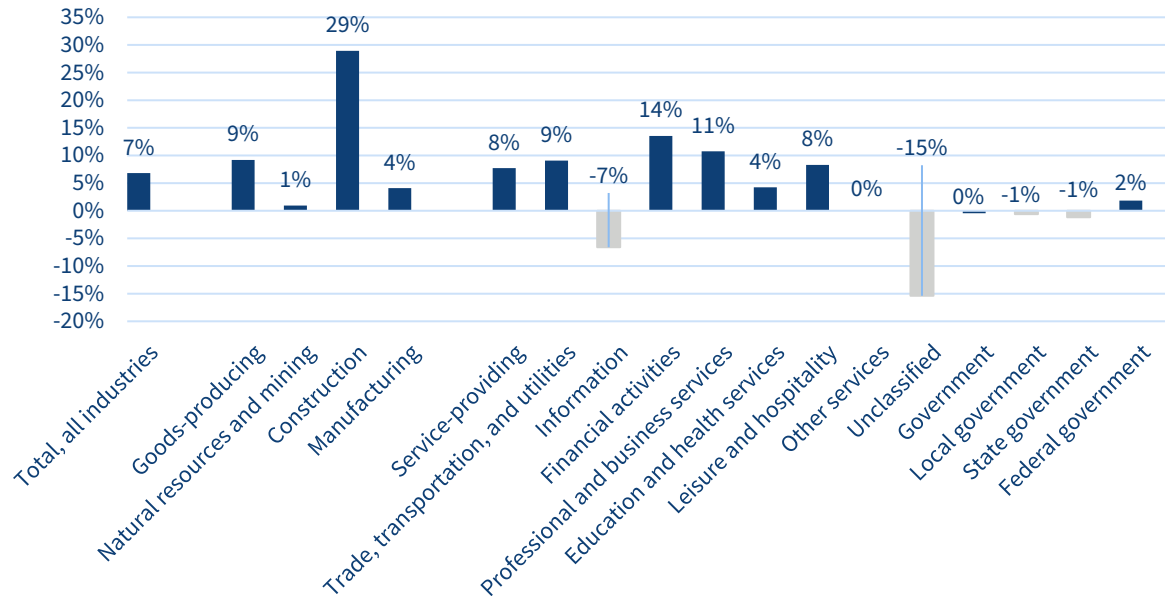


FIGURE 2.23 — EMPLOYMENT GROWTH BY INDUSTRY, 2012–2022



Source: BLS, QCEW

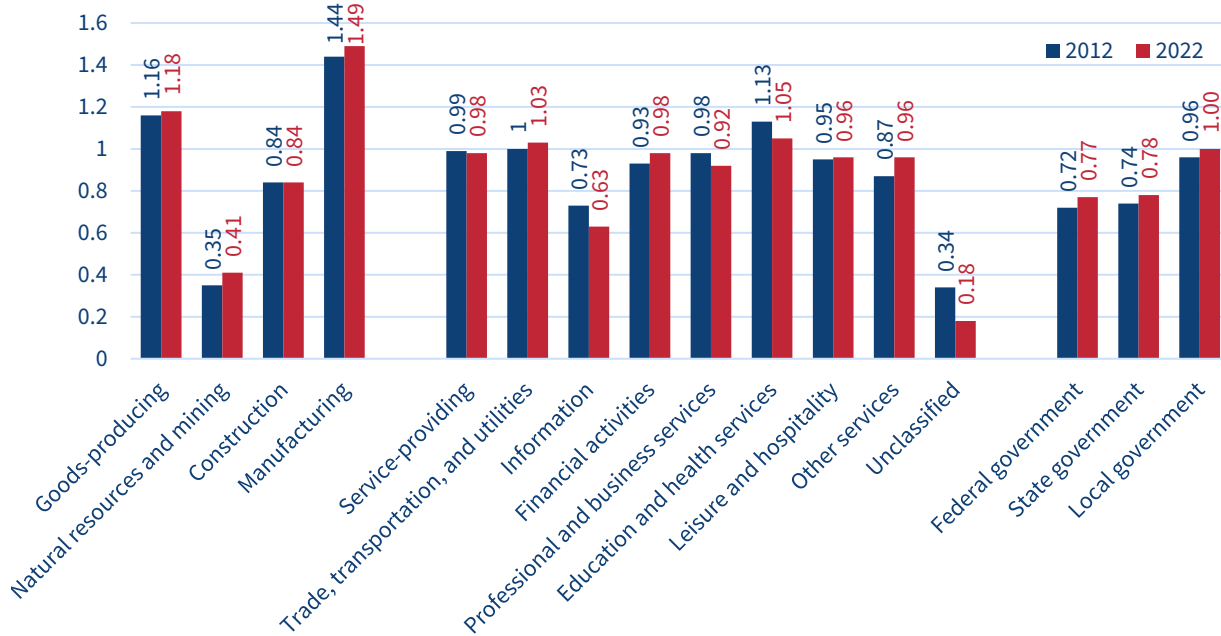
FIGURE 2.24 — EMPLOYMENT GROWTH RATE BY INDUSTRY, 2012–2022



Source: BLS, QCEW

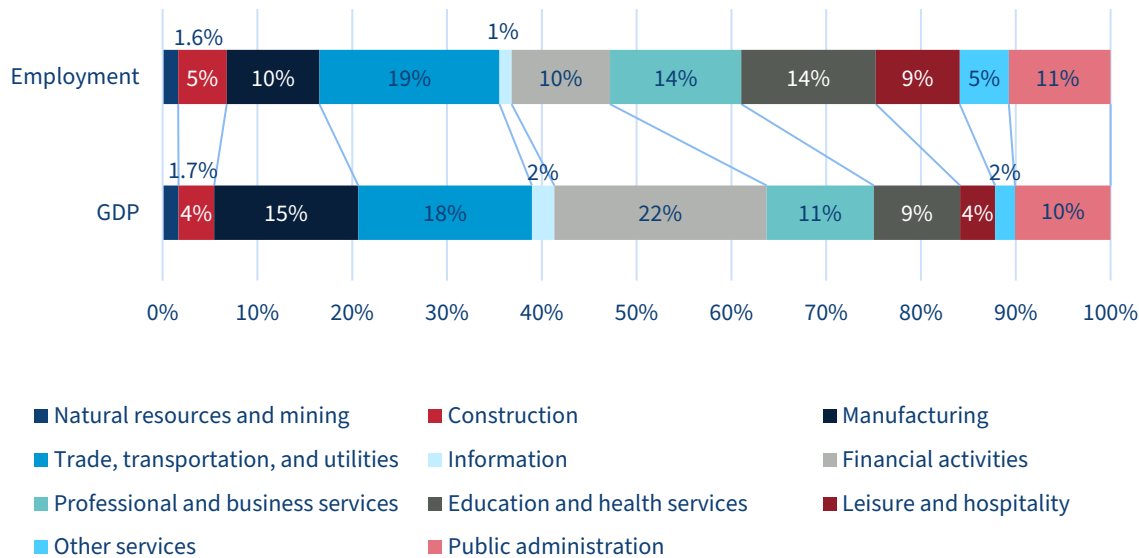


FIGURE 2.25 — LOCATION QUOTIENT BY INDUSTRY SECTOR



Source: BLS, QCEW

FIGURE 2.26—SHARE OF EMPLOYMENT AND GDP BY INDUSTRY, 2022



Source: BEA



Ohio’s largest employers provide a diverse array of products and services. Among the 100 largest employers in the state, the most common industry sectors are retail with 28 employers, health with 19 employers, and manufacturing with 19 employers. The largest employer, Cleveland Clinic, attracts patients from across the nation and around the globe. Cleveland Clinic employs over 58,000 people throughout Ohio. The largest manufacturing employer is Honda Development and Manufacturing of America, employing 14,000 people. The second and third largest manufacturing employers are Whirlpool and Proctor & Gamble; each has 11,000 employees. The largest employer at a single site is Wright-Patterson Air Force Base in Dayton; it employs nearly 34,000 workers. The financial service sector is also found among the top 10 employers in the state. JPMorgan Chase employs over 20,000 workers. **Table 2.6** lists Ohio’s top 10 employers.

TABLE 2.6—OHIO’S LARGEST EMPLOYERS, 2022

| Company | Ohio Employment Headcount | Headquarters Location | Sector |
|---|---------------------------|-----------------------|-----------------------------|
| Cleveland Clinic Foundation | 58,433 | Cleveland, OH | Health |
| Wal-Mart Stores, Inc. | 56,108 | Bentonville, AR | Retail: General Merchandise |
| Amazon.com, Inc. | 45,000 | Seattle, WA | Retail: General Merchandise |
| Kroger Co. | 42,926 | Cincinnati, OH | Retail: Food Stores |
| Ohio State University and Medical Center | 37,863 | Columbus, OH | Education and Health |
| OhioHealth | 35,000 | Columbus, OH | Health |
| Wright-Patterson Air Force Base | 33,807 | Dayton, OH | Government: Air Force base |
| University Hospitals Health System, Inc. | 31,051 | Shaker Heights, OH | Health |
| Bon Secours Mercy Health | 28,285 | Cincinnati, OH | Health |
| JPMorgan Chase & Co. | 20,228 | New York, NY | Finance: Bank |

Source: Ohio Department of Development, 2022

Ohio’s growth in exports and imports generally follows national trends. Growth was steady except for declines during the Great Recession in 2016 and during the COVID-19 pandemic, shown in **Figure 2.27**. However, Ohio’s pace of growth in exports and imports has fallen behind the nation’s pace. Between 2012 and 2022, while exports in Ohio grew by 16%, they grew by 30% across the nation. Additionally, while imports grew by 30% in Ohio, they grew by 42% for the nation. In turn, Ohio’s trade contribution to the national economy has been declining; while it was around 4% in 2002, two

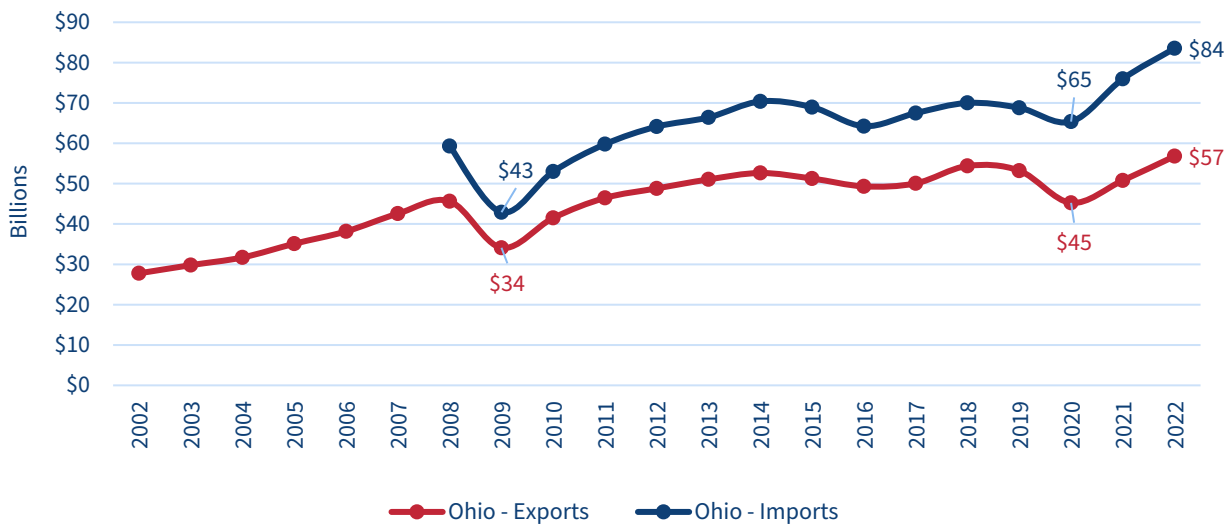
Over the last decade, Ohio’s pace of growth for exports and imports has fallen behind the nation.



decades later, it is hovering around 2.8%. The share of imports has remained flat and, on average, 2.8% during this period. Ohio’s most valuable exports reflect the state’s specialized manufacturing activities: parts for nuclear reactors, machinery, mechanical appliances, vehicles, and aircraft and spacecraft, shown in **Figure 2.28**. International trading partner trends are shown in **Figure 2.29**. Trade with Canada represents 36% of total international value in 2022. Canada and Mexico have been Ohio’s two largest trading partners by value since 2002.

However, the domestic market is significant to Ohio’s economy. The value of the state’s domestic outbound shipments exceeded international shipments by a factor of eight, shown in **Figure 2.30**. When adjusted to 2017 dollars, domestic shipments decreased by 13% between 2002 and 2022, while international shipments increased by 50%. Most domestic shipments have used the same modes over time. The share shipped by pipeline has increased while the share shipped by rail has decreased. Trucking remains the dominant mode for domestic shipping, with nearly 80% of total freight value, demonstrating the critical role of Ohio’s road network in supporting Ohio’s export industries. For international trade, there was a significant increase in shipments by air between 2002 and 2012. In 2022, international shipments were primarily transported by truck, air, and rail (**Figure 2.31**).

FIGURE 2.27—EXPORTS AND IMPORTS, 2002–2022

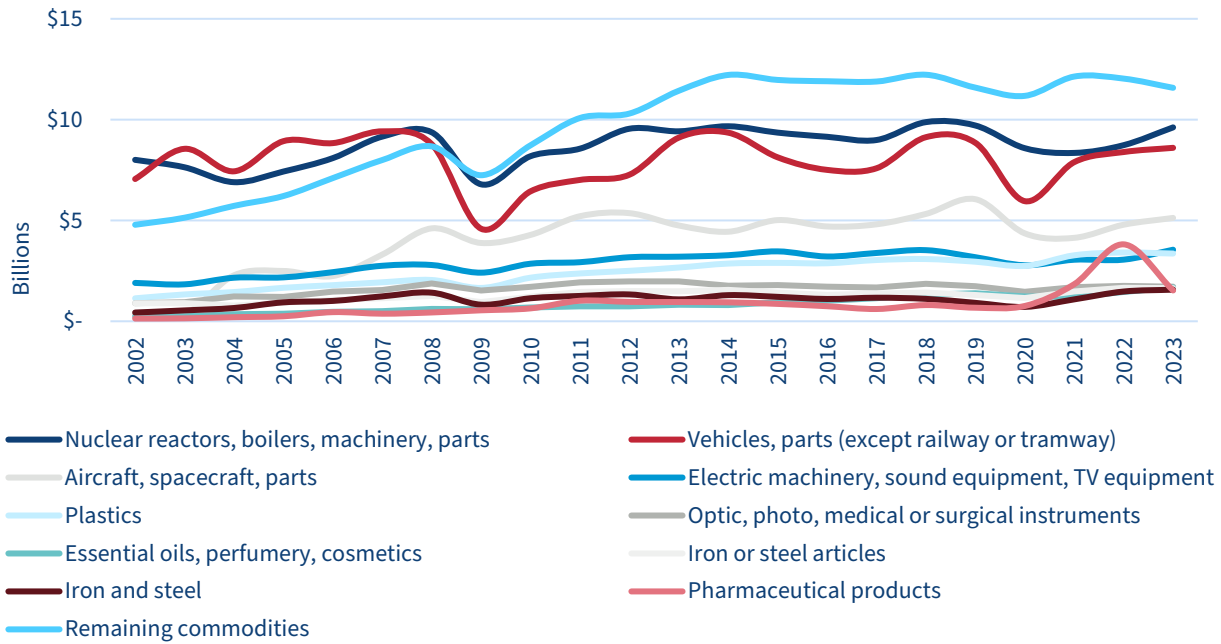


Source: US Census Bureau, Foreign Trade Statistics

Note: Import data not available from Census Foreign Trade Statistics before 2008

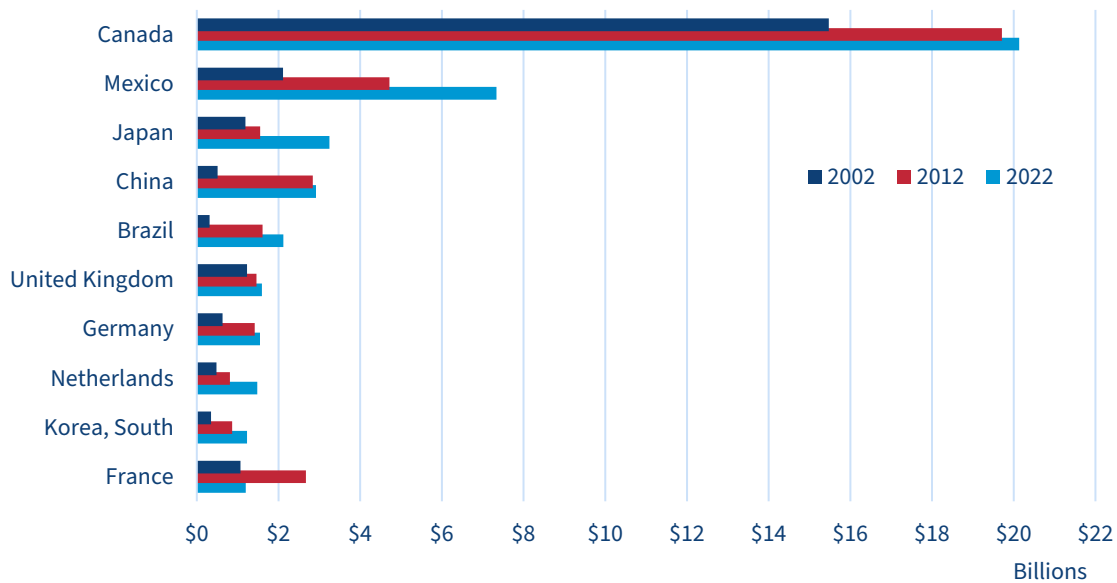


FIGURE 2.28—TOP EXPORTED COMMODITIES BY VALUE, 2002–2023



Source: US Census Bureau, Foreign Trade Statistics

FIGURE 2.29—TOP 10 INTERNATIONAL TRADING PARTNERS BY TOTAL EXPORT VALUE

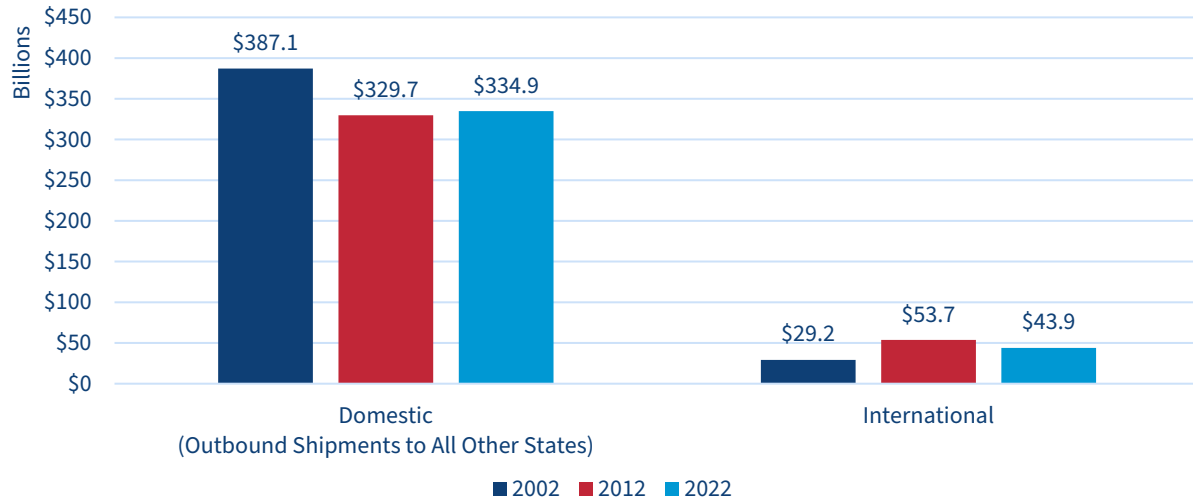


US Census Bureau, Foreign Trade Statistics

Source:

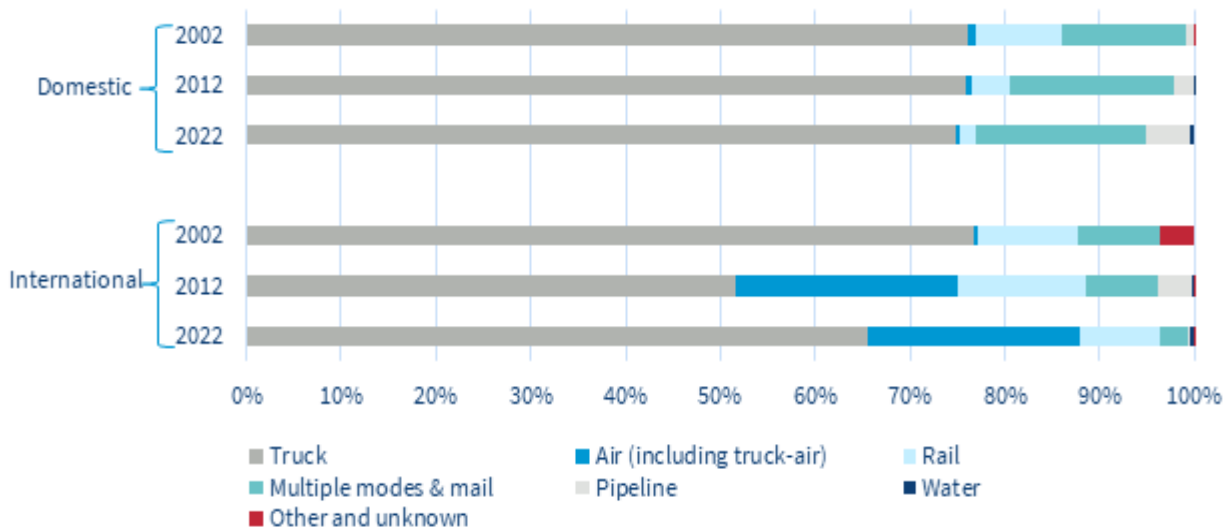


FIGURE 2.30—DOMESTIC AND INTERNATIONAL OUTBOUND SHIPMENTS BY VALUE, 2017 DOLLARS



Source: Oak Ridge National Laboratory (ORNL), National Transportation Research Center (NTRC), Freight Analysis Framework Version 5 (FAF5)

FIGURE 2.31—DOMESTIC AND INTERNATIONAL OUTBOUND SHIPMENT SHARES BY VALUE OF DOMESTIC MODE, 2017 DOLLARS



Source: ORNL, NTRC, FAF5



Target Industries and Employment

JobsOhio, in partnership with the State of Ohio, has identified key industries to advance its economy. These industries include advanced manufacturing including additive manufacturing; advanced mobility, aerospace, and aviation; automotive; energy and chemicals; financial services including insurance technology; food and agribusiness; healthcare including gene therapy; logistics and distribution including cold storage; military and federal including military quality of life; and technology including cybersecurity.

- **Advanced and Additive Manufacturing**—glass, plastic, rubber, semiconductors, electric vehicle batteries, and solar panel manufacturing. Additive manufacturing includes innovations for a broad range of industries.
- **Advanced Mobility**—connected, automated, and electric vehicle testing and demonstration projects such as Smart Columbus, winner of the US Department of Transportation Smart Cities Challenge, and the US33 Smart Mobility, connected vehicles, Corridor in Central Ohio, Uncrewed Traffic Management (UTM) Pilot in West and Central Ohio, UTM research in the Cincinnati/Dayton Workforce Corridor, and automated driving system research in Central, Southeast, West, and East Ohio
- **Aerospace and Aviation**—systems and parts for the aerospace industry, including a mix of government, corporate, and military investments.
- **Automotive**—improvements that make vehicles, batteries, and other components lighter, stronger, longer lasting, and more efficient.
- **Energy and Chemicals**—production and shale-related investment, including natural gas, natural gas liquids, and crude oils.
- **Financial Services**—insurance and financial institutions, including insurance technology.
- **Food and Agribusiness**—food value chain, including raw commodities, commodity processing, food manufacturing, packaging, warehouse and distribution, and consumer-facing retailers like Kroger and Wal-Mart.
- **Healthcare**—bioscience companies, the gene therapy ecosystem.
- **Logistics and Distribution**—foreign trade zones, delivery companies, logistics, cloud service providers, cold storage.
- **Military and Federal**—military and defense industry, from Wright-Patterson Air Force Base to NASA Glenn Research Center, and including military quality of life.
- **Technology**—artificial intelligence, cybersecurity, Big Data, IoT, semiconductors, analytics.

More information about these sectors is available through JobsOhio at [Transforming Industries in Ohio](#).

Between 2012 and 2022, shown in **Table 2.7**, each of these sectors grew in employment, except for advanced manufacturing. Logistics and distribution and food and agribusiness grew at the fastest rates, 17% and 14%, respectively. Energy and chemicals and financial services also outpaced job growth for the state.



TABLE 2.7—EMPLOYMENT BY JOBSOHIO INDUSTRY SECTORS

| Sector | 2012 | 2022 | Growth | Growth (percent) |
|------------------------------|------------------|------------------|----------------|------------------|
| Advanced Manufacturing | 480,459 | 473,789 | -6,670 | -1% |
| Advanced Mobility | 16,124 | 16,948 | 824 | 5% |
| Aerospace and Aviation | 38,518 | 39,663 | 1,145 | 3% |
| Automotive | 117,838 | 119,744 | 1,906 | 2% |
| Energy and Chemicals | 183,034 | 200,189 | 17,155 | 9% |
| Financial Services | 243,335 | 261,564 | 18,229 | 7% |
| Food and Agribusiness | 75,737 | 86,353 | 10,616 | 14% |
| Healthcare | 29,280 | 29,486 | 206 | 1% |
| Logistics and Distribution | 411,412 | 480,674 | 69,262 | 17% |
| Military and Federal | 17,469 | 17,994 | 525 | 3% |
| Technology | 107,457 | 113,690 | 6,233 | 6% |
| Total, All Industries | 5,048,166 | 5,392,612 | 344,446 | 7% |

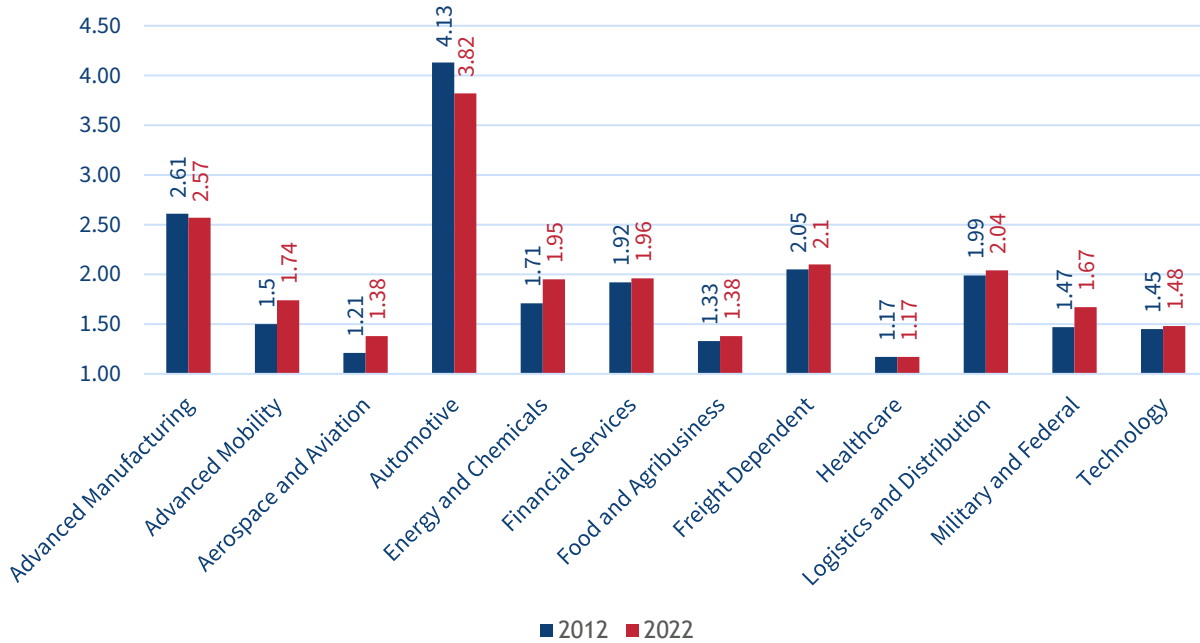
Source: Summary of BLS, QCEW and JobsOhio Sectors

Note: Employment in individual JobsOhio sectors cannot be summed together because certain underlying NAICS codes are assigned to multiple sectors.

The high location quotients in **Figure 2.32** illustrate why JobsOhio is focusing on promoting these sectors. Compared with the nation, these sectors are more concentrated in Ohio and most of them became more concentrated over the last decade. The highest location quotients are in automotive, advanced manufacturing, and logistics and distribution. Sectors with the highest increases include advanced mobility, aerospace and aviation, energy and chemicals, and military and federal.



FIGURE 2.32—JOBSONIO INDUSTRY SECTOR STATEWIDE LOCATION QUOTIENTS



Source: Summary of BLS, QCEW, and JobsOhio Sectors

Note: Employment in JobsOhio sectors cannot be summed together because underlying employment (NAICS) codes are assigned to multiple sectors.

These industries are spread across Ohio and often adjacent to one another to support supply chains and distribution more efficiently. Industry strength is historically associated with some regions of the state. Based on 2022 data, **Table 2.8** identifies the highest location quotient counties for each JobsOhio sector. For example, the top three highest energy and chemical location quotients are all in Southeast Ohio: Gallia, Noble, and Harrison counties.



TABLE 2.8—HIGHEST LOCATION QUOTIENT (LOQ) COUNTIES BY JOBSOHIO INDUSTRY SECTOR

| Sector | Top 3 Counties (by Employment) | Top 3 Counties (by LOQ) | 2022 LOQ | Total Establishments | Total Employment |
|-----------------------------------|--|-------------------------------------|----------|----------------------|------------------|
| Advanced Manufacturing | Cuyahoga Hamilton Franklin | Lake Williams Shelby | 2.57 | 10,027 | 473,789 |
| Advanced Mobility | Hamilton Butler Lake | Lake Hamilton Butler | 1.74 | 149 | 16,948 |
| Aerospace and Aviation | Hamilton Cuyahoga Franklin | Hamilton Lake Warren | 1.38 | 670 | 39,663 |
| Automotive | Cuyahoga Lucas Wood | Champaign Madison Shelby | 3.82 | 1,089 | 119,744 |
| Energy and Chemicals | Franklin Hamilton Cuyahoga | Geauga Paulding Portage | 1.95 | 8,595 | 200,189 |
| Financial Services | Franklin Cuyahoga Hamilton | Delaware Franklin Cuyahoga | 1.96 | 19,761 | 261,564 |
| Food and Agribusiness | Franklin Hamilton Cuyahoga Cuyahoga | Wayne Holmes Mercer Warren | 1.38 | 2,309 | 86,353 |
| Healthcare | Franklin Hamilton | Tuscarawas Lake | 1.17 | 855 | 29,486 |
| Logistics and Distribution | Franklin Cuyahoga Hamilton Hamilton | Madison Wood Butler Lake | 2.04 | 34,462 | 480,674 |
| Military and Federal | Butler Lake | Hamilton Butler | 1.67 | 178 | 17,994 |
| Technology | Cuyahoga Franklin Hamilton | Greene Delaware Warren | 1.48 | 14,536 | 113,690 |
| Total, All Industries | Franklin Cuyahoga Hamilton | | N/A | 328,186 | 5,392,612 |

Source: Summary of BLS, QCEW, and JobsOhio Sectors,

Note: Employment in JobsOhio sectors cannot be summed together because underlying NAICS codes are assigned to multiple



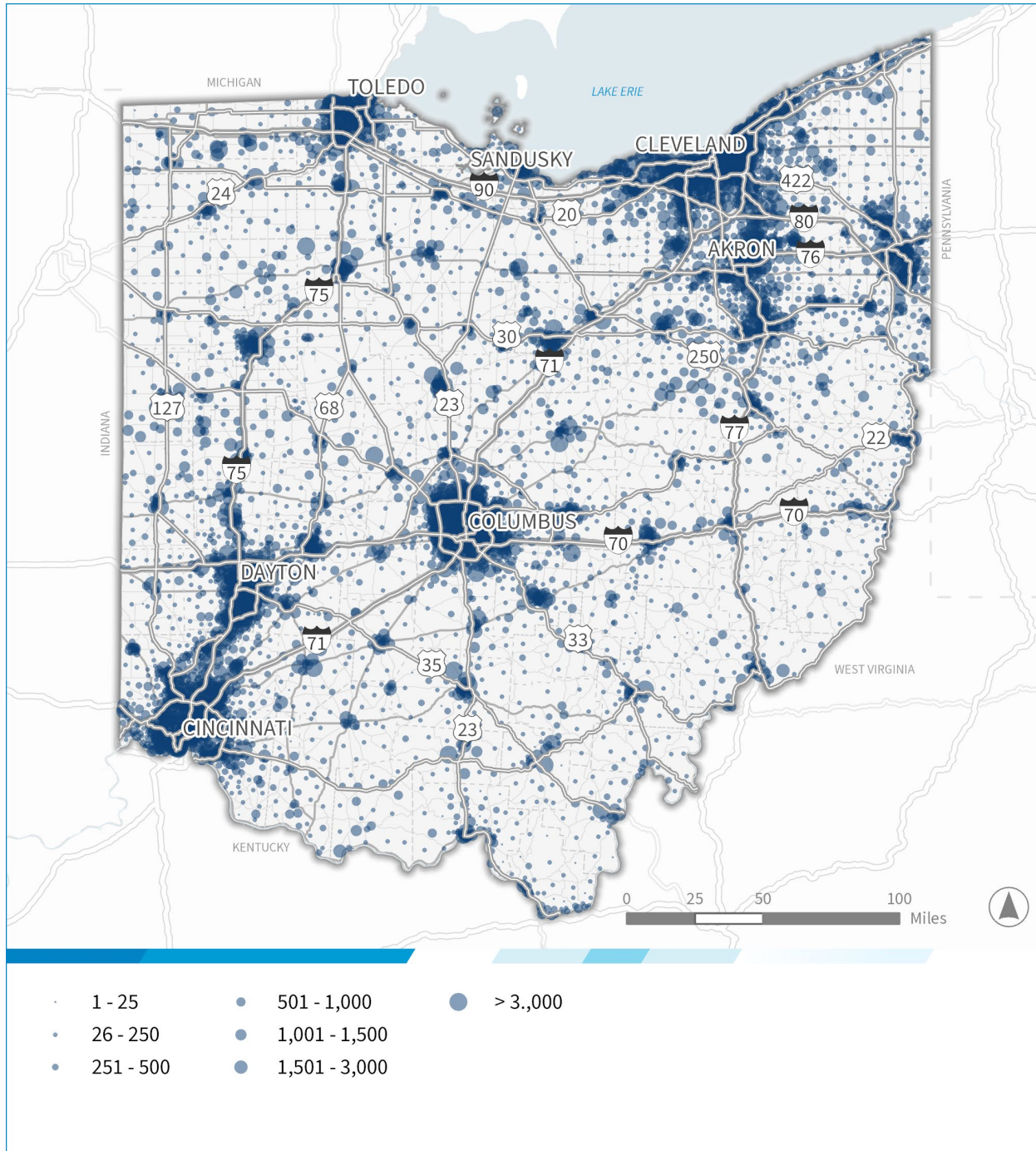
Figure 2.33 shows the general location and magnitude of total employment in these industries across the state based on employment density. Many of these industries were also highlighted as growth sectors during stakeholder engagement activities:

- **Central Ohio**—Participants highlighted manufacturing, including food, automotive—automated, connected, and electric vehicles, battery development—Honda and GM battery plants, and semiconductors—Intel. They also frequently mentioned logistics, warehousing, energy, life sciences, and tech.
- **Northeast and East Ohio**—Manufacturing activities were emphasized, including automotive, batteries, food production, rubbers, semiconductors, chemicals, polymers, metals, adhesives, advanced manufacturing, light industrial metal stamping, and medical devices. Participants also called attention to logistics and distribution, healthcare and medical tech activities, natural resources and extraction, and aerospace (NASA).
- **Northwest Ohio**—Manufacturing was frequently mentioned, including automotive, electric vehicle supply chain, food processing, glass, steel, semiconductors, chemicals, and advanced manufacturing. Participants also noted freight, logistics, and distribution. Aerospace is also a target for growth.
- **Southeast Ohio**—Manufacturing, including chemicals, food, materials, and semiconductors, was often named a key industry for the region. Activities in the energy sector, particularly east of I-77, were highlighted. Participants also cited logistics and distribution activities and healthcare.
- **Southwest Ohio**—Participants frequently mentioned logistics and distribution, the slow but constant growth of biotech and pharmaceuticals, and advanced manufacturing. Healthcare and other industries were noted to a lesser extent.
- **West Ohio**—For growth industries and sectors, participants frequently noted aerospace and advanced air mobility activities, logistics and distribution, healthcare, and defense contracting.

Figure 2.34 to **Figure 2.44** show the locations of jobs across the state for each JobsOhio industry sector. While many of these sectors are in urban areas, there are also spatial patterns where sectors have clustered along corridors. These patterns are particularly pronounced for advanced manufacturing, logistics and distribution, food and agribusiness, energy and chemicals, and automotive sectors.



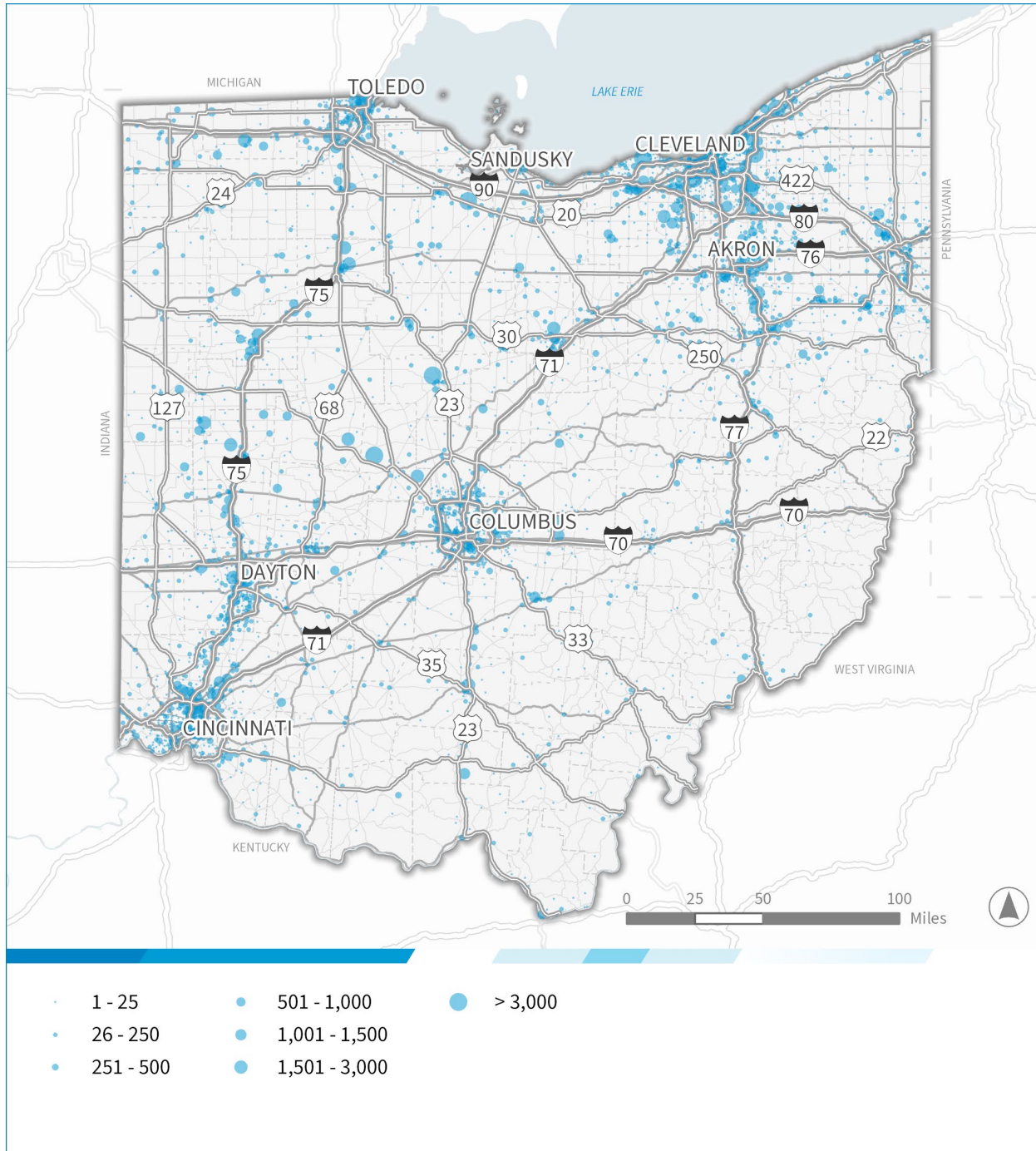
FIGURE 2.33—TOTAL EMPLOYMENT—ALL JOBS OHIO INDUSTRY SECTORS



Source: InfoUSA 2019 Employment Data



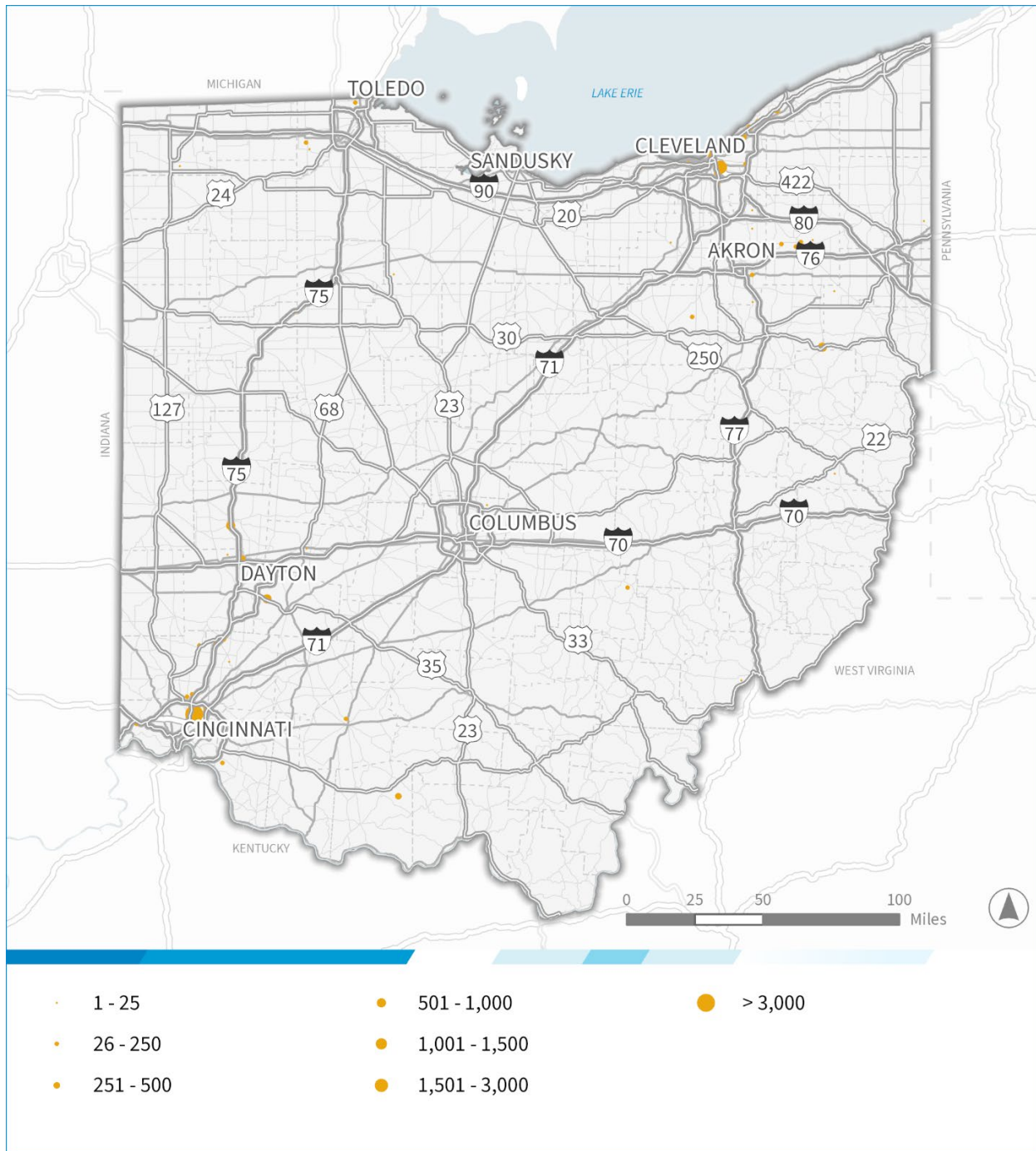
FIGURE 2.34—JOB OHIO INDUSTRY SECTOR, ADVANCED MANUFACTURING EMPLOYMENT



Source: InfoUSA 2019 Employment Data



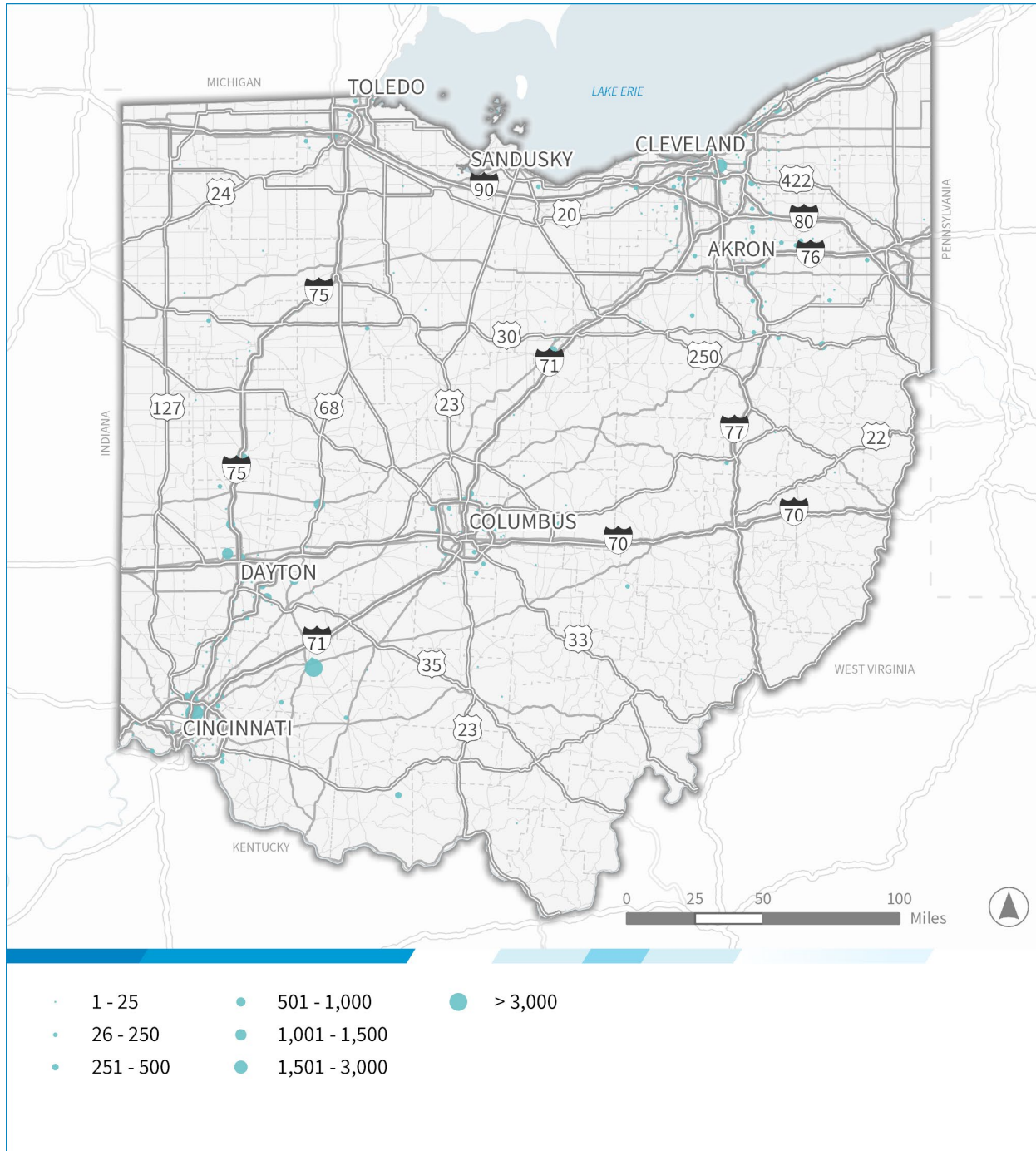
FIGURE 2.35—JOB/INDUSTRY SECTOR, ADVANCED MOBILITY EMPLOYMENT



Source: InfoUSA 2019 Employment Data



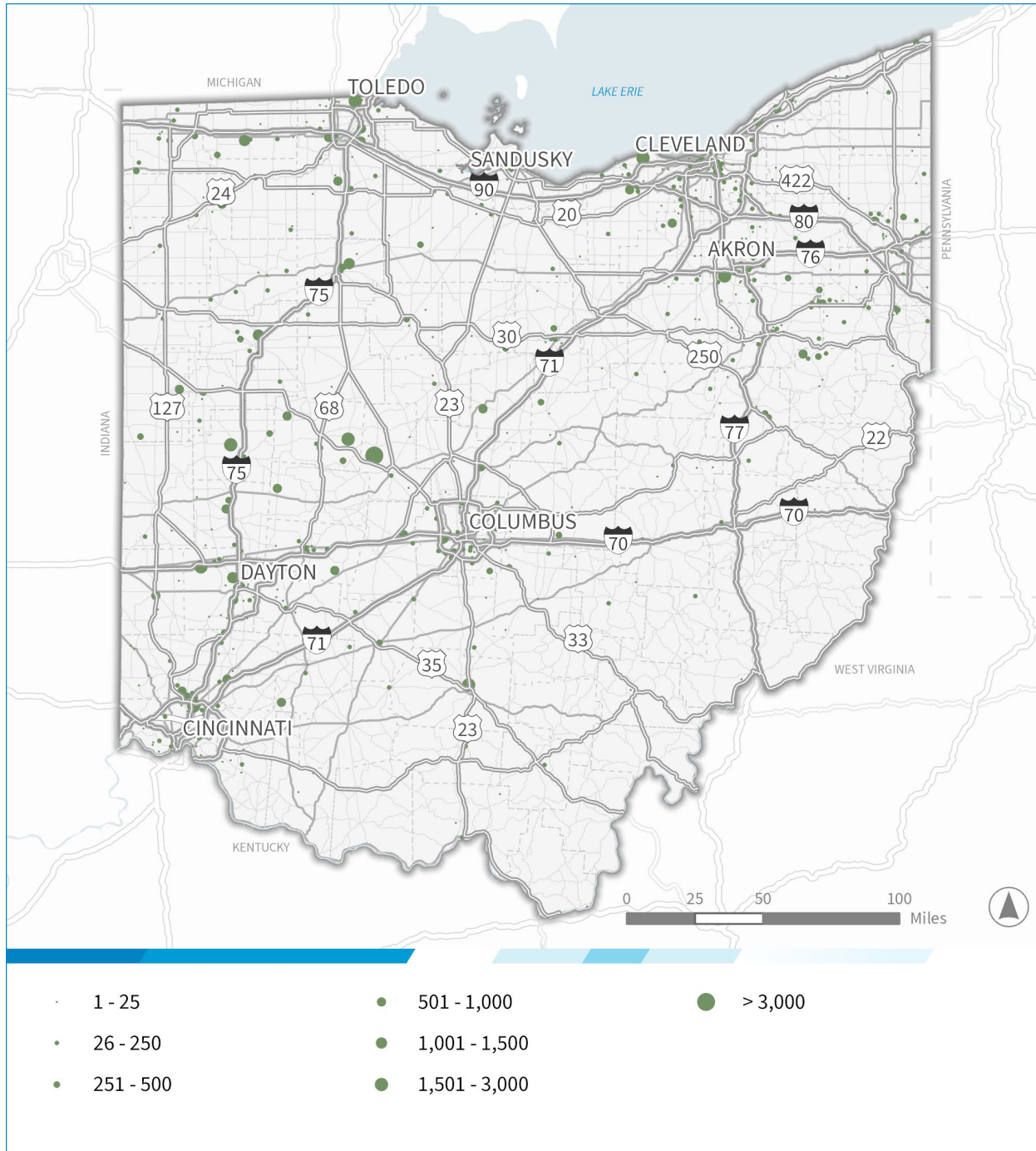
FIGURE 2.36—JOB OHIO INDUSTRY SECTOR, AEROSPACE & AVIATION EMPLOYMENT



Source: InfoUSA 2019 Employment Data



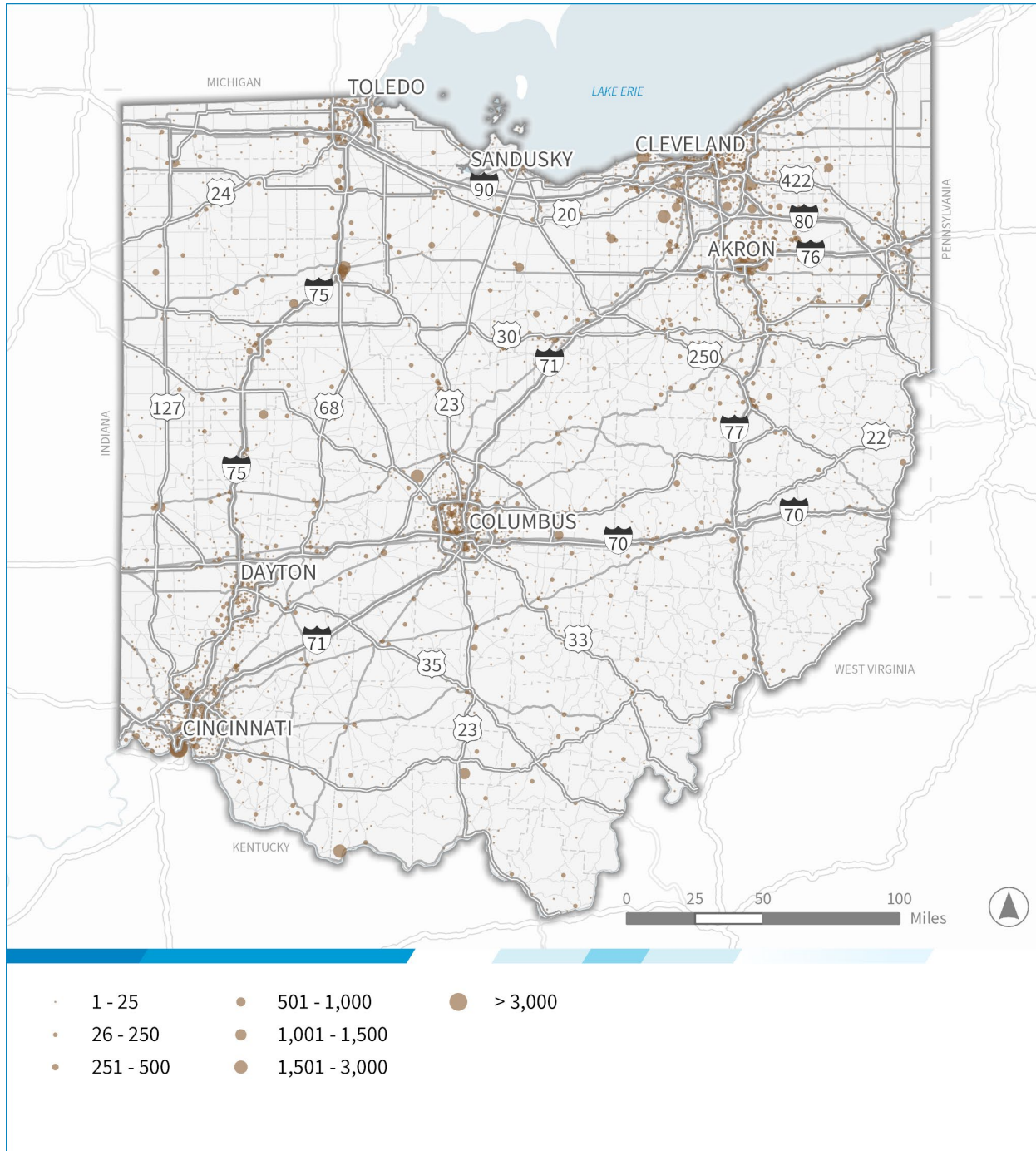
FIGURE 2.37—JOB OHIO INDUSTRY SECTOR, AUTOMOTIVE EMPLOYMENT



Source: InfoUSA 2019 Employment Data



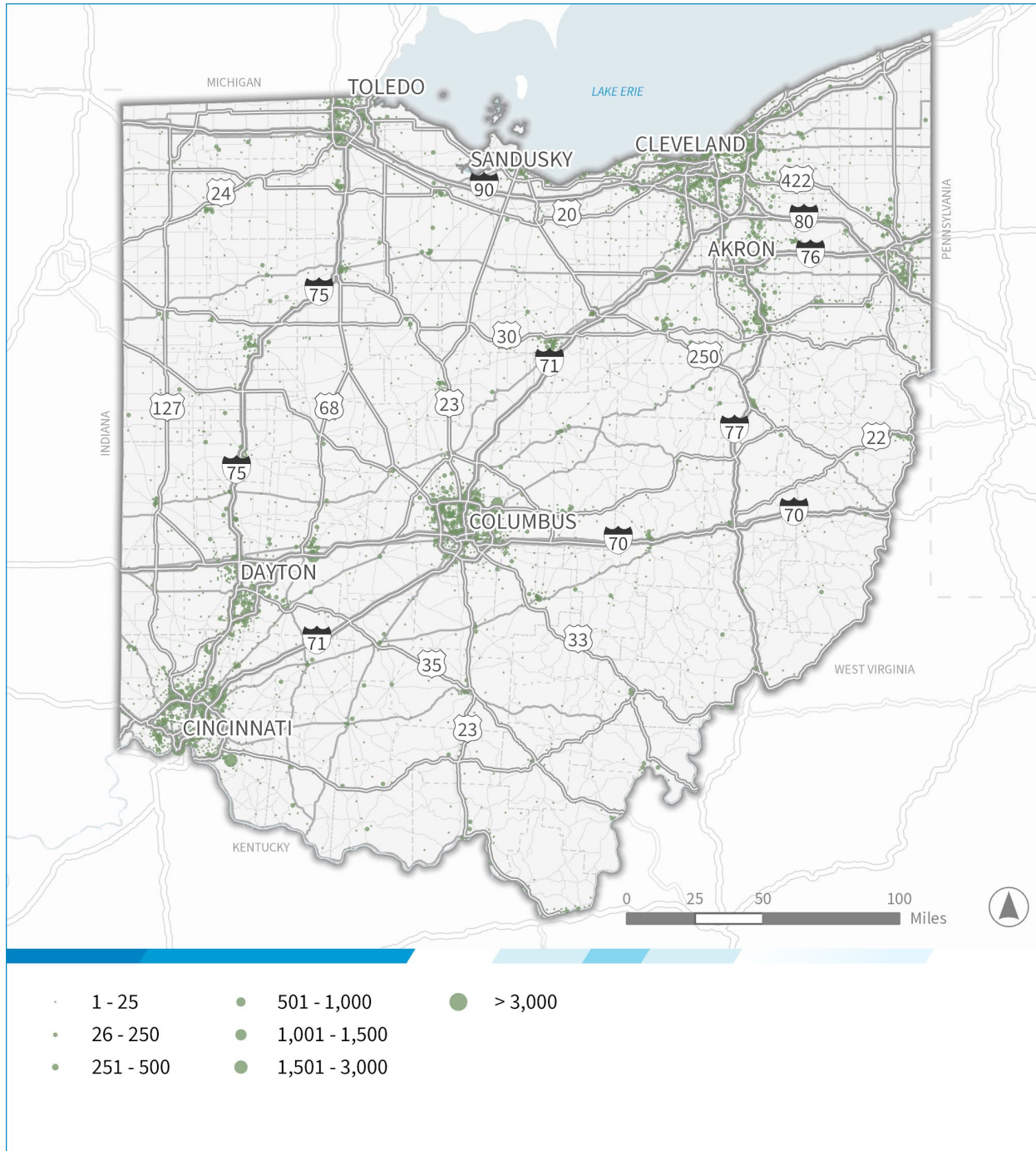
FIGURE 2.38—JOB OHIO INDUSTRY SECTOR, ENERGY & CHEMICALS EMPLOYMENT



Source: InfoUSA 2019 Employment Data



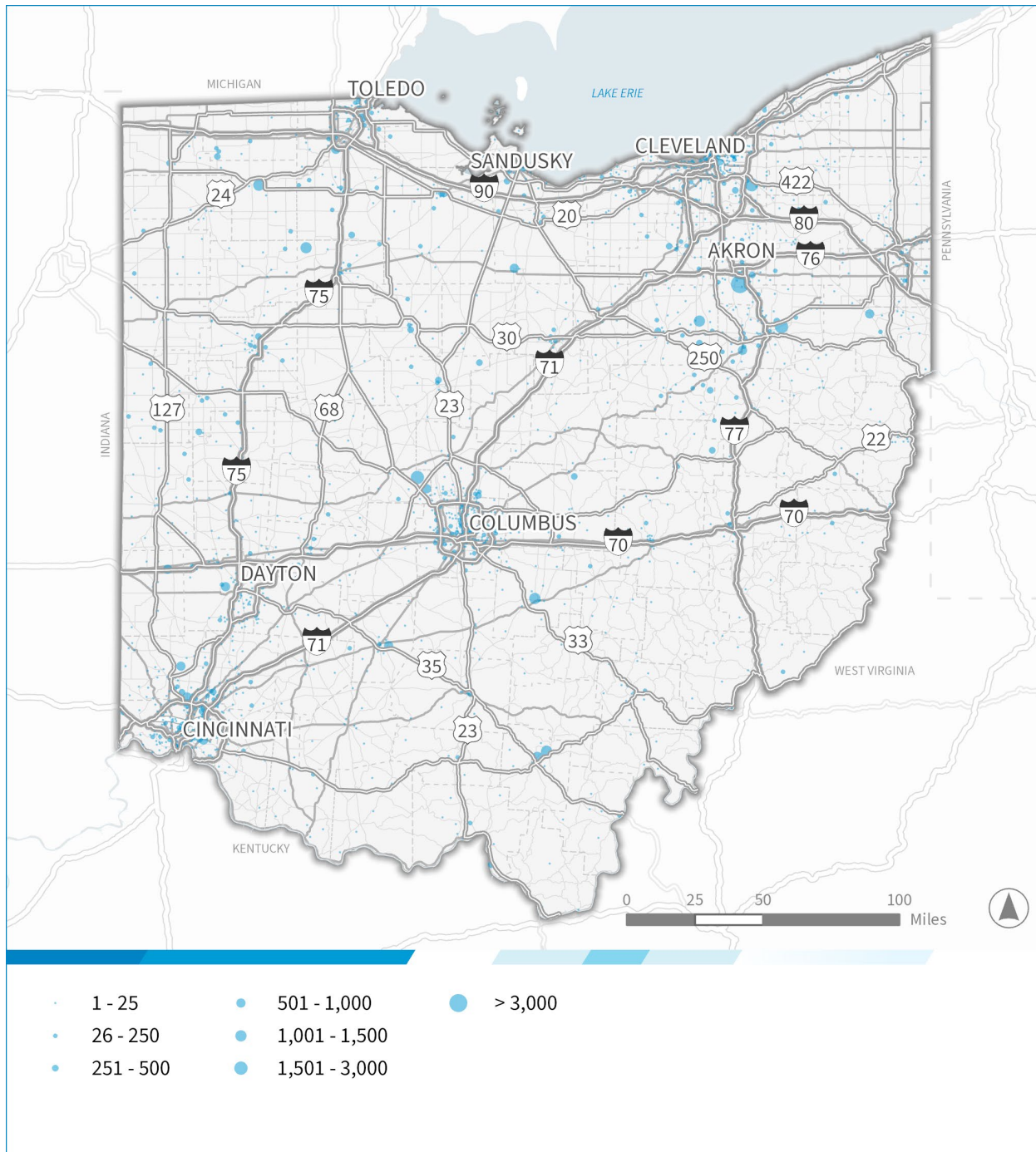
FIGURE 2.39—JOB OHIO INDUSTRY SECTOR, FINANCIAL SERVICES EMPLOYMENT



Source: InfoUSA 2019 Employment Data



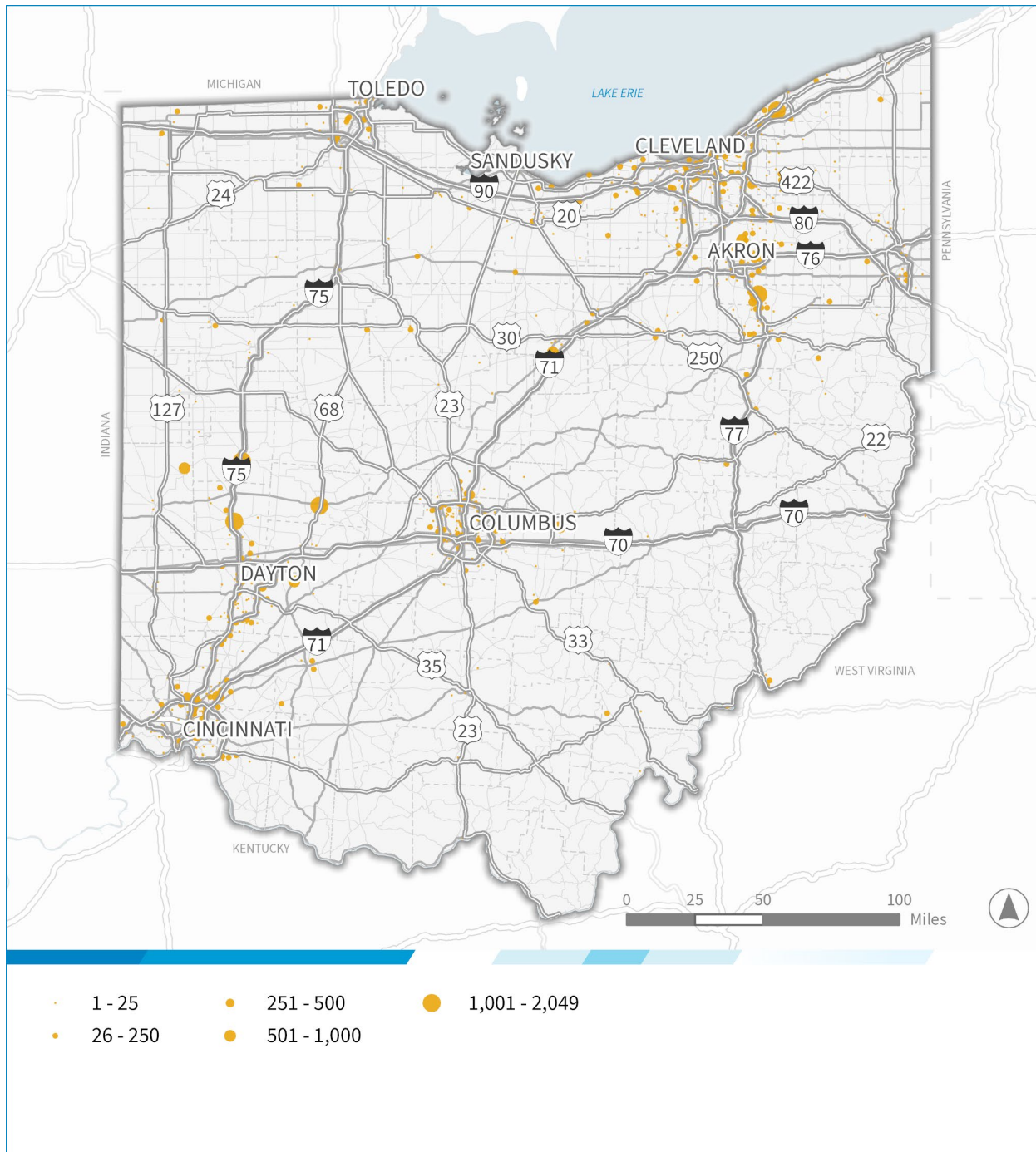
FIGURE 2.40—JOB OHIO INDUSTRY SECTOR, FOOD & AGRIBUSINESS EMPLOYMENT



Source: InfoUSA 2019 Employment Data



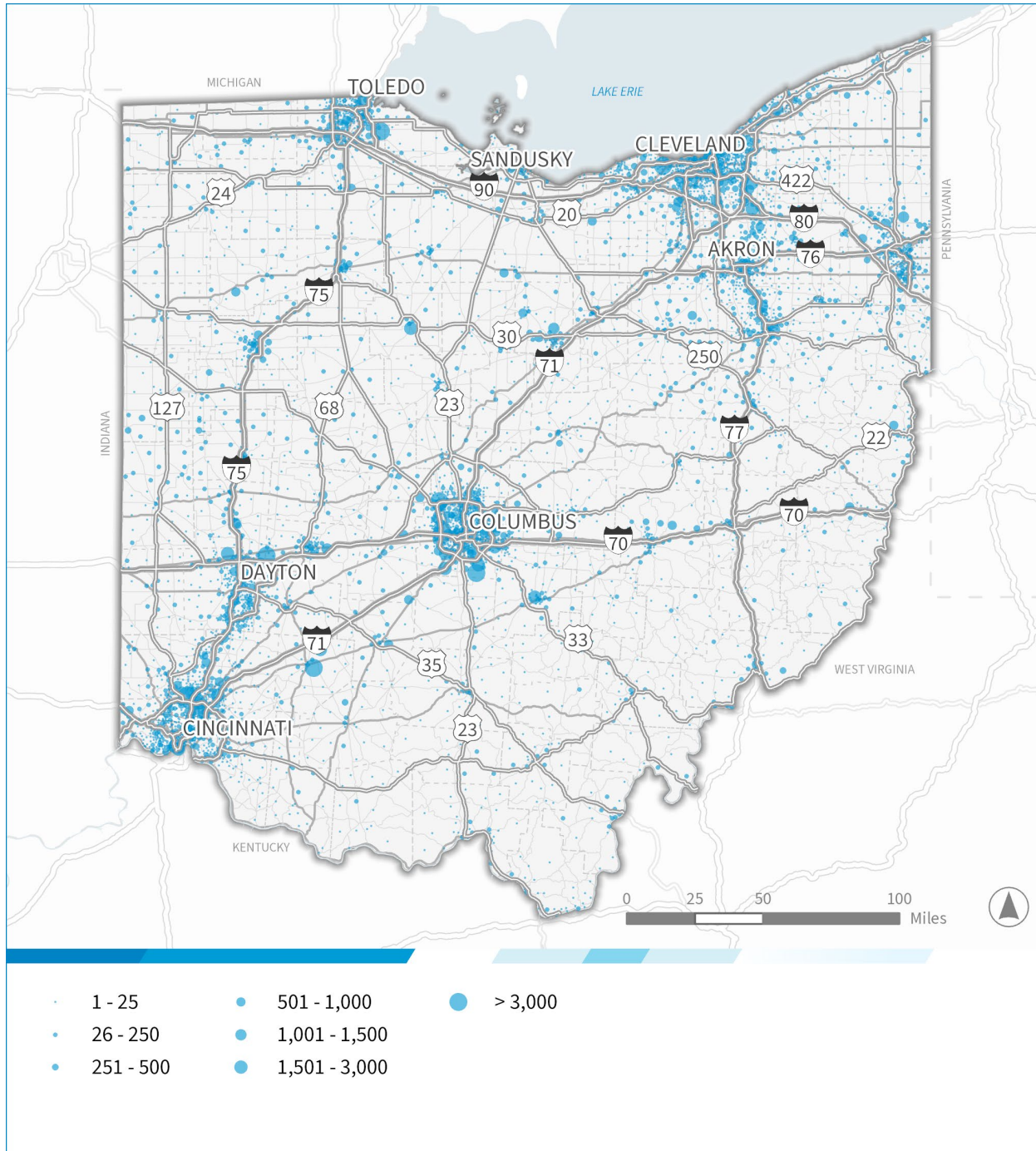
FIGURE 2.41—JOB SOHIO INDUSTRY SECTOR, HEALTHCARE EMPLOYMENT



Source: InfoUSA 2019 Employment Data



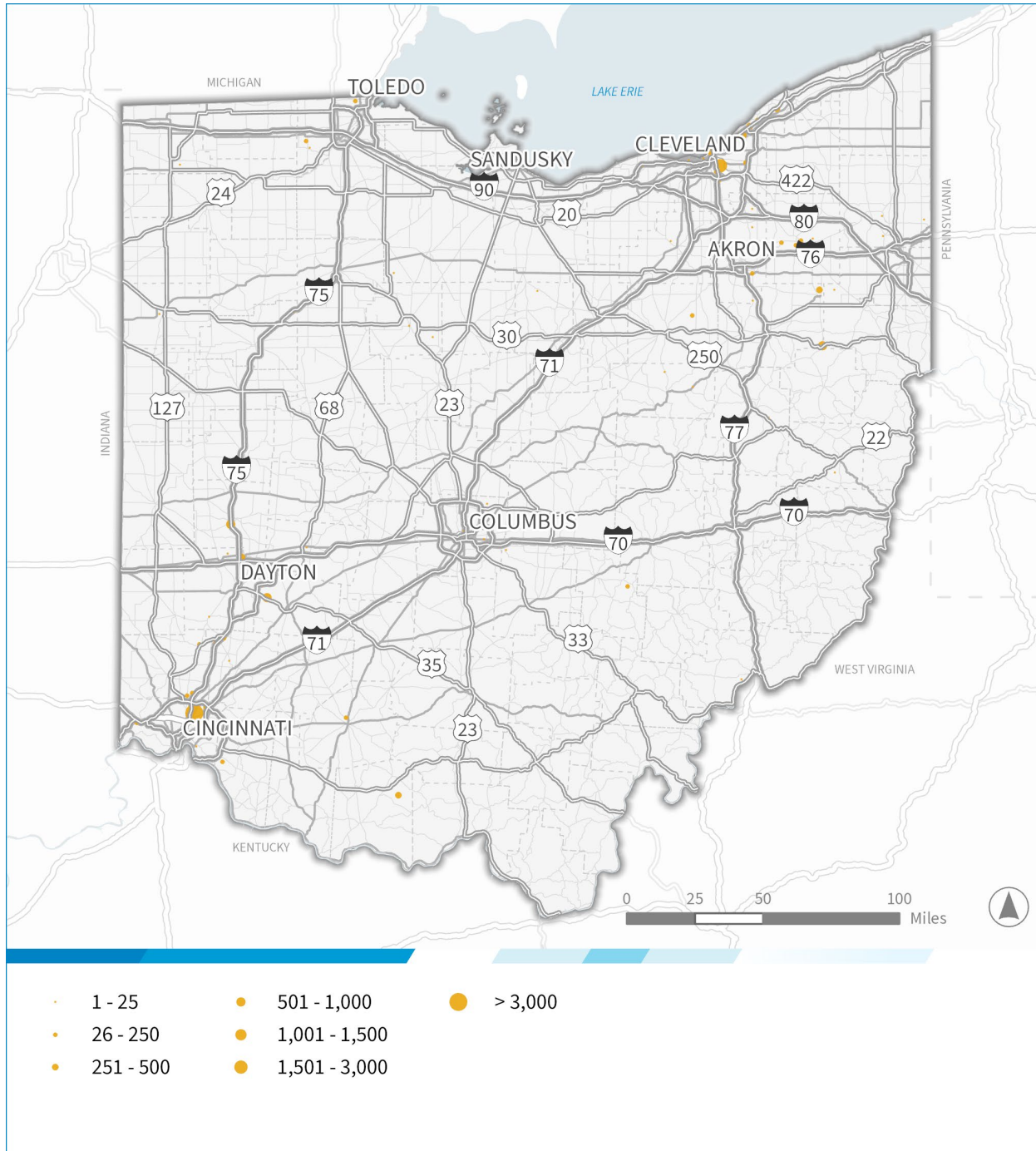
FIGURE 2.42—JOBSONIO INDUSTRY SECTOR, LOGISTICS & DISTRIBUTION EMPLOYMENT



Source: InfoUSA 2019 Employment Data



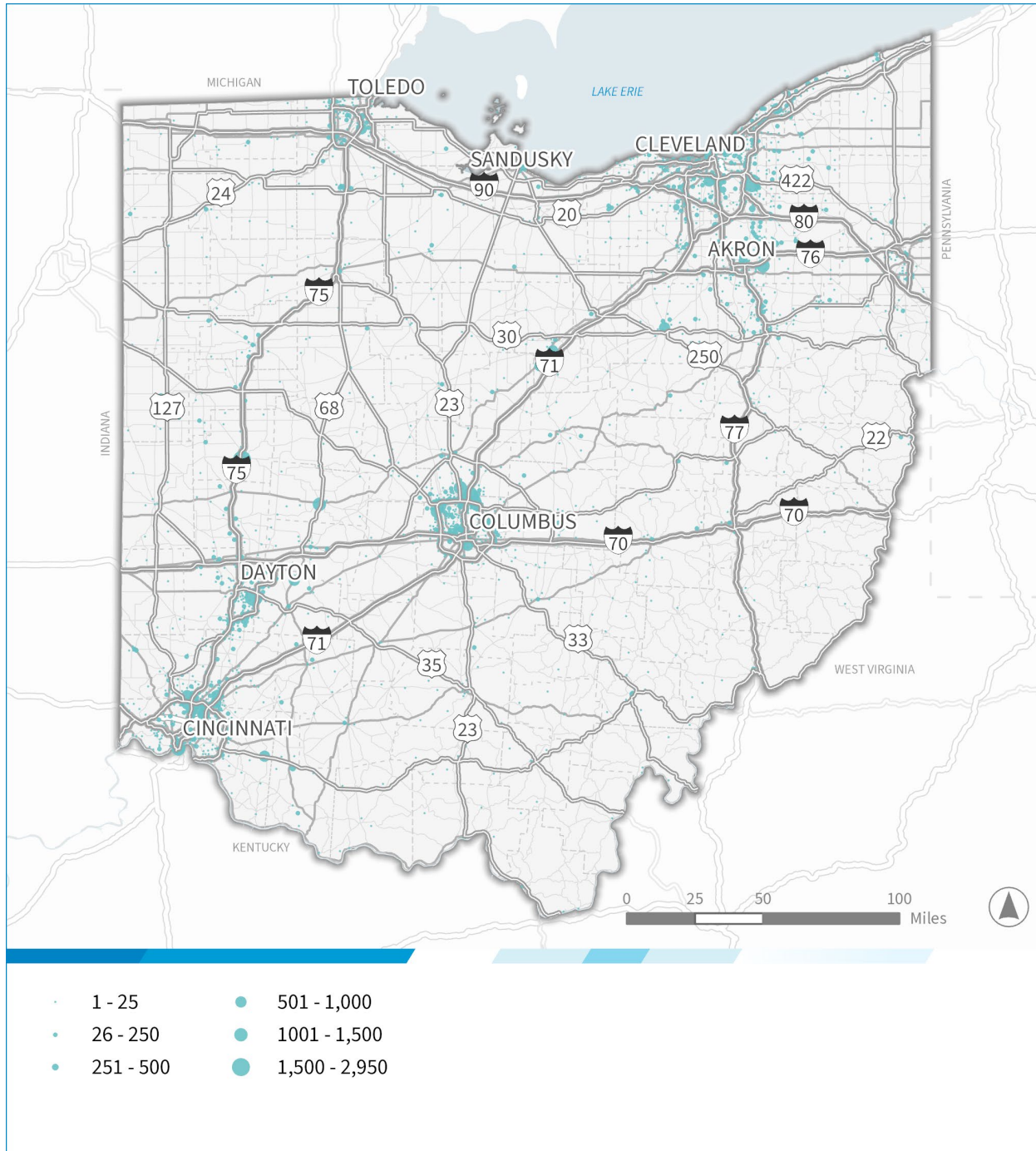
FIGURE 2.43—JOB OHIO INDUSTRY SECTOR, MILITARY & FEDERAL EMPLOYMENT



Source: InfoUSA 2019 Employment Data



FIGURE 2.44—JOB SOHIO INDUSTRY SECTOR, TECHNOLOGY EMPLOYMENT



Source: InfoUSA 2019 Employment Data



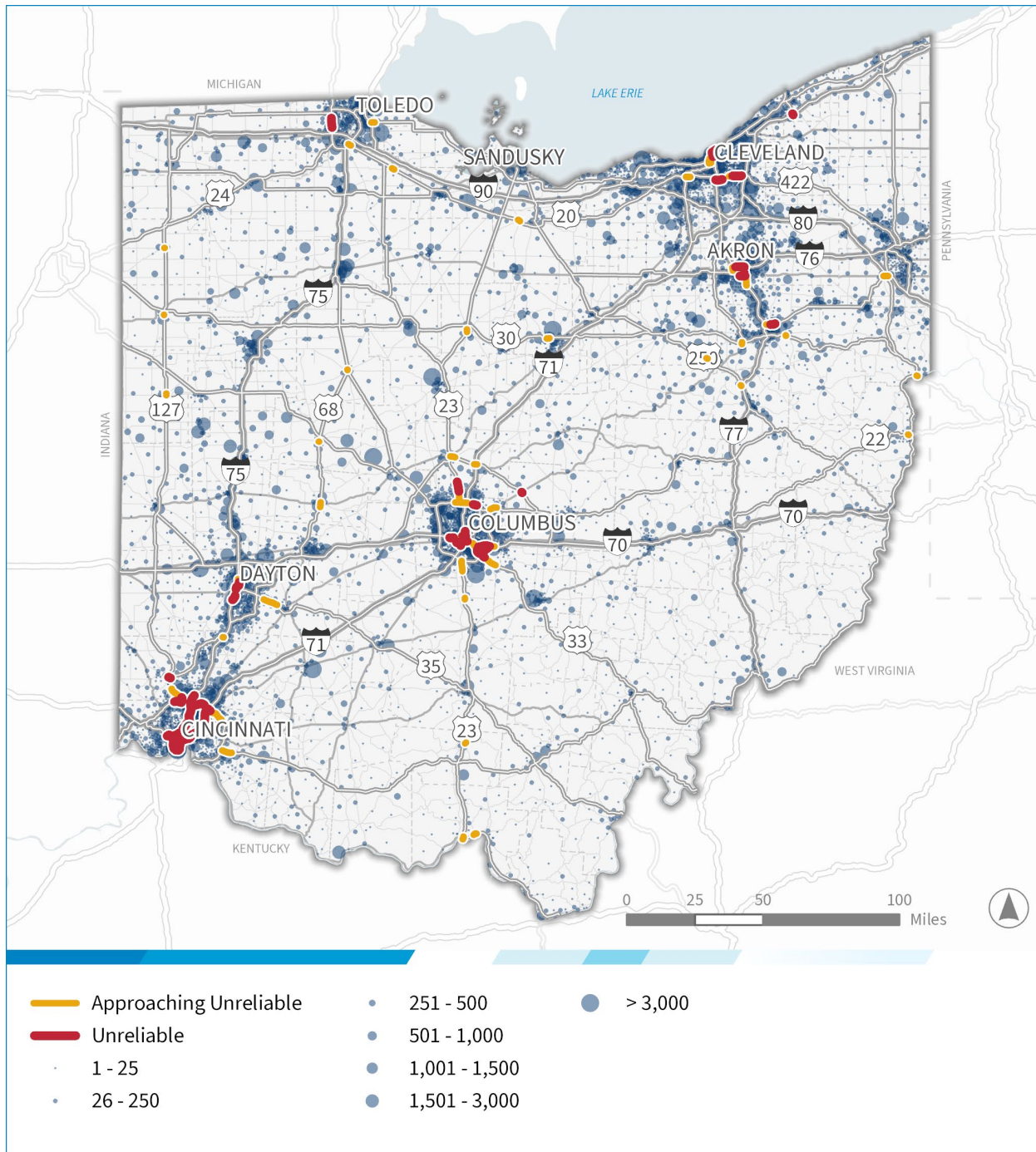
Freight-Dependent Industry Sectors

Many JobsOhio industry sectors are freight-dependent, including advanced manufacturing, advanced mobility, aerospace and aviation, automotive, energy and chemicals, food and agribusiness, logistics and distribution, and military and federal. They will continue relying on state investments in highway, aviation, maritime, and rail systems. Freight-dependent employment has increased over the last decade and has become more concentrated. Over 1.15 million jobs are in freight-dependent industries in Ohio. Given their favorable geographic location in Ohio, these industries represent a location quotient of 2.1 in 2022, reflecting Ohio's strength in transportation and logistics.

Figure 2.45 is a map of current freight-intensive industry employment compared with existing travel time reliability based on observed data available through INRIX, an aggregator of travel time data based on a cell phone and in-vehicle GPS. Freight-intensive industry employment centers in Cincinnati, Columbus, Cleveland, Toledo, Dayton, and Akron are served by high-capacity and high-volume interstate and US highway corridors that experience unreliable and congested travel conditions, particularly in peak periods. These conditions lead to increased shipping costs and delivery delays, critical success factors for many industries. More details on transportation system performance and the potential impacts on commerce across Ohio are in **Chapter 3**.



FIGURE 2.45—FREIGHT INTENSIVE INDUSTRY EMPLOYMENT AND EXISTING TRAVEL TIME RELIABILITY



Source: InfoUSA 2019 Employment Data



Tourism

Tourism plays a crucial role in advancing Ohio’s economy. Tourist sites and amenities attract visitors who spend money on accommodations, food, transportation, and other services, which generate jobs and employment.

Quality transportation infrastructure connects tourists to sites and improves their satisfaction and impression of the state. In the case of recreational and environmental tourism, transportation facilities such as airports, roads, bike paths, trails, and ports become critical parts of the tourist experience and represent activity generators. Investment and maintenance of these facilities can continue attracting visitors to the state and stimulating local and regional economies.

Much of the leisure and hospitality super sector activity is generated by tourism, including arts, entertainment and recreation, and accommodation and food services. Between 2012 and 2022, employment in this super sector grew at around the same rate as the state’s economy, shown in **Table 2.9**. Most leisure and hospitality employment was concentrated in food services and drinking places, which grew at a similar rate. However, employment in the following sectors grew significantly faster: amusements, gambling, and recreation increased by 20%; museums, historical sites, zoos, and parks increased by 20%; and performing arts and spectator sports increased by 12%.

TABLE 2.9—EMPLOYMENT IN LEISURE AND HOSPITALITY, PRIVATE SECTOR

| Leisure and Hospitality Sector and Subsector Employment | 2012 | 2022 | Growth (count) | Growth (percent) |
|---|---------|---------|----------------|------------------|
| Arts, Entertainment, and Recreation | 67,668 | 80,069 | 12,401 | 18% |
| Performing Arts and Spectator Sports | 13,008 | 14,534 | 1,526 | 12% |
| Museums, Historical Sites, Zoos, and Parks | 6,089 | 7,302 | 1,213 | 20% |
| Amusements, Gambling, and Recreation | 48,572 | 58,233 | 9,661 | 20% |
| Accommodation and Food Services | 432,431 | 461,566 | 29,135 | 7% |
| Accommodation | 33,466 | 32,617 | -849 | -3% |
| Food Services and Drinking Places | 398,965 | 428,949 | 29,984 | 8% |
| Leisure and Hospitality | 500,099 | 541,635 | 41,536 | 8% |

Source: BLS, QCEW

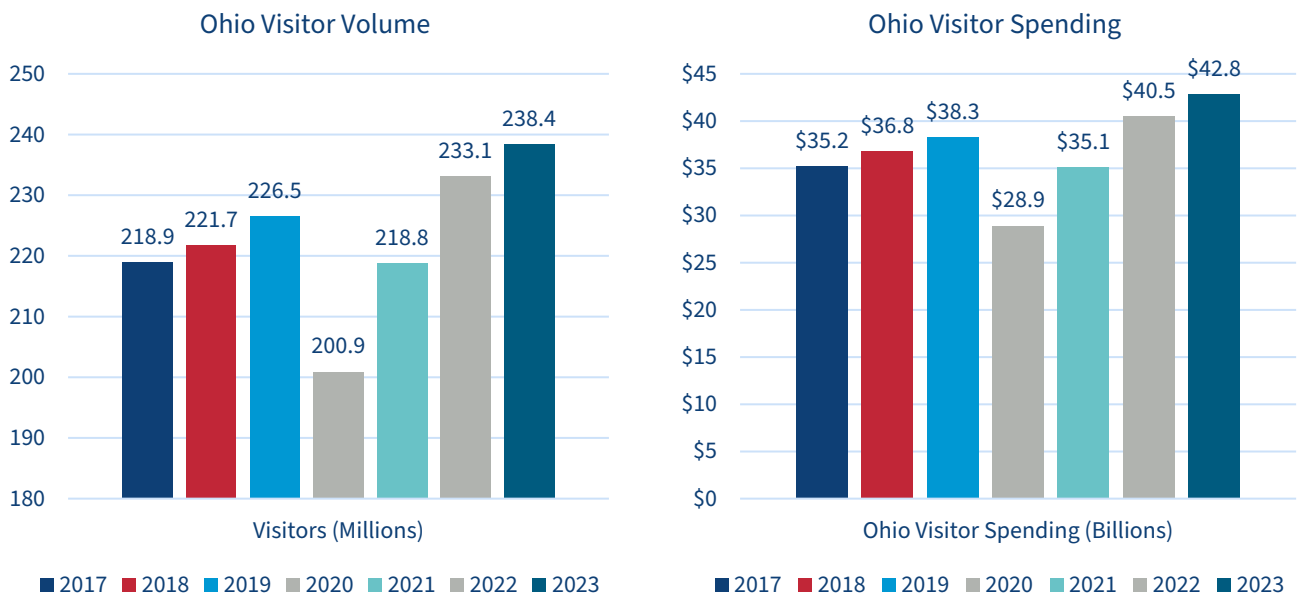
Notably, these sectors are associated with large activity centers, from theaters and museums to casinos and sports stadiums, which generate high traffic volumes. Depending on the activity, these volumes can be consistent throughout the day, such as at a casino or a zoo, or highly concentrated around event start and end times, such as at a theater or a sports stadium. Maintaining the capacity and function of the transportation systems that serve and connect to these facilities is essential to their successful operation and to minimize delays and safety risks associated with the high traffic volumes they generate.



In many areas of the state where employment in traditional industries, such as manufacturing in Northeast or Northwest Ohio, natural resource extraction in Southeast Ohio, is stagnant or declining, tourism and recreational sectors are providing new employment opportunities.

During stakeholder engagement activities, tourism was frequently discussed. In Northeast and East Ohio, natural and agricultural tourism and sports and entertainment were called out. In Northwest Ohio, participants expressed the desire to diversify and grow tourism, particularly during the Study listening session in Sandusky. Southeast Ohio stakeholders also considered tourism a growth industry/sector, highlighting the draw of Hocking Hills parks and recreational trails. Participants in West Ohio also cited tourism as a growth sector in rural and urban areas.

FIGURE 2.46—OHIO TOTAL VISITORS AND VISITOR SPENDING (DIRECT)



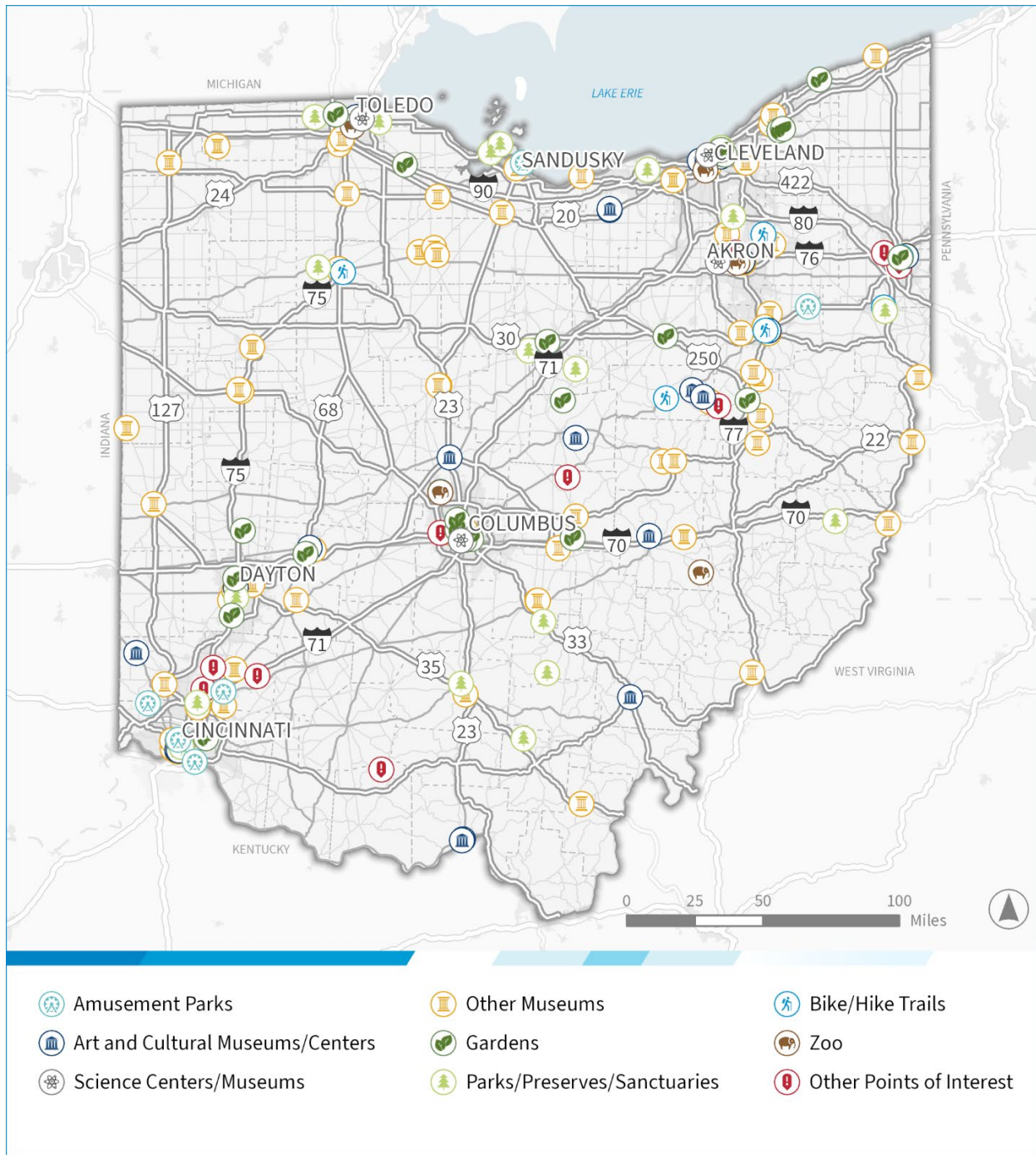
Source: Tourism Economics and Longwoods International, [Tourism Economic Impact](#), July 2024 (Prepared for TourismOhio)

According to TourismOhio, over 238 million visitors traveled to Ohio in 2023, an increase of nearly 12 million visitors from 2019, see **Figure 2.46**. In 2023, total visitor spending was \$42.8 billion, and when indirect business sales associated with visitor spending are included, they had a \$56 billion impact on Ohio’s economy.

Tourism attractions draw visitors to regions across the state. **Figure 2.47** shows the locations of amusement parks, museums, gardens, parks, preserves and sanctuaries, bike and hike trails, zoos, and other points of interest in Ohio. Each region offers unique cultural assets to welcome tourists.



FIGURE 2.47—OHIO’S TOURISM ATTRACTIONS



Source: Compiled spring 2024 from various sources including through TourismOhio and Ohio.org



Regional Economies

Each Ohio region has unique established industries and economic assets that provide competitive advantages in the state, the larger Great Lakes Region, and nationally. This analysis summarizes Ohio’s economy through the lens of the seven JobsOhio regions and Ohio’s metropolitan statistical areas (MSA) through the use of comparative regional data summaries and market profiles.

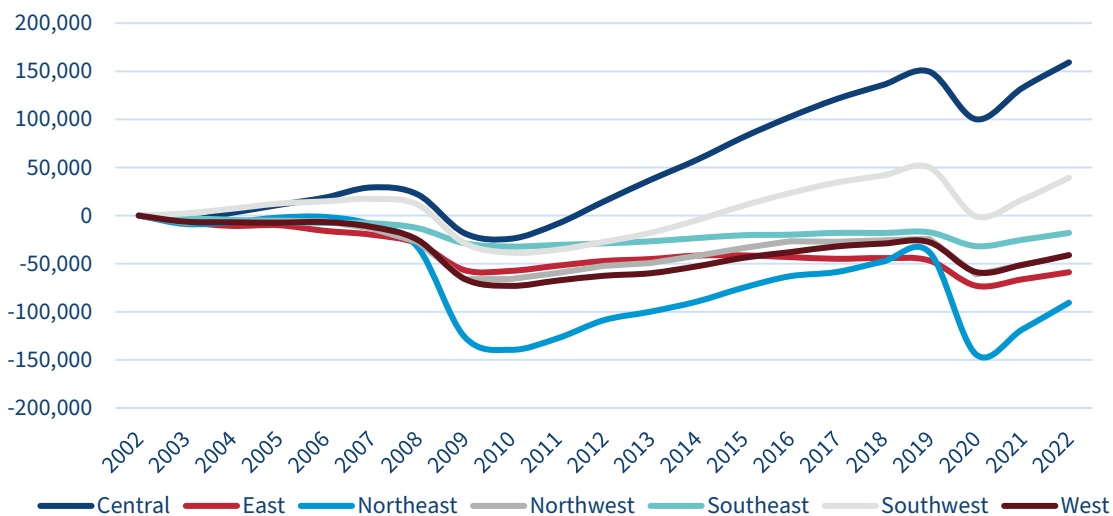
JobsOhio Regions

The seven JobsOhio regional network partners work to provide support for companies looking to expand or relocate in Ohio. They attract and support domestic and international businesses and connect them to the thriving industries operating in each region. These regions were shown earlier in [Error! Reference source not found.](#)

Northeast Ohio’s economy has powered the state’s economy for decades. However, this is changing relative to other regions, shown in **Figure 2.48**. Northeast Ohio lost 91,000 jobs, or 6% of its employment, from 2002 to 2022. These losses were offset by activity in Central Ohio, where employment grew by 159,000 jobs or 16%. Only one other region gained employment during this period. Southwest Ohio added 39,000 jobs, a 5% increase. Employment declined in the other regions—East Ohio by 14%, Northwest Ohio by 7%, Southeast Ohio by 5%, and West Ohio by 7%. Northeast Ohio still has the most employment. However, its share of the statewide total has decreased from 30% to 28% since 2002, while the share of the statewide total employment in Central Ohio has increased from 18% to 21%.

While GDP increased in each region, it grew much faster in Central and Southwest Ohio compared with the rest of the state, shown in **Figure 2.49**. As a result, the share of GDP declined or remained flat in the other regions across the state, including a decrease from 31% in 2002 to 28% in 2021 for Northeast Ohio.

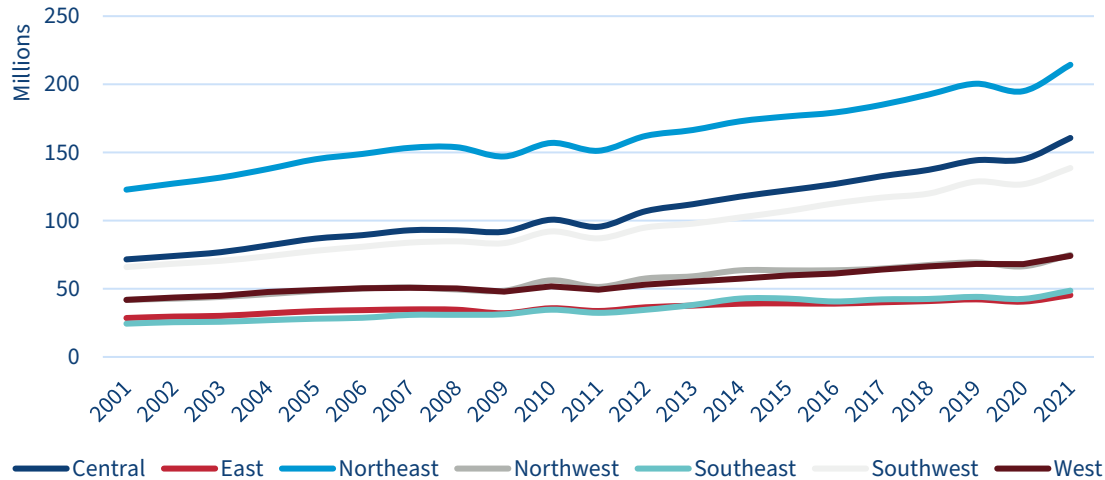
FIGURE 2.48—CUMULATIVE EMPLOYMENT GROWTH BY REGION SINCE 2002



Source: Summary of BLS, QCEW



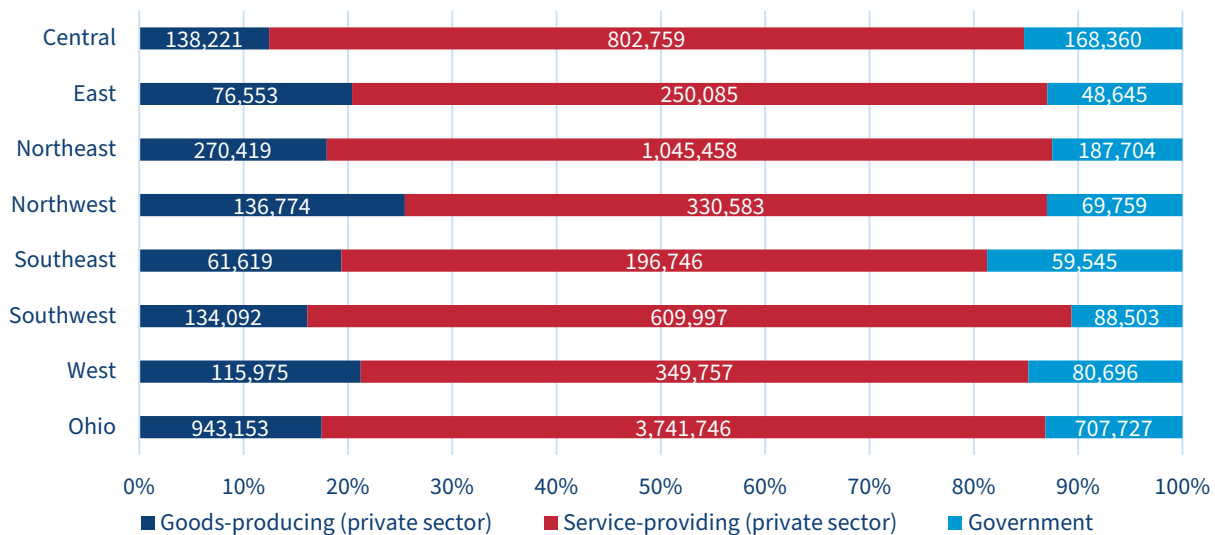
FIGURE 2.49—GDP BY REGION



Source: Summary of BEA, GDP by County

Across Ohio, most employment is in the private sector, which includes the goods-producing and service-producing economic sectors. The service-providing economic sector, **Figure 2.50**, is more predominant and varies from 62% of employment in the Northwest to 73% in the Southwest. The share of employment in the goods-producing economic sector varies from 12% in Central Ohio to 25% in Northwest Ohio. Government jobs round out the final share of employment and vary from 11% in the Southwest to 19% in the Southeast.

FIGURE 2.50—SHARE OF EMPLOYMENT BY ECONOMIC SECTOR AND REGION, 2022

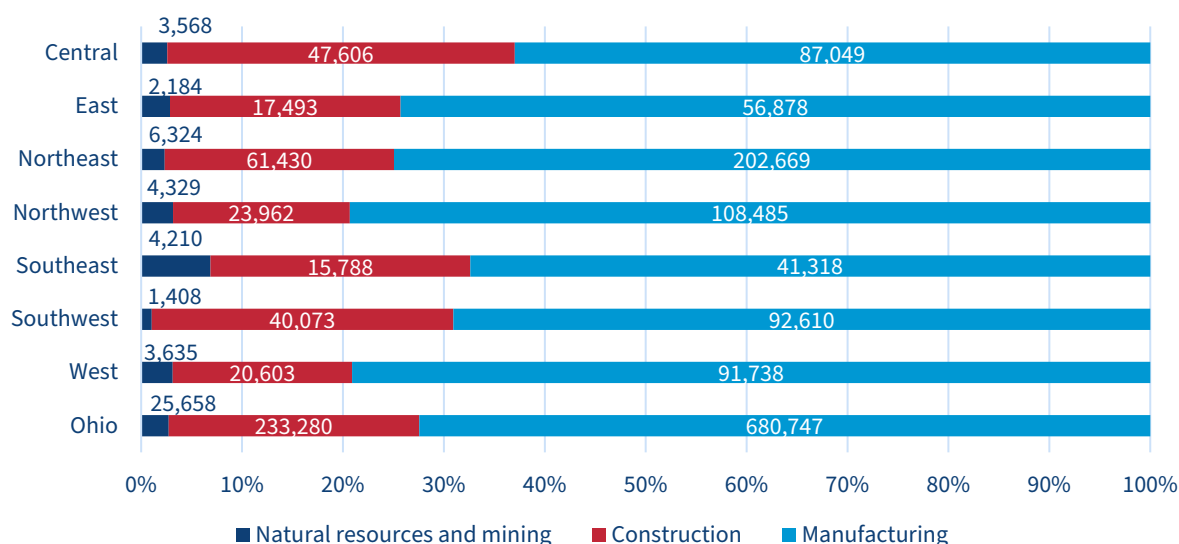


Source: Summary of BLS QCEW



Goods-producing employment is distributed among three super sectors, or broad categories of industries: natural resources and mining, construction, and manufacturing. Statewide, 72% of this employment is in manufacturing, followed by construction at 25% and natural resources and mining at 3% (Figure 2.51).

FIGURE 2.51—SHARE OF GOODS-PRODUCING INDUSTRIES EMPLOYMENT, BY SUPER-SECTOR AND REGION, 2022



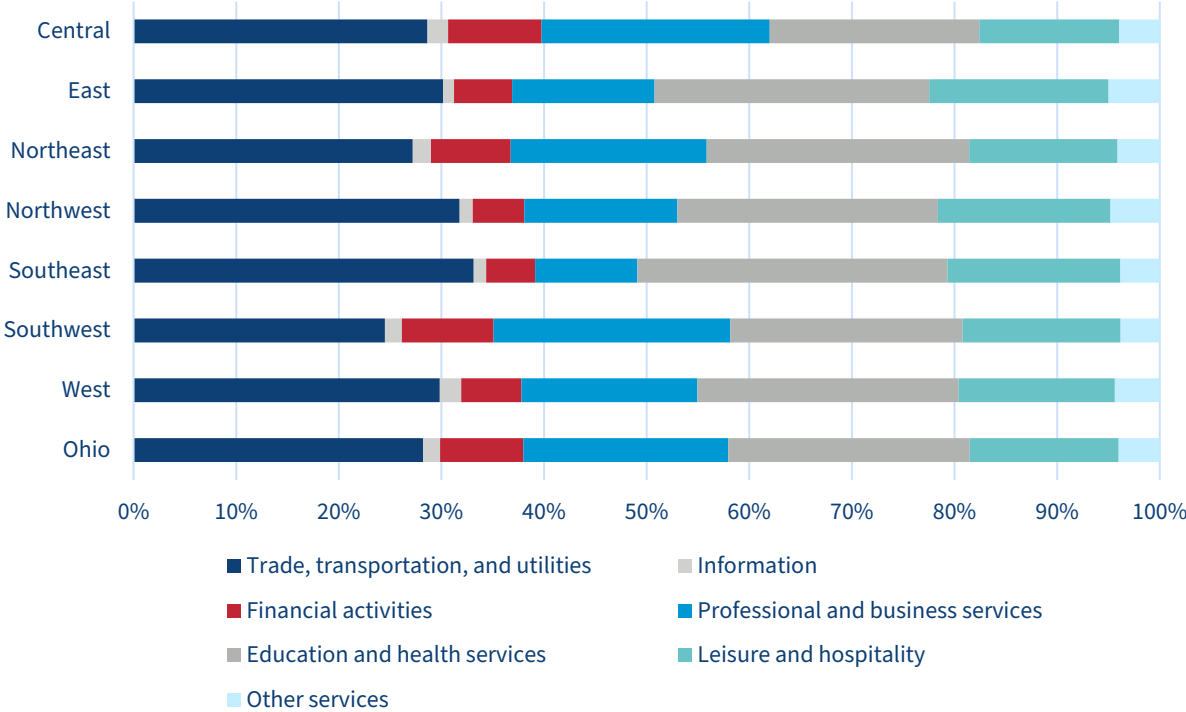
Source: Summary of BLS QCEW

Compared with other regions and the state, Central Ohio has a greater share of construction within goods-producing industries. Northeast and East Ohio align closely with the state averages for these sectors. Northwest Ohio has a greater share of manufacturing, 79%. Southeast has twice the share of other regions in natural resources and mining, 7%. Southwest Ohio has a greater concentration of construction employment at 30%, but not as high as Central Ohio. West Ohio has a greater concentration of manufacturing jobs, 79%, in the goods-producing domain than other regions.

Employment in the service-providing domain contains seven key sectors, as shown in Figure 2.52. Across Ohio, employment in this domain is distributed from most to least common as follows: trade, transportation and utilities at 28%; education and health services, at 23%; professional and business services at 20%; leisure and hospitality at 14%; financial activities at 8%; other services at 4%; and information at 2%. Central Ohio has some of the highest employment shares in professional and business services and financial activities. East Ohio has a lower share of professional and business services jobs. Northeast Ohio closely aligns with the state as a whole. Northwest Ohio has a larger concentration of jobs in trade, transportation, and utilities, and a lower share of jobs in financial activities as well as professional business and services. Southeast Ohio has a greater share of employment in trade, transportation and utilities, and education and health services. Southeast Ohio also has a much lower share of professional and business services employment than other regions. Southwest Ohio has a greater share of financial activities and professional and business services jobs than average. In West Ohio, employment is distributed across sectors in alignment with the state averages.



FIGURE 2.52—SHARE OF SERVICE-PROVIDING EMPLOYMENT BY SUPER SECTOR AND REGION, 2022



Source: Summary of BLS, QCEW

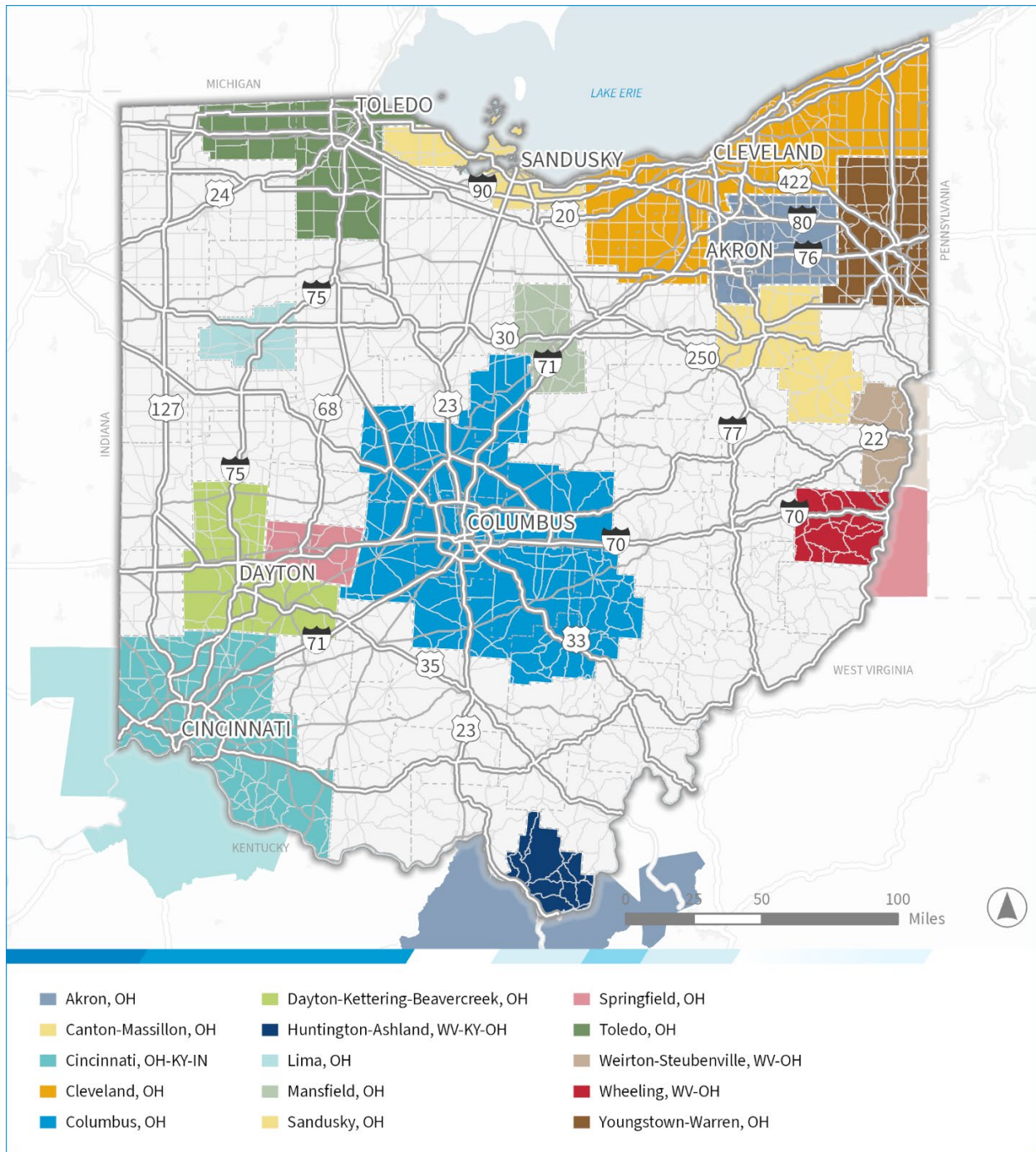
In the public sector, Ohio has approximately 71% local government employees, 18% state employees, and 11% federal employees. Due to the state’s capital in Columbus, there is a much higher concentration of state government employment in Central Ohio, 37%, compared to other regions. East and Northeast Ohio have the greatest concentration of local government employment, 83% and 80%, respectively. Southwest Ohio tracks closely with the state averages. Northwest and Southeast Ohio have lower shares of federal employment, at 5% and 6% respectively. West Ohio has the highest share of federal government employment at 26% and the lowest share of state government employment with only 5%.

Metropolitan Statistical Areas

The MSA analysis and associated market profiles provide a deeper dive into regional economic clusters and markets driving the aforementioned regional economies. MSAs contain a core population center and adjacent communities with a high degree of economic and social integration. The map in **Figure 2.53** shows Ohio’s MSAs.



FIGURE 2.53—OHIO’S METROPOLITAN STATISTICAL AREAS (MSA)



Source: US Census Bureau



Current GDP by MSA is shown in **Table 2.10** for Ohio’s 11 largest MSAs in 2022, plus the Sandusky region, as represented by Erie County. Six of Ohio’s MSAs ranked in the top 100 in the nation, with Cincinnati, Columbus, and Cleveland in the top 40. Notably, all of Ohio’s MSAs but one, Columbus, ranked lower nationally in GDP in 2022 than in 2017. Columbus remained at the 33rd spot in both years. However, a slip in the national rankings does not necessarily mean a metropolitan economy is contracting. In most cases, Ohio MSAs increased their GDP from 2017 to 2022, but not as much as the growing regions in the Southeast, South Central, and Southwest US.

As a measure of economic output or productivity growth, it is standard practice to consider changes in **Real GDP**, which assumes constant dollars between measurement years by adjusting for price inflation. Price inflation varies by region and industry and was substantial in post-COVID years. Real GDP is shown in **Table 2.10** for these same MSAs, comparing the pre- and post-COVID years of 2017 and 2022, including a per capita measure. Ohio’s six largest MSAs increased in Real GDP over the period, led by Columbus at 11%. Four small to mid-size MSAs—Youngstown, Canton, Springfield, and Mansfield—showed relatively no growth over the five years, while similarly-sized Lima grew by 7%. The outlier was Sandusky, which experienced a nearly 17% decline in Real GDP, likely due to its dependence on a tourism economy, which suffered greatly during the pandemic. More so than other metro areas, Sandusky experienced high inflation of 32%, which is reflected in the difference between its 2022 Current GDP and Real GDP values.

Per Capita Real GDP represents the amount of output per person and is generally considered to reflect the standard of living, which is often considered by investors when locating businesses. The Cincinnati, Columbus, and Cleveland MSAs had similar Per Capita Real GDPs of \$67 to \$69 per person in 2022, shown in **Table 2.10**. All three grew by 6% to 9% over 2017, indicating increased consumption. The Dayton, Akron, and Toledo MSAs represent another tier with Per Capita Real GDPs ranging from \$54 to \$57 per person while growing by 4% to 7%. A third tier down includes MSAs in the \$34 to \$45 range, which encompasses Canton, Youngstown, Springfield, and Mansfield—each experienced flat growth in Per Capita Real GDP between 2017 and 2022. The Lima MSA stands out as the metro area with the highest Per Capita Real GDP, at \$81 in 2022, an increase of more than 7% over 2017. The relatively high values are largely due to a prominent national defense manufacturer, the Joint Systems Manufacturing Center. In contrast, Sandusky’s Per Capita Real GDP dropped from \$64 to \$54, a 15% decrease during the five years, indicating the region’s economic downturn and inflationary woes.

Table 2.11 shows total employment and wage-and-salary employment for the 11 MSAs, comparing the pre- and post-COVID years of 2017 and 2022. Total employment is the sum of **wage-and-salary** and **self-employment**, proprietors’ employment. Wage-and-salary employment represents most jobs where workers commute to work sites and is strategically vital to mobility planning. Generally, wage-and-salary job growth trends track better with population growth trends than self-employment. Only two of Ohio’s MSAs show net positive increases in wage-and-salary jobs between 2017 and 2022, with Columbus and Cincinnati growing by about 4%. The Youngstown area experienced the highest rate of wage-and-salary job loss at 5%, followed by Sandusky at nearly a 4% loss.

While most Ohio MSAs experienced net decreases in wage-and-salary jobs, those losses were offset mainly by increases in self-employment. During this same period, self-employment grew by 16% to 28% across the 12 metro areas, following a national trend of workers resigning from traditional jobs and starting their own businesses or becoming independent contractors, which allowed them to work from home and control their hours. This includes entrepreneurs, some who employ wage-and-salary workers; and a rapidly growing number of “gig” economy workers in construction, transportation, real estate, and other services where short-term contracts are common.



It is important to note that the relationship between employment growth and economic output, measured by change in Real GDP, is not always aligned. Real GDP can increase in a region while wage-and-salary employment decreases. This is due to productivity increases brought about by automation of business and production processes and increases in government spending and private investments in land and buildings.

TABLE 2.10—CURRENT-DOLLAR AND REAL GROSS DOMESTIC PRODUCT (GDP)

| Metropolitan Statistical Area | 2022 GDP | National Rank | Real GDP (Thousands of Chained 2017 Dollars) | | | Real GDP Per Capita | | |
|-------------------------------|---------------|---------------|---|---------------|--------|---------------------|---------|--------|
| | | | 2022 | 2017 | Growth | 2022 | 2017 | Growth |
| Cincinnati, OH-KY-IN | \$186,141,091 | 28 | \$157,023,758 | \$145,242,197 | 8.1% | \$69.32 | \$65.34 | 6.1% |
| Columbus, OH | \$169,123,313 | 33 | \$144,464,484 | \$129,945,459 | 11.2% | \$66.83 | \$62.30 | 7.3% |
| Cleveland-Elyria, OH | \$162,788,382 | 35 | \$138,260,106 | \$128,644,607 | 7.5% | \$67.01 | \$61.62 | 8.8% |
| Dayton-Kettering, OH | \$53,329,306 | 75 | \$45,837,053 | \$42,546,733 | 7.7% | \$56.41 | \$52.71 | 7.0% |
| Akron, OH | \$45,846,423 | 84 | \$37,703,093 | \$36,424,857 | 3.5% | \$54.04 | \$51.72 | 4.5% |
| Toledo, OH | \$44,562,456 | 86 | \$36,662,885 | \$35,347,722 | 3.7% | \$57.25 | \$54.55 | 5.0% |
| Youngstown-Warren, OH-PA | \$24,989,650 | 142 | \$20,599,165 | \$20,570,339 | 0.1% | \$38.47 | \$37.57 | 2.4% |
| Canton-Massillon, OH | \$22,880,449 | 149 | \$18,083,356 | \$18,122,356 | -0.2% | \$45.29 | \$45.01 | 0.6% |
| Lima, OH | \$10,789,408 | 238 | \$8,256,775 | \$7,711,921 | 7.1% | \$81.66 | \$74.69 | 9.3% |
| Springfield, OH | \$5,499,865 | 353 | \$4,670,033 | \$4,661,428 | 0.2% | \$34.64 | \$34.23 | 1.2% |
| Mansfield, OH | \$5,493,751 | 355 | \$4,582,406 | \$4,544,336 | 0.8% | \$36.57 | \$36.85 | -0.8% |
| Sandusky, OH | \$5,310,035 | N/A | \$4,036,218 | \$4,845,101 | -16.7% | \$54.18 | \$63.73 | -15.0% |

Source: BEA



TABLE 2.11—TOTAL EMPLOYMENT AND WAGE-AND-SALARY EMPLOYMENT

| Metropolitan Statistical Area | Total Employment | | | Wage-and- Salary Employment | | |
|-------------------------------|------------------|-----------|--------|-----------------------------|-----------|--------|
| | 2022 | 2017 | Growth | 2022 | 2017 | Growth |
| Columbus, OH | 1,489,955 | 1,369,738 | 8.8% | 1,146,427 | 1,102,244 | 4.0% |
| Cincinnati, OH-KY-IN | 1,471,537 | 1,367,675 | 7.6% | 1,159,227 | 1,115,359 | 3.9% |
| Cleveland-Elyria, OH | 1,390,752 | 1,329,843 | 4.6% | 1,066,513 | 1,073,644 | -0.7% |
| Dayton-Kettering, OH | 498,430 | 481,854 | 3.4% | 396,187 | 399,256 | -0.8% |
| Akron, OH | 442,746 | 427,974 | 3.5% | 341,379 | 346,525 | -1.5% |
| Toledo, OH | 404,551 | 395,247 | 2.4% | 323,479 | 327,765 | -1.3% |
| Youngstown-Warren, OH-PA | 282,448 | 284,356 | -0.7% | 211,970 | 223,864 | -5.3% |
| Canton-Massillon, OH | 227,027 | 221,474 | 2.5% | 171,670 | 176,791 | -2.9% |
| Mansfield, OH | 65,127 | 64,555 | 0.9% | 51,181 | 53,033 | -3.5% |
| Lima, OH | 64,238 | 63,903 | 0.5% | 52,274 | 53,814 | -2.9% |
| Springfield, OH | 63,245 | 62,106 | 1.8% | 49,878 | 51,155 | -2.5% |
| Sandusky, OH | 48,202 | 47,839 | 0.8% | 37,559 | 39,029 | -3.8% |

Source: BEA

Market Profiles

The following market profiles describe the unique characteristics of the state’s **eight largest markets**. For employment, wage-and-salary jobs are presented rather than total employment because of the stronger linkage to workforce development and commuting. Crucially, each market profile has a growth focus to emphasize the dynamic nature of markets as generators of economic value and the implications for the state’s transportation system, particularly interregional corridors, today and in the future.



Cincinnati

Cincinnati was one of the nation's first economic centers west of the Appalachian Mountains because of its advantageous location on the Ohio River. Over time, Cincinnati developed a diverse manufacturing base, notably for producing jet engines, machinery, consumer packaged goods, and a regional cultural and entertainment center. Today, Greater Cincinnati benefits from a diverse economy with a strong service sector.

As an economic center, Cincinnati is linked to communities across the Ohio River in Northern Kentucky, which is home to Greater Cincinnati Airport (CVG), the sixth largest air cargo airport in North America and the 12th largest globally.

In 2022, the Cincinnati OH-KY-IN MSA, which includes counties in Northern Kentucky and Southeast Indiana, generated \$186 billion in GDP, making it the 28th largest metropolitan economy among MSAs in the US. The Cincinnati MSA ranked first among MSAs in Ohio regarding GDP, population, and wage-and-salary employment and second in Real GDP growth between 2017 and 2022 in total employment, employment growth, and population growth.

Development pressures in the Cincinnati metropolitan area have been most acute in Warren County, which straddles I-71 in the northeastern area of the region. The area has experienced steady growth in office parks, light industry, and entertainment centered around Kings Island amusement park. From 2017 to 2022, Warren County added more than 17,000 residents, a 7.4% increase and the third-highest gain in absolute population among Ohio counties. Warren County was also third among Ohio counties in wage-and-salary jobs growth, which increased by almost 10,000, a 10% increase, and fifth in growth in Real GDP, adding \$2.4 billion, up 21%.

Two other counties in the Cincinnati region—Clermont, US50, SR32, and US52 corridors, and Butler, I-75 and SR4 corridors—also ranked in the top 10 counties in Ohio for population growth and for adding wage-and-salary jobs between 2017 and 2022. The Cincinnati region's core, Hamilton County, experienced relatively flat growth in population and wage-and-salary jobs, less than 1%, during this period while remaining a strong economic force by adding \$5.5 billion in Real GDP, up 7%, third most among Ohio counties for growth in economic value.

Dayton

Dayton was founded in the late 18th century along the Great Miami River, which runs through the city to the Ohio River at Cincinnati and provides Dayton with a means of connecting to other markets. Dayton, home of the Wright Brothers, is known for high-tech industries that played critical historical roles in aviation, business machines, automotive parts, and national defense but which have experienced downturns over the last two decades. Dayton's location at the crossroads of national east-west and north-south trucking corridors, I-70 and I-75, positions it for growth to support supply chain and logistics industries.

In 2022, the Dayton-Kettering MSA generated \$53 billion in GDP, making it the 75th largest metropolitan economy among MSAs in the US. The Dayton

In 2022, the Cincinnati OH-KY-IN MSA generated \$186 billion in GDP, making it the 28th largest metropolitan economy among MSAs in the US.

Dayton is home to Wright-Patterson Air Force Base, which contributed the largest employment and economic growth in the region.



MSA ranked fourth among MSAs in Ohio in GDP, population, total employment, and wage-and-salary employment. From 2017 to 2022, the Dayton MSA ranked third in population growth and fourth in growth in Real GDP. While the Dayton MSA gained total employment during this period, it lost about 3,000 wage-and-salary jobs.

Growth in the Greater Dayton area has been primarily to the north and east. Miami County to the north in the I-75 corridor added roughly 4,000 new residents, a 4% increase between 2017 and 2022, ranking it 10th among Ohio counties in population growth. Miami County also added about 1,000 new wage-and-salary jobs, up 2.5%. Meanwhile, Greene County to the east of Dayton and home to Wright-Patterson Air Force Base, provided the most significant economic growth in the MSA, adding more than 2,500 new wage-and-salary jobs, up 3%, and \$1 billion growth in Real GDP, a 10% increase, ranking it ninth among Ohio counties in both metrics. Greene County also added about 3,000 new residents over the same period, up 2%. Between 2017 and 2022, the core county in the Dayton MSA, Montgomery County, declined in population and wage-and-salary employment, less than 1%, between 2017 and 2022. Montgomery County lost 6,700 wage-and-salary jobs during the period, the second-largest decline among Ohio counties. Despite these lost wage-and-salary jobs, total employment increased by 2% in Montgomery County, and Real GDP increased by \$2.2 billion, the sixth largest increase among Ohio counties.

Toledo

Toledo's location along the western end of Lake Erie enabled it to become a 20th-century center for manufacturing, taking advantage of the ability to ship bulk commodities such as sand, gravel, and metal ore needed for manufacturing processes. Toledo became known for glass manufacturing, auto production and parts, and it developed close ties to Michigan's automotive industry. The Toledo metro area has struggled in recent decades with plant closures but has also had recent success in high-tech manufacturing. The Toledo metropolitan area lies at the crossroads of major east-west and north-south truck corridors, I-90/80 and I-75, and serves as a through-way for freight traveling to and from the Detroit area and Ontario.

In 2022, the Toledo MSA generated nearly \$46B in GDP, making it the 84th largest in the US.

In 2022, the Toledo MSA generated nearly \$46 billion in GDP, making it the 84th largest metropolitan economy among MSAs in the US. The Toledo MSA ranked fifth among MSAs in Ohio in GDP and sixth in population, total employment, and wage-and-salary employment. From 2017 to 2022, the Toledo MSA lost nearly 8,000 residents and more than 4,000 wage-and-salary jobs, roughly a 1% decrease. Despite these losses, the Toledo MSA gained 2% in total jobs while increasing Real GDP by \$1.3 billion, a 5% increase, the fifth largest increase among Ohio's MSAs.

Wood County, located in the southern portion of the Toledo MSA along I-75 and US23, has been an economic bright spot in the region, adding more than 5,000 wage-and-salary jobs between 2017 and 2022, up 7%, the fifth largest increase in wage-and-salary employment among Ohio counties. Despite no appreciable growth in population, Wood County added more than \$700 million in Real GDP over that same period, a 10% increase, the 10th most among Ohio counties. This growth is largely attributable to solar panel manufacturing in Perrysburg, just across the Maumee River from Toledo. This suggests that Wood County is a net importer of labor, mainly from Toledo and Lucas County. During this same period, Lucas County, the Toledo core, added about \$700 million in Real GDP, a 3% increase, but lost almost 9,000 wage-and-salary jobs, the most significant decrease among Ohio counties. Lucas County also lost about 6,500 residents; the second-largest population decrease among Ohio counties.



Columbus

Columbus was built to serve as the state capital at the state's geographic center since its founding. Today, it functions more as a marketplace of ideas and a center of governance than a manufacturing center. While Central Ohio grew slowly during its first 150 years due to a lack of natural transportation advantages, the construction of the interstate highway system in the mid-20th century and the shift of freight shipments from rail and water to trucking put Columbus at the center of major east-west and north-south trade routes, I-70 and I-71. This made Central Ohio an ideal location for supply chain activities and regional distribution centers. In recent decades, the global shift to a knowledge-based economy has well positioned Columbus for more rapid growth than other areas of the state, supported by the state's flagship research university and investments in high-technology industries and services.

Columbus' global shift to a knowledge-based economy, supported by the state's flagship research university and investments in high-tech industries, positioned it for more rapid growth than other areas of the state.

In 2022, the Columbus MSA generated nearly \$169 billion in GDP, making it the 33rd largest metropolitan economy in the US. Notably, Columbus is the only metropolitan region in Ohio that did not fall in the national rankings between 2017 and 2022. During this period, the Columbus MSA added almost 76,000 residents, a 4% increase; 120,000 total jobs, up 9%; 44,000 wage-and-salary jobs, a 4% increase; and more than \$14 billion in Real GDP, up 11%, making it first among Ohio MSAs on each of these measures.

Franklin County, at the heart of the Columbus MSA, is first among Ohio counties in total population and population growth, adding almost 26,000 residents between 2017 and 2022, a 2% increase and the most significant absolute gain in population among Ohio counties. Over this same period, Franklin County ranked first among Ohio counties in growth in total employment, adding 67,000 jobs, up 7%, and second in wage-and-salary employment, adding 15,000 jobs, a gain of 2%. Franklin County also had the most significant gain in Real GDP among Ohio's counties between 2017 and 2022, adding more than \$9 billion in economic value, up 10%. Franklin County encompasses the entire I-270 outerbelt, including the City of Columbus and several well-established growing suburbs adjacent to I-270. It is a hub for the state highway system, with I-70, I-71, US23, and US33 leading to Ohio's other major economic centers and beyond.

Some of the fastest-growing counties in the state surround Franklin County. Licking County to the northeast, I-70, SR37, and SR161, had the highest gain in wage-and-salary employment in Ohio between 2017 and 2022, adding 16,000 jobs, a 27% increase, and more than 20,000 jobs in total, a 25% increase, the fourth most significant gain in total employment among Ohio counties. Licking County's Real GDP increased by \$1.5 billion, up 25% over that period, with significant gains coming from distribution centers, which generate large amounts of truck traffic. In contrast, Licking County added just 7,000 residents over this period, a 4% increase, making it a heavy importer of labor from adjacent counties. The prospect of Intel opening two advanced semiconductor fabrication plants, or fabs, in 2026 or 2027 at the New Albany Business Park just inside Licking County along SR161, is likely to continue this job growth trend, outpacing residential growth. Initially, this will likely draw workforce talent primarily from Franklin County but should accelerate residential growth in Licking County over the long term.



Between 2017 and 2022, Delaware County on the north side of the Columbus MSA, I-71, US23, US42, and US36, had the second largest gain in population among Ohio counties, adding 24,000 residents, a 12% increase. A center for financial services, retail, and the Columbus Zoo and Aquarium, Delaware County posted the fourth largest gains among Ohio counties in Real GDP, a \$2.5 billion increase, up 22%; wage-and-salary employment increased by 6,000, a 6% rise; and total employment increased by 15,500, up 12%, making Delaware County a legitimate economic center.

Two other counties in Greater Columbus, Fairfield to the southeast, US33, and Union to the northwest, US33 and US36, added more than 8,000 residents between 2017 and 2022, the fourth and fifth highest population increases among Ohio counties during that period. Meanwhile, Madison County on the west side of Central Ohio, I-70, US40, and US42, known for agriculture, high-tech manufacturing, and transportation and warehousing, added 5,000 wage-and-salary jobs, a 27% increase, the sixth highest increase among Ohio counties between 2017 and 2022.

Cleveland

With its shipping connections along Lake Erie, Cleveland quickly ascended to a national industrial center during the first half of the 20th century. Cleveland developed specializations in automobiles, steel, and other diverse manufacturing activities and corporations, including Standard Oil. The Cleveland metropolitan region also developed strong trading relationships with other industrial centers, particularly Michigan with automotive and Western Pennsylvania with steel; and close ties to smaller industrial cities in Northeast Ohio, such as Akron, Canton, and Youngstown. Today, Cleveland is much less of an industrial center, having diversified through the growth of the finance and insurance sectors. It is a global leader in healthcare thanks to the Cleveland Clinic.

Cleveland has diversified through growth of the finance and insurance sector and is a national leader in healthcare, thanks to the Cleveland Clinic.

In 2022, the Cleveland-Elyria MSA generated nearly \$163 billion in GDP, making it the 35th largest metropolitan economy among MSAs in the US. The Cleveland MSA ranked third among MSAs in Ohio in GDP, population, total employment, and wage-and-salary employment. From 2017 to 2022, the Cleveland MSA lost nearly 25,000 residents and more than 7,000 wage-and-salary jobs, a roughly 1% decrease. Despite these losses, the Cleveland MSA gained 4.5% in total jobs while increasing Real GDP by \$9.6 billion, up 7.5%, the third largest increase among Ohio's MSAs.

Since the 1980s, the Cleveland area has steadily lost population in the urban core and become more suburban, with recent growth to the south and west. Between 2017 and 2022, Lorain County, west of Cleveland in the I-90 corridor along Lake Erie, added almost 8,000 residents, a 2.5% increase, the sixth largest gain in population among Ohio's counties. During the same period, Lorain County lost about 2,000 wage-and-salary jobs, a 2% decrease, but due to self-employment, it had a net gain of more than 6,000 jobs, 5%, gaining just 1% in Real GDP. Medina County, south of Cleveland on I-71, increased its population during 2017-2022 by about 4,000, up 2%, but experienced flat growth in wage-and-salary jobs and Real GDP. At the Cleveland-Elyria MSA's core, Cuyahoga County lost more than 36,000 residents between 2017 and 2022, a 3% decrease, the single highest decline in population among Ohio counties. Cuyahoga also lost more than 4,000 wage-and-salary jobs, the sixth most among Ohio counties, but due to self-employment, registered a net gain of more than 41,000 jobs, the second highest among Ohio counties, and saw its Real GDP increase by more than \$9 billion, up 10%, also the second largest increase among Ohio counties.



Northeast Ohio Cities

Outside of Cleveland, other Northeast Ohio cities have developed specializations, such as **Akron** with rubber, **Canton** with machinery, and **Youngstown** with steel. These industrial centers have also developed close trading relationships with Cleveland, Western Pennsylvania, and West Virginia industries.

In 2022, the **Akron** MSA generated nearly \$45 billion in GDP, making it the 86th largest metropolitan economy among MSAs in the US, falling just behind Toledo in the national rankings but remaining the fifth largest MSA in Ohio in population, ahead of Toledo, despite a 1% decline. Akron gained \$1.3 billion in Real GDP between 2017 and 2022, up 3.5%, while losing more than 5,000 wage-and-salary jobs, a 1.5% drop, and gaining 3.5% in total jobs. The Akron MSA remains a center for the rubber tire industry and other chemical product manufacturers. Its proximity to the Cleveland and Canton MSAs enables Akron to provide regional healthcare and other services to businesses and households in these major markets.

In 2022, the **Canton-Massillon** MSA generated nearly \$23 billion in GDP, making it the 149th largest metropolitan economy among MSAs in the US. The Canton MSA was the only major MSA in Ohio that did not grow in Real GDP between 2017 and 2022, declining by less than half a percent while losing more than 3,000 residents, a 1% decrease. During this period, the MSA also lost more than 5,500 wage-and-salary jobs, down 3%, while gaining more than 2% in total jobs. Once the home of Hoover vacuum cleaners, which moved productions elsewhere, the Canton metropolitan area continues to hold on to some of its manufacturing bases and has developed a stronger retail sector. Canton's proximity to the Akron metropolitan area remains a crucial intermarket linkage.

In 2022, the **Youngstown-Warren-Boardman**, OH-PA MSA generated nearly \$25 billion in GDP, making it the 142nd largest metropolitan economy among MSAs in the US, slipping 11 places in the national rankings since 2017. The Youngstown metropolitan area was hit particularly hard with job losses between 2017 and 2022, losing almost 12,000 wage-and-salary jobs, a 5% decrease, while registering flat growth in Real GDP over the same period. The Youngstown MSA also lost 12,000 residents, down 2%, the second-highest decrease in population among Ohio MSAs. In many ways, the Youngstown area's fortunes are tied to the nearby Pittsburgh metropolitan area, which lost 1% of its population and experienced flat growth in GDP over the same period.



WORKFORCE

Introduction

Ohio's workforce is the backbone of the state's economy, and fluctuations in the workforce can have ripple effects on the state's demographics and economics. While each of Ohio's regions faces unique opportunities and challenges, data presented in this section primarily depicts statewide trends. It delves into Ohio's workforce's historical and existing characteristics, current and emerging challenges, and future projections.

Key Findings

- Workforce participation rates have declined across all regions over the past 30 years. Many factors impact this trend, including the overall population aging, as described in the demographics section of this chapter, and declines in certain labor-intensive industries.
- Despite declining participation rates, the workforce size has increased in metropolitan regions across the state. Steady growth along interstate corridors between Columbus and Cincinnati contributes to a developing megalopolis of employment and economic activity. At the same time, the Columbus region's footprint continues to expand.
- Remote work has become the second-most common commuter mode in much of the state, including Central and Southwest Ohio. Leading industries are generally more flexible for remote work, while manufacturing industries, particularly those in Northwest and Northeast Ohio, rely more on standard work schedules for skilled employees.
- There is a negative correlation between labor participation and commute times at the county level, with counties in Southeast Ohio showing the longest commute times and the lowest labor force participation.
- Workforce access is forecasted to decline in Northeast, Southeast, and Northwest Ohio over the coming decades. It is forecasted to increase in the urban cores of Central and Southwest Ohio. This change is primarily due to population declines and an aging workforce population in these regions.
- Stakeholders frequently noted the challenge of attracting and retaining a sufficient workforce.
- Despite the forecasted increase in workforce needs in Central and Southwest Ohio, employers in Columbus and Cincinnati may see fewer workers within a 40-minute commute by 2055 due to increased congestion. This trend threatens the transportation system's ability to support a growing economy and workforce.



Workforce Overview

Workforce Demographics

According to the US Census Bureau, the workforce consists of people aged 16 and older who are employed or actively seeking employment (i.e., those who have looked for work or applied for jobs within the past four weeks). The workforce can be calculated for any geographic level or population group tracked in the ACS. Depending on the geography used for the estimate, the workforce represents people who can participate in the local, regional, state, or national economy.

The workforce participation rate is an essential indicator of economic health, as it represents a sense of confidence among working-age people that jobs are available and that they have the skills and abilities necessary for employment. A higher workforce participation rate signals to businesses that people are engaged and available to work, encouraging these businesses to invest and expand in the area. The workforce participation rate also affects the transportation system, which signals high commuting activity for work trips. Even in the post-pandemic era, when more workers can work from home and telecommute, traveling to and from jobs is still critical for most workers. Since many employers, particularly those in the service industries, set firm rules about workday start and end times, having a reliable and predictable commute is critical for workers.

Workforce commuting is also crucial in transportation planning and investment decisions, particularly in high-commute corridors. Peak-hour commuting often creates congestion along major corridors and locations where vehicles leave the interstate or highway system to access local roads and the “last mile” to their place of employment. When economic development occurs faster than the transportation system can produce more capacity or multimodal options for workers filling recently created jobs, safety and congestion problems can result. Managing infrastructure and deploying new technologies and services, including alternative transportation modes, are critical for a transportation system to support workforce commuting needs and enable an efficient work commute.

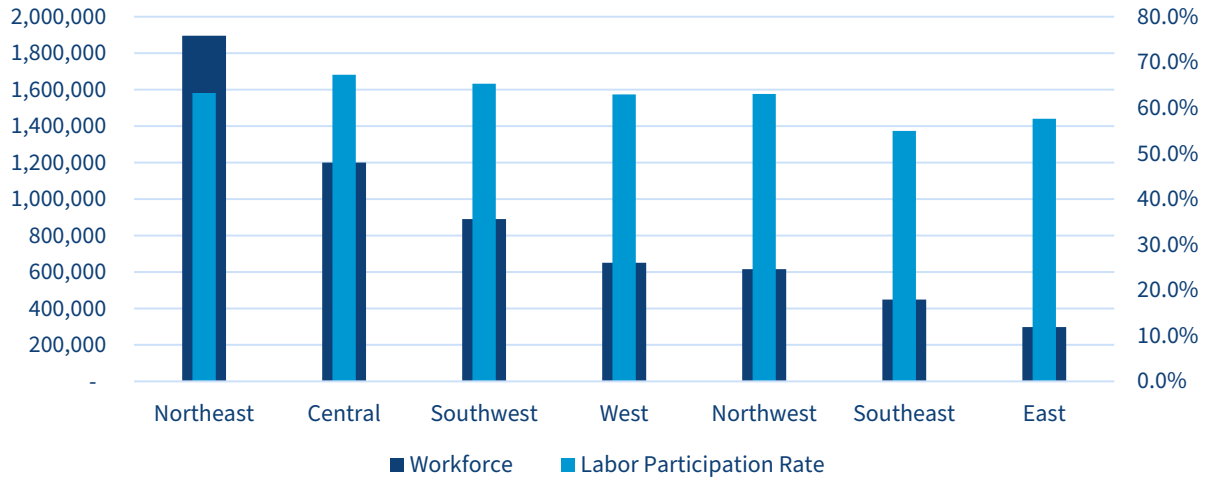
The workforce and the businesses that employ Ohio workers are not a monolith of commuting patterns. Many different industries have different labor demands. The traditional working hours of 9 a.m. to 5 p.m., prevalent for many white-collar jobs, are still interpreted as the “default” or “standard” working hours. The morning and evening peak-hour congestion that occurs is often attributable to employees in these jobs traveling to and from their work. Even in the post-pandemic era, when more people are working from home, peak-hour congestion caused by work commutes mixing with school and other recurring traffic patterns is still a significant feature of the transportation system.

Many industry sectors, such as trade and transportation, manufacturing, and healthcare, employ workers on a 24-hour basis. The congestion caused by these “non-traditional” work shifts may be more localized to the “last mile” of the workers’ commutes. However, they can still significantly impact local transportation systems when these shifts begin and end.

Figure 2.54 shows the size of the labor force and participation rate in each region in 2022. On average, 6 million Ohioans participated in the workforce during that time. Southeast Ohio had the lowest workforce participation rate at 54.9%; Central Ohio had the highest rate at 67.3%.



FIGURE 2.54—WORKFORCE POPULATION AND PARTICIPATION RATE BY OHIO REGION, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

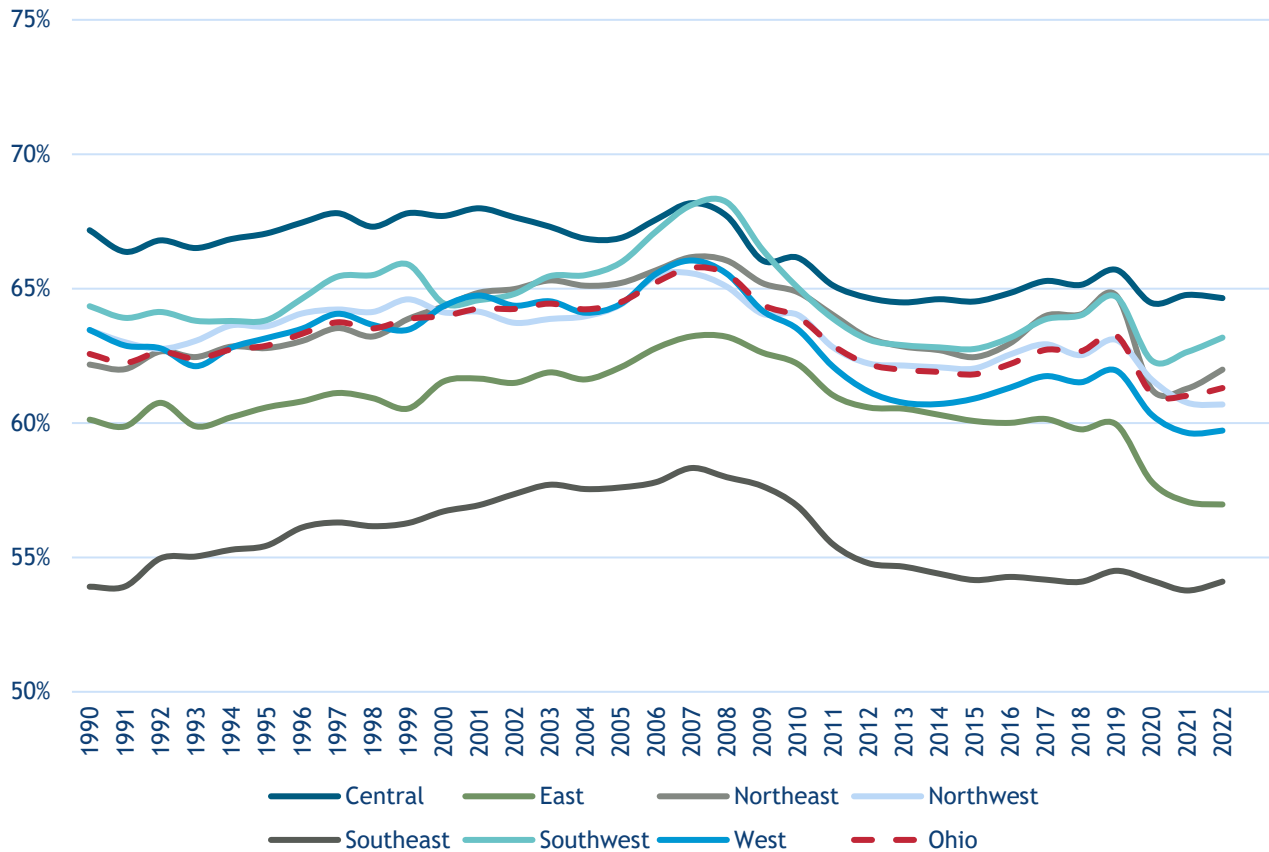
Note: The workforce population is the labor force or all non-institutionalized civilians over 16 who are either employed or unemployed.

Figure 2.55 shows the change in workforce participation rates in Ohio regions and statewide between 1990 and 2022. In 2020, workforce participation rates in all regions were approximately 4 to 5 percentage points lower than in 1990 and 5 to 6 percentage points lower than in 2007. This indicates that the state has not recovered its full labor participation since the Great Recession.

Regions’ workforce participation rates stay within 1 to 2 percentage points of the statewide rate. Since 1990, the workforce participation rates of Northeast and West Ohio have been lower than the statewide rate, while the labor workforce participation rates of Northwest and Southwest Ohio have been higher. Although the trends are consistent, Central and Southeast Ohio deviate from the statewide values more dramatically. Central Ohio’s workforce participation rate is consistently the highest in the state, outperforming the statewide rate by approximately 5 percentage points. Southeast Ohio is consistently the lowest in the state, underperforming the statewide rate by 7 to 8 percentage points.



FIGURE 2.55—WORKFORCE PARTICIPATION RATE, 1990–2022



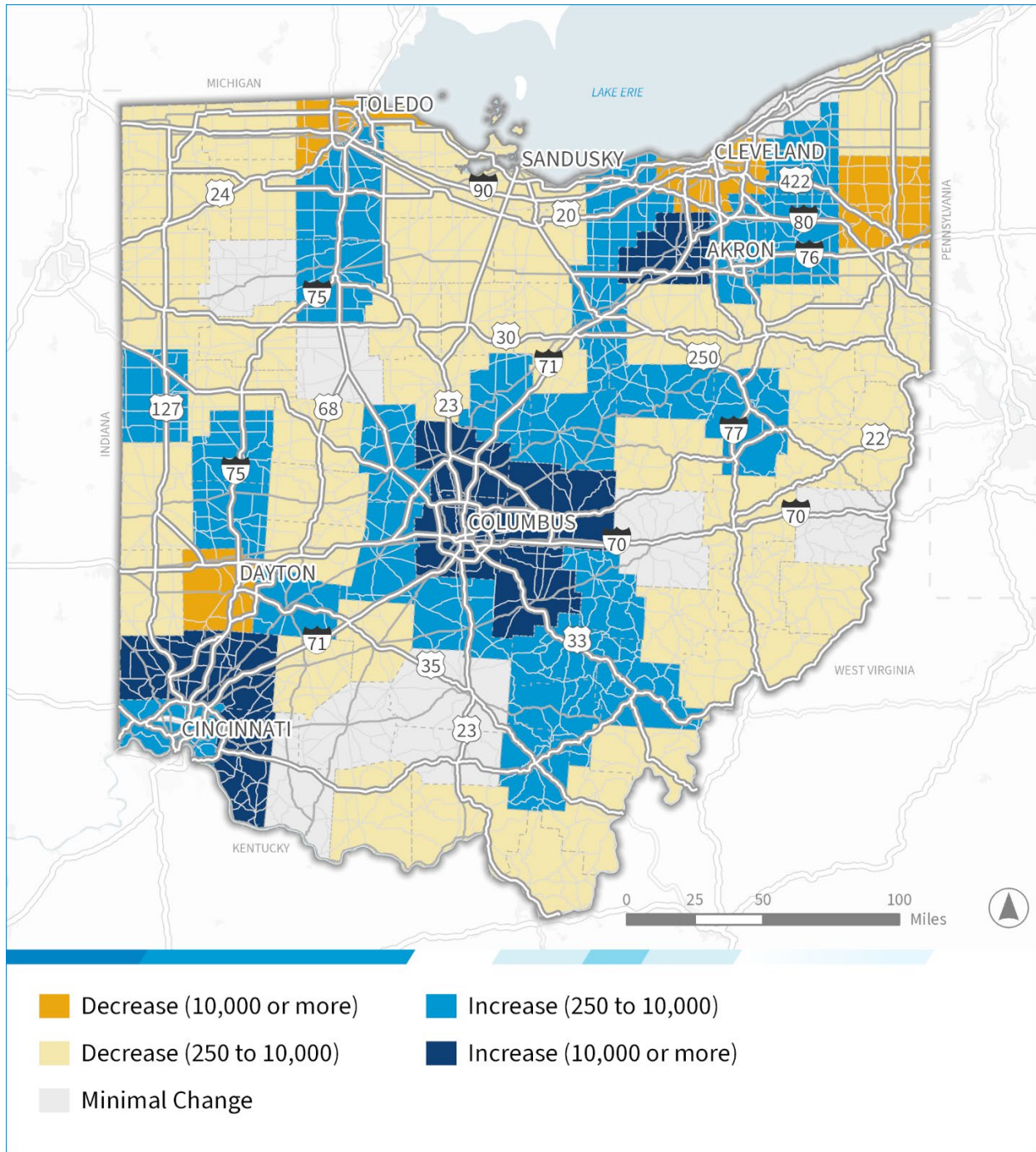
Source: US Census Bureau, Intercensal Estimates of the Resident Population for Counties of Ohio and ACS, Bureau of Labor Statistics Local Area Unemployment Statistics

Note: For workforce population, the ratio of total population is adjusted by the ratio of Ohio’s 2020 population age 16 and over/total population across all years and regions due to data availability.

While the workforce participation rate has shown net declines across regions, changes in the total size of the workforce are more varied. **Figure 2.56** shows the total change in workforce size between 2000 and 2020 at the county level. Most Ohio counties have seen a decrease in the size of their workforces, likely due to an aging population and statewide population losses. However, counties in and around major metropolitan regions, including Cleveland, Toledo, Cincinnati, Dayton, and Columbus, have seen workforce increases. Columbus and Cincinnati stand out, with multiple counties in each region experiencing a workforce increase of more than 10,000 people. These trends demonstrate that metropolitan areas are economic engines for the state and that those engines are encouraging more people to either seek or maintain employment over this period.



FIGURE 2.56—TOTAL CHANGE IN CIVILIAN WORKFORCE BY COUNTY, 2000 TO 2016–2020



Source: US Census Bureau, Decennial Census, 2000, 2016-2020 ACS 5-Year Estimates, 2024



These trends also show the emergence of an economic mega-region from Cincinnati to Dayton to Columbus, with almost every county along the I-71 corridor growing its workforce over this period. Additionally, the Columbus region's economic influence has extended along the US33 and US23 corridors as multiple counties along these state highways have added to their workforce.

Figure 2.57 shows the breakdown of workforce participation rates across the education attainment levels for each Ohio region in 2022. For all regions, workforce participation increases as educational attainment increases. The statewide figures increase from 39.2% for people with less than a high school degree to 75.2% for those with at least a bachelor's degree. This trend is consistent with broader macroeconomic trends related to educational attainment and credentialing. Regional variations in workforce participation across educational attainment levels are minimal and likely to correlate with each region's broader workforce participation dynamics. Central Ohio consistently has the highest rates of workforce participation across all levels of educational attainment, while Southeast Ohio has the lowest rates of workforce participation.

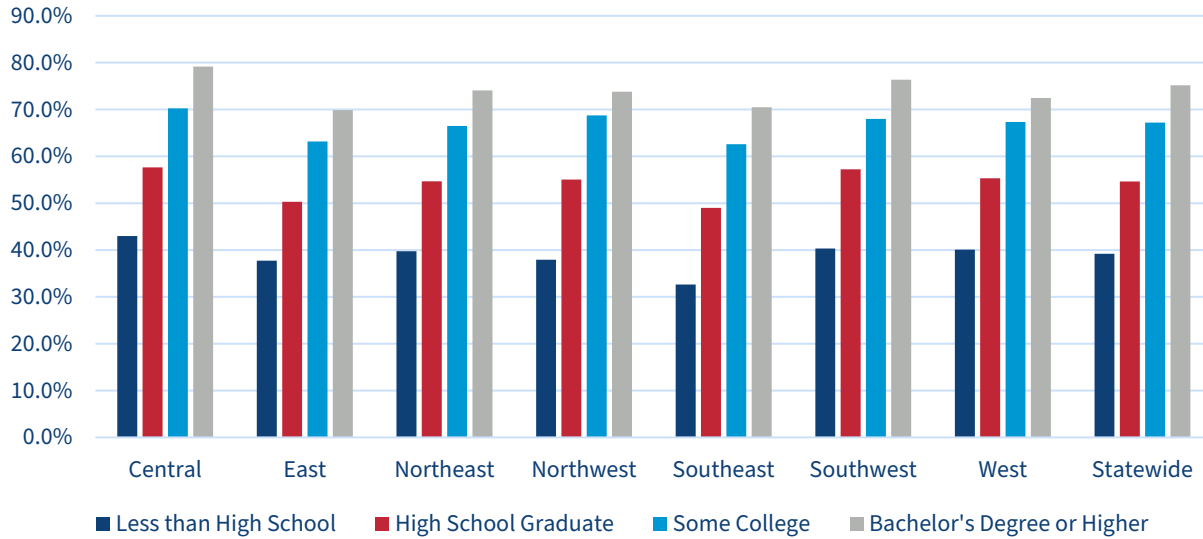
Figure 2.58 shows the distribution of Ohio's workforce across educational attainment levels in each region. Central and Southwest Ohio are the only regions with over 40% of the workforce holding at least a bachelor's degree. At the same time, East, Northwest, and Southeast Ohio are the only regions with over 35% of the workforce holding a high school diploma or less. During the Sandusky listening session, participants highlighted a lack of four-year higher education institutions in a four-county area around Sandusky. Participants in East Ohio consider attracting and retaining college graduates necessary for future growth.

Figure 2.59 shows the distribution of Ohio's workforce across age ranges in each region. The distribution is consistent across most of the regions. Except for Central Ohio, every region's workforce has 39% to 42% of 25- to 44-year-old workers and 36% to 40% of 45- to 64-year-old workers. The Northwest stands out from this group for having the highest percentage of 16- to 24-year-old workers at 16.2%, compared to an average of 14.8%. However, Central Ohio has a much higher share of 25- to 44-year-old workers at 46.1%. Furthermore, Central Ohio is the only region with a higher percentage of workers aged 25- to 44-years-old than those aged 45 or older. These statistics indicate that while Ohio's workforce skews toward older workers, Central Ohio continues to attract younger workers who are in the prime of their careers. This dynamic gives Central Ohio a competitive advantage for workforce development.

Most Ohio counties have seen a decrease in the size of their workforces, likely due to an aging population and statewide population losses. Counties in and around metropolitan areas, however, have seen workforce increases. These areas are economic engines for the state.

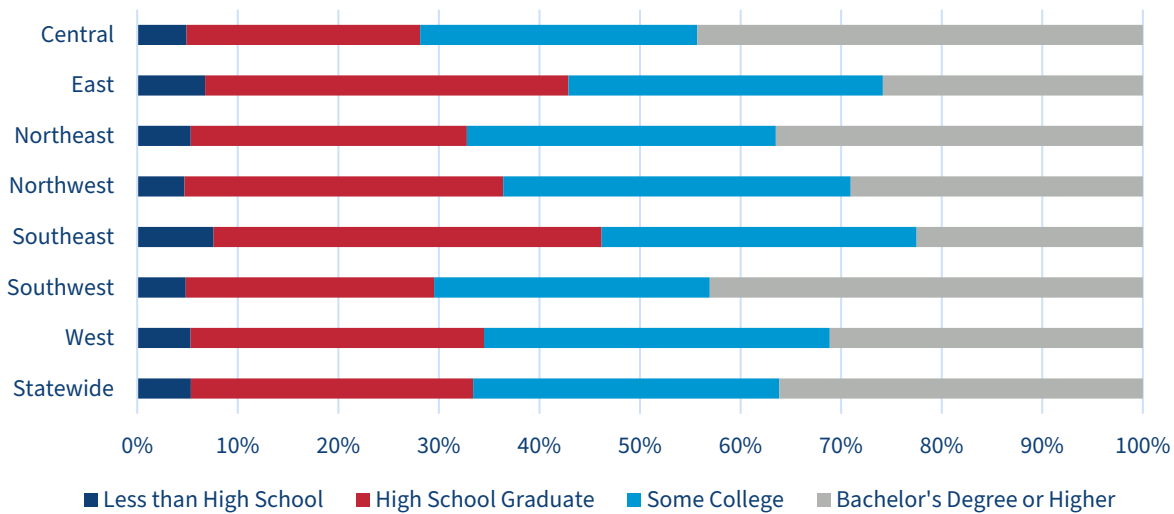


FIGURE 2.57—WORKFORCE PARTICIPATION RATES BY EDUCATIONAL ATTAINMENT, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

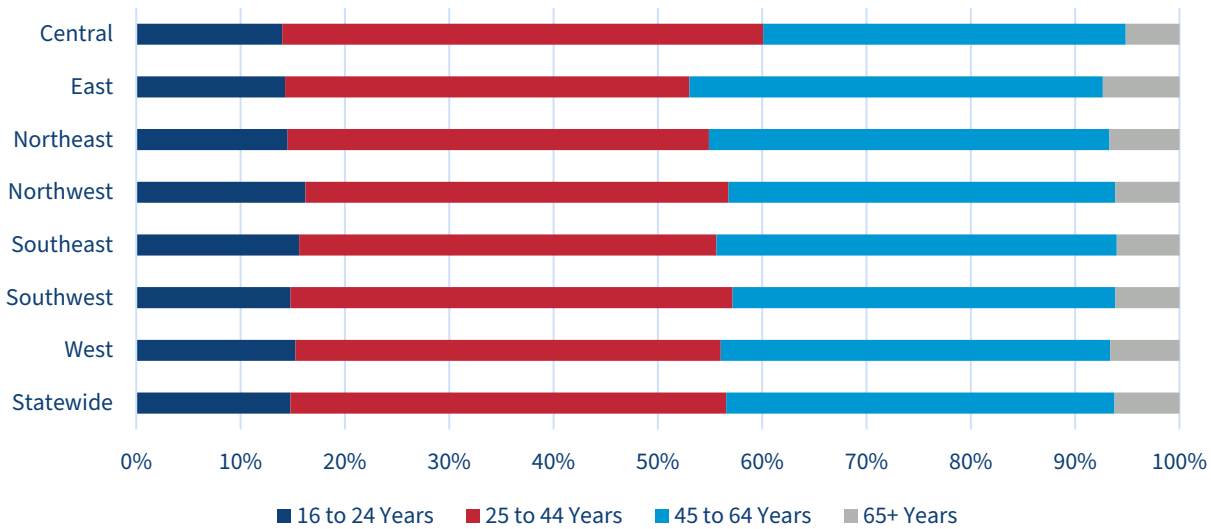
FIGURE 2.58—SHARE OF OHIO WORKFORCE BY EDUCATIONAL ATTAINMENT, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



FIGURE 2.59—AGE DISTRIBUTION OF OHIO’S WORKFORCE, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

Figure 2.60 shows the share of Ohioans ages 25 to 44 in each county throughout the state. This factor is particularly important when evaluating Ohio’s workforce, as the 25 to 44 age range is considered the “prime working age” for Ohioans. This is the age range in which people expect to establish and advance in their careers. Therefore, they are contributing steadily to productivity and economic growth. This age range also represents when people are starting or growing families and purchasing houses to raise them, meaning they seek communities that represent good investments and opportunities for long-term residence. The strength of the local or regional economy and the quality of local amenities such as schools, parks, bike trails, and community spaces are critical factors for these decision-making processes.

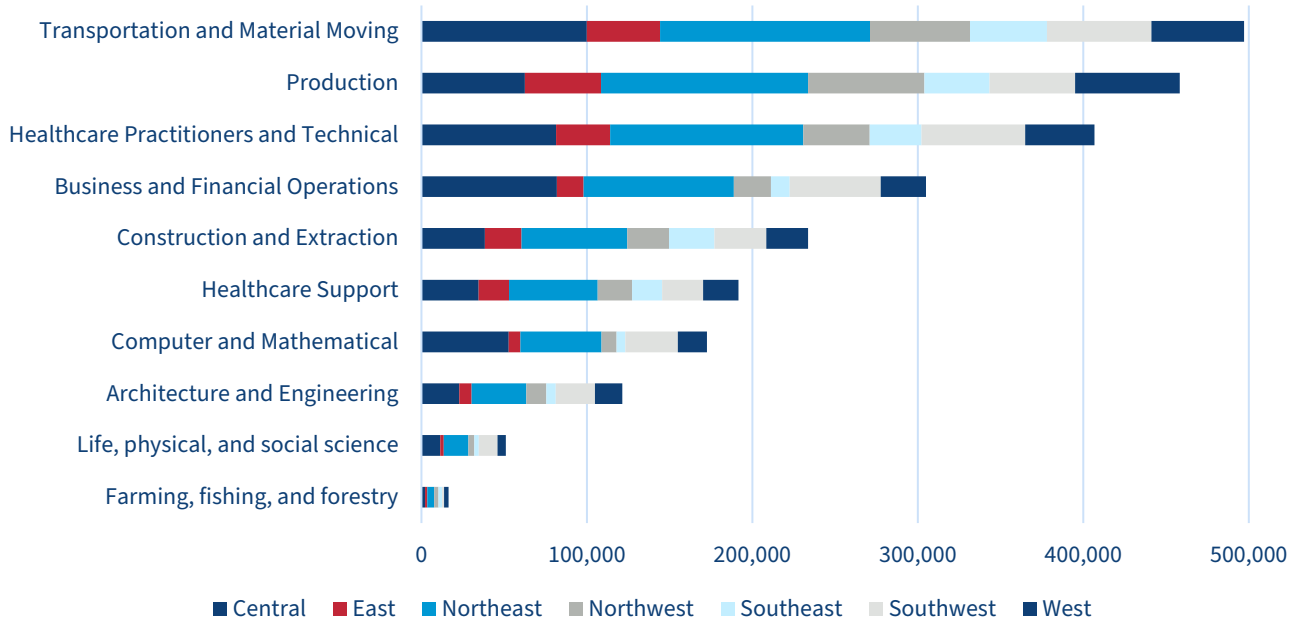
For most Ohio counties, people aged 25 to 44 represent less than 25% of the total population, including most counties in Southeast, East, Northeast, and Northwest Ohio. This population group is noticeably larger in Central, West, and Southwest Ohio. Hamilton, Warren, and Montgomery counties all show a share of over 26% of the population for this age group. The Columbus metropolitan area shows a widespread footprint of counties with a higher prevalence of the 25 to 44 age group, including Franklin County and most suburban counties to the east, south, and west of Columbus. This age group has more flexibility in their place of residence and is typically located closer to existing employment centers.



Figure 2.61 shows the breakdown of employment across Ohio regions in 2022 in target occupations. These represent strategically significant positions across multiple industries. The single largest category of occupational employment is transportation and material moving, which highlights the significant role that the transportation and warehousing industry plays in Ohio. These occupations represent 20.3% of total occupational employment across the state and are the largest or second-largest category of occupational employment across all regions. Production occupations, representing the manufacturing sector, represent the second-largest share of total occupational employment at 18.7% and are the largest occupational category in West and Northwest Ohio. Notably, the production sector has a smaller footprint in Central Ohio, representing 12.8% of occupational employment and the fourth-largest sector.

While these two occupational categories demonstrate the strength of Ohio’s legacy industrial footprint in the supply chain and manufacturing sectors, the other two occupational categories representing more than 10% of total occupational employment demonstrate the more recent shifts toward knowledge-based and service-based work. Healthcare practitioners, technical occupations, and business and financial operations occupations represent 16.6% and 12.4% of total occupational employment, respectively. However, the business and financial operations occupation sector shows greater variation across regions, ranging from 5.9% of occupational employment in Southeast Ohio to 16.8% in Central Ohio. The comparatively large share of business and financial operations occupations in Central Ohio is consistent with the region’s comparatively large share of workers who hold a bachelor’s degree or higher, shown in **Figure 2.58**, as these occupations are more likely to require at least a bachelor’s degree for their workers.

FIGURE 2.61—TARGET SECTOR EMPLOYMENT BY REGION, 2018–2022



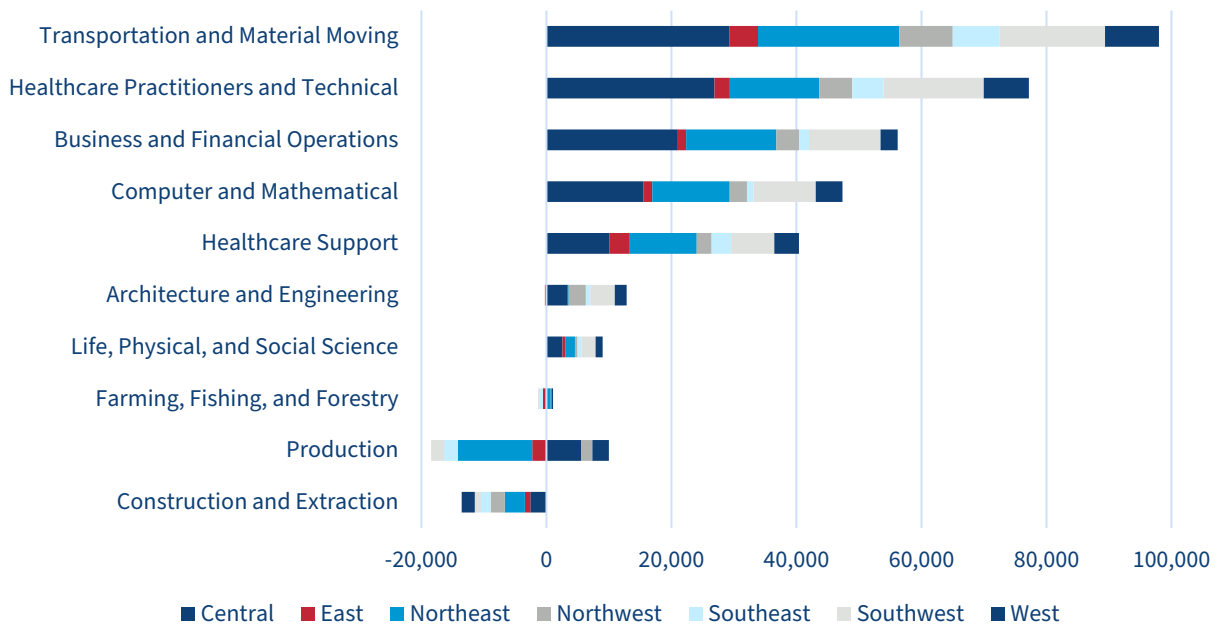
Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



Employment growth between 2010 and 2020 has been positive in nearly every occupational sector, shown in **Figure 2.62**. However, growth is concentrated in three sectors: transportation and material moving, healthcare practitioners and technical, and business and financial operations. These are the only three sectors to add more than 50,000 jobs statewide during this period, with the latter adding nearly 98,000 jobs. Healthcare practitioners and technical staff, business and financial operations, and computer and mathematical occupations were consistently among the largest-growing sectors, showing the increasing importance of the knowledge economy to Ohio’s economy, consistent with national trends. However, production, manufacturing, also remains important to the Ohio workforce, particularly in West and Northwest Ohio, where the sector contributed 9% and 7% of job growth, respectively. Three occupational sectors lost jobs during this period: construction and extraction, production, and farming, fishing, and forestry.

Central and Northeast Ohio show the most job growth across all sectors, indicating that their status as population centers still translates into economic growth. Central Ohio’s largest-growing sector was transportation and material moving, while the Northeast’s was business and financial operations. However, a noticeable gap in Northeast Ohio’s employment growth is the production sector, which lost over 11,000 jobs from 2010 to 2020.

FIGURE 2.62—OCCUPATIONAL GROWTH BY REGION, 2010–2020



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



Current and Potential Workforce Challenges

A review of recent strategies developed by OWT supports stakeholders' challenges identified during the Study interviews and regional listening sessions. These strategies include the [Electric Vehicle Workforce Strategy](#), the [Auto and Advanced Mobility Workforce Strategy](#), and [Strengthening Ohio's Broadband & 5G Workforce](#). Four workforce themes emerged through the research and stakeholder insights: transportation, skills, age, and quality of life.

Transportation: A lack of multimodal options, including transit, active transportation infrastructure, and multimodal hubs, makes commuting more difficult; especially for workers who are low-income, do not own a personal vehicle, or live far from their place of work, “far” being relative to each region. Public transit routes typically stay within county lines and may not operate frequently or late at night. There are often few or no public transit services in rural areas.

Skills: Current workforce training, development, and upskilling opportunities may be inadequate to meet the growing need for workers in specific sectors, advanced manufacturing jobs. In many cases, emerging trades are not adequately promoted to the incoming workforce. OWF has found a disconnect between the skills employers seek and those taught in schools. Statewide, Ohio has an Unemployed Persons Per Job Opening ratio of 0.6, meaning there are more job openings than people looking for work.

Age: Attracting and retaining workers is a leading challenge across Ohio. Young workers are difficult to attract, especially in areas that face competitive challenges for marketing robust quality of life opportunities or are not directly supported by educational institutions. The existing workforce is aging, and there are not enough young workers backfilling their positions as they retire. According to the Scripps Gerontology Center at Miami University estimates generated in 2018, by 2030, 73 of 88 Ohio counties will have populations with at least 25% of people aged 60+ years. Many regions experiencing population stagnation or loss attribute a lack of workforce to the aging population trend.

Quality of Life: The chief quality of life issue impacting Ohio's workforce is a lack of affordable and multifamily housing and, in some regions, any available type of housing. Workers may be attracted to a job, but there are mismatches between wages and housing prices and types. With workers moving for employment opportunities, adequate amenities for their families, including schools, recreation and access to healthcare, are essential. A lack of cultural and social opportunities or reliable high-speed internet drives young workers away from smaller towns and rural areas into primarily urban areas.



Impact of National and Global Workforce Trends on the State

According to workforce and labor shortage research conducted by the [US Chamber of Commerce](#) at the national and state level, in Ohio with the workforce's large aging population, resources will be needed to backfill positions, and an increase in jobs related to eldercare will also be needed. This will impact areas of Ohio with large healthcare industries, such as Northeast Ohio with the Cleveland Clinic, University Hospital, and the MetroHealth System, and Central Ohio with The Ohio State University Medical Center, Ohio Health, Mount Carmel, and Nationwide Children's Hospital.

Demand for jobs in information technology (IT) continues to grow. Ohio is now a primary site for many global technology companies, including Intel, Meta, Google, Amazon Web Services, IBM, Upstart, and Carvana. With similar companies and their suppliers locating in Ohio, the state should expect an increase in its workforce participating in technology-focused jobs. This is mainly oriented around Intel's commitment to develop a skilled talent pipeline for its over \$20 billion investment in new chip fabs under construction in Central Ohio through its Ohio Semiconductor Education and Research Program. Intel is providing \$17.7 million for eight proposals from leading institutions and collaborators in Ohio to develop semiconductor-focused education and workforce programs.

The US population is anticipated to grow from 333.3 million in 2022 to 362.45 million in 2055 based on the [US Census Bureau 2023 National Population Projections](#). Natural change is projected to be negative with deaths surpassing births, meaning that population growth is fully driven by international migration, which is anticipated to steadily increase annually through 2055.

While the national population is anticipated to continue to grow, labor force participation has decreased during the past 20 years and may continue to do so. People ages 25 to 54 have lower labor force participation, citing reasons such as going back to school, becoming family members' caregivers, or not having the matching skill sets for available jobs. Increased autonomy in some industries is also replacing job opportunities. As noted earlier, these national trends are also reflected in Ohio's workforce and can be expected to continue to follow national trends.

The US typically has many foreign nationals attending college and taking on innovative, skilled positions. A decrease in immigration to the US, a 76% drop during the height of the pandemic, is one factor leading to current labor shortages. However, Ohio has seen an increase in international migration since 2021. Ohio is home to five Carnegie Research Institutions: Ohio University, Kent State University, University of Cincinnati, The Ohio State University, and Case Western Reserve University. There also are several other higher education institutions that draw global talent.



Commute Patterns and Workforce Access

Across all industries, workers' commute mode choices are consistent throughout Ohio. Driving alone is the dominant mode choice in all regions, ranging from a low of 74.5% of all commute trips in Central Ohio to a high of 83.2% of trips in Northwest Ohio. The second-most common mode choice is carpooling for Northwest, West, and Southeast Ohio, ranging from 7.6% to 8.9% across all industries, and remote work for Northeast, Central, and Southwest Ohio, ranging from 9.5% to 14.1% for all industries.

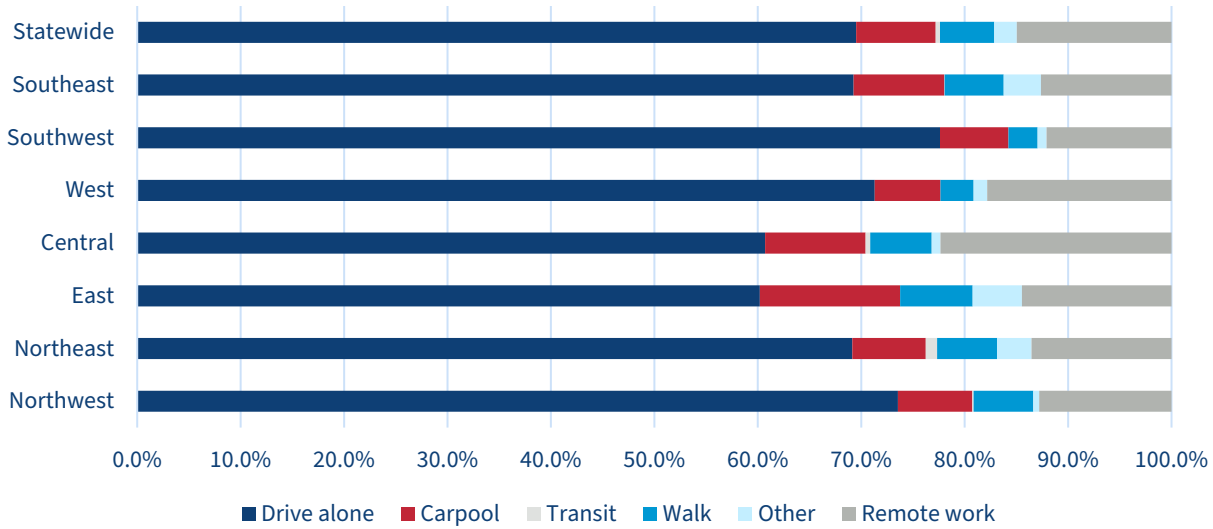
Figure 2.63 through **Figure 2.70** on the following pages show the distribution of commute mode choices for workers in each region and statewide for different industry sectors in 2022. While patterns across regions show minor variation in mode choice shares, variation across industries is more noticeable. Namely, remote work makes up a significantly higher proportion of mode choice among workers in the knowledge sectors than those relying on manual labor. Retail trade; manufacturing; construction; transportation and warehousing and utilities; the arts, entertainment and recreation; and accommodation and food services sectors all have statewide work-from-home commute mode shares less than 7%. Excluding the armed forces sector, work from home ranges from a low of 2.8% for Northwest Ohio workers in the arts, entertainment and recreation and accommodation and food services sectors to a high of 30.6% for Central Ohio workers in the information sector.

Central Ohio and Southwest Ohio have a higher percentage of remote work commuters than the statewide percentage across nearly every sector. In comparison, Northwest Ohio and Southeast Ohio have fewer remote work commuters than the statewide percentage. East and Northeast Ohio vary in their comparison of remote work commuter shares to statewide averages for different sectors. However, overall, they have fewer remote work commuters than the statewide average.

These trends may be attributable to the concentration of knowledge sectors in Central and Southwest Ohio. Sectors that locate businesses or facilities in these regions may place their administrative or back-office functions in these regions, even if most of their activity and output is driven by more manual labor-related tasks. Regional congestion may also affect the high commute mode share for remote work, shaping commuter preferences for remote work with longer commutes.

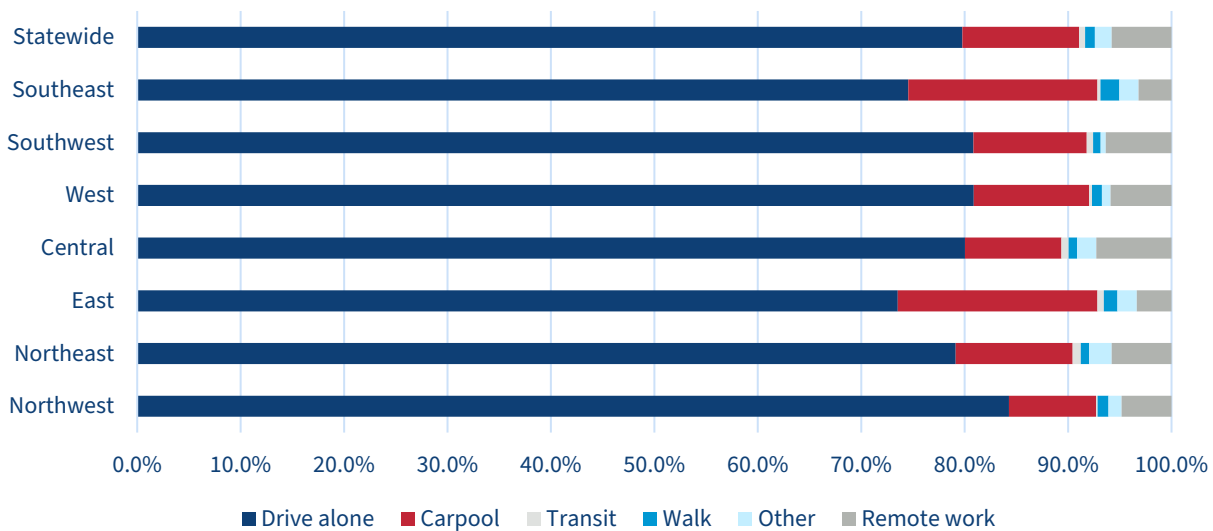


FIGURE 2.63—COMMUTE MODE SHARE FOR WORKERS IN THE AGRICULTURE, FORESTRY, FISHING AND HUNTING, AND MINING SECTORS, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

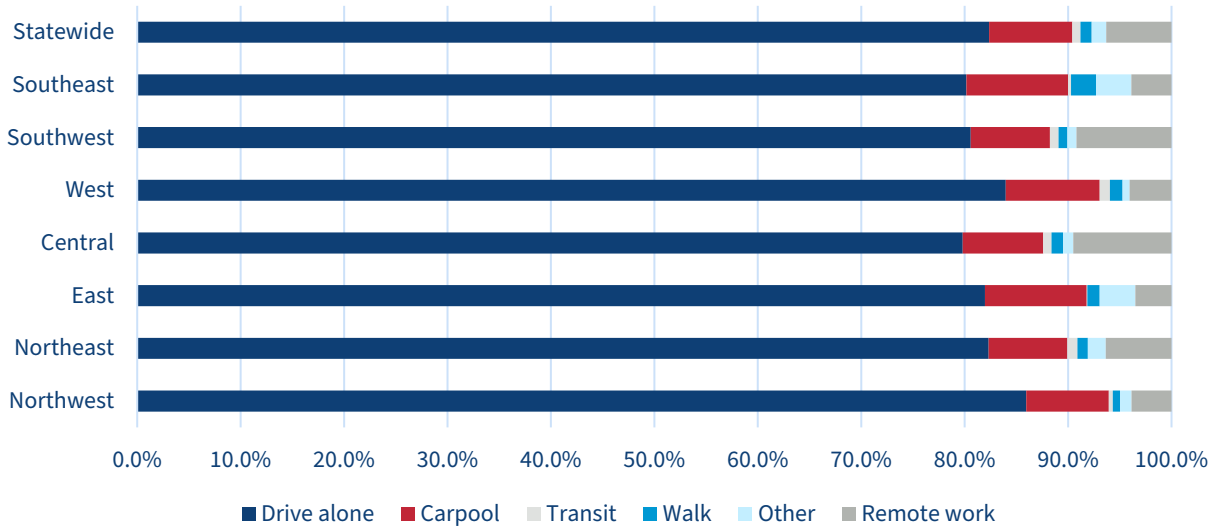
FIGURE 2.64—COMMUTE MODE SHARE FOR WORKERS IN THE CONSTRUCTION SECTOR, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

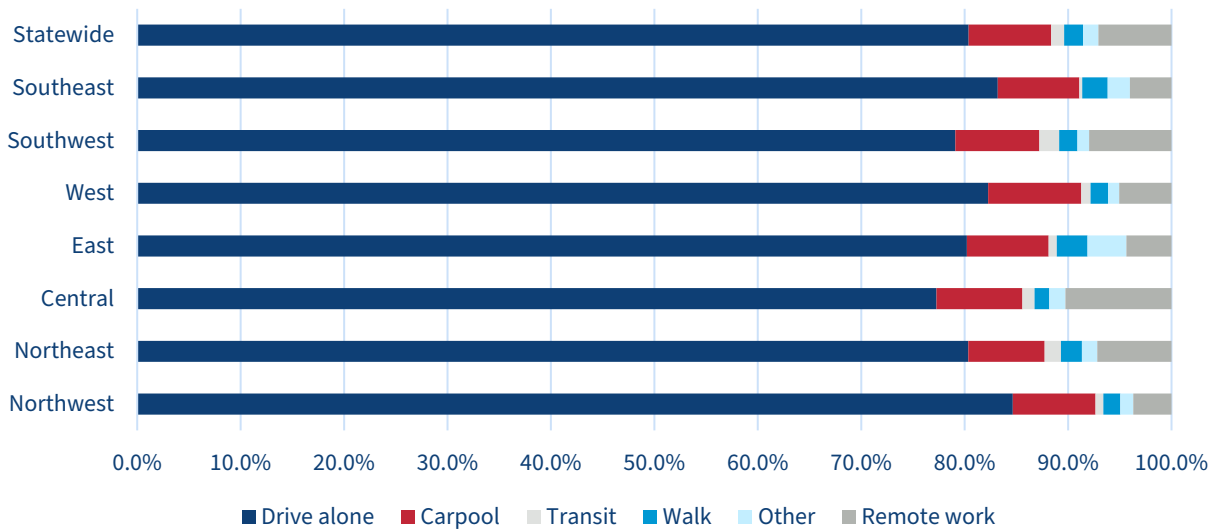


FIGURE 2.65—COMMUTE MODE SHARE FOR WORKERS IN THE MANUFACTURING SECTOR, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

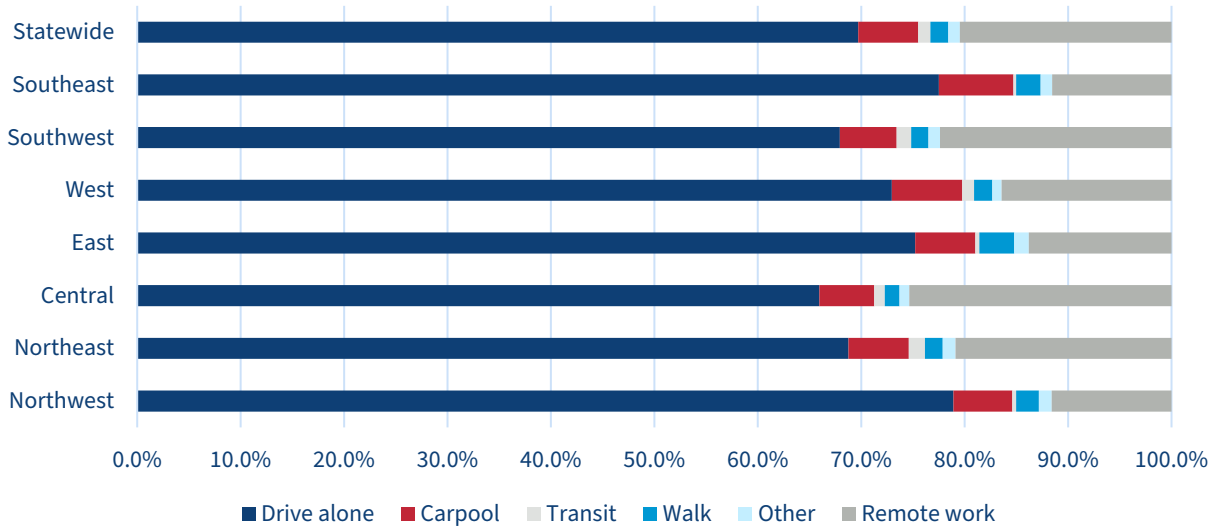
FIGURE 2.66—COMMUTE MODE SHARE FOR WORKERS IN THE TRADE, TRANSPORTATION AND UTILITIES SECTORS, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

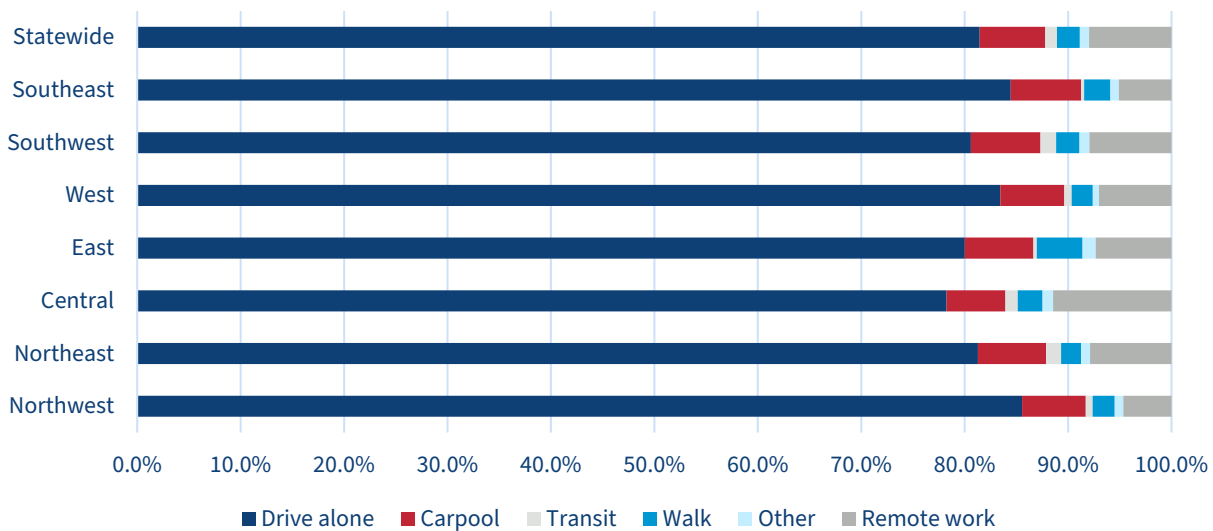


FIGURE 2.67—COMMUTE MODE SHARE FOR WORKERS IN THE PROFESSIONAL SERVICES SECTORS, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

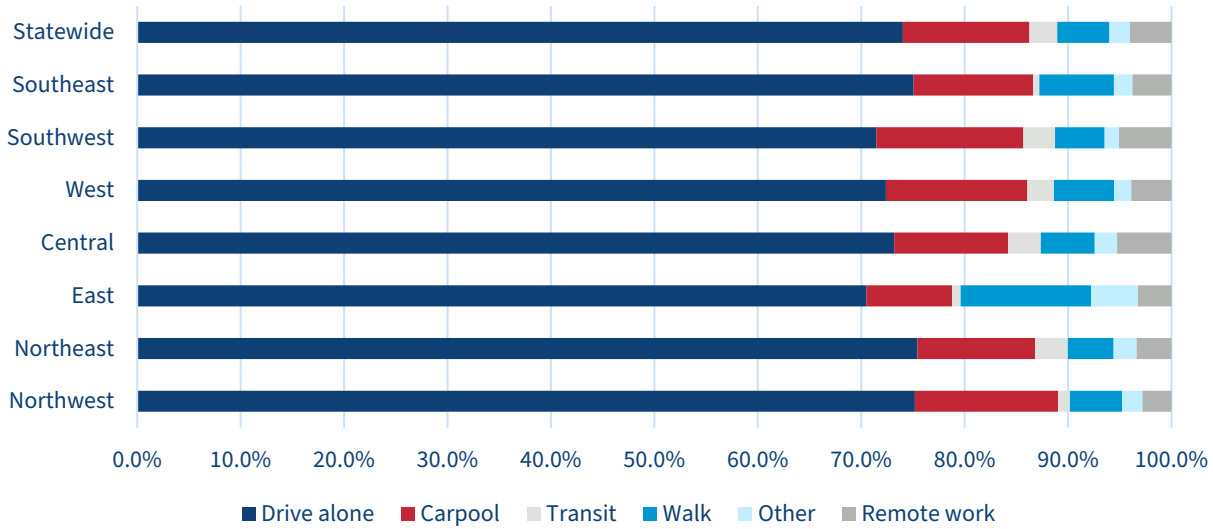
FIGURE 2.68—COMMUTE MODE SHARE FOR WORKERS IN THE PUBLIC ASSISTANCE AND PUBLIC ADMINISTRATION SECTORS, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

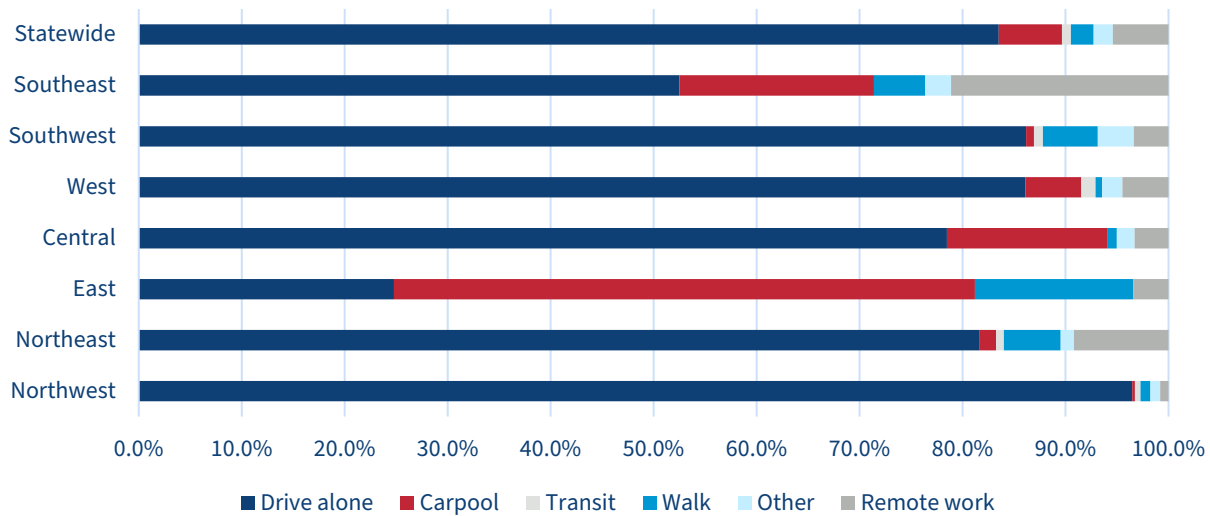


FIGURE 2.69—COMMUTE MODE SHARE FOR WORKERS IN THE ARTS, ENTERTAINMENT, RECREATION, ACCOMMODATION AND FOOD SERVICES SECTORS, 2018-2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

FIGURE 2.70—COMMUTE MODE SHARE FOR WORKERS IN THE ARMED FORCES SECTOR, 2018-2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

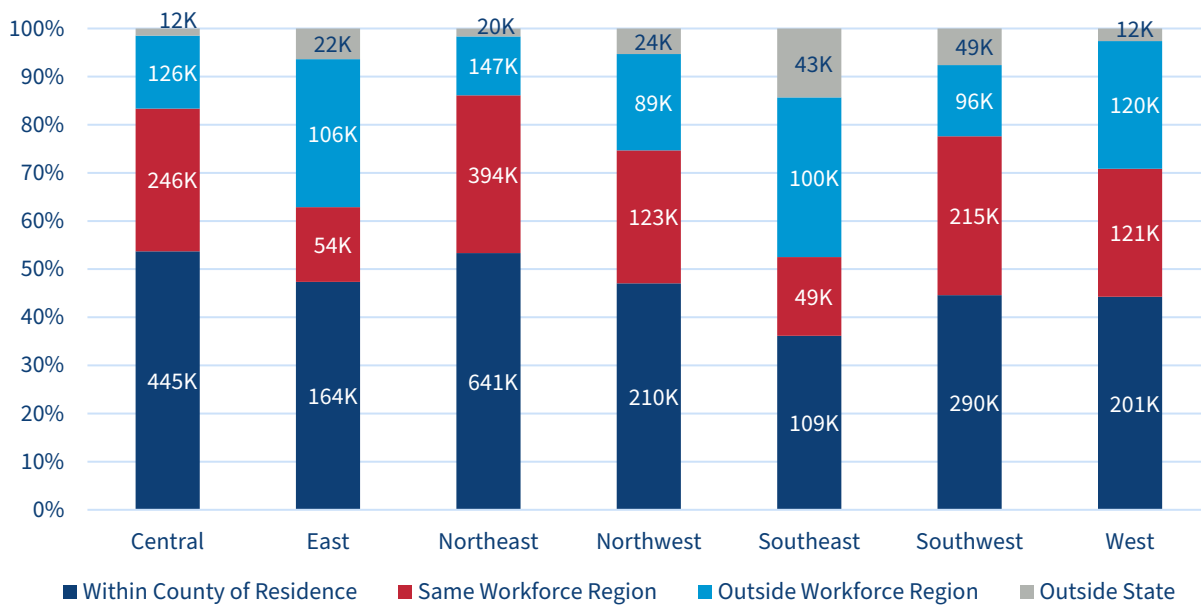


Commuting patterns are also a factor in the distribution of workers' homes and places of employment and the degree of access, as measured by travel time, between the two locations. **Figure 2.71** shows where Ohio residents work compared to their county of residence and JobsOhio Workforce Region in 2021. In every region, working in their county of residence represents the plurality—if not the majority—of commute patterns for regional workers. The consistency of this trend indicates that much of the workforce travel across Ohio is relatively limited in distance.

However, there is significant variation across the regions when comparing the share of workers who work in another county or another workforce region to the one in which they reside. In Southeast and Southwest Ohio, a larger share of workers commute outside their workforce region for work than commute to another county within the same region. This Figure is dramatic for Southeast Ohio, where 47.5% of workers commute outside the workforce region, including beyond the state line. These trends suggest that economic opportunities within Southeast Ohio are more limited.

By contrast, workers in Central, Northeast, Northwest, and West Ohio commute within their workforce regions compared to outside their regions at a ratio close to or greater than two-to-one. This suggests that economic development and job opportunities are spread throughout their regions. While work commutes may not require access to interregional highways and transportation services, there is a high demand for intraregional travel that can distribute traffic volumes throughout the region, causing localized congestion “pockets” along the regional systems. The flow of workers between home and work is shown in a detailed matrix format in **Table 2.12**.

FIGURE 2.71—WHERE OHIO RESIDENTS WORK, 2021



Source: US Census Bureau, LEHD Origin Destination Employment Statistics (LODES) for private, primary jobs, 2021



TABLE 2.12—HOME TO WORK FLOWS (ORIGIN-DESTINATION) MATRIX, OHIO JOBS

| Home Region | Work Region | | | | | | | | Total |
|--------------|-------------|---------|-----------|-----------|-----------|-----------|---------|--------------|-----------|
| | Central | East | Northeast | Northwest | Southeast | Southwest | West | Out of State | |
| Central | 690,677 | 7,121 | 40,217 | 16,272 | 13,887 | 24,192 | 23,854 | 12,380 | 828,600 |
| East | 11,828 | 217,113 | 72,957 | 3,571 | 12,002 | 3,285 | 2,564 | 21,942 | 345,262 |
| Northeast | 47,047 | 41,687 | 1,035,461 | 24,450 | 9,537 | 15,006 | 9,431 | 19,742 | 1,202,361 |
| Northwest | 29,177 | 3,567 | 30,189 | 333,202 | 2,630 | 8,853 | 14,986 | 23,624 | 446,228 |
| Southeast | 43,444 | 13,966 | 16,019 | 3,847 | 157,616 | 12,251 | 10,051 | 42,953 | 300,147 |
| Southwest | 26,182 | 1,773 | 13,579 | 5,397 | 4,637 | 504,696 | 44,553 | 49,428 | 650,245 |
| West | 38,097 | 2,106 | 12,426 | 15,061 | 4,423 | 48,271 | 321,362 | 11,825 | 453,571 |
| Out of State | 17,346 | 11,117 | 19,510 | 26,812 | 20,499 | 72,060 | 12,686 | - | 180,030 |

Source: US Census Bureau, LEHD, LODES for private, primary jobs, 2021

Ohio’s workforce distribution and concentration follow the trend of the overall national economy. As shown in **Figure 2.72**, Ohio’s workforce is concentrated in Cleveland, Columbus, and Cincinnati. This is like dynamics across the country where urban regions have increased their share of economic output and employment. In these three Ohio metropolitan regions, many workers live within 40 minutes of an employment location. The workforce concentrations in the Cincinnati and Columbus regions are expanding along the I-70 and I-71 corridors, furthering evidence of the previously noted possibility of an emerging mega-region between these two metropolitan areas and the Dayton metropolitan region.

Worker access is significantly lower in Southeast and Northwest Ohio, reflecting the greater distances to large employment centers in these regions. This is particularly noticeable in the areas of Southeast Ohio that lack access to regional connector corridors and interstates, such as Monroe, Morgan, and Vinton counties. This distance has significant implications for workforce and economic development, as smaller workforces and longer commute times represent two barriers to business sitings.

Despite the growing importance of urban regions to the Ohio workforce, public transit availability remains relatively low for Ohio workers. **Figure 2.73** shows the total number of workers estimated to be able to access employment centers by a 40-minute transit trip in 2025. These workers are largely concentrated in the urban cores of Columbus, Cincinnati, and Dayton. However, smaller pockets of transit-accessible labor pools exist in the Warren-Youngstown area in East Ohio and Lima in Northwest Ohio. The Cleveland metropolitan region has a larger footprint for its transit-accessible workforce that extends into parts of Lake, Summit, Medina, and Lorain counties, likely due to a small regional light rail network and a large fixed-route bus service area. Outside of these major metropolitan areas, workforce access via transit rapidly declines in mid-sized cities such as Lima and Youngstown before largely



disappearing from the map. Access to a private vehicle is necessary for workforce participation in much of the state. The Study's stakeholders called for more workforce transit, particularly in Southeast and West Ohio.

Over the next 10 years, Columbus, Cleveland, and Cincinnati—as well as the Toledo metropolitan region—are forecasted to demonstrate considerable change in workforce access, while the vast majority of the rest of the state is forecasted to experience minimal change, shown in **Figure 2.74**. Workforce access is forecasted to decline throughout Northeast Ohio beyond the Cleveland metropolitan area and into Southeast Ohio in Carroll and Columbiana counties. Workforce access is also forecasted to decline in the Toledo region. Population growth in Central Ohio and Southwest Ohio is forecasted to increase workforce access over the next two decades. Still, areas on the edge of these metropolitan regions—including north of Dayton in Miami County along I-75, north of Columbus in Morrow and Delaware counties along I-71, and south of Columbus in Pickaway County along US23—are forecasted to lose worker access. Forecasted congestion levels through 2055 indicate that pain points for worker access are concentrated within these metropolitan areas. **Figure 2.75** shows roadway segments at risk of negatively impacting worker access due to congestion, as measured by the number of workers within a 40-minute commute of places of employment through 2055. The analysis shows that the risk of reduced worker access is limited to state highways and interstates in metropolitan areas. Toledo, Cleveland, Akron, and Dayton all demonstrate low levels of risk concentrated at or near the interchanges of major facilities, such as I-475 and US24 in Toledo, I-76 as it approaches the I-76 /I-77 interchange in Akron, and along the I-70/I-75 interchange in Dayton.

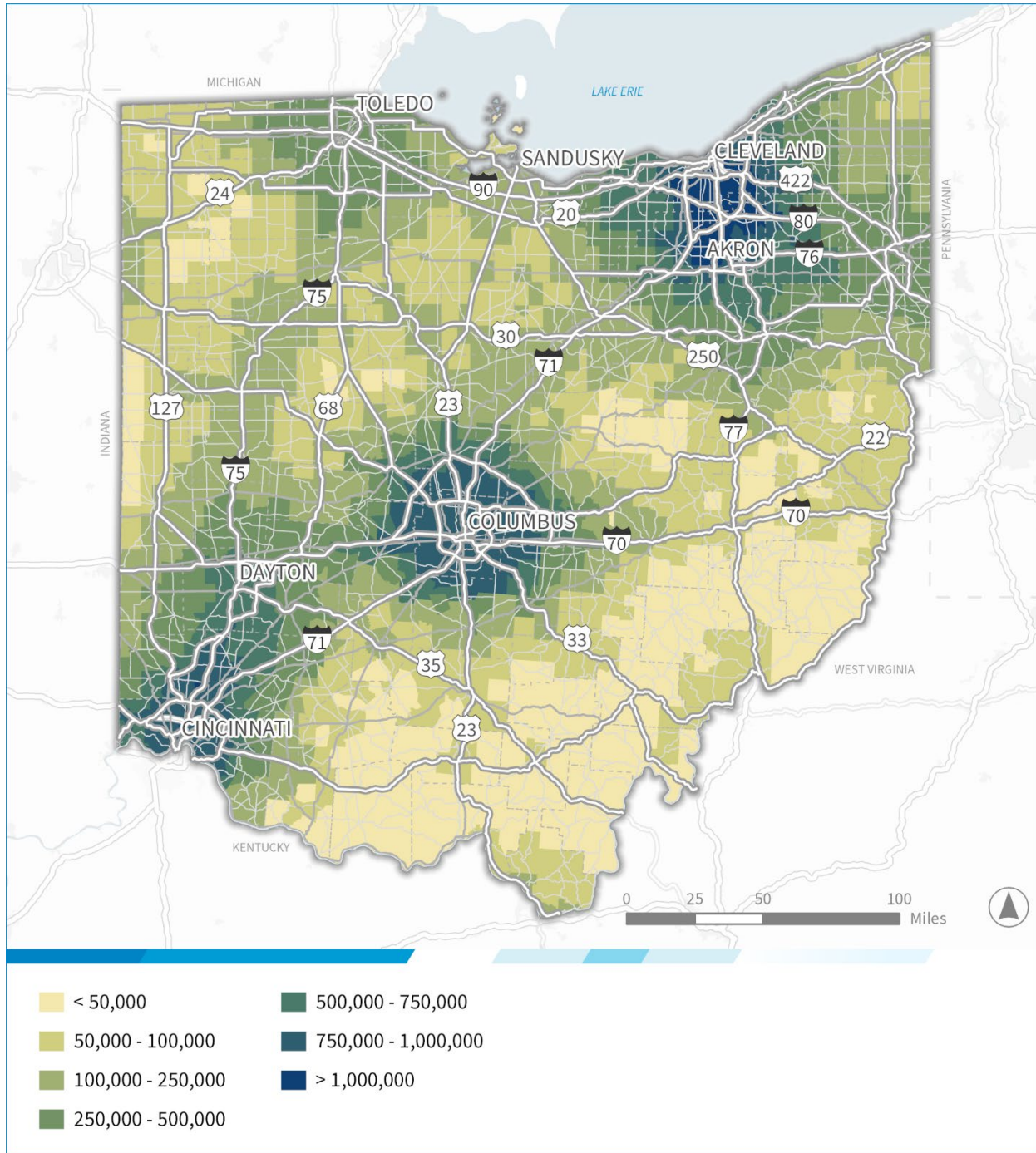
There are small segments of low worker access risk scattered throughout the rest of the state outside of metropolitan areas, such as US68 south and north of the US36 interchange in Champaign County and I-70 east of the I-70/CR-93 interchange where I-70 parallels US22/US40 in Muskingum County. In these locations, congestion may be due to roadway geometry or concentrations of freight-intensive facilities that create brief pockets of congestion due to localized traffic conditions relative to overall available roadway capacity.

Congestion risk is forecasted to become more widespread in the Cincinnati and Columbus metropolitan regions. In Cincinnati, moderate levels of worker access risk are located along the northern and eastern edges of the I-275 beltway and extend to I-75, I-71, and SR32, impacting worker access to employment centers at multiple points along the regional roadway system. The state's highest levels of forecasted risk to worker access in the Columbus metropolitan region are along I-270. This forecast demonstrates how delay cascades throughout the metropolitan region, affecting roadways to the north, east, and south of the city, including several segments along US32 and US36 in Delaware County and I-70 east of the I-70/I-270 interchange. Forecasted congestion in both metropolitan areas represents a significant risk to economic development. These regions contain several of the only counties forecasted to increase in population through 2055.

Congestion risk is forecasted to become more widespread in the Cincinnati and Columbus metropolitan areas, with delays cascading down to area interstates and state routes. This forecasted congestion represents a significant risk to economic development.



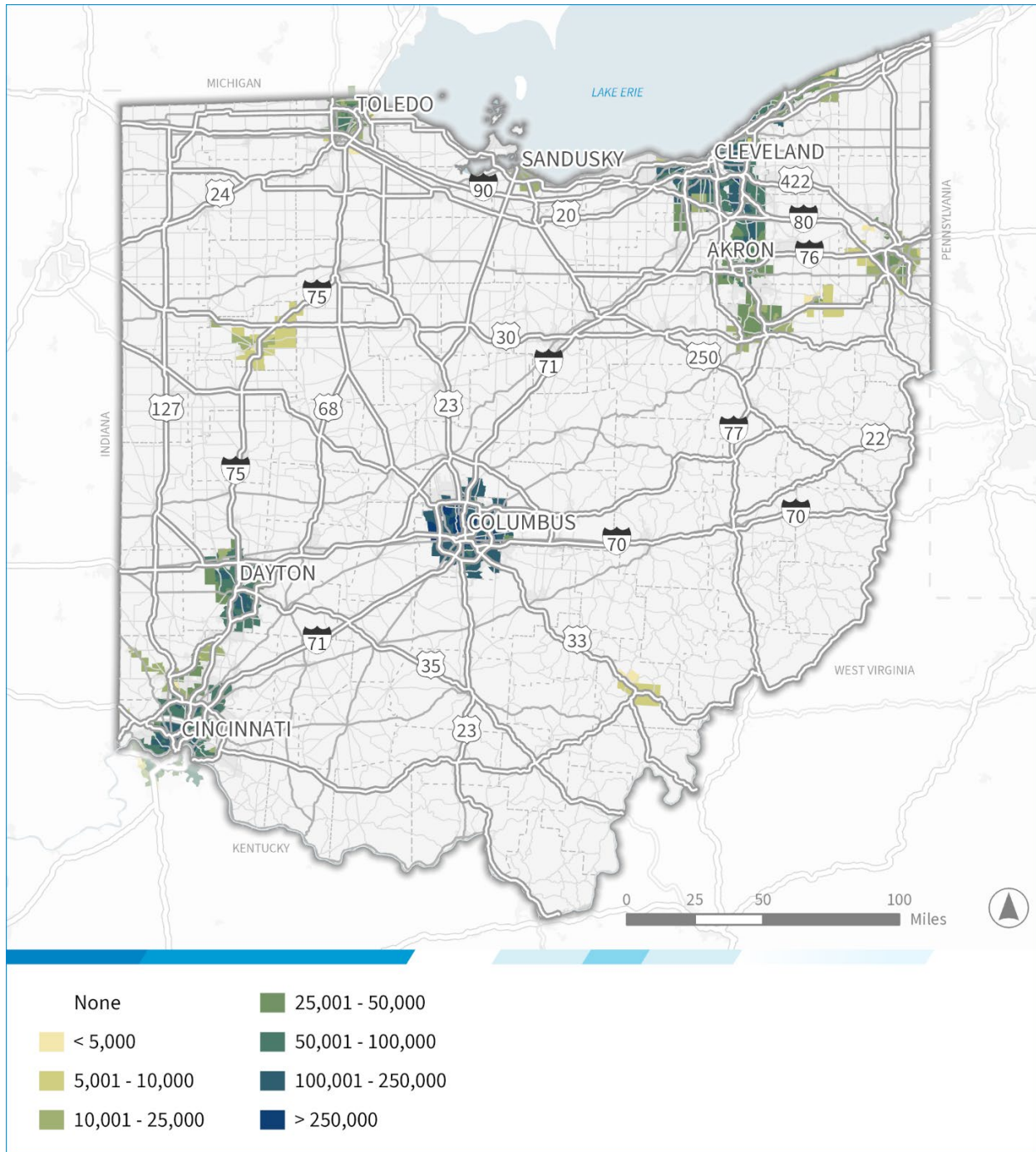
FIGURE 2.72—TOTAL WORKERS WITHIN 40 MINUTES OF EMPLOYMENT LOCATION, 2025



Source: Ohio Statewide Model, ODOT Population Projections



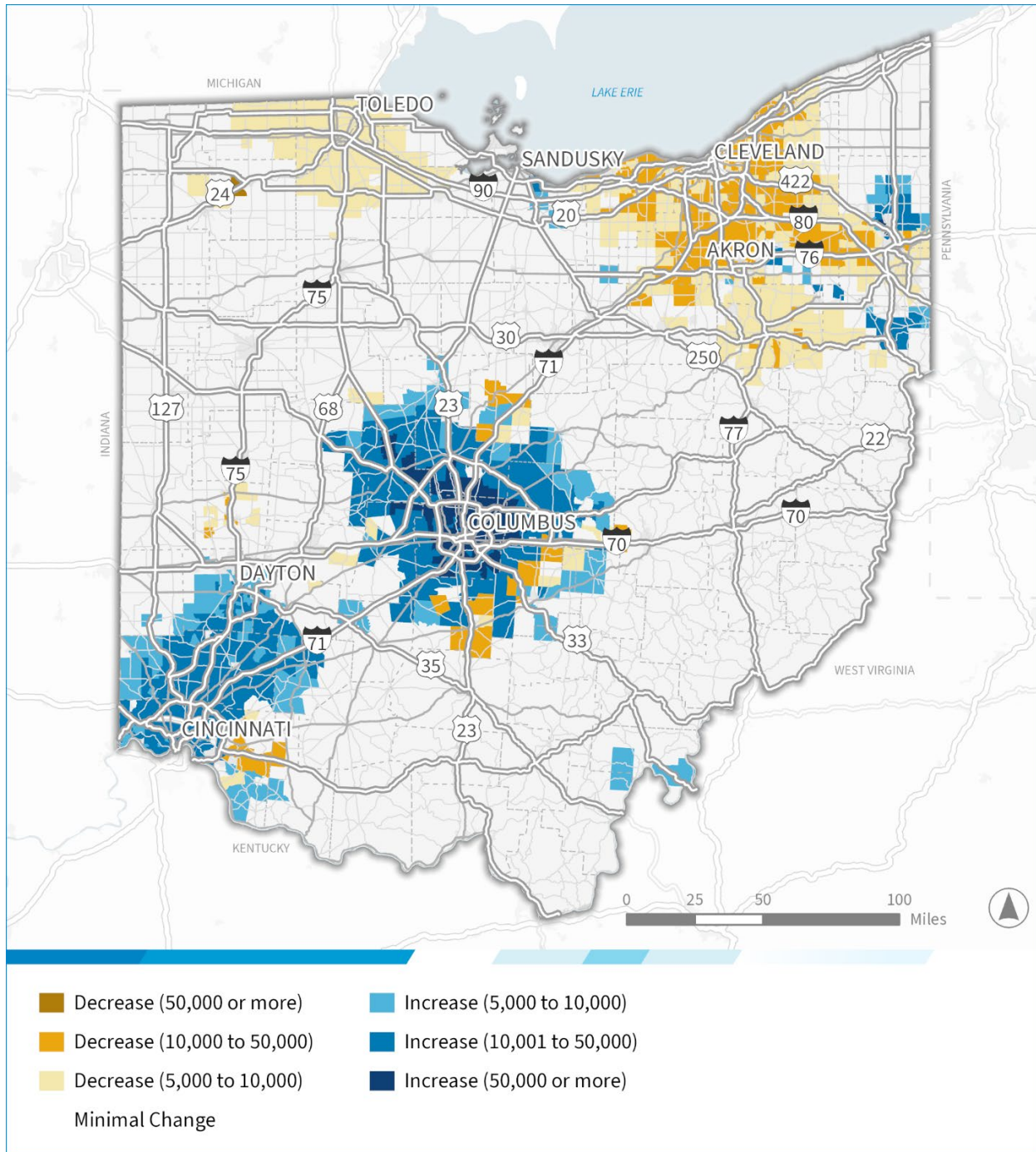
FIGURE 2.73—TOTAL WORKERS ACCESSIBLE BY FIXED-ROUTE TRANSIT, 2025



Source: Ohio Statewide Model, ODOT Population Projections



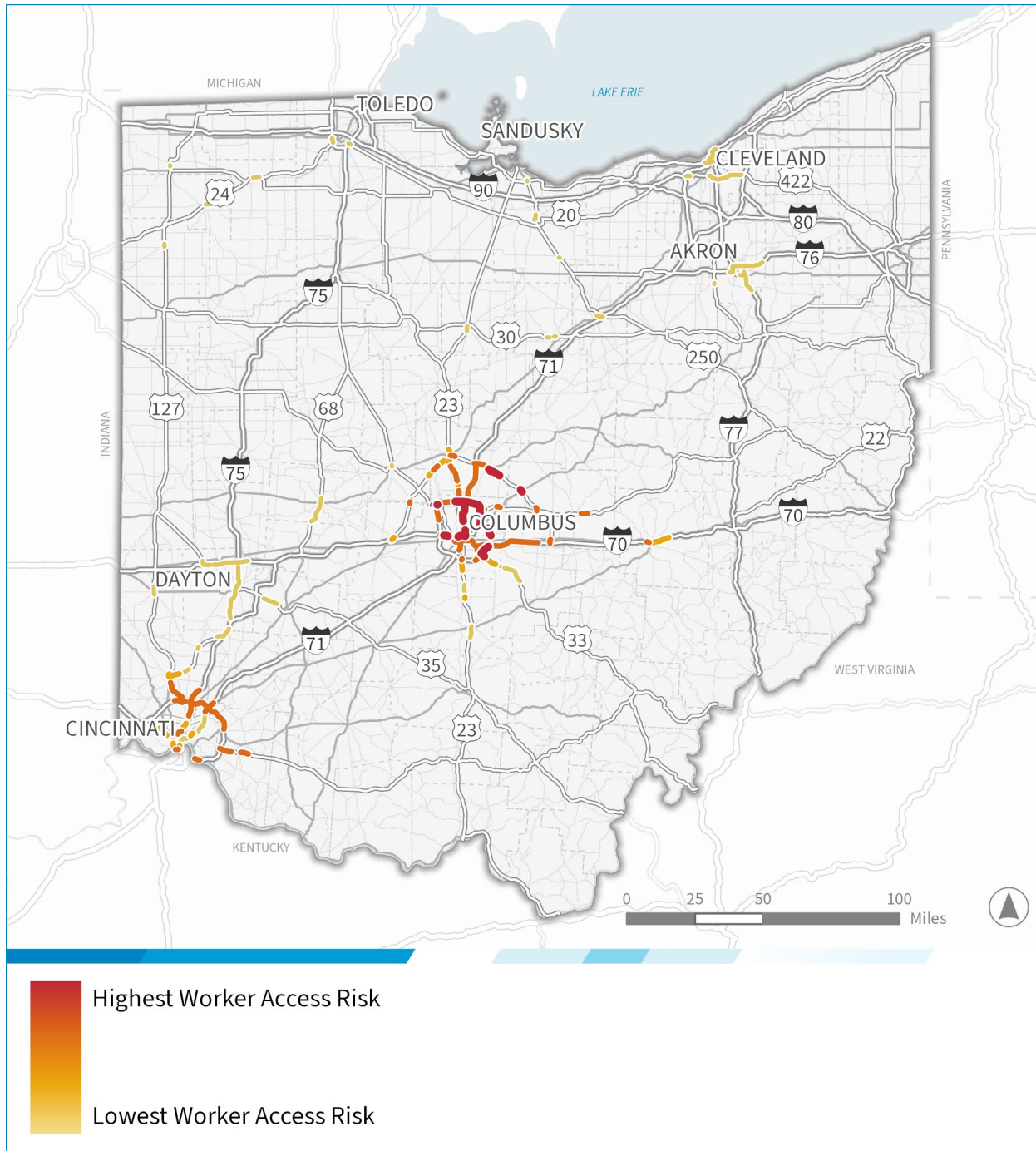
FIGURE 2.74—CHANGE IN WORKERS WITHIN 40 MINUTES, 2025 TO 2035



Source: Ohio Statewide Model, ODOT Population Projections



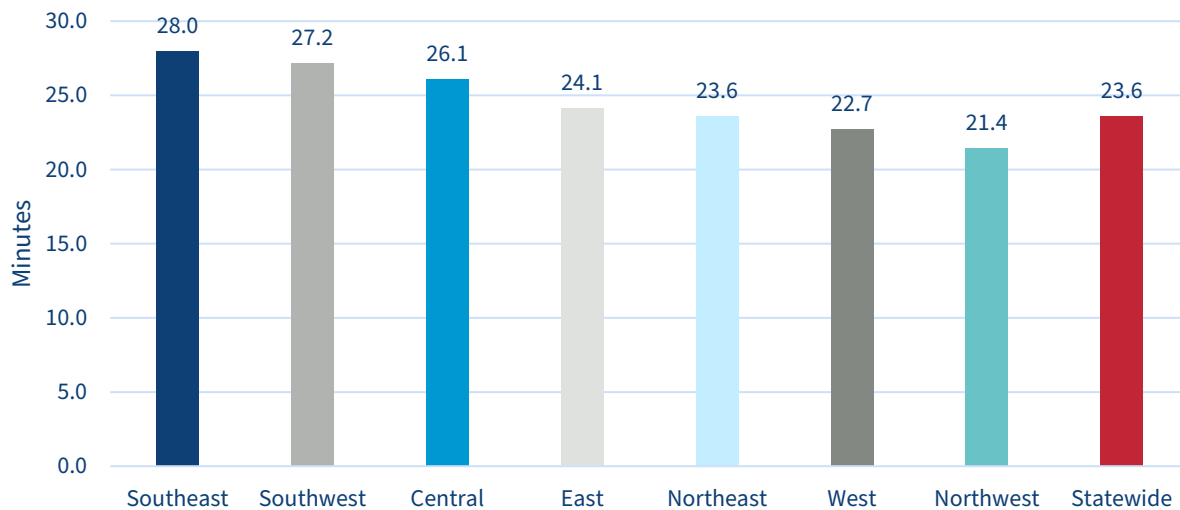
FIGURE 2.75—ROADWAY SEGMENTS AT RISK OF WORKER ACCESS LOSS DUE TO CONGESTION (WITHIN 40 MINUTES, 2055)



Impact of Commute and Transportation on Employment

Work commute times average 23.6 minutes across Ohio, approximately 11.6% lower than the national average commute time of 26.7 minutes. There are slight regional variations in average commute times, shown in **Figure 2.76**. The longest average commute time to work is in the Southeast, 18.5% higher than the statewide average at 28 minutes, while the shortest average commute time to work is in the Northwest, 9.1% lower than the statewide average.

FIGURE 2.76—AVERAGE COMMUTE TIME TO WORK, 2018–2022



Source: US Census Bureau, 2018–2022 ACS 5-Year Estimates, 2024

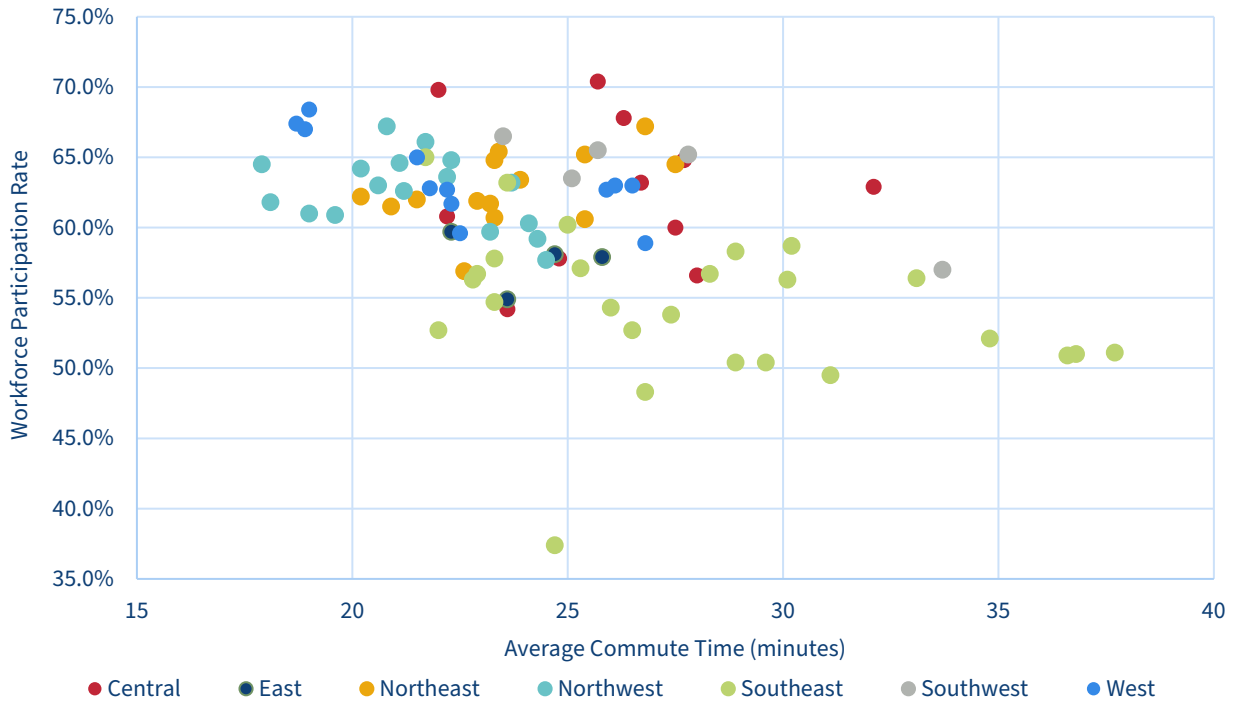
Figure 2.77 shows the distribution of county-level workforce participation rates and average commute times in 2022. The counties with the highest workforce participation rates were in Northwest and Central Ohio, while the counties with the lowest were in Southeast Ohio. Commute times follow similar patterns, with the longest average commute times associated with Southeast counties and the shortest average commute times associated with Northwest counties. However, West counties replaced the Central counties in the shortest average commute time rankings, suggesting that congestion in Central Ohio affects average commute times for workers.

An analysis of workforce participation rate by commute time across Ohio counties in 2022 suggests a minor correlation between the average commute time and workforce participation:

- Every minute in additional average commute time is associated with a reduced workforce participation rate of 0.6 percentage points.
- Additional research suggests that changes in average commute time can explain less than 25% of the labor workforce participation rate outcomes.

This analysis indicates that while the state may be able to contribute to workforce development by expanding commute options and reducing congestion, non-transportation factors also play a significant role in encouraging and sustaining workforce participation.

FIGURE 2.77—COMMUTE TIME AND WORKFORCE PARTICIPATION RATE BY COUNTY, 2018–2022



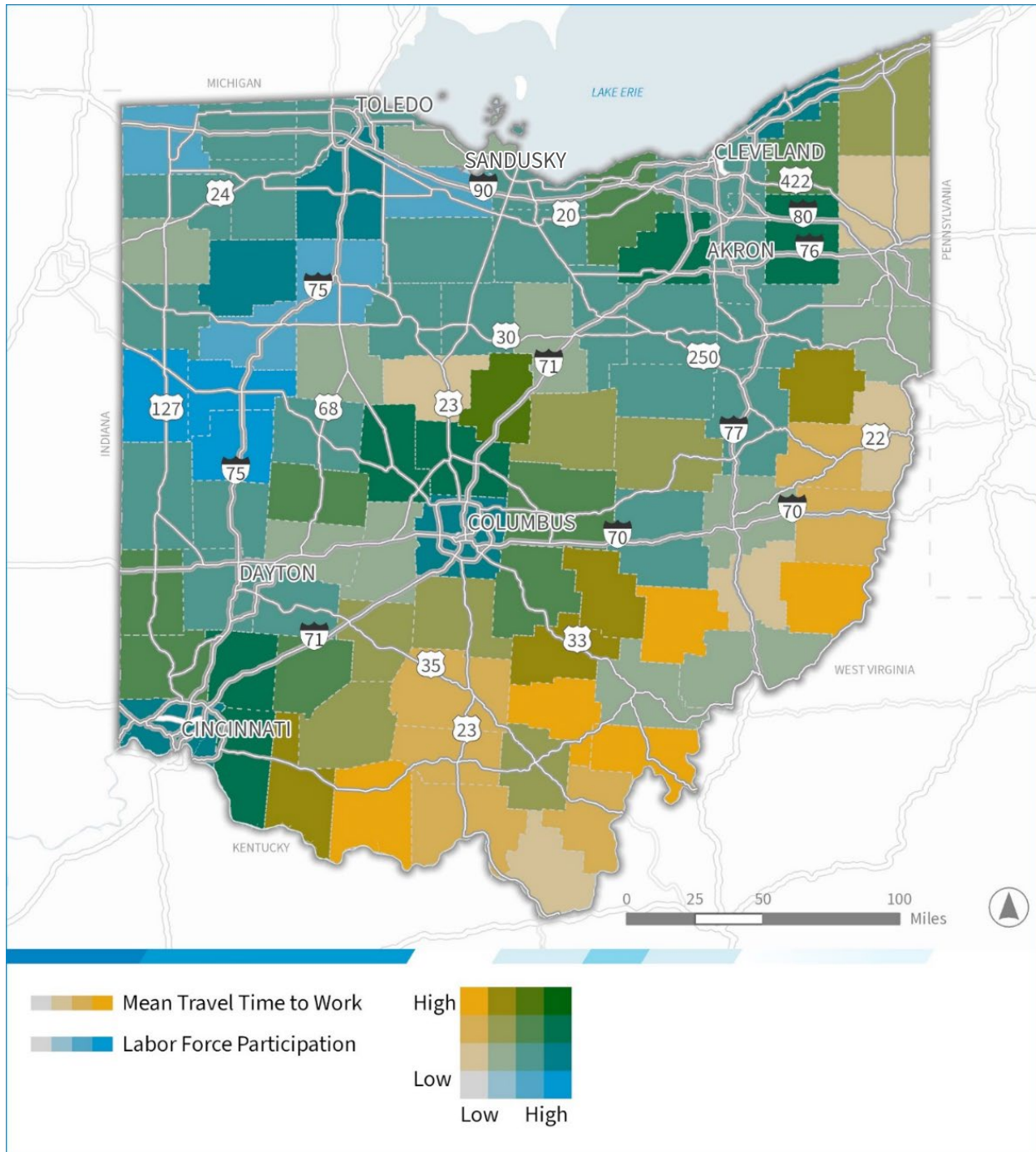
Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024

This trend is shown geographically in **Figure 2.78**. This bivariate map shows the dynamic of mean travel time to work correlated against workforce participation rates at the county level. It indicates that commute times are longer and workforce participation rates are lower throughout Southeast and East Ohio. At the same time, Central, West, and Northwest Ohio have higher workforce participation rates and shorter commute times. Southwest and Northeast Ohio counties have longer commute times but higher workforce participation rates.

The geographic distribution of these trends suggests that multiple factors influence the relationship between commute times and workforce participation rates. As noted in this chapter's demographics and economics sections, there are structural challenges in Southeast Ohio, including lower educational attainment levels, that impact workforce participation. However, the low density, unfavorable hilly topography, and lack of local access roads to the state's four-lane system throughout Southeast Ohio create barriers to dense, large-scale economic development. As a result, employment concentrations are less common throughout the region, and long commutes to other regions are more common. These long commutes increase transportation costs for households. This can represent a barrier to long-term employment for low-income householders.



FIGURE 2.78—MAP OF COMMUTE TIME AND WORKFORCE PARTICIPATION RATE BY COUNTY, 2018–2022



Source: US Census Bureau, 2018-2022 ACS 5-Year Estimates, 2024



DEVELOPMENT

Introduction

Ohio's development trends are a key driver of the state's transportation needs. The patterns of how, where, and to what extent Ohio's land develops impact the types and levels of economic activity, which translates to travel demand. Existing and future development activity can influence choices about the suitability and need for future transportation system investments. The state's historical, current, and projected development trends, including site development, local and regional land use, and comprehensive planning, are summarized below.

Key Findings

- Over the past 30 years, development has predominantly occurred in urban and suburban counties in the Columbus and Cincinnati metropolitan regions. In rural areas and some select urban areas such as Akron, Cleveland, and Toledo, the population has declined, and existing developed areas, including established manufacturing centers, have seen disinvestment and loss of businesses.
- In suburban counties in Central and Southwest Ohio, a significant amount of land has transitioned from undeveloped or agricultural to large-scale retail, mixed commercial uses, and single-family residential. City centers have become denser, and mixed-use development has increasingly emerged.
- In the next 30 years, it is anticipated that growth will continue along high-capacity highway corridors in suburban counties, with the most significant growth pressure in suburban areas around Columbus and between Cincinnati and Dayton. These three metropolitan areas are becoming more connected, with development potential increasing within in-between counties like Clark, Madison, Fayette, and Clinton. These counties have access to a large and skilled workforce, good highway access, and ample developable land.
- Ohio has robust programs to analyze and market development sites through JobsOhio and its regional network partners. Sufficient transportation access and capacity are two of many necessary ingredients for successful site build-out. Sites considered ready are often located along highway corridors in suburban areas or immediately adjacent to interstates. Site development in transportation-dependent industries is anticipated, particularly for manufacturing, technology, logistics and distribution, energy, and food processing.
- Local development planning varies across Ohio, with many jurisdictions lacking plans to identify and prepare priority growth areas. Preparing infrastructure, including transportation, for future growth is challenging in these locations without a strong local planning foundation. These situations can lead to uncertainty regarding where and how public and private investments should occur.



Land Use and Development Trends

Since 1990, widespread land use changes in Ohio have occurred in urban and suburban counties, particularly around Columbus, Cincinnati, Dayton, and Cleveland. The significant land use transition from undeveloped to suburban has occurred in Butler, Delaware, Licking, Fairfield, Union, Warren, and Lorain counties. At the same time, city centers have seen recent redevelopment with densification and more mixed uses in Hamilton and Franklin counties. Development in these growing suburban counties has often occurred along high-capacity highway corridors. It has emerged as large-scale retail and mixed commercial uses with single-family residential use typically off the main corridors that connect to the local road network. In some cases, significant industrial developments have been located near these high-capacity corridors, increasing truck traffic while also bringing new job opportunities and supporting businesses that are part of their supply chains. This growth has created challenges on suburban highway corridors with no access constraints and, in some cases, limited or no planning and zoning, leading to congestion and safety risks.

Population growth since 1990, presented in **Figure 2.79**, also shared earlier in the population section of this chapter as **Figure 2.10**, highlights the following key patterns that are impactful to Ohio's transportation system, particularly interstate and US highways:

- Western Warren, eastern Butler, and southern Montgomery counties have seen residential and commercial growth primarily along I-75 and SR4 corridors in communities like Lebanon, Middletown, Springboro, and Centerville. This growth effectively has closed the gap between the Cincinnati and Dayton regions. The Cincinnati metropolitan region has also seen pockets of growth on the region's east side in Clermont County along I-275 and SR32. During stakeholder engagement in Southwest Ohio, participants noted redevelopment areas scattered across the MSA, including Cincinnati's Kellogg Avenue, Hamilton, Springdale's GE/TRI-County Mall, and Madison. West Ohio stakeholders drew attention to development along the interstates, including I-71/I-75, I-75/I-675, I-75 north of Sidney, Wilmington along I-71, the I-75 corridor toward Cincinnati, and areas within a 45-minute drive of Columbus, especially adjacent to I-70.
- Population growth in the Columbus metropolitan area has occurred outside of I-270 within every county, except west through the Big Darby Creek watershed area. This growth has expanded in all directions along corridors like US33, US23, SR161, I-70, and I-71. These locations are seeing the most intense growth and magnitude of land use change in any region in Ohio, leading to impacts on the transportation system. Stakeholders in Central Ohio agreed that ongoing growth is scattered across the region and continues to advance into agricultural and undeveloped areas predominantly served by two-lane local roads. Even though some areas of central Columbus have seen population losses, changes to impervious surfaces imply that the area is experiencing increased infill development.
- There are pockets of growth in Northeast Ohio in Stark County, the North Canton area, Summit County, the Hudson and Twinsburg areas, northern Medina and southeast Cuyahoga counties, within and near Strongsville, and throughout Lorain County, particularly in North Ridgeville and Avon. Stakeholders in Northeast Ohio pointed to residential growth in Wooster, Concord, Lorain County, Painesville, and along the lakeshore. They also noted redevelopment in Beachwood, commercial construction in Painesville, and the Aerozone Alliance Innovation District. East Ohio's stakeholders noted industrial redevelopment opportunities at the former RG Steel plant in Warren and in Lordstown.



- Growth in Northwest Ohio is primarily within the Toledo metropolitan area and outside I-475 in Wood County. Northwest Ohio stakeholders highlighted interest in development along the interstates, helping to draw attention to the region’s economic assets including the airport and port, and areas south and southeast of Toledo that are typically less than 40 minutes from Columbus, especially along I-75.
- There are other pockets of growth on the periphery of metropolitan regions, including Miami County, the Troy area along I-75 north of Dayton, Medina County, the Medina and Wadsworth areas, and Mahoning County, west and southwest of Youngstown along the I-76 corridor.
- Most rural areas of the state showed stable populations or population loss. Some rural towns along US highway corridors, like Chillicothe, Van Wert, Defiance, Findlay, Lima, Zanesville, Springfield, and Washington Court House, showed modest growth.

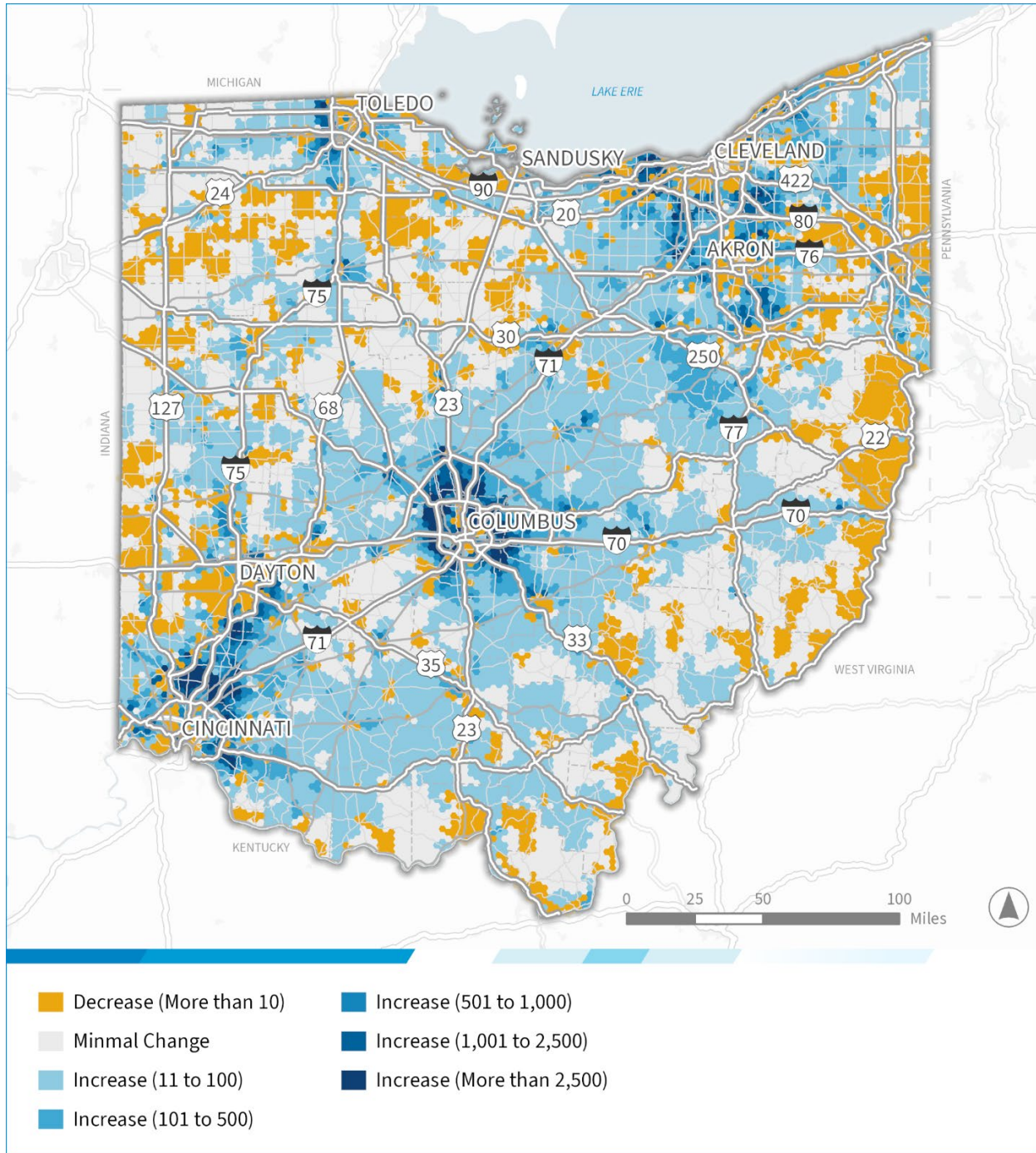
Growth and development changes in these areas have led to the expansion of impervious surfaces, shown in **Figure 2.80** and **Figure 2.81**, some expansion of the urbanized area, shown in **Figure 2.82**, consistent with US Census definitions, and change in land use classification, shown in **Figure 2.83**. This information on land use change and development provides a critical context for where Ohio is projected to continue to change in the coming decades and the impact of that development change on travel demand and transportation system performance.

For example, the expansion of urbanized areas likely represents a significant increase in overall transportation demand, given the higher economic and social activity associated with urbanized areas. Changes in land use classification represent a similar trend, as many changes increase the associated level of land use intensity and activity. Additionally, increasing impervious surfaces may create additional risks for the transportation system as more surfaces contribute to stormwater runoff during weather events, increasing the overall risk of flooding.

The specific travel demand patterns depend on the change in land use classification. For example, changes in travel demand associated with industrial land use will result in a higher share of freight traffic. Residential land use will likely include more requirements for safety infrastructure due to local preferences for lower travel speeds, more access management, and more walkable and bikeable communities. Additionally, new development typically requires many forms of public infrastructure, such as schools, public safety, and utilities, including water, sewer, electric, gas, waste management, and recycling.



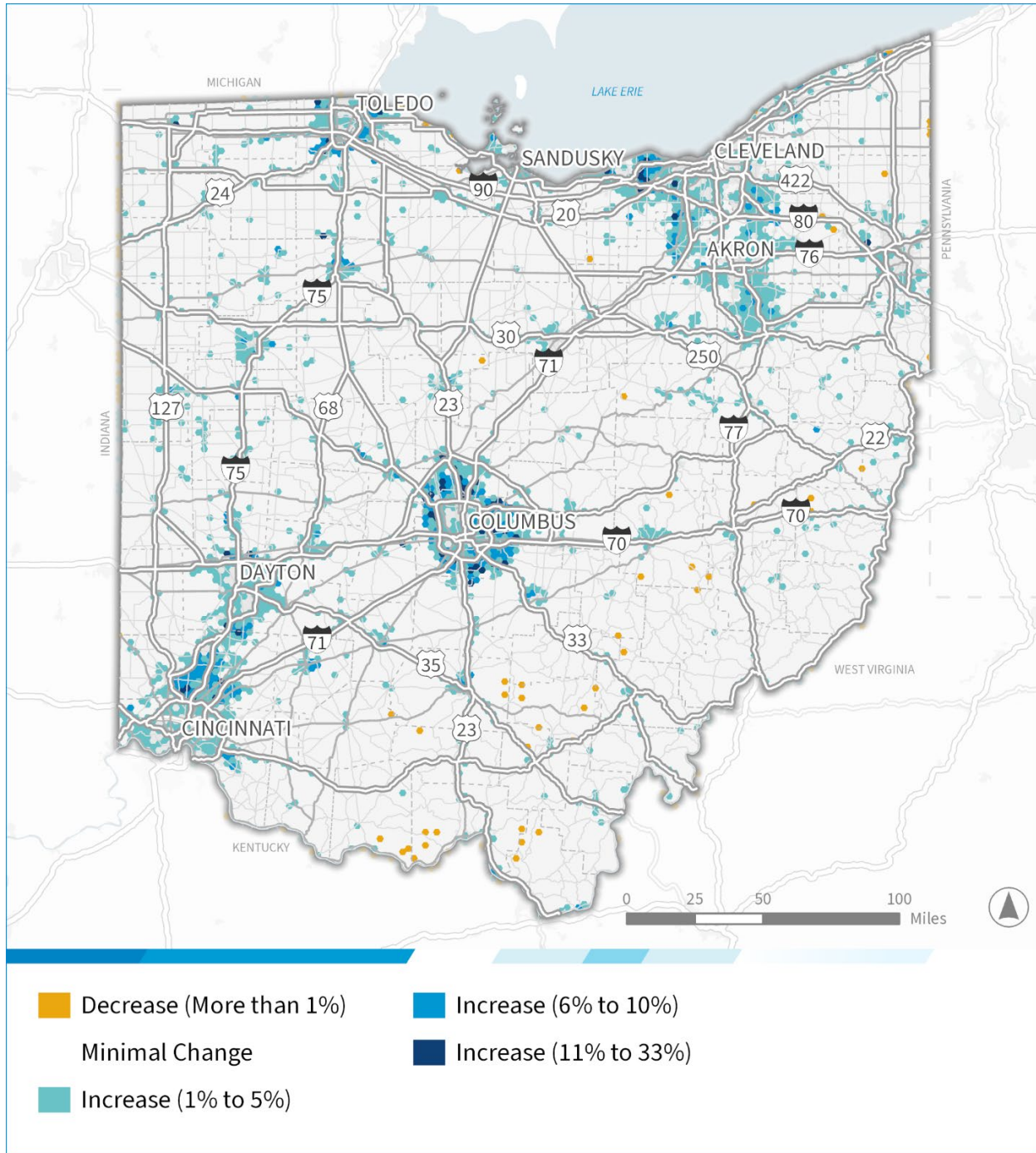
FIGURE 2.79—POPULATION CHANGE, 1990–2020



Source: US Census Bureau, Decennial Census Population Data



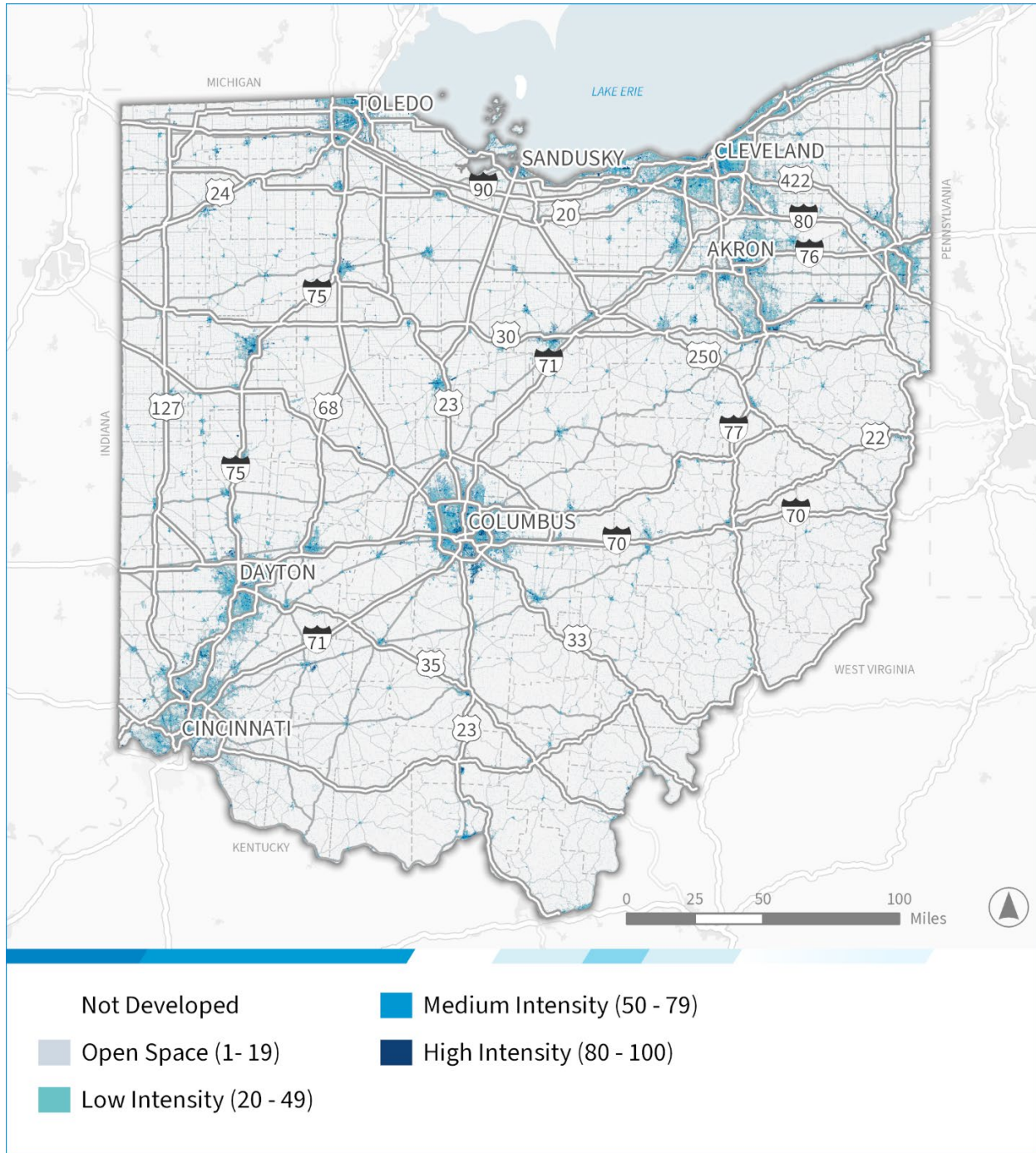
FIGURE 2.80—TOTAL PERCENT CHANGE IN IMPERVIOUS SURFACE, 2001–2021



Source: National Land Cover Database (NLCD)



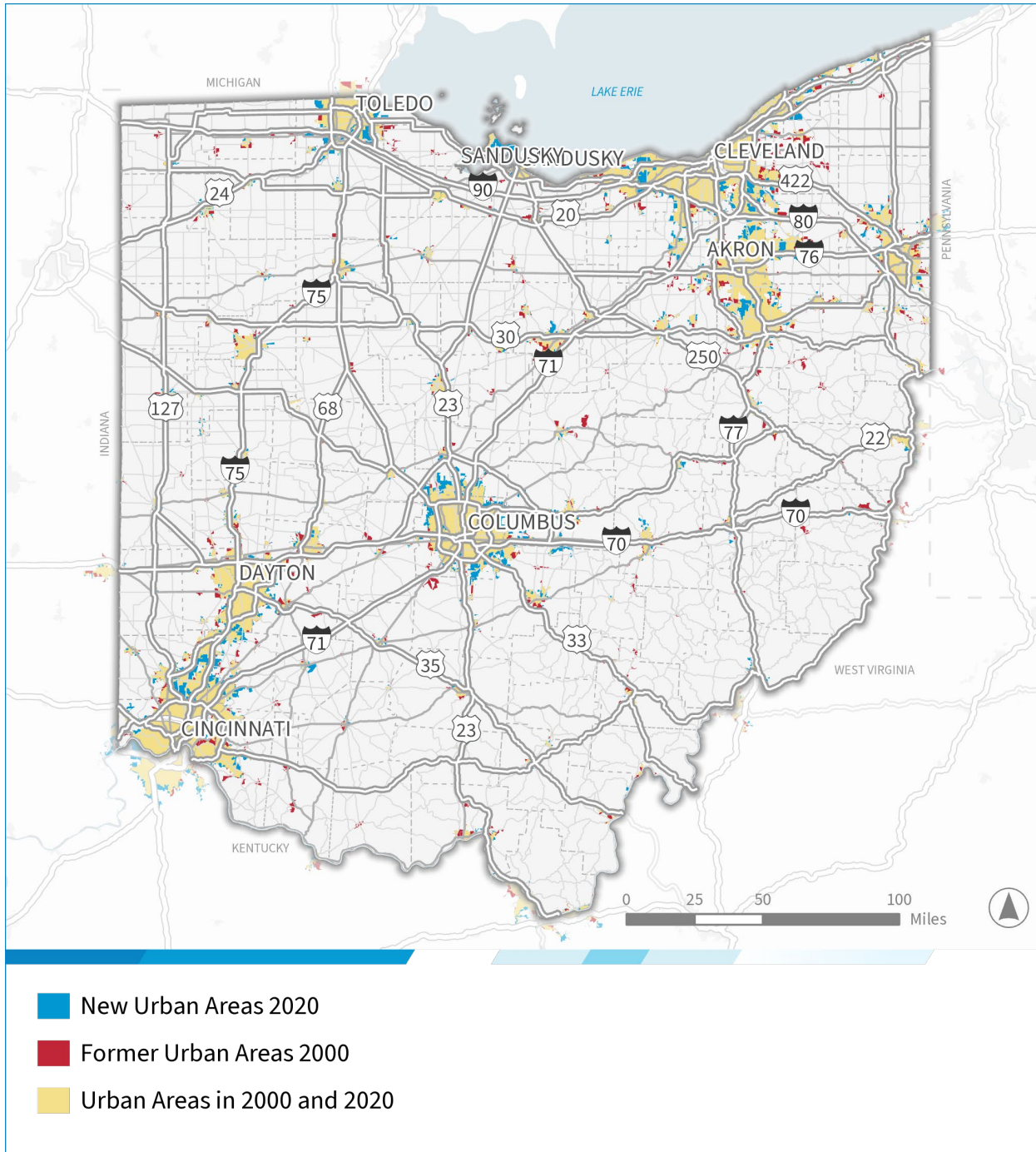
FIGURE 2.81—DEVELOPMENT (PERCENT IMPERVIOUS SURFACE), 2021



Source: NLCD



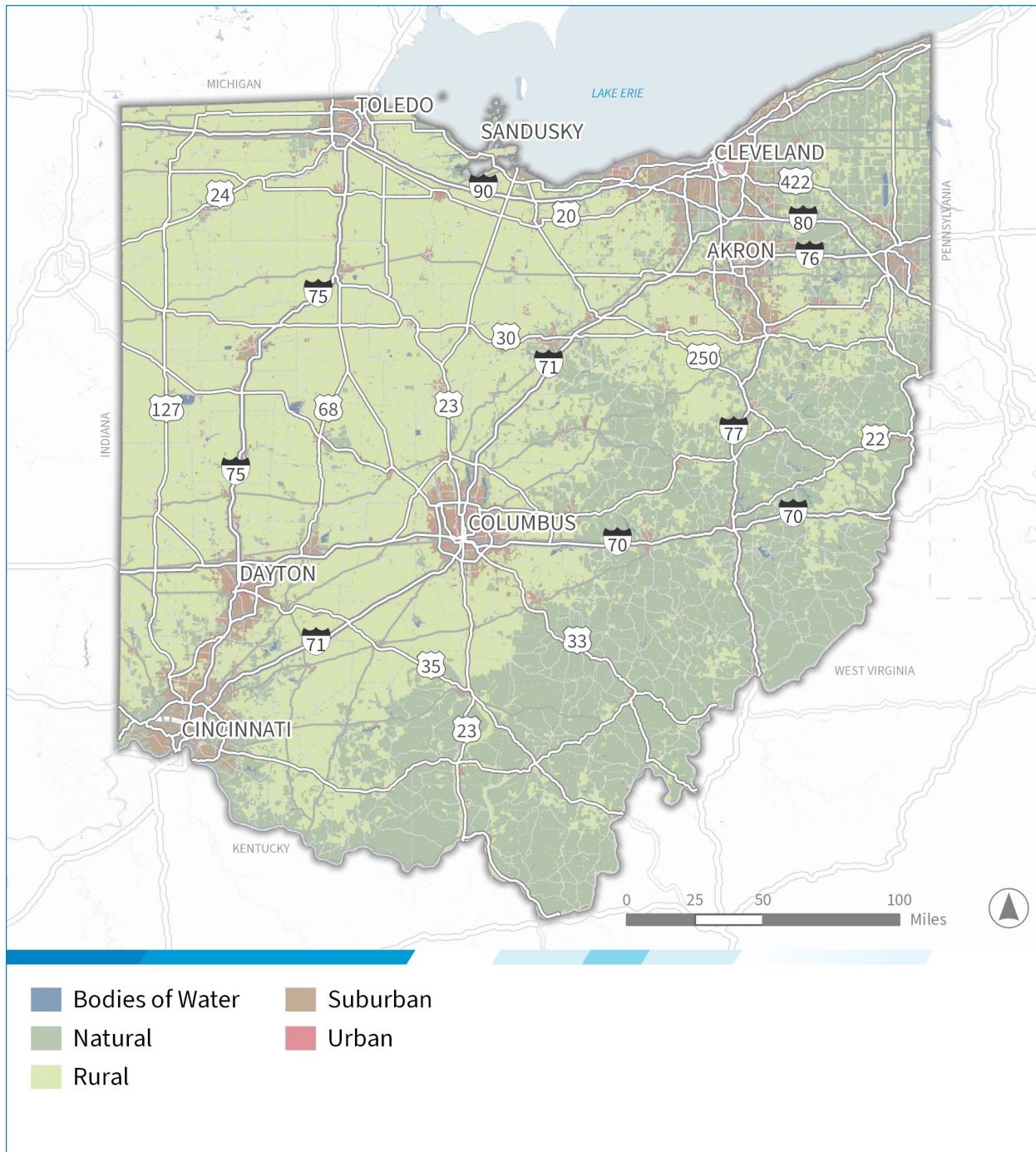
FIGURE 2.82—CHANGE IN URBANIZED AREAS, 2000–2020



Source: US Census Bureau, Decennial Census data (2000, 2020)



FIGURE 2.83—CURRENT LAND USE CLASSIFICATION



Source: ODOT



Processes in Ohio to plan for, manage, and make land use and development decisions shape these trends and help decision makers understand how and where future development may occur. Developing land in Ohio requires understanding relevant elements of the Ohio Constitution, the Ohio Revised Code (ORC), development case law, and local regulations for municipalities—villages, townships, and unincorporated land in counties. State and local requirements and standards impact developers' or property owners' decisions on when and where to advance development projects. Over the years, policymakers have attempted to reduce the complexity and effort associated with these requirements, and organizations such as JobsOhio have worked to facilitate a positive experience for developers in the development process.

Ohio's sheer number and diversity of localities create complexity when navigating the development process. Many of these localities use similar processes and requirements to review and approve development projects, with differences across localities stemming from the services provided within the community: public works, water, sewer, electric, planning, economic development, etc., and overall staff capacity. While regional and statewide plans and guidance do exist, local development requirements typically impact development trends more significantly due to the presence of state regulations that defer to local authority in policymaking.

Appendix I, Development Process, details Ohio's regulations, processes, partnerships, and incentives supporting development and regional and local land use planning.

Future Development

This section presents findings from three approaches to help understand where Ohio is most likely to experience development pressures over the coming decades. Understanding these future development trends and locations provides critical insight for possible actionable recommendations for transportation system investments to support statewide economic growth. These approaches include information from ODOD population growth forecasts and ODOT land use and transportation models, perspectives regarding site readiness across 78 priority development sites tracked by SiteOhio, and insights on priority development locations from local comprehensive plans and stakeholders participating in the Study stakeholder engagement. While none of these methods precisely forecast future land use, they provide strong indicators of where development may focus across Ohio.

Forecasts and Models

Population Growth Scenarios

As outlined in the demographics section of this chapter, the analysis leverages population growth forecasts from ODOD to assess how population dynamics are projected to change through 2055. Ohio's population and demographic characteristics have important implications for how, when, and where people may travel. More people mean more economic activity and more trips. However, these population dynamics also affect how, where, and what type of development occurs to meet a population's increased needs and preferences. This may lead to denser, mixed-use development that can serve multiple needs in the same land area to accommodate demand more efficiently.

Population scenarios are therefore incorporated into this report to identify where rapid development may occur and where related pressures on the transportation system may emerge.



In ODOD's baseline population forecast scenario, Ohio's population will decline by approximately 810,000 residents or 6.9% by 2055. This forecasted decline is attributed to a high median age of 39.6 years, based on US Census five-year average from 2018 to 2022, a low fertility rate of 1.7 births per 1,000 females between the ages of 14 and 44, and slightly positive patterns of migration and geographic mobility. These factors represent challenges to statewide economic growth and development, but variations in regional growth show areas where growth is still forecasted to occur and accelerate. Namely, multiple counties in Central and Southwest Ohio are projected to add population through 2055:

- Licking, Delaware, Union, and Warren counties are projected to grow by more than 15%
- Clermont, Franklin, Pickaway, Fairfield, Miami, and Geauga counties are projected to grow between 5% and 15%
- Greene, Hamilton, Wood, and Lorain counties are projected to grow by less than 5%

The forecasted growth for these counties is attributable to various economic and geographic factors, several of which could be leveraged in other parts of the state to alter the demographic projections of the baseline scenario. These factors include:

- Economic revitalization in emerging sectors, such as technology, healthcare, and energy
- Geopolitical stability and proximity to markets that increase the stability and reliability of the supply chain
- Affordable housing and a low cost of living
- Migration from regions subjected to extreme weather events or other environmental risks, whose displaced residents can appreciate the temperate climate and lower risk of natural disasters in Ohio

With these baseline population forecasted outcomes in mind, the Study analysis considers how medium and high growth population scenarios developed by ODOD might also affect growth. The three scenarios were described previously in the demographic section of this chapter and presented in **Figure 2.14**.

Under the medium growth scenario, projected growth is limited to the urban/suburban areas in Central and Southwest Ohio, with some growth in the suburbs of Toledo, in Wood County, and Cleveland, in Lorain, Geauga, and Medina counties. In this scenario, five counties shift from population declines or stagnant growth in the baseline to a growth rate: Highland, Butler, Mercer, Knox, and Medina.

Under the high growth scenario, Madison County and Holmes County are also forecasted to increase populations, in addition to the other counties identified for growth in the medium growth scenario. In Central Ohio, the highest growth occurs adjacent to interstate and US highways, particularly in Delaware, Licking, and Union counties. In Southwest Ohio, higher growth occurs in the eastern suburbs of Cincinnati and spreads north to Dayton.

Table 2.13 shows the total and annual change for the three population growth scenarios. Central and Southwest Ohio forecast growth for all three scenarios. Ohio only forecasts statewide growth in the high growth scenario, with an average annual growth of 0.08% compared to the baseline scenario of 0.20% decline per year on average. All remaining regions still forecast population loss, but it is nearly 10% lower between the baseline and high growth scenarios.

Figure 2.84 shows the total projected population changes by county in the baseline scenario.



TABLE 2.13—POPULATION CHANGE FOR ALTERNATIVE SCENARIOS BY REGION, 2025-2055

| JobsOhio Region | Total Change | Avg. Annual Change | Total Change | Avg. Annual Change | Total Change | Avg. Annual Change |
|-----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|
| Scenarios | Baseline | | Medium | | High | |
| Ohio | -6.86% | -0.20% | -3.49% | -0.10% | 2.83% | 0.08% |
| Central | 16.78% | 0.44% | 21.00% | 0.55% | 28.93% | 0.73% |
| East | -23.41% | -0.76% | -20.64% | -0.66% | -15.44% | -0.48% |
| Northeast | -15.38% | -0.48% | -12.32% | -0.38% | -6.58% | -0.19% |
| Northwest | -19.19% | -0.61% | -16.26% | -0.51% | -10.78% | -0.33% |
| Southeast | -20.32% | -0.65% | -17.44% | -0.55% | -12.03% | -0.37% |
| Southwest | 4.65% | 0.13% | 8.43% | 0.23% | 15.54% | 0.41% |
| West | -8.78% | -0.26% | -5.48% | -0.16% | 0.71% | 0.02% |

Source: ODOT Population Projections, 2023

Statewide Land Use Model

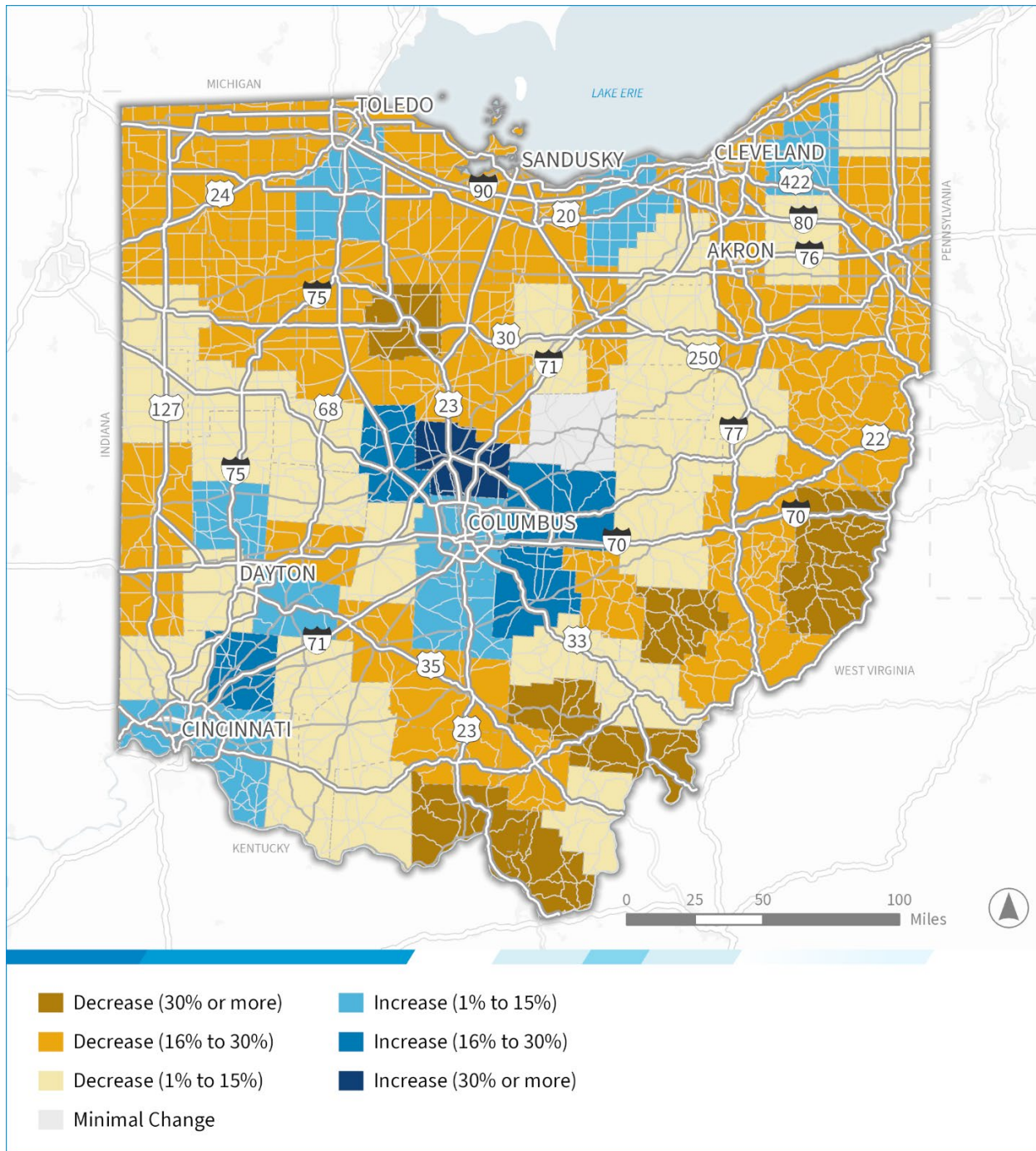
ODOT's population growth scenarios include estimates at the county level in Ohio over five-year increments from 2025 to 2055. ODOT uses the ODOT forecasts to estimate impacts on travel demand and transportation network performance through the Ohio Statewide Model (OSWM).

The OSWM is an integrated land use and transportation model that assumes land use policies affect transportation policies, and transportation policies affect land use policies. Within the model, land development is influenced by demand—socioeconomic growth, suitability—watersheds, slope, etc., and accessibility by mode and by travel time to places people and goods want/need to go. The transportation system is influenced by demand, where people live and work, and the movement of goods and services imported, exported, produced, and/or consumed.

Within the OSWM are three spatial models that assign the population forecasts and synthesize household characteristics and job locations at the traffic analysis zone (TAZ) level, a small geographic area equal in size to census tracts in rural areas, and census block groups in urban areas. These models estimate land and floorspace inventory through a simplified land use model, job and household locations, and labor flows through an economic allocation model, and household composition through a population generator. The distribution of future development and site selection relies on a combination of local information, including development constraints based on allowable densities, the amount of developable land, and trendline development densities and activity. **Figure 2.85** shows the population allocation by TAZ within the baseline scenario. This enables a more detailed understanding of where growth is anticipated to occur compared to county-level statistics, shown in **Figure 2.84**.



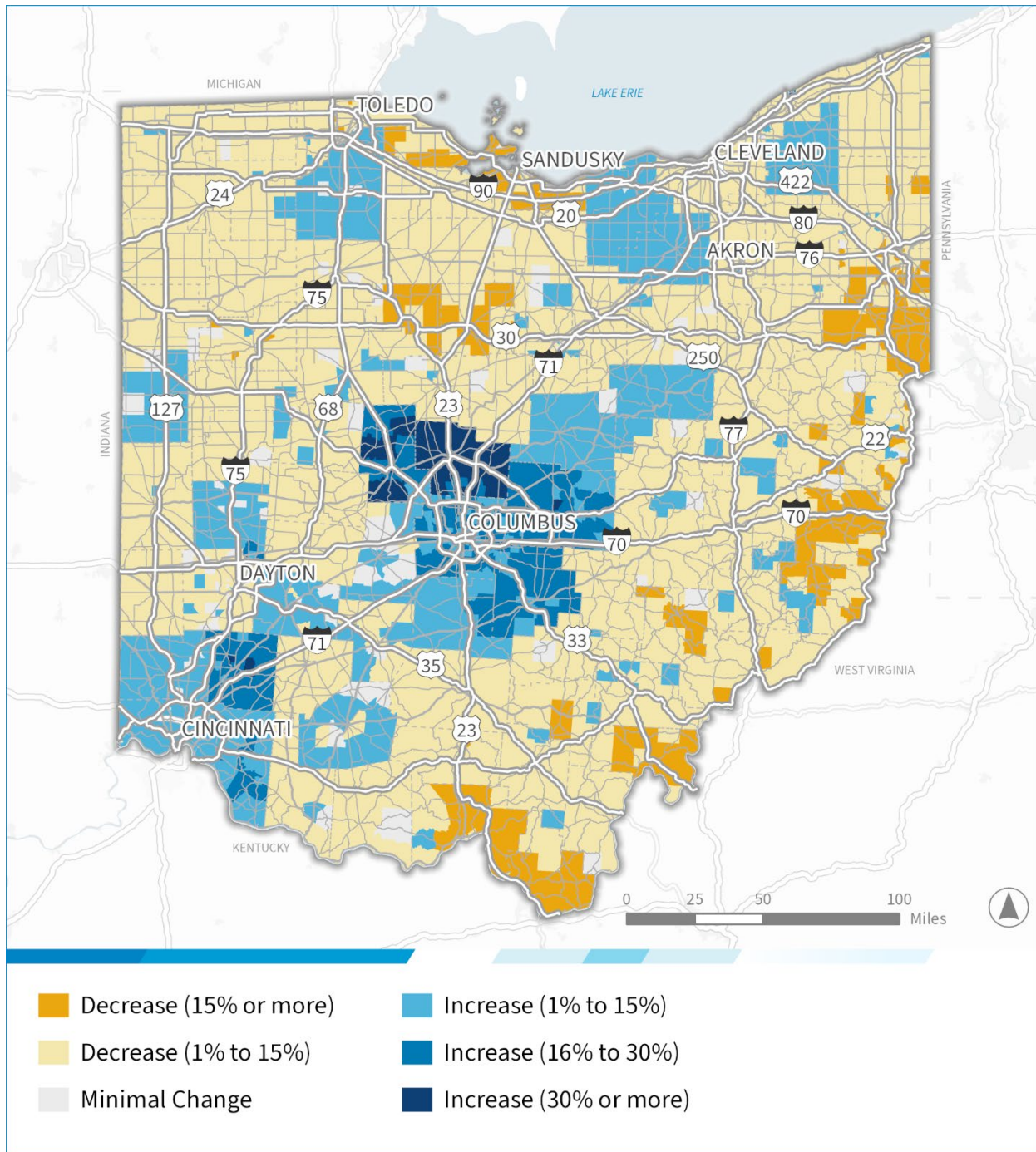
FIGURE 2.84—TOTAL CHANGE IN POPULATION, BASELINE GROWTH, 2025–2055



Source: ODOD Population Projections, 2023



FIGURE 2.85—TOTAL CHANGE IN POPULATION BY TRAFFIC ANALYSIS ZONE, BASELINE GROWTH, 2025–2025



Source: ODOT Projections, 2023 and ODOT OSWM Forecasts, 2023



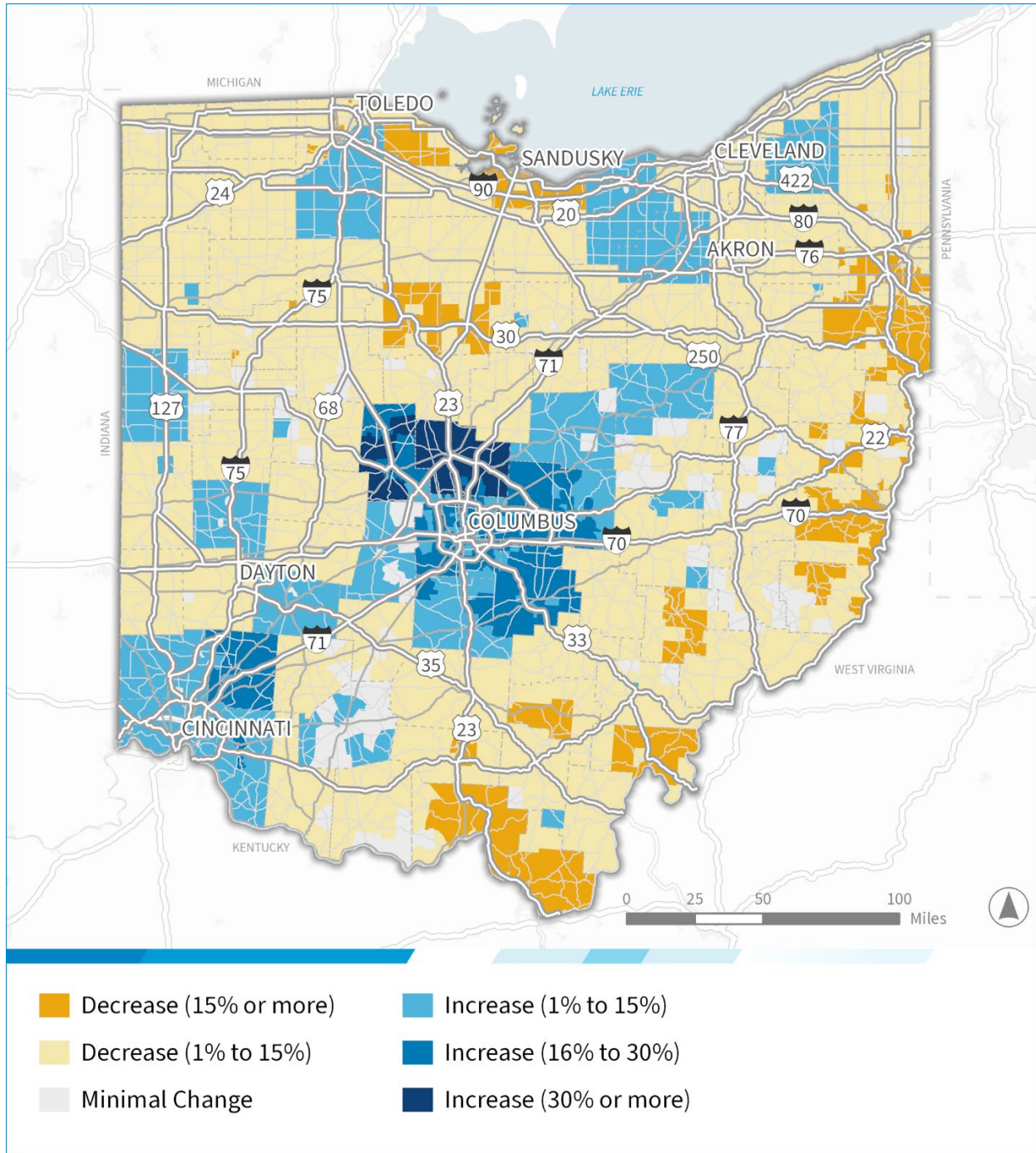
Based on calculations by the spatial models within the OSWM, TAZ growth trends for households, shown in **Figure 2.86**, in the baseline scenario through 2055 are below. Growth areas observations in the seven JobsOhio regions are in **Table 2.14**.

TABLE 2.14—POPULATION AND HOUSEHOLD GROWTH LOCATIONS, BASELINE GROWTH, 2020–2055

| Region | Population and Household Growth |
|------------------|--|
| Central | <ul style="list-style-type: none"> • Delaware County—widespread high growth • Union County—widespread high and moderate growth, including south of Marysville. • Knox County—widespread low growth • Licking and Fairfield counties—widespread moderate growth • Pickaway County—widespread low growth with moderate growth near Circleville • Franklin County—widespread low growth with moderate growth in west, southwest, and southeast areas • Madison County—low growth near London in southern areas |
| East | <ul style="list-style-type: none"> • Trumbull County—pockets of growth around Niles and Warren along the US422 corridor |
| Northeast | <ul style="list-style-type: none"> • Lorain and Medina counties—widespread low growth, particularly west of I-71 and south of the Ohio Turnpike • Geauga County—widespread low growth • Holmes County—widespread low growth |
| Northwest | <ul style="list-style-type: none"> • Wood County—widespread low growth • Lucas County—low growth near Whitehouse and Swanton • Henry County—growth near Napoleon |
| Southeast | <ul style="list-style-type: none"> • Highland County—widespread low growth mostly outside of Hillsboro • Athens County—low growth along the US35 corridor north of Athens • Guernsey County—pockets of low growth northeast of Salt Fork State Park • Muskingum County—pockets of low growth along SR16 |
| Southwest | <ul style="list-style-type: none"> • Warren County—widespread moderate growth, with high growth north and east of Lebanon • Butler and Hamilton counties—widespread low growth • Clermont County—low growth with moderate growth in east and southeast Clermont County, near Bethel, Nicholasville, Williamsburg, Batavia |
| West | <ul style="list-style-type: none"> • Greene County—widespread low growth • Fayette County—along US35 corridor/near I-71/Washington Court House • Miami County—growth in southern/ southwestern areas near Troy • Montgomery County—growth in New Lebanon, Farmersville, Germantown • Mercer County—widespread low growth |



FIGURE 2.86—TOTAL CHANGE IN HOUSEHOLDS BY TRAFFIC ANALYSIS ZONE, BASELINE GROWTH, 2025–2055



Source: ODOT OSWM Forecasts, 2023



Site Development

Forecasting data is foundational to site selection and development. Understanding shifts in population, traffic, and jobs is critical to effectively planning future site development and maximizing the benefits of those sites for Ohioans. The OSWM is one of many tools used to assess the potential impacts of development on transportation and site selection. Long-range transportation plans (LRTPs), comprehensive land use and economic development plans, corridor plans, access management, and other regional and local goals and policies shape site development. Site development and transportation are intrinsically linked due to their impacts on one another, particularly the reliance of most sites on efficient and safe transportation access.

Site development and transportation are intrinsically linked due to their impacts on one another, particularly the reliance of most sites on efficient and safe transportation access.

The impact of site development on the transportation network can be far-reaching and costly if not planned thoughtfully and proactively. For instance, safety, traffic volumes, congestion, and other related data may suggest that existing facilities surrounding a site are not adequate for the volume of traffic generated by a site, prompting further study and upgrades. Congestion can impact adjacent facilities and neighborhoods. In addition to the impacts on traffic and safety, older infrastructure may need to be updated to prevent rapid deterioration, especially if the number of vehicles—particularly trucks—traveling on a facility is anticipated to increase. During the site development process, transit considerations, such as existing access, requested increases in access, and the related infrastructure upgrades should be made. Forecasting and modeling future development site impacts on transportation is critical.

Priority Development Sites

ODOT collaborated with JobsOhio to identify 78 priority development sites from over 5,000 sites tracked through the [JobsOhio Zoom Prospector](#) tool. JobsOhio uses a unique model, SiteOhio, to vet commercial properties, business parks, and industrial sites throughout the state to ensure they are construction-ready on day one. SiteOhio puts properties through a comprehensive analysis and guarantees that all utilities are connected to the property with adequate capacity to accommodate planned development, that due diligence studies have been completed, and that all state and federal entities have concurred with the studies.

Readiness and Impact Assessment

The 78 priority development sites underwent a readiness and impact assessment to evaluate and determine development suitability. The assessment was designed to facilitate informed decision-making in identified sites likely to develop first and impact transportation systems. Individual factors were scored and then summed together to develop a measure of each site's overall suitability for industrial development. The following criteria were used to score each factor, with most of the data sourced from the SiteOhio Zoom Prospector tool:

- **Site Readiness:** Status of site certification and site size
- **Utility Infrastructure:** Electric, gas, water, sewer, and telecom availability



- **Transportation Proximity:** The distance to the nearest four-lane highway and interstate highway
- **Environmental Conditions:** Status and results of Phase 1 environmental assessments, including wetlands, endangered species, archaeological and species, and geotechnical
- **Labor Access:** The number of projected workers within a 40-minute congested drive time in 2035

Based on the final score, sites were assigned high, medium, and low readiness. Across the state, 24 sites were assigned high readiness, 38 sites were assigned medium readiness, and 16 sites were assigned low readiness as shown in **Figure 2.87**. This Figure also shows the total number of workers within 40 minutes of each site based on congested travel time in 2025. Sites can show high readiness while showing low access to the workforce; however, a combination of low workforce access and one other criterion represents potential gaps in development readiness.

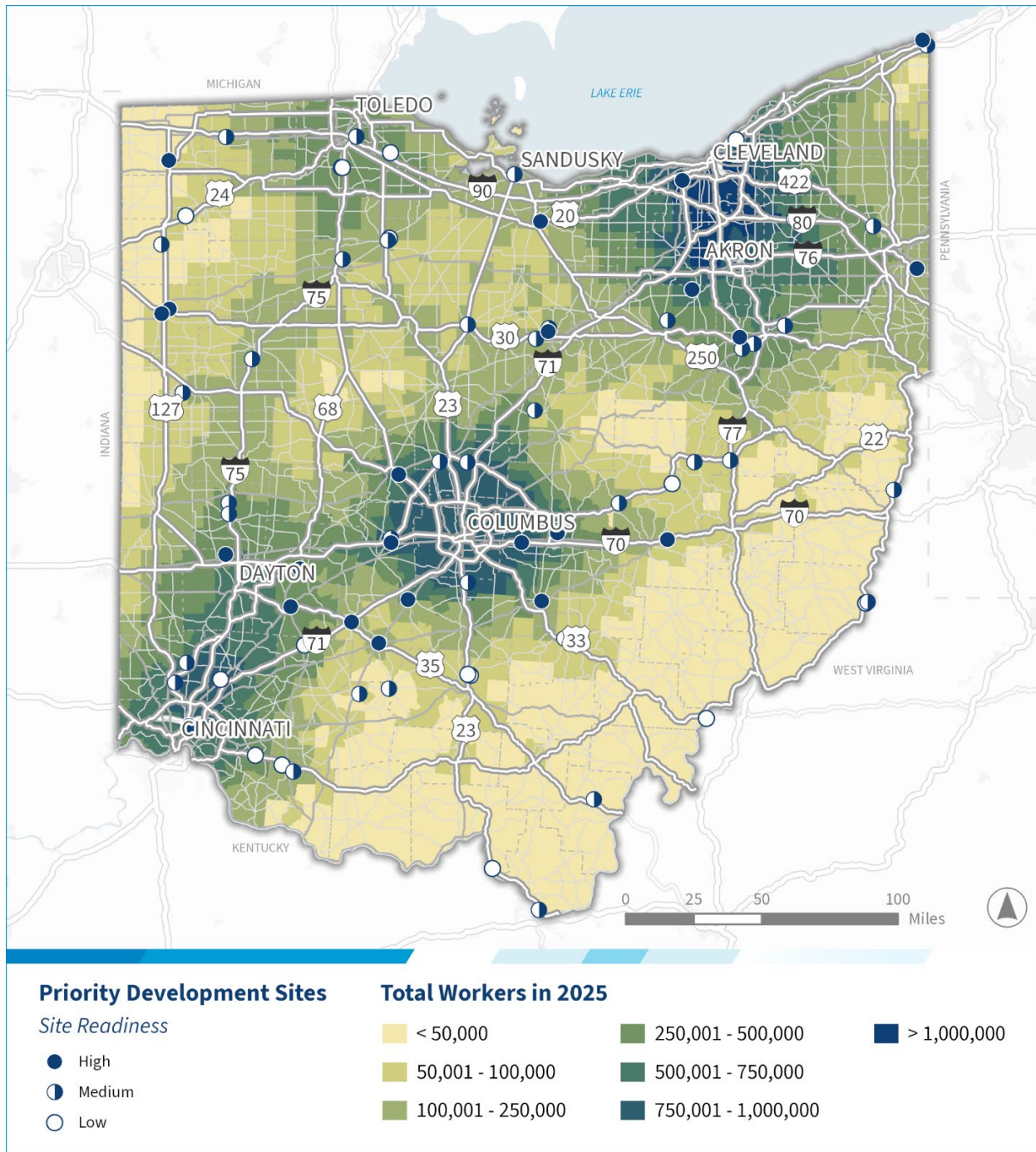
High readiness sites exhibit the following qualities: robust utility infrastructure, optimal proximity of less than one mile to the nearest highway and less than five miles to the nearest interstate, minimal environmental concerns, and high-quality workforce access. These sites boast robust utility infrastructure, ensuring reliable access to essential water, electricity, and sewage services. They are strategically located with excellent proximity to major transportation routes, suppliers, and markets, offering logistical advantages. These sites have undergone thorough environmental assessments, showed minimal contamination risks, and had well-planned mitigation strategies. High readiness sites are situated in areas with a ready and skilled labor pool, ensuring the business can rapidly begin operations upon completion of the construction process.

Medium readiness sites have a mix of strengths and potential challenges. They may have a mix of readiness levels, with some aspects prepared for development and others requiring attention. These sites might have adequate utilities, but there could be room for improvement or consideration of future expansion. Sites are generally more than 10 miles from the nearest interstate but are within one mile of the nearest highway, providing decent but not optimal proximity to transportation hubs, suppliers, and markets. These sites may have environmental considerations, requiring careful planning and mitigation measures. Medium sites provide access to a labor pool, but there might be variability in the skill levels or availability of the workforce.

Low readiness sites lack the infrastructure needed for immediate development. These 16 sites face significant challenges due to limited or absent critical utilities or suboptimal access to transportation routes, suppliers, or markets. Low readiness sites may also have environmental issues due to contamination risks or insufficient mitigation planning. These sites may also experience difficulties accessing a skilled and readily available workforce.



FIGURE 2.87—OVERALL READINESS RATING AND WORKFORCE ACCESS, 2025



Source: OSWM, Strategic Transportation and Development Analysis team analysis of Priority Development Sites



Transportation is one of many ingredients for site development. Approximately 25 of the 78 sites (Figure 2.88) showed transportation access barriers—meaning that interstate highways or Ohio’s four-lane highway system were more than one mile away using the existing roadway network. For these sites, the last mile may require using locally owned and maintained two-lane roads, potentially causing congestion and safety risks for truck routing to and from the site. Based on this approach, five of seven sites in Southwest Ohio were considered to have deficient transportation access, including two sites near SR32 in Brown County. Seven of 16 sites in Southeast Ohio were considered to have deficient transportation access, including two in northern Highland County.

Workforce site access is an indicator of site readiness and the ability of new industries to fill jobs. This includes growing industries like battery technology, electric vehicles, advanced air mobility, and semiconductors. Figure 2.89 shows that less than half of the priority development sites are considered to have good access to Ohio’s workforce, based on the baseline scenario projection in 2035. Workforce access is strong in Central and Southwest Ohio but notably constrained throughout Southeast Ohio and rural Northwest and Northeast Ohio.

FIGURE 2.88—PRIORITY DEVELOPMENT SITE HIGHWAY ACCESS BY REGION

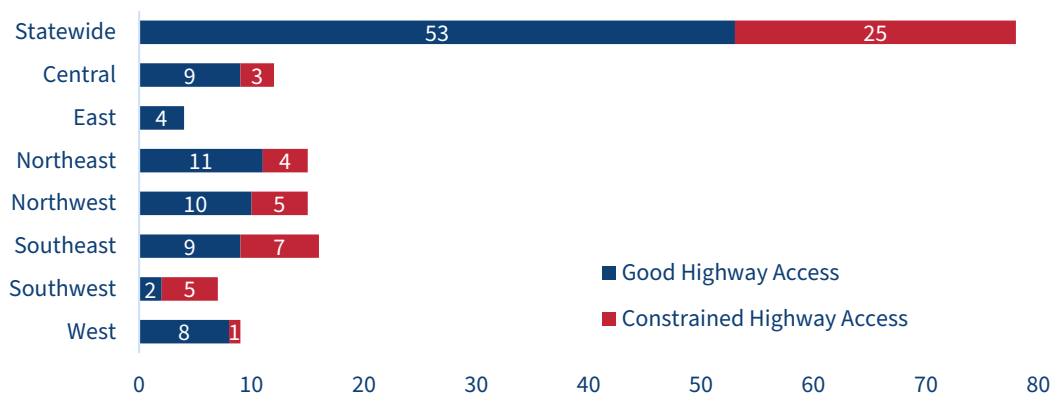
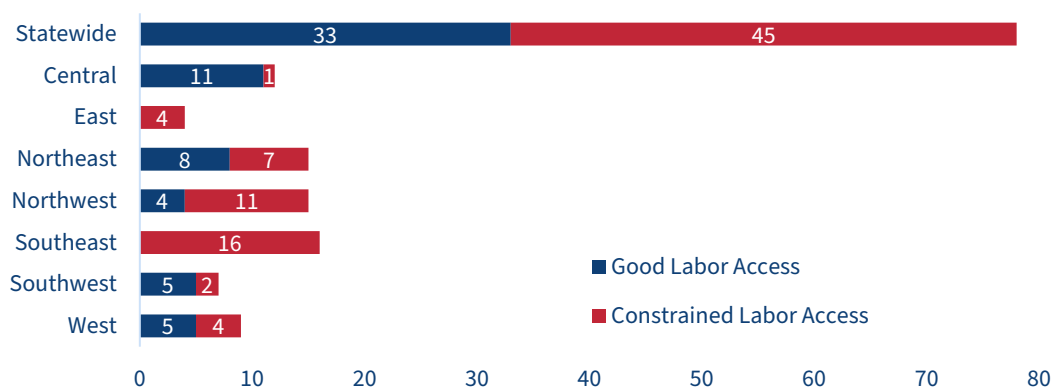


FIGURE 2.89—PRIORITY DEVELOPMENT SITE WORKFORCE ACCESS BY REGION



Source: SiteOhio

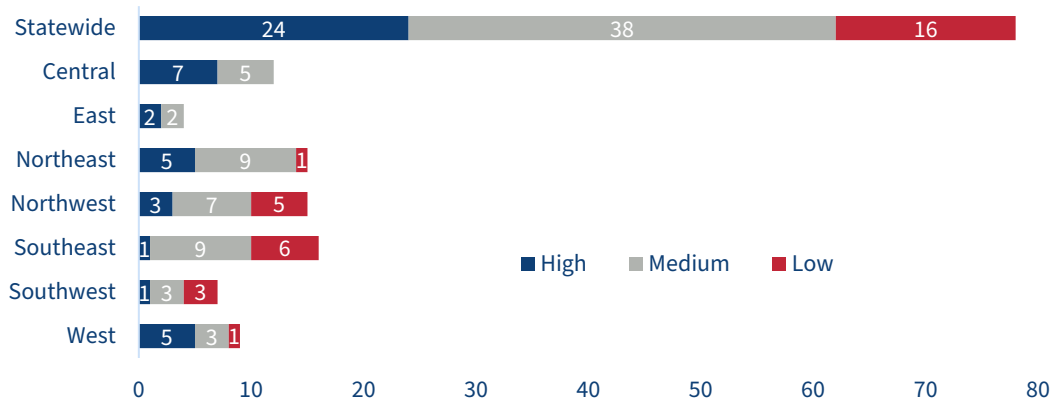


Figure 2.90 shows the overall priority development site readiness by region. Central Ohio had the highest number of high-rated sites and no low-rated sites. Of the 15 sites in Northeast Ohio, only one was assigned a low rating. In Southeast Ohio, six out of 16 sites were rated low. In Northwest Ohio, five out of 15 sites were rated low. In East Ohio, none of the four sites were rated low; two were high, and two were medium. In Southwest Ohio, three of seven sites were rated low, while one of nine sites in West Ohio was rated low.

Existing fixed-route transit access to the priority development sites is limited across the state, shown in **Figure 2.91**. Only 16 of the 78 sites are within fixed-route transit systems’ existing service areas. While not included explicitly in the priority development site readiness assessment, this is a critical concern for many of these sites, particularly for industries that employ low-wage workers with auto ownership or other household income constraints, as highlighted in the workforce section of this chapter. These include industries that have demonstrated rapid growth in Ohio, including the transportation and material moving sectors, as discussed in the workforce section of this chapter.

This site readiness provides an indicator of where Ohio may experience development pressures across short-, medium-, and long-term horizons, potentially impacting the demand and performance of the transportation system. The development readiness scores for each site are in **Table 2.15** and the location of each site is provided in **Figure 2.92**.

FIGURE 2.90—OVERALL DEVELOPMENT READINESS CATEGORY BY REGION



Source: SiteOhio



FIGURE 2.91—PRIORITY DEVELOPMENT SITE TRANSIT ACCESS FOR WORKERS, 2025

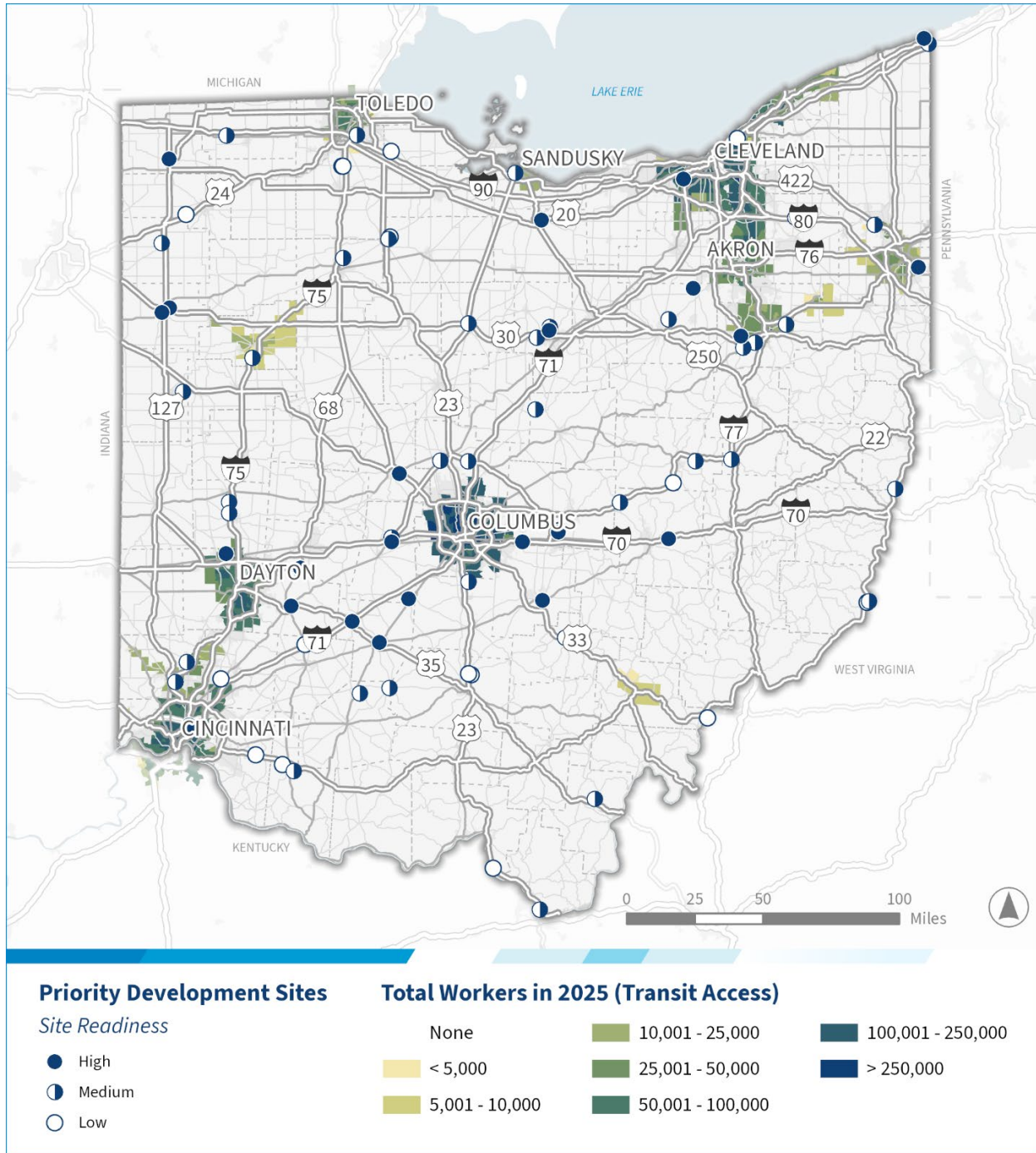


FIGURE 2.92—PRIORITY DEVELOPMENT SITES

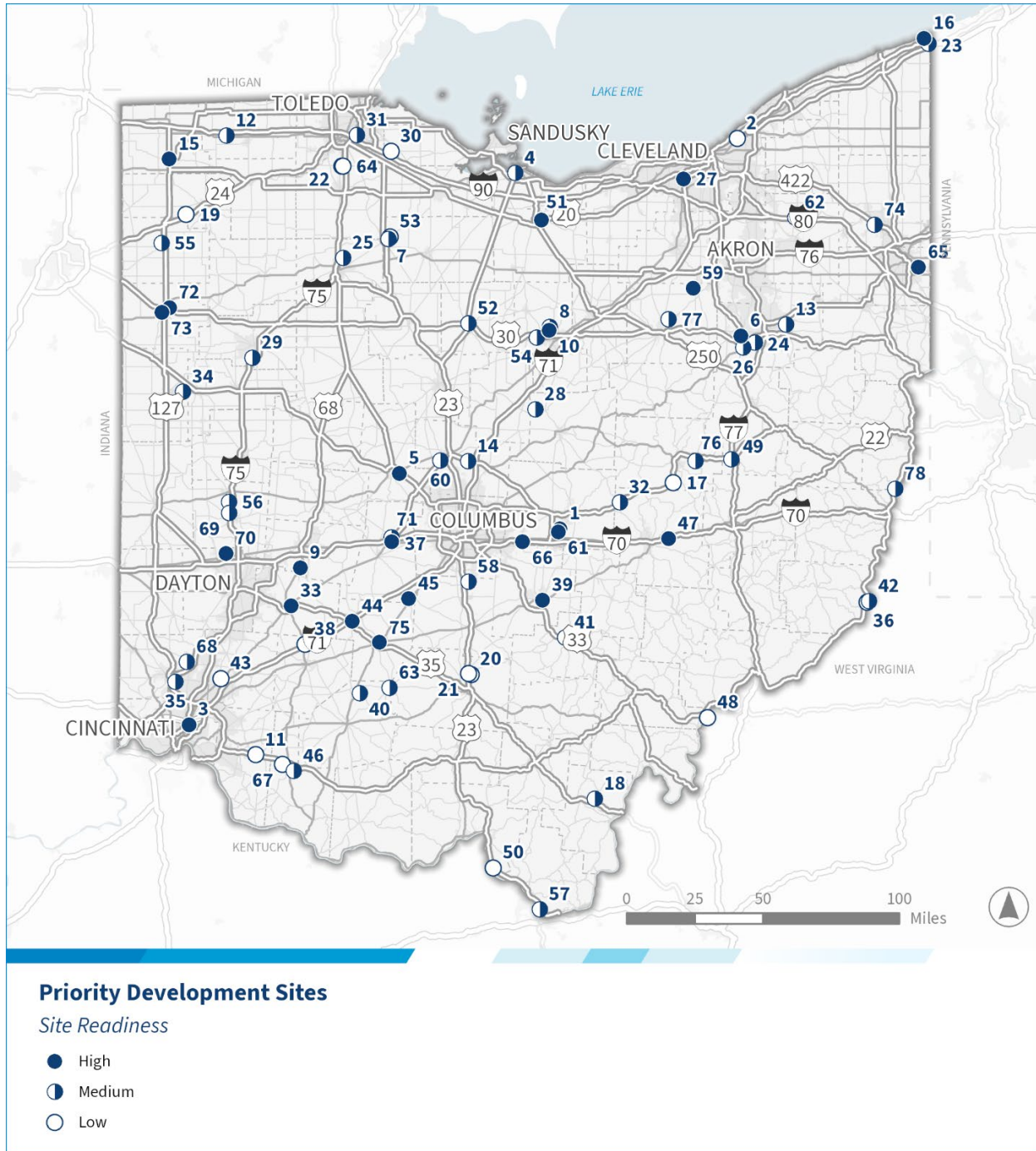


TABLE 2.15—DEVELOPMENT READINESS SCORES

| ID | Site Name | Total Score | Region | Rating |
|-----------|--|--------------------|---------------|---------------|
| 5 | 33 Innovation Park | 29 | Central | High |
| 37 | I-70 and US42 Mega Site | 27 | Central | High |
| 66 | The Cubes | 27 | Central | High |
| 1 | 1900 Thornwood | 26 | Central | High |
| 45 | Mount Sterling Industrial Park | 26 | Central | High |
| 61 | Seminary Ridge—Hebron | 26 | Central | High |
| 39 | JKB Innovation Park | 25 | Central | High |
| 60 | Sawmill Point Business Park | 24 | Central | Medium |
| 14 | Berlin Business Park | 21 | Central | Medium |
| 58 | Rickenbacker South | 21 | Central | Medium |
| 71 | US42 and SR29 | 21 | Central | Medium |
| 28 | Fredericktown Industrial Park | 20 | Central | Medium |
| 65 | Struthers—CASTLO Industrial Park | 30 | East | High |
| 16 | CN Conneaut | 25 | East | High |
| 23 | East Conneaut Industrial/Business Park | 23 | East | Medium |
| 74 | Warren BDM | 20 | East | Medium |
| 59 | Rittman Industrial Site | 30 | Northeast | High |
| 27 | Forward Innovation Center | 28 | Northeast | High |
| 51 | North Central Ohio Industrial Park | 28 | Northeast | High |
| 6 | Massillon Energy & Technology Park | 26 | Northeast | High |
| 10 | Airport West Industrial Park | 26 | Northeast | High |
| 13 | Beck Industrial Park | 24 | Northeast | Medium |
| 4 | 2509 Hayes Avenue | 23 | Northeast | Medium |
| 54 | Ontario Commerce Park | 23 | Northeast | Medium |
| 49 | Newcomerstown Ohio Industrial Park | 22 | Northeast | Medium |
| 62 | Turnpike Commerce Center | 22 | Northeast | Medium |
| 26 | Stark Farm Go Site | 21 | Northeast | Medium |
| 8 | Aero Site | 20 | Northeast | Medium |
| 77 | Wooster Innovation Park | 20 | Northeast | Medium |
| 24 | Faircrest St SW (Industrial Jobs Hub) | 17 | Northeast | Medium |



| ID | Site Name | Total Score | Region | Rating |
|----|---------------------------------------|-------------|-----------|--------|
| 2 | 20001 Euclid Avenue | 9 | Northeast | Low |
| 72 | Van Wert Site | 28 | Northwest | High |
| 15 | Bryan North Industrial Park | 25 | Northwest | High |
| 73 | Vision Industrial Park | 25 | Northwest | High |
| 12 | Archbold Industrial Park | 23 | Northwest | Medium |
| 25 | Findlay Investment Campus | 20 | Northwest | Medium |
| 29 | Gateway Shawnee Industrial Park | 20 | Northwest | Medium |
| 52 | Ohio Crossroads Industrial Center | 20 | Northwest | Medium |
| 7 | 921 Sandusky | 19 | Northwest | Medium |
| 55 | Paulding Industrial Park | 18 | Northwest | Medium |
| 31 | Glenwood 250 | 17 | Northwest | Medium |
| 19 | Defiance Mega Site | 14 | Northwest | Low |
| 53 | Ohio Logistics IV Land | 8 | Northwest | Low |
| 22 | East Bowling Green Site | 4 | Northwest | Low |
| 30 | Genoa | 4 | Northwest | Low |
| 64 | SR582 and I-75 Mega Site | 4 | Northwest | Low |
| 47 | National Road Business Park | 25 | Southeast | High |
| 63 | South Central Ohio Industrial Park | 24 | Southeast | Medium |
| 41 | Logan-Hocking Commerce Park | 20 | Southeast | Medium |
| 18 | Dan Evans Industrial Park | 19 | Southeast | Medium |
| 32 | Graham Farm | 19 | Southeast | Medium |
| 42 | Long Ridge Energy Terminal | 19 | Southeast | Medium |
| 57 | Point Industrial Park | 19 | Southeast | Medium |
| 78 | Yorkville | 19 | Southeast | Medium |
| 50 | Norfolk Southern Ohio River Mega Site | 17 | Southeast | Low |
| 40 | Leesburg Industrial Park | 17 | Southeast | Medium |
| 76 | West Lafayette Industrial Park | 16 | Southeast | Medium |
| 17 | Conesville Industrial Park | 15 | Southeast | Low |
| 20 | Delano Industrial Park | 15 | Southeast | Low |
| 21 | Delano Road and SR159 | 13 | Southeast | Low |
| 48 | Newberry | 13 | Southeast | Low |



| ID | Site Name | Total Score | Region | Rating |
|----|--|-------------|-----------|--------|
| 36 | Hannibal Industrial Park | 6 | Southeast | Low |
| 3 | 2100Road | 26 | Southwest | High |
| 68 | Trenton Industrial Park Phase II | 23 | Southwest | Medium |
| 35 | Hamilton Enterprise Park | 22 | Southwest | Medium |
| 46 | Mount Orab Mega Site | 18 | Southwest | Medium |
| 67 | Tract 416 | 15 | Southwest | Low |
| 11 | Amex Site | 10 | Southwest | Low |
| 43 | Mason R&D Park Building | 10 | Southwest | Low |
| 70 | Union Global Logistics Airpark | 31 | West | High |
| 9 | Airpark Ohio | 30 | West | High |
| 44 | Midwest Mega Commerce Center | 30 | West | High |
| 33 | Greene Regional Business Park | 25 | West | High |
| 75 | Washington Court House Industrial Park | 25 | West | High |
| 69 | Troy—1401 Experiment Farm Road | 24 | West | Medium |
| 34 | Growing Acres | 23 | West | Medium |
| 56 | Piqua Cornerstone Commerce Park | 22 | West | Medium |
| 38 | I-71 and US68 | 10 | West | Low |

Source: SiteOhio and ODOT site readiness rating

Brownfields Redevelopment

Brownfields represent a significant development pressure within Ohio, directly impacting the transportation system. ODOT defines brownfields as abandoned, idled, or underused industrial, commercial, or institutional properties where known or potential releases of hazardous substances or petroleum complicate redevelopment. Listening session participants highlighted that while the cost of remediation often exceeds the property’s value, these sites offer opportunities to leverage existing infrastructure and minimize the need for additional roads or utility connections. Stakeholders also recognized that brownfield redevelopment can increase demands on transportation systems, particularly in urban areas, necessitating updates to roadways, transit systems, and freight networks to manage higher traffic volumes and maintain safety and efficiency.

ODOT manages several programs to support brownfield redevelopment and assist local communities, including the All Ohio Future Fund, the Brownfield Remediation Program, and the Building Demolition and Site Revitalization Program. These initiatives help offset cleanup costs, fund infrastructure upgrades, and promote development on underutilized properties. Many priority development sites identified through SiteOhio include brownfields, demonstrating their importance to Ohio’s broader economic and infrastructure strategies.



Stakeholder Insight on Development

To gain a more localized understanding of the trend analysis, qualitative data on development, jobs, and transportation was identified through 40 interviews with MPOs, RTPOs, JobsOhio regional network partners, and other statewide organizations and at regional listening sessions and a statewide webinar held across Ohio between January and March 2024. The regional listening sessions included approximately 456 in-person attendees and 97 virtual attendees. Participants at each session developed a shared map highlighting transportation and development issues and opportunities specific to the region. Notes from the interviews and results from the listening sessions mapping exercise were digitized and are summarized in **Appendix H, Study Engagement**. Common opportunities compiled from the interviews and the listening sessions included:

- **There is widespread potential across Ohio for continued and accelerated growth in transportation-dependent industries.** This includes manufacturing, technology, logistics/distribution, energy, agriculture/food, and tourism. Existing businesses are recognized as creating the newest jobs in these industries. New businesses will help Ohio expand its national leadership in transportation technology through industries like advanced air mobility and electric vehicles.
- **There are existing robust processes and partnerships for identifying and marketing strategic locations for new development through JobsOhio and the SiteOhio process.** While the SiteOhio authentication process is exacting and limits brownfield sites from qualifying, new programs such as the All Ohio Future Fund provide opportunities to resolve conditions creating barriers to developing these sites. Sites outside the SiteOhio process are often independently identified through regional and local efforts and are typically located near major highway interchanges, intermodal facilities, and airports.
- **There are potential high-value and infrastructure cost savings from redevelopment in existing areas.** This includes infill development in large and smaller cities, reuse in industrial areas, e.g., Toledo, Cleveland, Mahoning Valley, and brownfield redevelopment. Existing, ample transportation and utility infrastructure capacity make Northeast and Northwest Ohio well-positioned to support new development. In Southeast Ohio, smaller towns continue to position themselves for opportunities as outdoor recreation hubs by expanding trail systems and growing local retail and entertainment businesses.
- **Transportation is typically necessary but not sufficient alone to foster development.** Noted barriers include lack of workforce skills/availability, mainly in rural areas; limited infrastructure and utility capacity, including water/sewer, energy, and broadband; and local government funding and capacity (mainly in rural areas) to plan for and market development opportunities.



Statewide Development Areas

The ODOD forecasting and model-based analysis, site readiness analysis, stakeholder input, and regional and local plan reviews provide diverse information to better understand and plan for future development patterns in Ohio. Insights gathered through reviewing recent local comprehensive plans, adopted within the last 10 years, and comprehensive economic development strategies adopted by Ohio's economic development districts are presented in **Appendix I, Development Process**. This section highlights those findings. This same data is utilized to analyze existing and future transportation demand and congestion risks presented in **Chapter 3**.

Northwest

Northwest Ohio development areas identified through the review of comprehensive plans and by stakeholders generally share the following hurdles and opportunities:

- In rural areas, striking a balance between encouraging development activity and preserving farmland
- In urban areas and city centers, maintaining the historical manufacturing industry, retaining existing residents and workers, attracting new residents, activating space along waterfronts, and investing in utility infrastructure
- Throughout the region, tapping into the regional logistics strength that comes from the crossroads of major north-to-south and east-to-west corridors that connect Toledo to the rest of the country

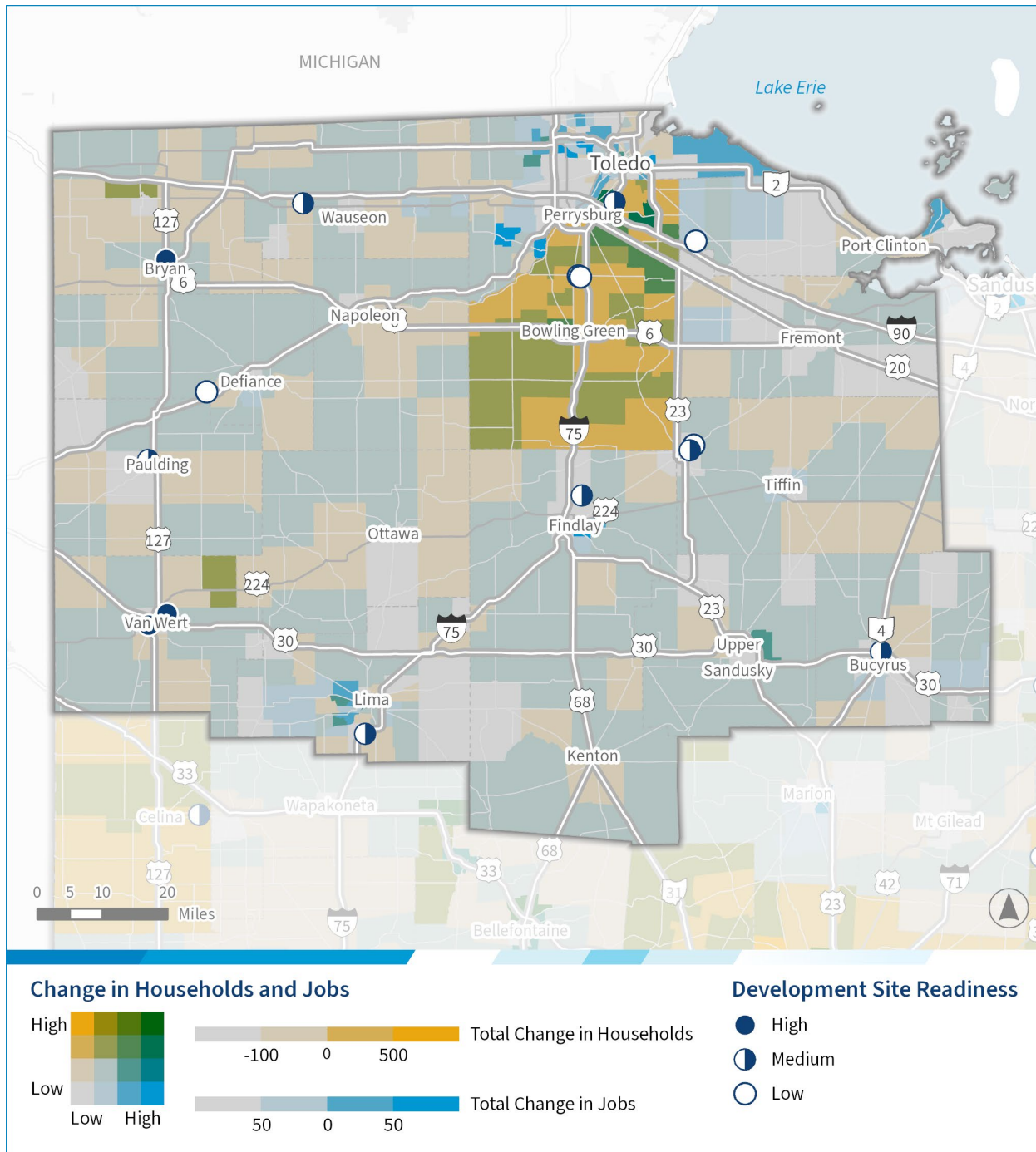
Figure 2.93 presents a bivariate view of forecasted household and employment change in the ODOD baseline scenario from 2025 to 2055 based on traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

- **Wood County**, with household growth mixed with job growth mainly in northeast areas of Wood County around Perrysburg, Moline, and Stony Ridge along the US23 corridor

Job growth, blue-colored areas, is anticipated northeast of Toledo around Harbor View and along the I-475 corridor north and west of Toledo in areas like Westgate and Sylvania and southwest of Toledo along US24.



FIGURE 2.93—NORTHWEST OHIO HOUSEHOLD AND EMPLOYMENT GROWTH (BASELINE, 2025-2055)



Source: ODOT, Ohio Statewide Model



Northeast and East

Northeast Ohio and East Ohio development areas share the following hurdles and opportunities:

- Building upon the thriving tourist economy along the lakefront
- Increasing access to natural resources throughout the region
- Investing in the existing expansive urbanized landscape while also maintaining agricultural land
- Improving public and active transportation to increase safe access to opportunities

Figure 2.95 and **Figure 2.94** present a bivariate view of forecasted household and employment change in the ODOT baseline scenario from 2025 to 2055 by traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

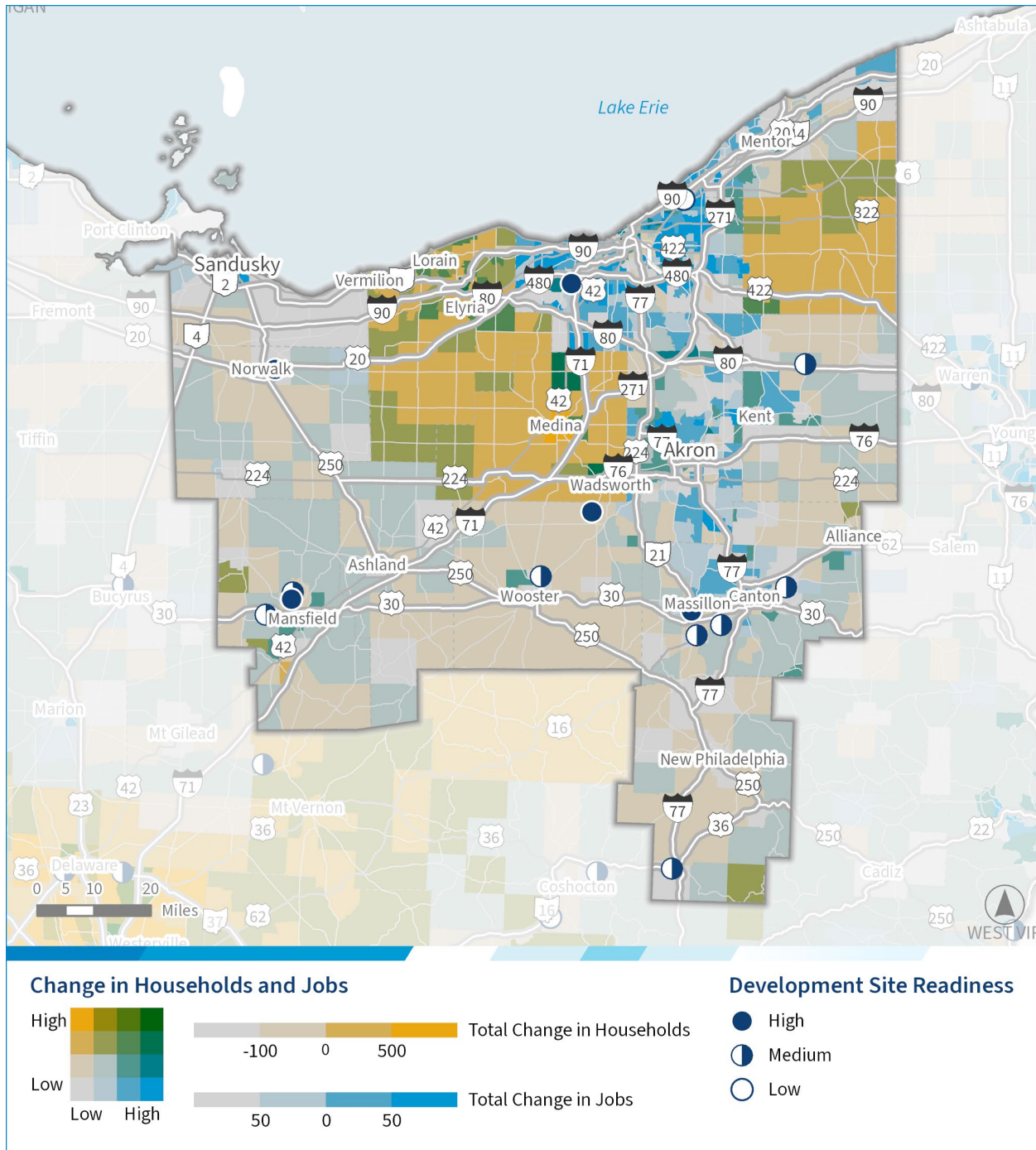
- **Throughout Lorain and Medina counties:** particularly in areas west of I-71 and south of the Ohio Turnpike, some of this growth, particularly within Elyria, Strongsville, Brunswick, and Medina is projected to be mixed with job growth, particularly directly adjacent to I-71
- **Throughout Geauga County:** along east-west corridors like US422 and US322, and north-south corridors like SR44 and SR534, the southwest corner of Geauga County, just east of Chagrin Falls and Aurora is projected to see mixed household and job growth, as are areas along the US6 corridor
- **In Cuyahoga and Summit counties around Richfield and Kent:** and adjacent to city centers in Wooster and Alliance, mixed household and job growth
- **In Salem and areas west of Lordstown:** mixed household and job growth

Job growth (blue-colored areas) is projected to occur in the following areas:

- In Northeast Ohio throughout **Cuyahoga, Summit, and Stark counties**, primarily adjacent to major interstate and US highway interchanges, east of downtown Cleveland along I-90 and I-271; west of downtown Cleveland along I-90; north of Akron in Cuyahoga Falls, Fairlawn, and Montrose-Ghent; south of Akron around the Akron-Canton Airport; and between Canton and Massillon along US62
- In East Ohio, north and east of **Warren along the SR82 and SR11 corridors**, along I-80 in Churchill and Hubbard, and in areas south of Youngstown, particularly along the Ohio Turnpike



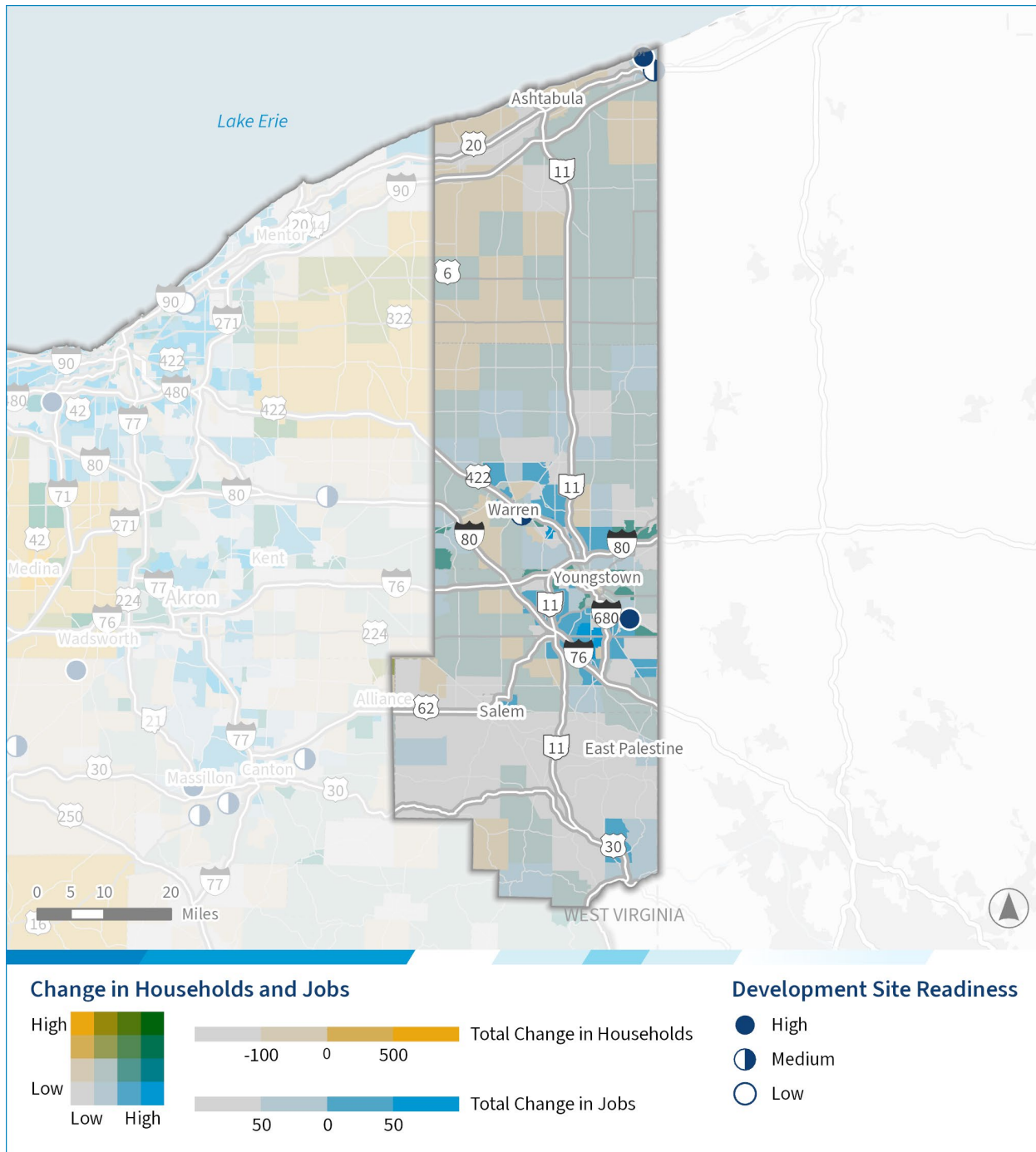
FIGURE 2.94—NORTHEAST OHIO HOUSEHOLD AND EMPLOYMENT CHANGE (BASELINE, 2025–2055)



Source: ODOT, Ohio Statewide Model



FIGURE 2.95—EAST OHIO HOUSEHOLD AND EMPLOYMENT CHANGE (BASELINE, 2025–2055)



Source: ODOT, Ohio Statewide Model



Southeast

Southeast Ohio's development pattern and character is primarily rural, with very low population density. Most people live around small college towns and in riverfront communities. Southeast Ohio's development areas generally share the following hurdles and opportunities:

- Focusing growth in developed areas to leverage existing utilities and infrastructure
- Increasing broadband access
- Investing in tourism as a main economic industry
- Utilizing the region's resources and natural assets
- Reinvesting and redeveloping declining or underutilized areas
- Diversifying transportation and housing options

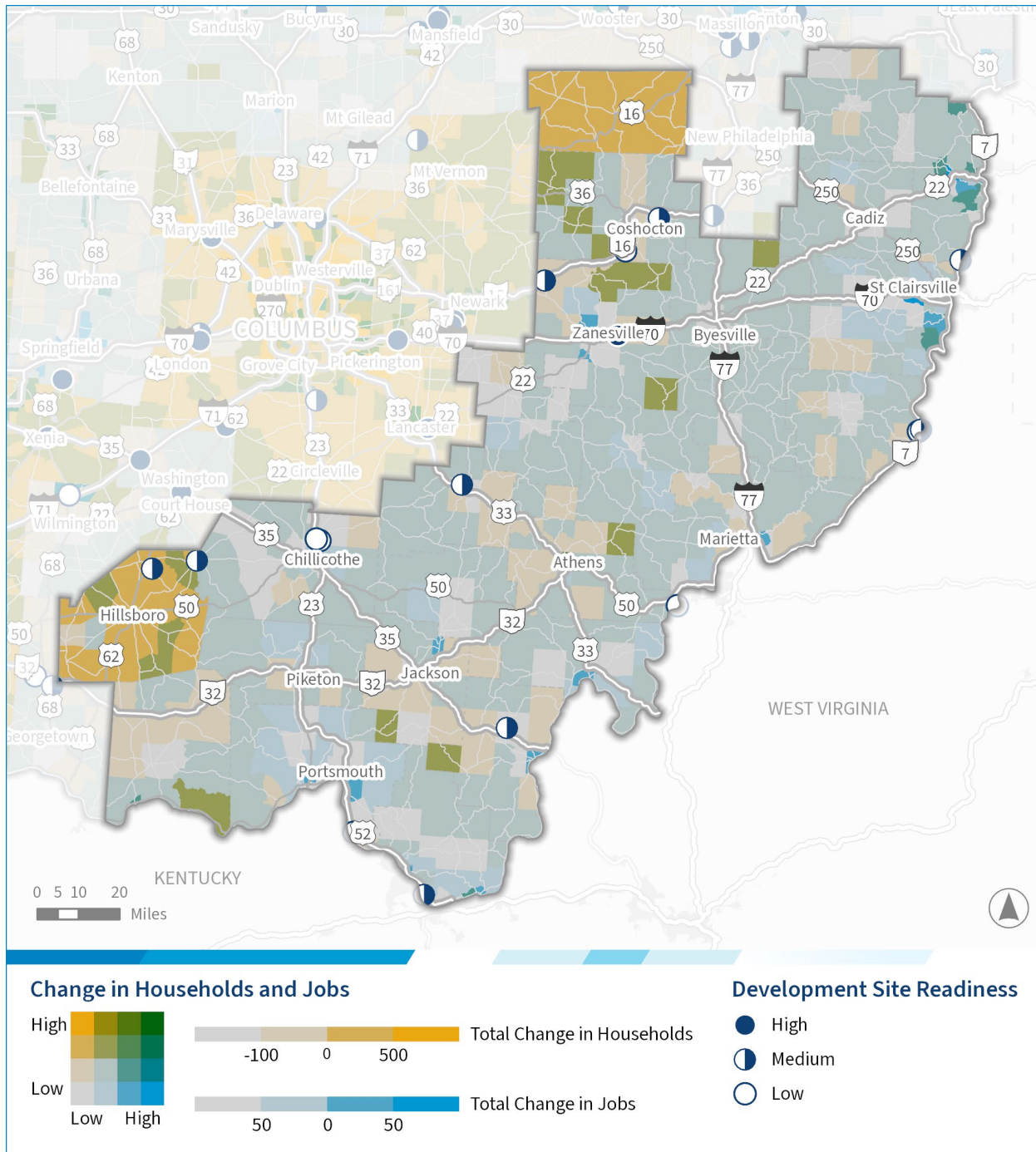
Figure 2.96 presents a bivariate view of forecasted household and employment change in the ODOD baseline scenario from 2025 to 2055 by traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

- **Across Highland County:** given the area's proximity to the Cincinnati region and nearby counties like Clinton and Fayette)
- **Across Holmes County:** due to the continuing growth of the Amish community
- **Muskingum and Coshocton counties:** have smaller areas of mixed housing and job growth, given the proximity to high growth projected throughout Licking County, just to the west

Job growth, blue-colored areas, is centered in small areas along the Ohio River, anticipated to be associated primarily with industrial and distribution activities near Portsmouth, Ironton, Marietta, Bellaire, along SR7 south of the Wheeling region, and in Steubenville.



FIGURE 2.96—SOUTHEAST OHIO HOUSEHOLD AND EMPLOYMENT CHANGE (BASELINE, 2025-2055)



Source: ODOT, Ohio Statewide Model



Central

Given regional growth patterns, Central Ohio's current and future development is assessed at a county and sub-county scale. Areas with active or anticipated future development in Central Ohio typically share the following hurdles and opportunities:

- Growing existing and proposed employment centers, particularly near primary roadways, intersections, and interchanges
- Increasing industrial development interest adjacent to airports and railroads, particularly around Rickenbacker International Airport
- Increasing redevelopment and investment in suburban and exurban community town centers to maintain businesses and activity
- Increasing suburban and exurban residential, commercial, and retail development continues to advance along major corridors, consuming existing agricultural and undeveloped lands
- Increasing development pressures are likely in the Big Darby Creek watershed in northwestern Pickaway, western Franklin, northeast Madison, and southern Union counties. The Big Darby Construction General Permit process establishes development controls and requirements to protect this watershed in Central Ohio.

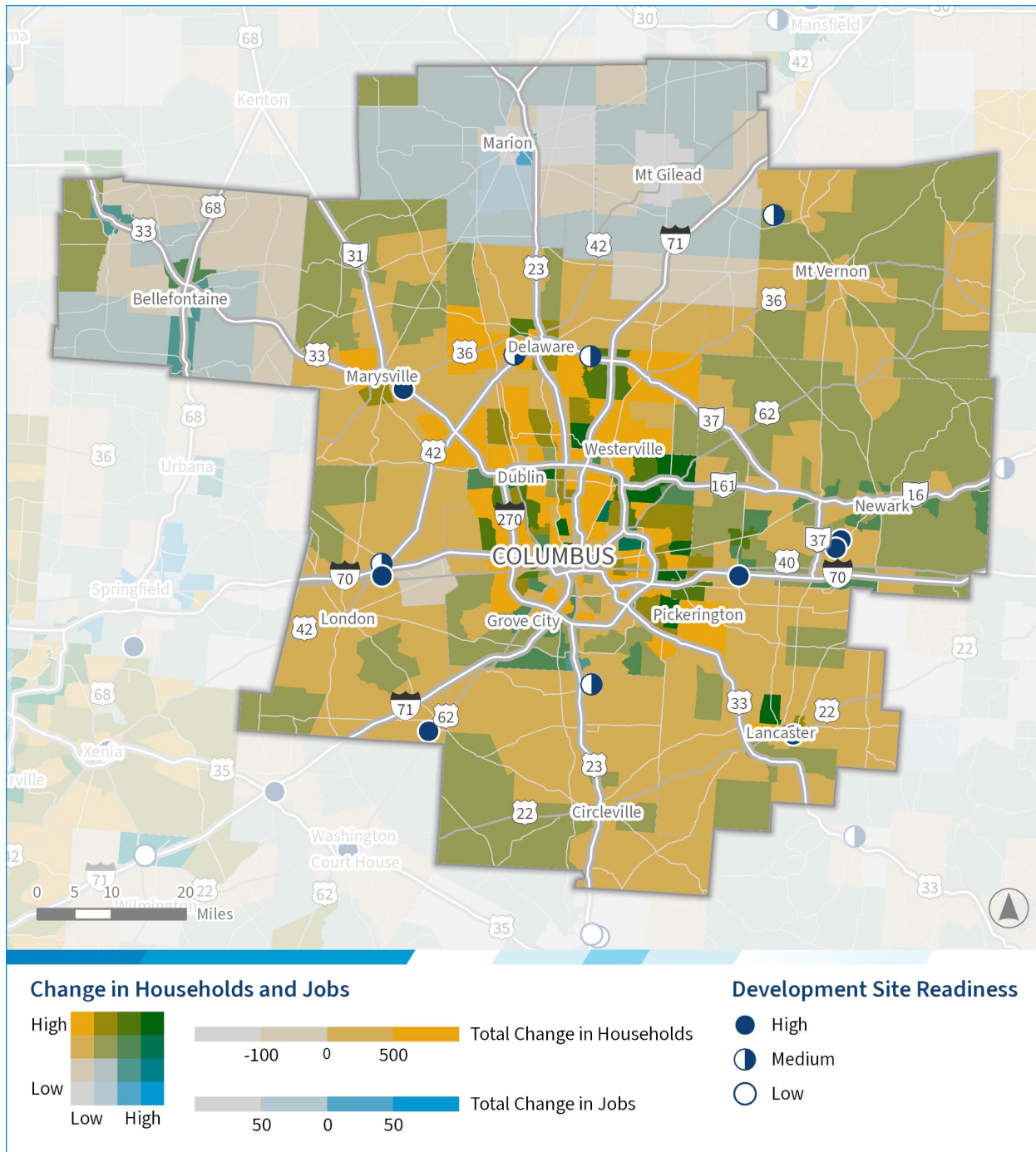
Figure 2.97 presents a bivariate view of forecasted household and employment change in the ODOD baseline scenario from 2025 to 2055 by traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Every county within Central Ohio is projected to see some household or job growth. However, growth is somewhat isolated in Marion and Morrow counties to areas bordering Delaware County to the south. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

- **North to east outside of I-270:** along US35 from Delaware to Sunbury, around the US36/I-71 interchange, along SR37 from Sunbury to Johnstown, along US62 from SR161 to Johnstown particularly associated with the Intel site southwest of Johnstown, along SR161 in New Albany, the Gahanna and Reynoldsburg area, along SR3 from Westerville to Sunbury, and in areas west and south of Newark, including Granville, Heath, and Hebron, and Knox County south and west of Mount Vernon
- **East to south outside of I-270:** throughout Fairfield County, particularly in Pickerington, Canal Winchester, northwest of Lancaster, and around Rickenbacker Airport, and along the US23 corridor south toward Circleville
- **South to west outside of I-270:** primarily around Grove City and Galloway and near London and the I-71/US42 interchange
- **West to north outside of I-270:** areas in and around Hilliard and Dublin, along US33 between Marysville and Dublin, north of Marysville, along US36 and US42 west of Delaware, and US68 in Bellefontaine and throughout Union County
- **Inside I-270:** areas like Upper Arlington, Worthington, Walnut Creek, Hilltop, and Whitehall

The most intense growth areas in Central Ohio are in an arc from Marysville to Delaware to Sunbury to Johnstown to Alexandria bordered on the west, north, and east by US36 and SR37. Areas between Delaware and Sunbury along US36 and SR37 and between New Albany and Johnstown on US62 are anticipated to have some of the highest growth rates in the region.



FIGURE 2.97—CENTRAL OHIO BASELINE HOUSEHOLD AND EMPLOYMENT CHANGE (2025-2055)



Source: ODOT, Ohio Statewide Model



West

West Ohio areas with potential development share these hurdles and opportunities:

- Attracting modern industries to continue to invest within the region and capitalize on existing robust sectors such as aviation and coordinating efforts to focus on the region's geographic strengths and connections to major markets
- Attracting new people to the region while also maintaining community character to retain current residents

Figure 2.98 presents a bivariate view of forecasted household and employment change in the ODOD baseline scenario from 2025 to 2055 by traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

- **In Green, Miami, and Mercer counties**, with the highest growth projected in Greene County along I-675 near Wright-Patterson Air Force Base, along US35 west of Xenia, and in Centerville

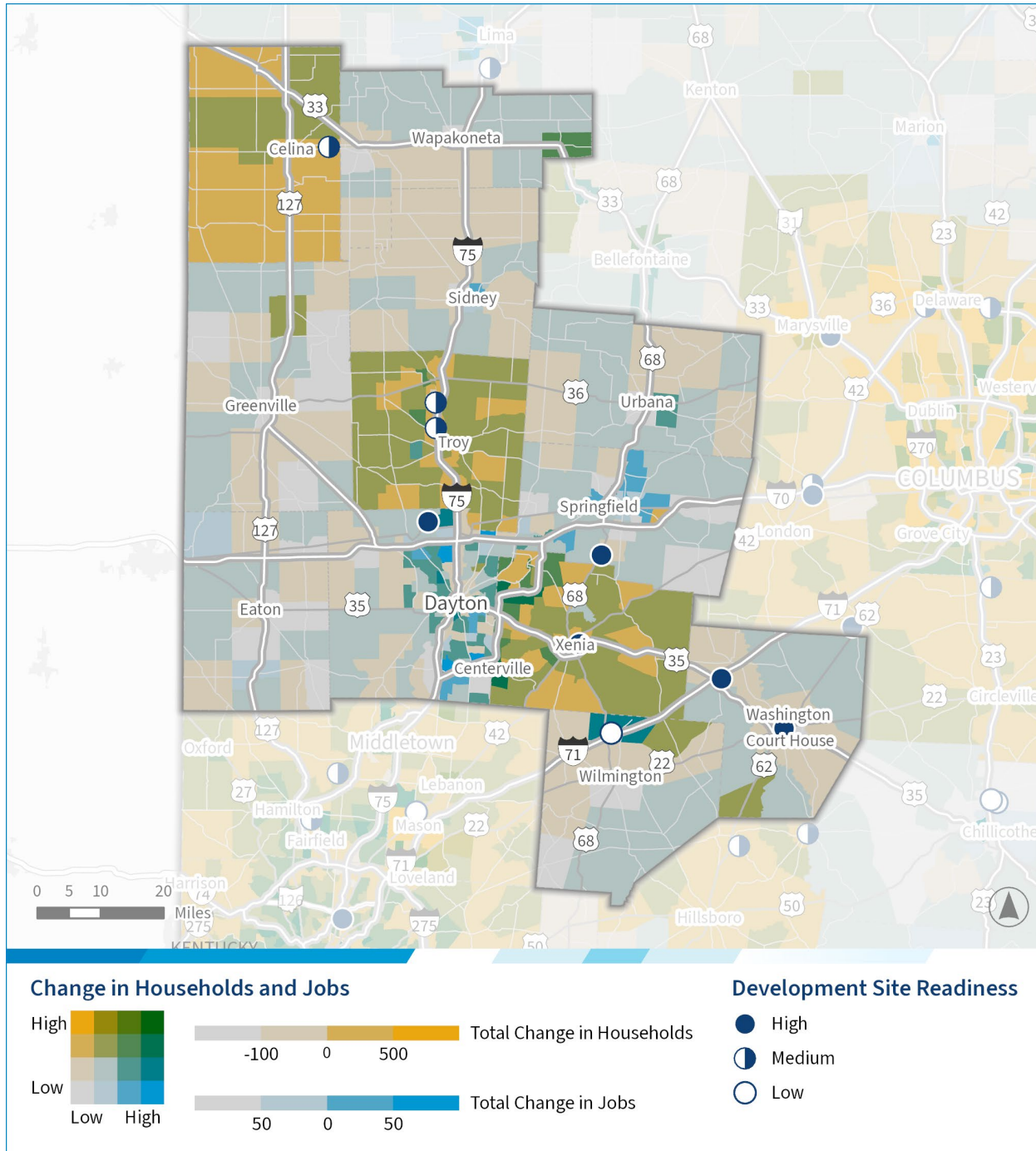
Job growth, blue-colored areas, is projected to occur in the following areas:

- **Within Dayton along I-70 and south of Dayton in Kettering and South Dayton** and along I-71 in Fayette County associated with potentially over 2,000 jobs associated with the Honda and LG Energy Solution battery plant anticipated to start production in 2025
- **Along I-70 and US68 near Springfield and within northern Clark County** and southern Champaign County toward Urbana

While growth appears isolated in Clinton and Fayette counties based on this forecast data, given ongoing and potential development site build-out and their location along I-71 between Cincinnati and Columbus, the area is ripe for more development demand than forecasted.



FIGURE 2.98—WEST OHIO HOUSEHOLD AND EMPLOYMENT CHANGE (BASELINE, 2025-2055)



Source: ODOT, Ohio Statewide Model



Southwest

Southwest Ohio areas with development potential share several hurdles and opportunities:

- Redeveloping sites that have been historically mismanaged and leveraging these locations to create great places to encourage new population growth and attract a new workforce
- Building a resilient business environment across diverse industries that will be sustainable for generations and connect with existing regional institutions and universities
- Developing within existing town and village centers and suburban and exurban areas that help foster community identities beyond Cincinnati

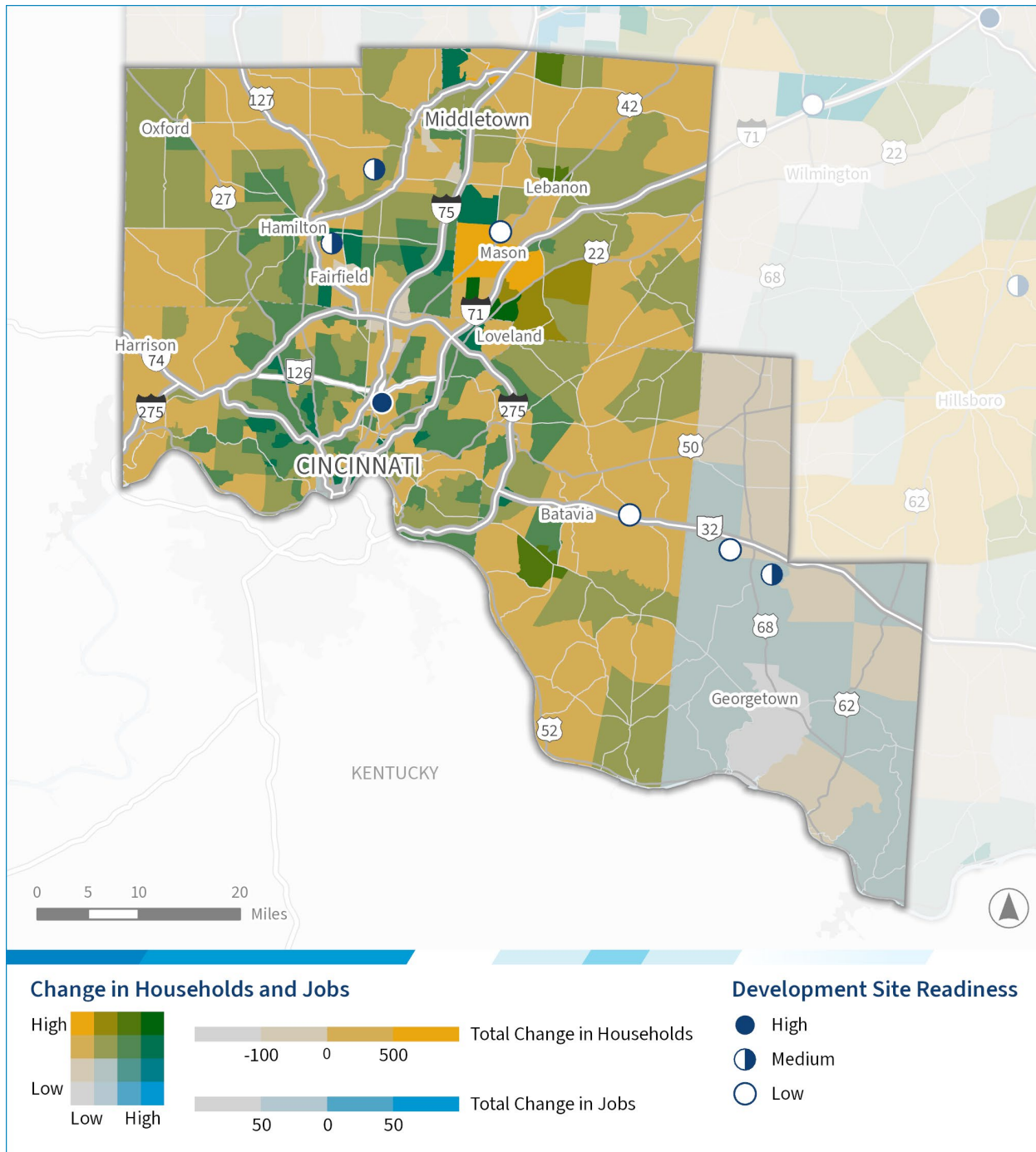
Figure 2.99 presents a bivariate view of forecasted household and employment change in the ODOD baseline scenario from 2025 to 2055 by traffic analysis zone from the OSWM, along with site readiness for SiteOhio priority development sites. Household growth, orange-colored areas, and mixed housing and job growth, green-colored areas, are projected to occur in the following areas:

- **In Warren County:** within areas like Mason, Kings Mills, Hopkinsville, and Hamilton Township
- **Across Hamilton and Butler counties:** mainly north and west of Cincinnati in areas like Delhi, Cheviot, and Dent; and along the SR126 corridor in White Oak and Finneytown
- **Along the SR129 corridor:** between Hamilton, Princeton, and Weatherington and north along I-75 from Pisgah, Four Bridges, Monroe, and toward Middletown
- **In Clermont County:** along SR32, particularly in areas around Batavia

While development is not forecast to occur in Brown County, given the location of two priority development sites near SR32 and US68 and the proximity to ongoing and forecasted growth in Clermont County, there is potential for future growth.



FIGURE 2.99—SOUTHWEST OHIO DEVELOPMENT POTENTIAL AND NEED LOCATIONS



Source: ODOT, Ohio Statewide Model



Statewide Summary

As shown in **Figure 2.93** through **Figure 2.99** and described in the prior sections highlighting each region's growth patterns, the combination of potential growth areas identified in local comprehensive plans, the location of priority development sites, and projected household and job growth is anticipated to occur in Ohio's major urbanized areas.

In Central Ohio, the most intense growth is anticipated to occur in suburban and exurban areas in Union, Delaware, Licking, Fairfield, and Pickaway counties. Based on data analysis, the anticipated (or projected) growth will likely occur along major arterial highways, such as US42, US36, US23, SR37, SR161, US62, and US33. These highways include a mix of access controls and are already facilitating high traffic volumes for passenger and commercial vehicles.

In Southwest Ohio, the most intense growth is anticipated to occur as infill development within existing centers and along major corridors, mainly north and east of Cincinnati in Warren and Clermont counties. The Cincinnati and Dayton regions continue to grow closer, with intense development in communities such as Mason, Lebanon, and Middletown, impacting I-75 and intersecting and parallel state highways like SR4.

In West Ohio, existing economic drivers such as Wright-Patterson Air Force Base will continue to spur growth in the region along with new mega site developments, including the Honda-LG Energy battery plant along I-71 in Fayette County.

Projected growth elsewhere in Ohio is more targeted and centered in places like Wood County in Northwest Ohio, Lorain, Medina, and Geauga counties in Northeast Ohio, and Holmes and Highland counties in Southeast Ohio. Growth in these counties is unique given their connection to nearby metropolitan areas like Toledo, Cleveland, and Cincinnati and their relationship to major transportation corridors like I-75 and the Ohio Turnpike.

The insights shared in this section of **Chapter 2** represent critical baseline information that informs the analysis of existing and future travel demand and congestion risk presented in **Chapter 3**. Many areas of existing and future congestion risk in these regions could limit the potential of this projected economic growth in the coming decades. Existing ODOT investments and potential actionable recommendations to manage these risks are presented in **Chapter 4** and **Chapter 5** of this report.



Strategic
**Transportation
& Development**

Analysis

**Chapter 3:
Transportation
System**



Department of
Transportation

3. Transportation System

Ohio's travel demand and transportation system trends and forecasts provide critical insights for understanding how the transportation system supports Ohio's current and future economy. This chapter analyzes and summarizes historical, current, and projected transportation trends. It focuses on travel demand patterns for passenger and commercial vehicles and the role of the state highway network in facilitating commodity movements important to Ohio's economy. This chapter examines **intra-regional travel patterns and conditions** within the seven JobsOhio regions. It identifies existing and projected future congestion risks related to development trends. This chapter also examines **inter-regional travel patterns and conditions** at a corridor level between markets inside and outside Ohio. It identifies select corridors that may face challenges supporting inter-regional trade in the future. Together, this information creates the framework to review current and proposed investments and potential actionable recommendations to support statewide economic growth in **Chapter 4** and **Chapter 5**.

KEY FINDINGS

Ohio has a robust highway system with connections to air and marine ports, rail, and intermodal facilities that support the state's economy. The system is one of the nation's largest and most traveled, requiring extensive partnerships between the ODOT and federal, state, regional, and local agencies to maintain and operate it.

- The state roadway system owned and maintained by ODOT and the Turnpike Commission represents 16% of roadway centerline miles statewide, with the remainder owned and maintained by counties, cities, villages, and townships. The state system carries 66% of statewide vehicle miles traveled (VMT).
- Interstates function as the spine of the state system. They represent 8% of state system route miles and 16% of state system lane miles while **carrying 44% of total VMT and 64% of truck VMT** on the state system.
- The Strategic Transportation and Development Analysis focused on a subset of highway facilities where most economic activity leveraging the highway network occurs in Ohio. **The Study network is comprised of highways of national and statewide significance connecting to primary and secondary markets inside and outside of Ohio and key intermodal terminals, including airports, marine ports, and rail.** The network builds on existing designations created by ODOT for long-range planning and programming, including the State Freight System (SFS), designated through Transport Ohio, the state's freight plan.
- The Study network **carries 40% of the state network total VMT and 80% of the state network truck VMT.** The Study network covers 4,236 route miles across Ohio, representing 22% of the state network route miles.
- **The Study network will see significant growth in VMT through 2055, particularly for trucks.** Total truck VMT is projected to increase by 50%, from 32 million daily VMT in 2025 to over 48 million daily VMT in 2055. Total Study network VMT is projected to increase from 15% to 18%, depending on the population growth scenario. In contrast, the remainder of the state and local roadways will see VMT change stagnate. This indicates that Ohio's commodity trade with other states is poised for significant growth, reinforcing the state's role as a critical corridor for interstate commerce.



The Study network is analyzed in two ways to understand opportunities to support economic growth: the **regional networks that facilitate movement within markets and regions** and **interregional connections between markets**.

Regional network analysis findings focused on existing and future development and travel patterns and the impact of congestion patterns on the Study network. **Based on this analysis, 72 congestion risk hotspots were identified across the seven regions.** Sustained performance risk at these locations may negatively impact current or future site access, workforce access to jobs, business and logistics efficiency, and quality of life.

- **Northwest Ohio**—Population is forecasted to continue to decline, particularly within Lucas County and rural areas, while Wood County is expected to grow. Future risk of congestion is primarily along I-475 and I-75 south of Toledo, with other isolated hotspots near Van Wert, Defiance, Napoleon, and Bucyrus.
- **Northeast Ohio**—Population is forecasted to continue declining, particularly in the core areas of Cleveland, Akron, and Canton. At the same time, growth is anticipated to continue and accelerate in Geauga, Lorain, Medina, and northern Summit counties. This growth will continue to pressure the performance of congested corridors like I-480 and I-90 in Cleveland and I-77/I-76 in Akron.
- **East Ohio**—Continued population decline is forecasted through 2055. However, the recent return of jobs, particularly in automotive and battery manufacturing, provides positive signs for the workforce and continued investments. While no congestion hotspots are forecasted in East Ohio, the US30/SR11 corridors were identified as a focus corridor for further evaluation (see **Appendix F**).
- **Southeast Ohio**—The population and economy are projected to remain relatively stable through 2055, with some pockets of growth associated particularly with tourism and recreation and intermodal and port facilities along the Ohio River. Future congestion risk hotspots are limited to specific interchanges and short segments of Study network routes, such as I-70 in Zanesville and US23 in Waverly.
- **Central Ohio**—Population and the economy are forecasted to grow in all directions, particularly in Delaware, Licking, Fairfield, and Pickaway counties. With existing congestion on I-70, I-71, and I-270, as well as growing congestion on US23, US33, US36, US42, and US68, particularly in suburban and exurban areas, 26 unique congestion hotspots are anticipated across the region through 2055.
- **West Ohio**—The population and economy are forecasted to grow moderately through 2055, with some of this growth as spillover from Southwest Ohio into Montgomery County. Future congestion hotspots highlight the critical importance of I-75 to intraregional and interregional trips to this region, particularly commercial vehicles accessing industries in West Ohio.
- **Southwest Ohio**—The population is forecasted to grow significantly through 2055, particularly in Warren and Clermont counties. This growth will expand congestion hotspots on I-71 and SR32 while placing continued pressure on I-75 and I-71 through Cincinnati.



The market and interregional connections analysis findings highlight existing and future development and travel patterns, particularly for commercial vehicles, and the impact of these patterns on corridors' economic value and performance risk.

- The highest-volume movement of people and goods between 33 markets in this analysis occurs on interstate corridors connecting Cleveland to Columbus and the triangle of Columbus, Cincinnati, and Dayton.
- **Truck tonnage and value** are crucial indicators of market-to-market importance to Ohio's economy. The Cleveland to Columbus I-71 corridor has Ohio's highest tonnage and value movement, carrying 206,000 tons of freight annually, valued at \$867 million.
- **High-volume corridors are more susceptible to performance risks**, including delays and safety. However, many of these corridors also have ample capacity and can quickly recover from incidents and manage congestion outside peak periods. These include many of Ohio's interstates and limited access US highways that overall operate efficiently outside of major metropolitan areas.
- **Corridors in current or projected high-growth areas with constrained ability to control access face sustained and growing performance risks.** These ever-increasing risks will limit the ability of these corridors to facilitate future interregional passenger and commercial vehicle trips.
- **Based on the analysis and stakeholder input, six focus corridors were identified as part of the Strategic Transportation and Development Analysis.** This prompted an in-depth analysis of the Study network facilities connecting the following markets (see [Appendices A-F](#)):
 - **Toledo—Columbus** (I-75, SR15, US23, US36, US68, SR31, US33)
 - **Sandusky—Columbus** (SR4, US23, US250, I-71)
 - **Columbus—Kentucky/West Virginia** (US23, US52)
 - **Columbus—West Virginia** (US33)
 - **Cincinnati—Dayton** (I-75)
 - **Canton and Youngstown—West Virginia/Pennsylvania** (SR11, US30)



TRANSPORTATION CONTEXT

ODOT manages an extensive, complex transportation system comprised of infrastructure assets, such as pavements, bridges, and conduits, worth an estimated \$113.2 billion based on the [2024 Annual Report](#). ODOT's functions include managing federal and state transportation funds, designing transportation improvements, managing project delivery, developing guidelines and standard practices, and working with landowners to manage watersheds and remedy drainage issues along highways. The agency reviews traffic impact studies when the proposed development is adjacent to the state system. ODOT also directs significant resources to preserve the highway network through maintenance, construction, and snow and ice operations. ODOT's [Strategic Plan](#) states the mission, vision, and guiding principles vital to fulfilling the agency's responsibilities and serving all Ohioans.

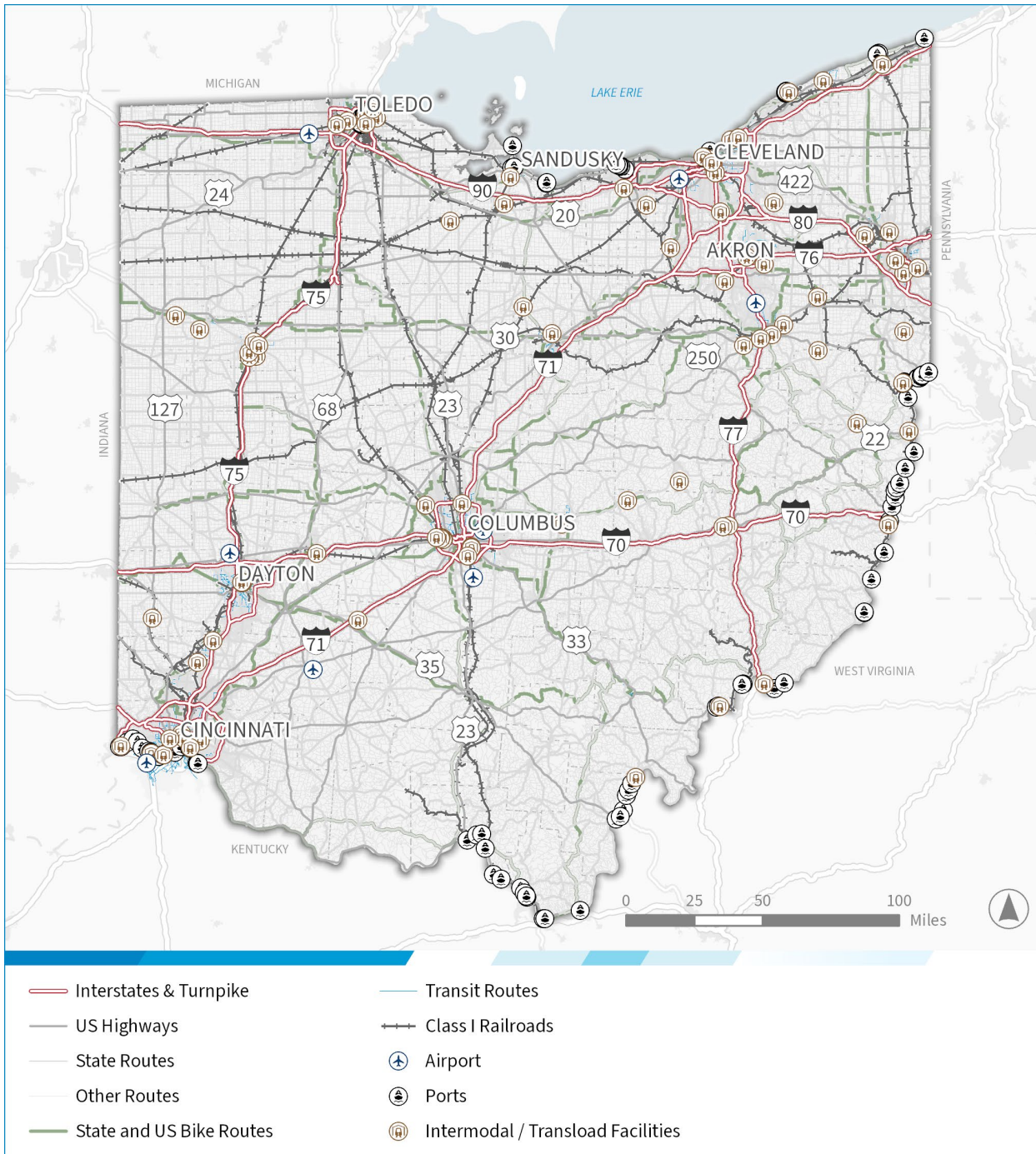
Ohio's Transportation System

Ohioans benefit from a transportation system that includes highways, transit, railroads, airports, intermodal facilities, marine ports, and active transportation facilities, providing opportunities for residents, visitors, and businesses. Ohio's economy, particularly sectors like manufacturing, and transportation and logistics, is critically reliant on every transportation mode, as presented in [Figure 3.1](#).

- Ohio has the fifth largest interstate system, the third largest bridge inventory, the sixth highest VMT, and the sixth highest volume of freight movement, with nearly 1.4 billion tons moving through the state annually. The highway network positions Ohio businesses and residents within a one-day drive of 60% of the US and Canadian populations.
- Twelve percent of annual tonnage is shipped on the state's 5,158 miles of rail. Freight movement also leverages assets managed by Ohio's 61 port authorities, which oversee eight ports and 162 terminals along 735 miles of navigable waterways.
- There are 176 public-use aviation facilities, including publicly-owned general aviation airports in 84 of Ohio's 88 counties and eight commercial airports, with four providing international service.
- Sixty-eight public transit agencies across the state connect residents to work, medical appointments, social and business destinations, and recreational opportunities.
- Ohio has a system of bike routes traversing over 3,000 miles in 77 counties, including 47 miles of bicycle lanes, 169 miles of paved shoulders, 900 miles of shared-use paths, and 2,185 miles of shared lanes.



FIGURE 3.1—OHIO'S TRANSPORTATION SYSTEM



Ohio's Highway Network

Ohio's highway network is the lifeblood of the state's transportation infrastructure, serving as a critical conduit for economic activity, social connectivity, and regional development. Spanning urban centers, suburban neighborhoods, small towns, and rural landscapes, it facilitates the movement of people and goods across the state and beyond.

Network Classification and Ownership

The spine of Ohio's highway network includes major interstates like I-70, I-71, I-75, I-76, I-77, and the Ohio Turnpike (including segments of I-76/I-80/I-90). These serve as primary arteries for long-distance travel and freight movement, connecting Ohio internally and to regional, national, and international economies. These interstates link economic hubs such as Columbus, Cleveland, Cincinnati, Dayton, and Toledo, facilitating commerce by enabling businesses to transport goods efficiently between the East Coast, the Midwest, and Canada. Complementing these are US highways and state routes, which enhance regional connectivity by linking smaller communities to the larger network. County, township, and municipal roads provide the first and last-mile connections at the local level. **Figure 3.3** presents a map of highway network functional classifications. Highway functional classification determines which roads, streets, and highways are eligible for federal transportation funds. The classification is also used to establish design criteria for various roadway features and serves as a management tool to measure a route's importance in project selection and program management.

As a home-rule state, Ohio's 2,300-plus counties, cities, villages, and townships are directly responsible for their respective roadway systems. These agencies work collaboratively to ensure the transportation network is safe, efficient, and well-maintained. **Figure 3.2** describes Ohio's highway network ownership. ODOT is responsible for operating, managing, and maintaining all state and US highways outside of municipalities and all interstates except the Ohio Turnpike, which is maintained by the Commission, as noted in **Chapter 2**. This system includes over 42,000 highway lane miles, 17% of the state's total, and more than 14,000 bridges, 32% of the state's total. Based on total travel in 2022, ODOT's roadways carry 51% of all vehicle traffic and 73% of all freight traffic on Ohio's highway network.

FIGURE 3.2—OHIO HIGHWAY NETWORK OWNERSHIP

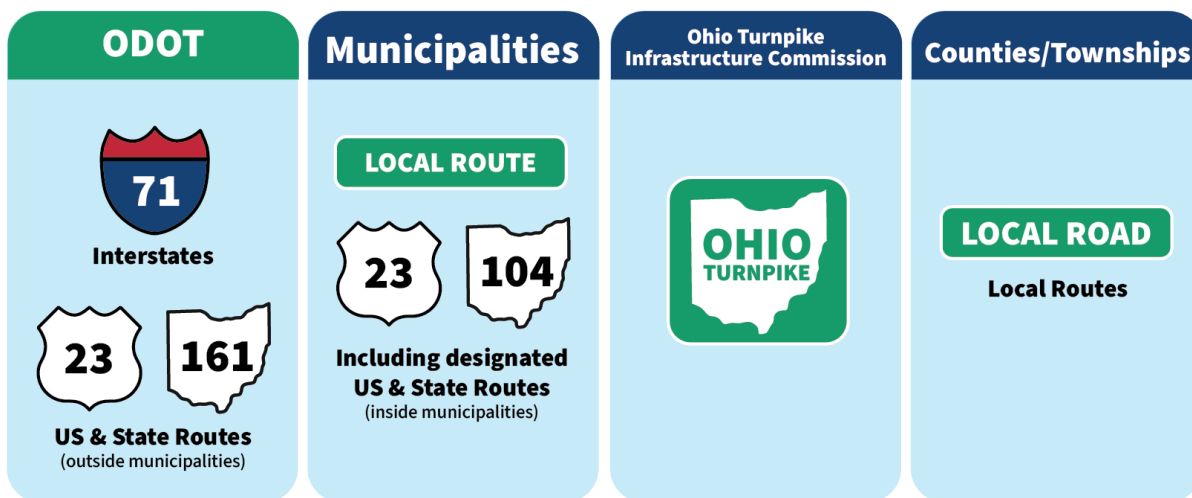


FIGURE 3.3—OHIO HIGHWAY NETWORK CLASSIFICATION

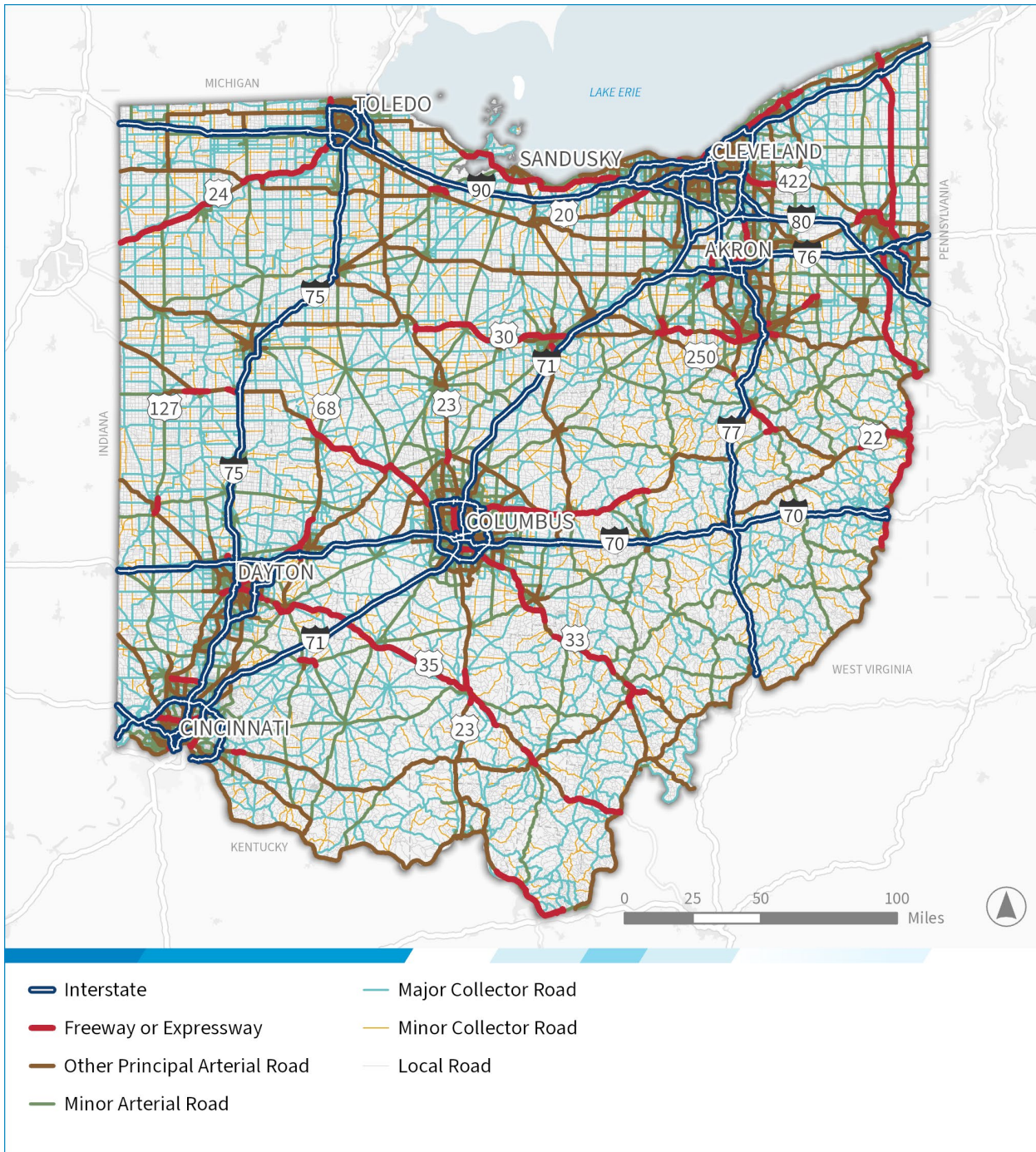


Table 3.1 illustrates the scope of the highway network based on route type and ownership. **Table 3.2** presents roadway functional classification and ownership by centerline mile. Roadways owned and maintained by ODOT, or the Commission, represent 16% of roadway centerline miles statewide. ODOT and the Commission own all interstates, most other freeways, and principal arterial roads. Approximately 83% of Ohio’s over 122,000 roadway miles are owned by counties, cities, and townships. This includes 70,345 miles owned by counties and townships and 31,972 miles owned by municipalities.

TABLE 3.1—HIGHWAY NETWORK ROUTE TYPE AND OWNERSHIP (MILES)

| Route Type | ODOT | Turnpike |
|--------------|---------------|------------|
| Interstates | 1,340 | 241 |
| US Highways | 3,924 | N/A |
| State Routes | 14,018 | N/A |
| Local Routes | N/A | N/A |
| Total | 19,282 | 241 |

TABLE 3.2—HIGHWAY NETWORK CLASSIFICATION AND OWNERSHIP (MILES)

| Functional Classification | ODOT | Turnpike |
|----------------------------------|---------------|------------|
| 1—Interstates | 1,340 | 241 |
| 2—Other Freeways or Expressways | 916 | N/A |
| 3—Other Principal Arterial Roads | 3,518 | N/A |
| 4—Minor Arterial Roads | 4,053 | N/A |
| 5—Major Collector Roads | 8,361 | N/A |
| 6—Minor Collector Roads | 1,089 | N/A |
| 7—Local Roads | 3 | N/A |
| Total | 19,282 | 241 |
| Urban | 5,703 | 90 |
| Rural | 13,577 | 151 |

Source: 2024 ODOT Facts Book and FHWA Highway Statistics, Table HM-50.



Network Capacity

Ohio's highway network capacity is substantial, especially on the state system operated by ODOT and the Commission. It includes over 12,000 lane miles of interstates, other freeways, and expressways, which move most commercial vehicles within Ohio and to and from neighboring states. Nearly 60% of the lane miles are in Ohio's rural communities.

Table 3.3 presents centerline miles and lane miles on the state system (ODOT and Commission owned and operated).

TABLE 3.3—HIGHWAY NETWORK TOTAL CAPACITY (LANE MILES—STATE SYSTEM)

| Functional Classification | Centerline Miles | Lane Miles |
|--|------------------|---------------|
| 1—Interstates | 1,581 | 8,456 |
| 2—Other Freeways or Expressways | 919 | 3,785 |
| 3—Other Principal Arterial Roads | 3,519 | 10,643 |
| 4—Minor Arterial Roads | 4,048 | 9,010 |
| 5, 6, 7—Major Collector, Minor Collector, Local Roads | 9,454 | 19,183 |
| Total | 19,522 | 51,088 |

Source: 2024 ODOT Facts Book

Network Use

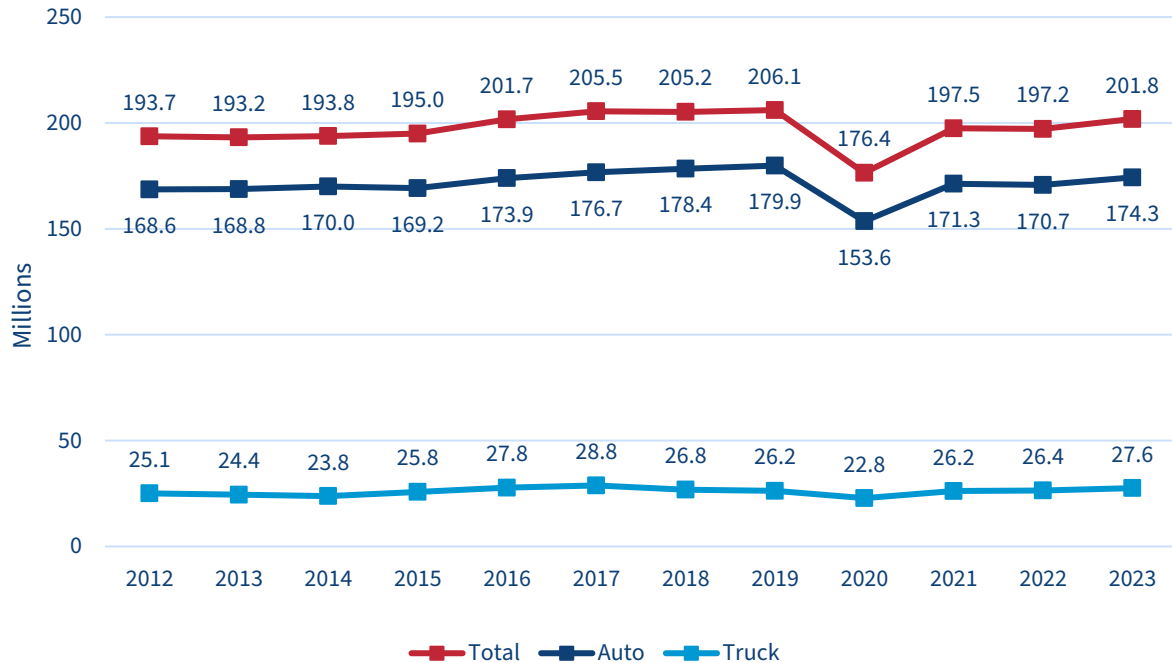
Between 2012 and 2019, total VMT increased by 6%, with truck traffic contributing 13% of statewide VMT. However, the COVID-19 pandemic led to a dramatic decrease in traffic in 2020, with auto VMT dropping by more than 14%, and truck traffic decreasing by 13%. By 2023, total auto VMT had rebounded to within 5% of 2019 levels, while truck VMT surpassed 2019 figures, hitting the highest annual VMT since 2017. **Figure 3.4** presents statewide daily VMT in millions based on data shared in the [2024 ODOT Facts Book](#).

Interstates are 8% of route miles and 16% of lane miles owned by ODOT and the Commission, while representing 44% of VMT on the state system.

VMT on the state system represents approximately 66% of VMT across all state and local roads, according to data compiled annually by the Federal Highway Administration (FHWA). The breakdown of VMT on the state system is presented in **Table 3.4**. Interstates, including the Turnpike, comprise 8% of route miles and 16% of lane miles owned by the state but account for 44% of VMT on the state system and 33% of total statewide VMT on state and local systems. For truck VMT, the interstates carry 64% of statewide truck VMT on the state system.



FIGURE 3.4—STATEWIDE DAILY VMT—ODOT STATE SYSTEM (INCLUDING TURNPIKE)



Source: 2024 ODOT Facts Book

TABLE 3.4—STATEWIDE DAILY VMT BY FUNCTIONAL CLASSIFICATION (2023)—ODOT SYSTEM (MILLIONS)

| Functional Classification | Total VMT | Auto VMT | Truck VMT |
|--|-----------|----------|-----------|
| 1—Interstates (including Turnpike) | 92.46 | 74.63 | 17.83 |
| 2—Other Freeways or Expressways | 23.64 | 20.83 | 2.82 |
| 3—Other Principal Arterials Roads | 41.68 | 38.08 | 3.60 |
| 4—Minor Arterial Roads | 23.81 | 22.11 | 1.70 |
| 5, 6, 7—Major Collector, Minor Collector, Local Roads | 20.25 | 18.63 | 1.62 |
| Total | 201.84 | 174.27 | 27.57 |

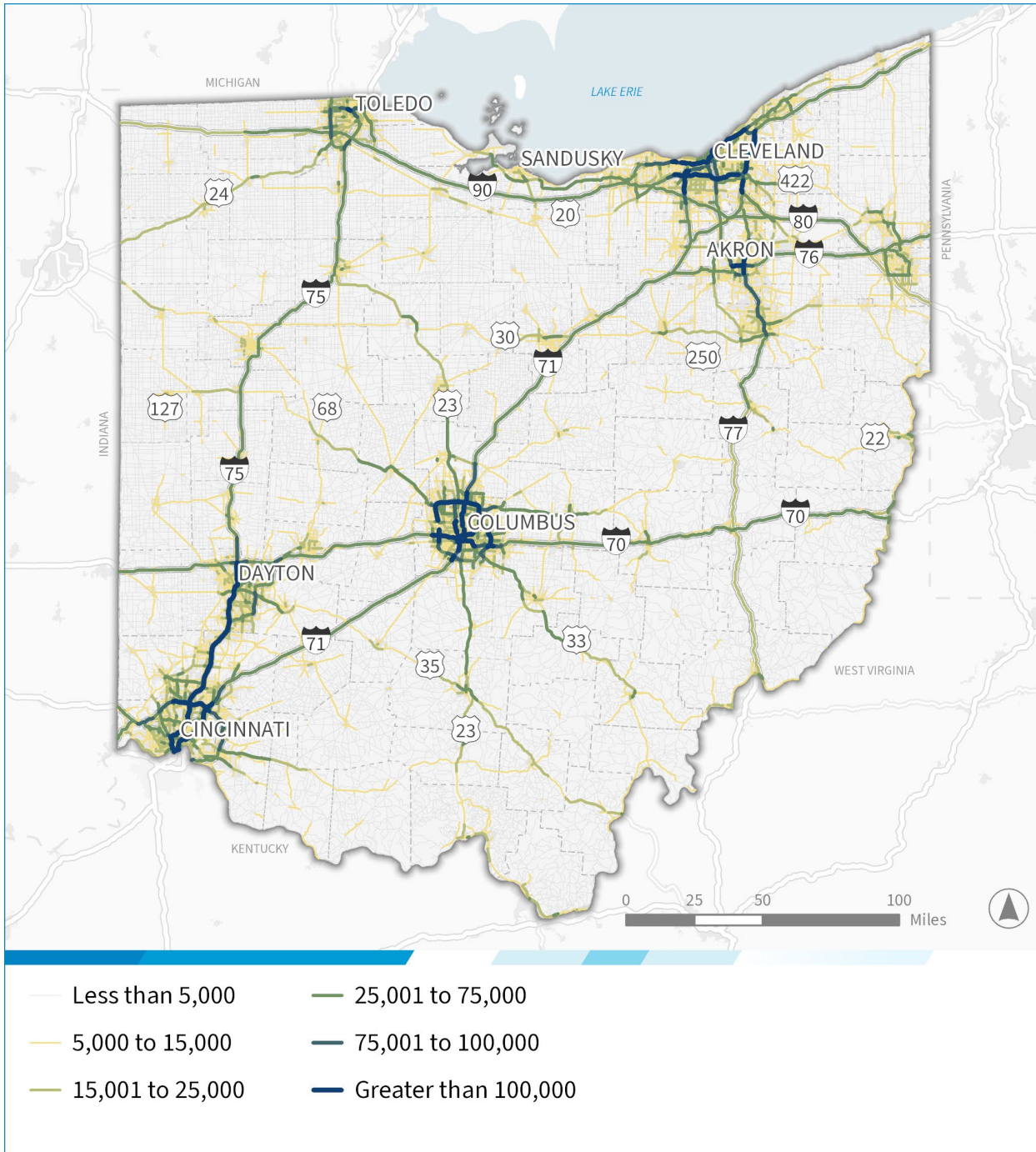
Source: 2024 ODOT Facts Book

The distribution of traffic across Ohio’s highway network varies by region and functional classification. Traffic volumes are concentrated in specific corridors that serve as critical arteries for passenger vehicles and commercial trucks.

Figure 3.5 illustrates the annual average daily traffic (AADT) for 2023, highlighting these high-traffic areas.



FIGURE 3.5—CURRENT AVERAGE ANNUAL DAILY TRAFFIC (2023)



Several factors contribute to the volume concentrations presented in **Figure 3.5**:

- **Urbanization:** Major cities like Cleveland, Columbus, Cincinnati, and Dayton attract high volumes of daily commuters and freight traffic.
- **Economic Hubs:** Areas with significant industrial, commercial, and logistics operations generate high volumes of vehicular movement.
- **Interstate Connectivity:** Ohio's strategic location as a crossroads in the Midwest results in substantial through traffic, especially for freight transportation.

Ohio's interstates carry a significant portion of the state's travel demand, as highlighted by **Table 3.4**. Several facilities in Ohio consistently experience high traffic volumes. Segments of I-480 and I-271 in the Cleveland region regularly see the highest daily volumes in the state, with over 140,000 vehicles per day. In the Columbus region, multiple segments of I-270 have average daily volumes exceeding 130,000 vehicles. These beltways connect suburbs, distribute through traffic, including trucks, around central business districts, and serve as commuting corridors. Other roadways exceeding 100,000 vehicles per day include:

- I-75 from Dayton to Cincinnati
- I-71 in Southwest and Central Ohio
- I-70 in Central Ohio
- I-77 from Akron to Canton
- Segments of I-475 in Toledo
- I-90 in Northeast Ohio

I-75 in Butler, Warren, and Hamilton counties routinely carries 23,000 to 25,000 trucks daily, making this the busiest truck route in Ohio (**Figure 3.6**). Segments of I-70 near I-75 and the Dayton International Airport also have daily truck volumes of around 25,000. Other heavily used truck routes include:

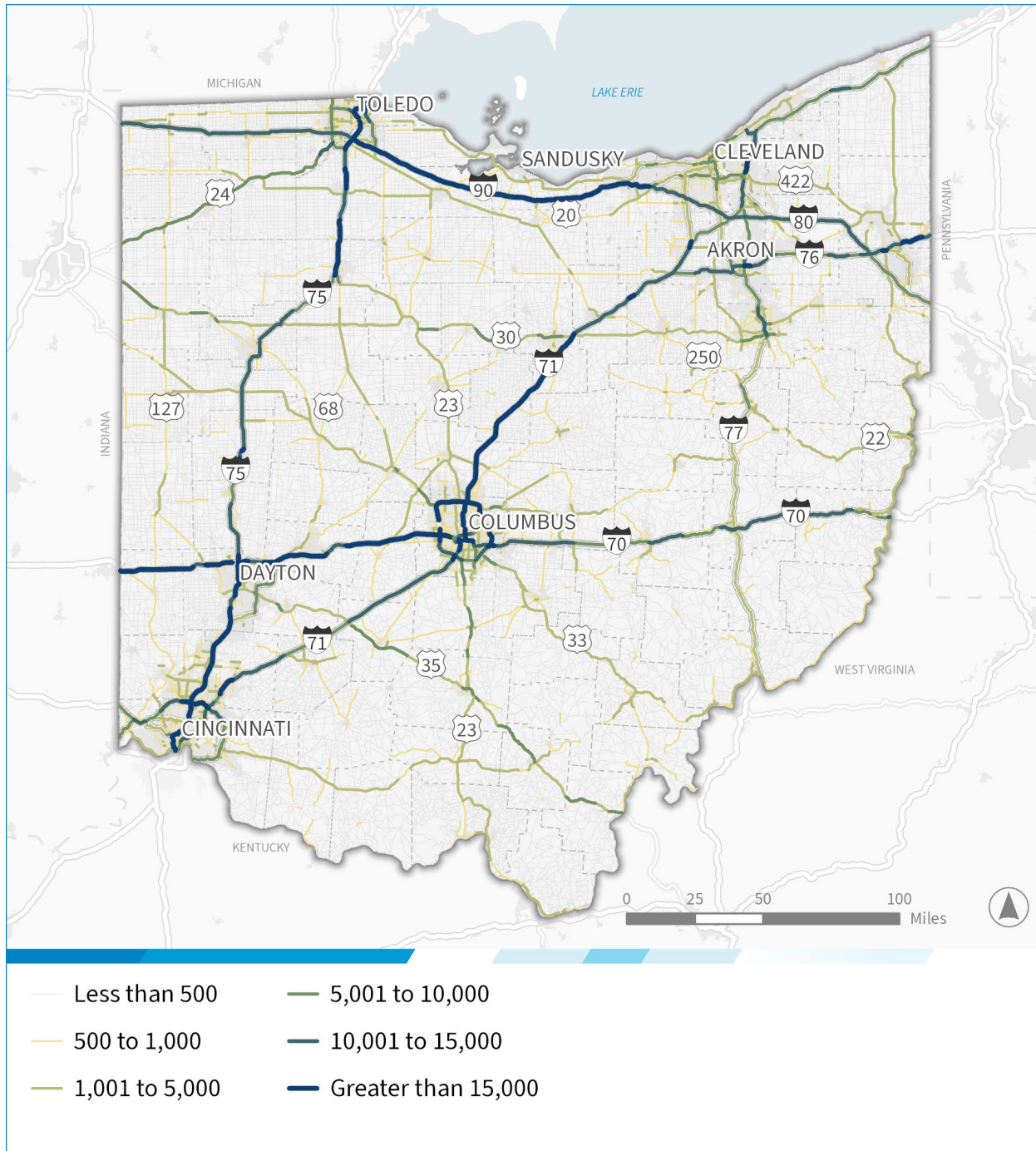
- Ohio Turnpike (I-80/90) between Cleveland and Toledo
- I-70 from Columbus to Dayton to the Indiana border
- I-75 in Northwest Ohio and from Dayton to Toledo
- I-71 from Cleveland to Columbus
- I-76 in Northeast Ohio

The interstates provide a high-capacity, high-speed, and reliable connection for commercial vehicles distributing goods from Ohio manufacturers or moving goods into Ohio as part of supply chains supporting Ohio businesses.

Segments of I-480 and I-271 in the Cleveland region carry the highest daily volumes in Ohio, with over 140,000 vehicles per day. I-75 in Hamilton, Butler, and Warren counties carries the highest daily truck volumes in Ohio, approaching 25,000 trucks per day.



FIGURE 3.6—CURRENT AVERAGE ANNUAL DAILY TRUCK TRAFFIC (2023)



The OSWM was used to understand travel patterns, which include the origins and destinations of vehicle trips on the highway network. This sophisticated travel demand model analyzes current and future travel patterns and was developed from travel surveys and other data sets. It models travel demand on higher-level functional class roadways, including all interstate highways, US highways, and state routes. It does not include many local streets and minor arterials, which means it does not fully account for short-distance local travel. The OSWM estimated auto and truck demand on the state highway system by internal, within Ohio, and external, outside of Ohio, trip origins and destinations. For 2025, the model estimates:

- **Auto Trips:** Nearly 34 million daily trips have both an origin and a destination within Ohio, accounting for 76% of all daily auto trips.
- **Truck Trips:** Fifty-one percent of all truck trips are fully within Ohio, with an additional 3% starting externally and ending in Ohio, while the remaining 46% are through trips.

More than three-fourths of auto trips are completely internal to the state, emphasizing the importance of the highway network for intrastate travel (Figure 3.7). The significant percentage of truck through trips underscores Ohio's role as a critical corridor for interstate commerce (Figure 3.8).

FIGURE 3.7—STATEWIDE MODEL (2025) VEHICLE TRIPS BY MODE AND ORIGIN/DESTINATION

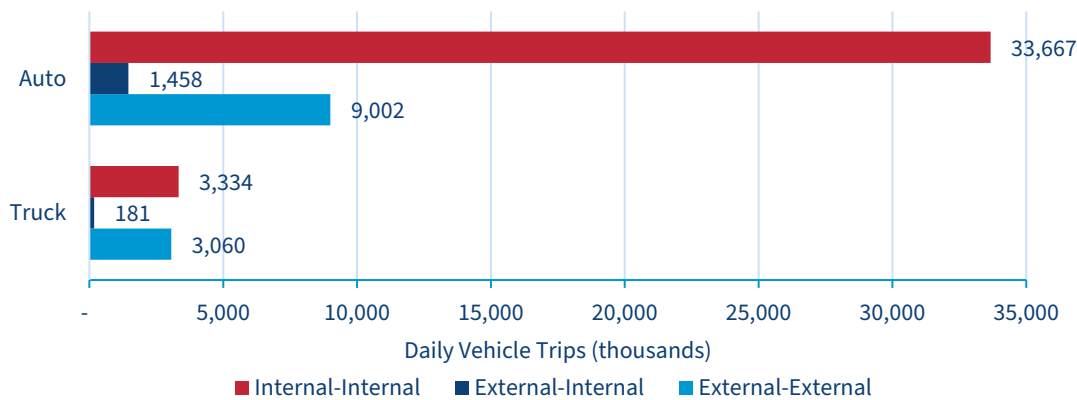
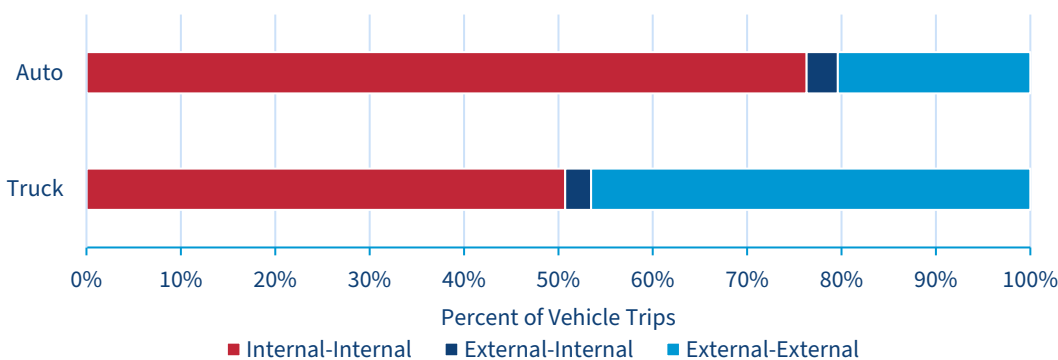


FIGURE 3.8—STATEWIDE MODEL (2025) VEHICLE PERCENT TRIPS BY MODE AND ORIGIN/DESTINATION



Strategic Transportation and Development Analysis Network

The Study network is a subset of highway facilities where most economic activity occurs in Ohio. It serves as the focal point for this analysis, which includes examining existing and future conditions, assessing economic growth opportunities, and developing actionable recommendations.

This system carries the highest passenger and freight volumes and provides connectivity between different modes of transportation and various regions within the state. These roadways represent the most critical highway assets supporting statewide economic growth.

Viewed through the lens of the five transportation system opportunities to support economic growth as presented in **Chapter 1**, these roadways enable:

- **Market Connections**—Connections for Ohio businesses and residents to markets inside and outside of Ohio, facilitating interregional and interstate commerce
- **Site Development**—Reliable, high-speed capacity and access to existing and future Ohio industries for an efficient supply chain and distribution of materials
- **Workforce Access**—Safe and reliable commuting to work opportunities within Ohio’s metropolitan areas and for the rural workforce
- **Business and Logistics Efficiency**—Interactions between Ohio businesses moving resources and materials to and from manufacturers and distributors and finished goods to consumers
- **Quality Places**—Ohio community connections to education, health care, resources, recreation, and other assets that support local economies and quality of life

Defining the Study Network

The Study network builds upon existing ODOT and national highway network designations, including:

- The Strategic Transportation System (STS) designated through Access Ohio 2040 and 2045
- SFS designated through Transport Ohio (the State Freight Plan) in 2022
- The US Department of Defense’s [Strategic Highway Network \(STRAHNET\)](#) and the [National Highway Freight Network \(NHFN\)](#)

The roadways that comprise the Strategic Transportation & Development Analysis network are Ohio’s most critical transportation assets supporting statewide economic growth.

The definition of the Study network considers the following facilities and subsets of Ohio’s highway network:

- All SFS facilities designated through Transport Ohio that support national, state, and regional commercial vehicle travel and connections to intermodal freight facilities



- Other facilities initially designated as part of the STS that connect Ohio’s metropolitan areas are presented in **Table 3.5** and mapped in **Figure 3.9**. As summarized in **Table 3.5**, these metropolitan areas represent Ohio’s primary economic markets. The high-capacity and high-speed roadways connecting these markets within Ohio and bordering states are critical to Ohio’s economy. The top six MSAs represent approximately 80% of Ohio’s GDP in 2022.
- Multiple roadway facilities facilitating travel between Sandusky and Columbus and between Toledo and Columbus, consistent with legislative language identifying connections between these markets
- Additional facilities providing critical connections between secondary markets and facilitating connections between rural areas of Ohio and nearby primary markets

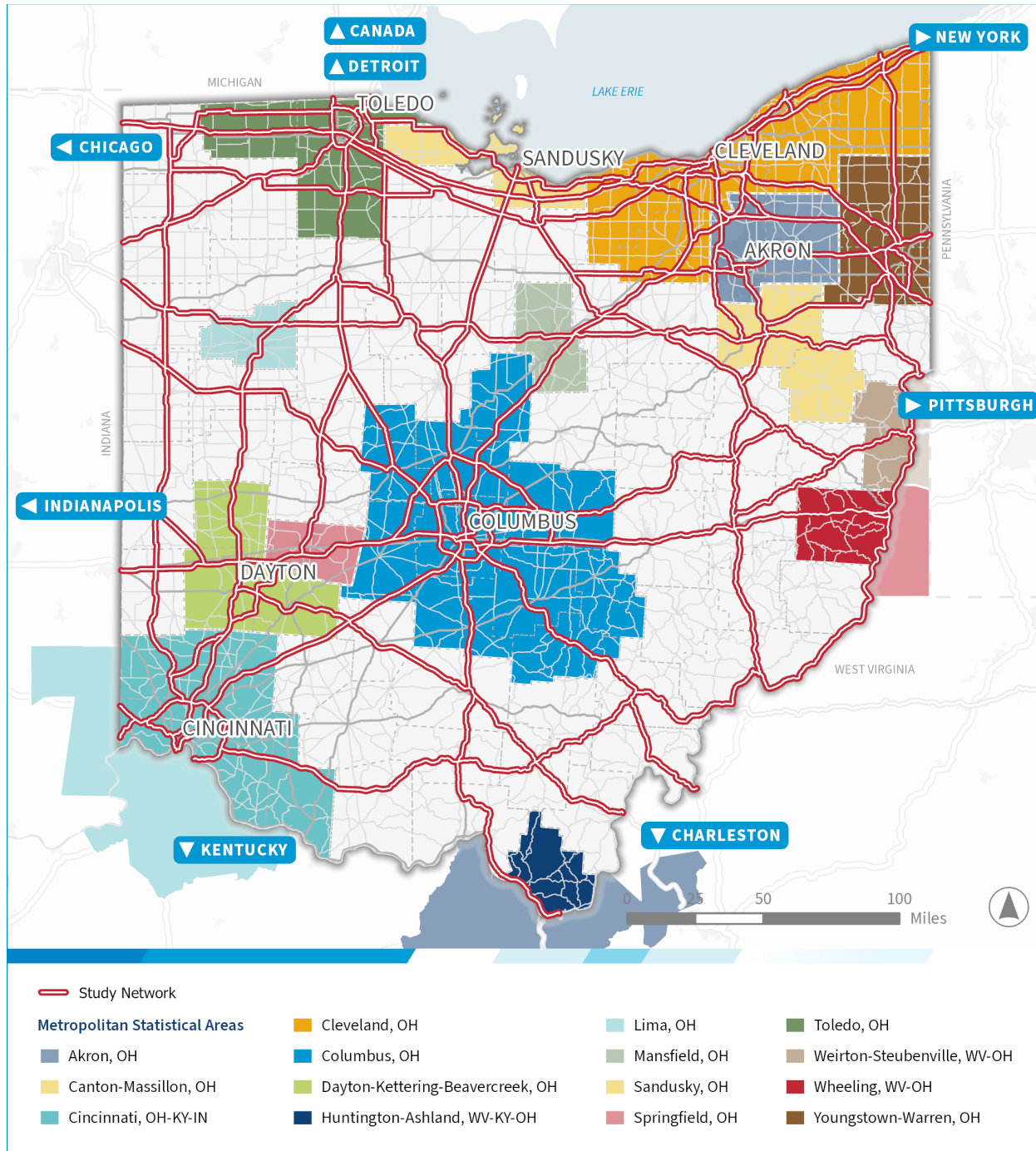
TABLE 3.5—METROPOLITAN AREA ECONOMIC SUMMARY

| Metropolitan Statistical Area | 2022 GDP (billions) | National GDP Rank | 2022 Total Employment | 2022 Total Population |
|-------------------------------|---------------------|-------------------|-----------------------|-----------------------|
| Cincinnati, OH-KY-IN | \$186.141 | 28 | 1,471,537 | 2,265,051 |
| Columbus, OH | \$169.123 | 33 | 1,489,955 | 2,161,511 |
| Cleveland-Elyria, OH | \$162.788 | 35 | 1,390,752 | 2,063,132 |
| Dayton-Kettering, OH | \$53.329 | 75 | 498,430 | 812,595 |
| Akron, OH | \$45.846 | 84 | 442,746 | 697,627 |
| Toledo, OH | \$44.562 | 86 | 404,551 | 640,384 |
| Youngstown-Warren, OH | \$24.990 | 142 | 282,448 | 535,499 |
| Canton-Massillon, OH | \$22.880 | 149 | 227,027 | 399,316 |
| Lima, OH | \$10.789 | 238 | 64,238 | 101,115 |
| Springfield, OH | \$5.500 | 353 | 65,127 | 134,831 |
| Mansfield, OH | \$5.494 | 355 | 65,127 | 125,319 |
| Sandusky, OH | \$5.310 | N/A | 48,202 | 74,501 |

Source: Bureau of Economic Analysis, Gross Domestic Product by Metropolitan Area (2022)



FIGURE 3.9—OHIO'S METROPOLITAN STATISTICAL AREAS AND THE STUDY NETWORK



The Study network and the metropolitan areas it connects inside and outside Ohio are shown in **Figure 3.9**. This map recognizes key markets outside Ohio, including Canada, Detroit, Chicago, Indianapolis, Pittsburgh, Kentucky, and West Virginia, and points further east, such as New York.

Table 3.6 shows how the Study network compares to the state-owned system. The Study network represents 100% of Ohio’s interstate highway system, including the Ohio Turnpike, and 47% of the US highway network within Ohio. Based on VMT statistics from 2022, the Study network carries 40% of total statewide VMT and 80% of statewide truck VMT.

The Study network includes 4,236 route miles across Ohio, representing 22% of ODOT and Commission-owned mileage. It carries 40% of the state network's total VMT and 80% of statewide truck VMT.

TABLE 3.6—STUDY NETWORK MILEAGE (ROUTE MILES)

| Facility Type | ODOT and Commission Miles | Study Network Miles | Study Share |
|--|---------------------------|---------------------|-------------|
| Interstate (including Turnpike) | 1,580 | 1,580 | 100% |
| US Highways | 3,924 | 1,839 | 47% |
| State Routes | 14,018 | 817 | 6% |
| Total | 19,522 | 4,236 | 22% |

Analyzing Statewide Travel Patterns

The OSWM was used to analyze the Study network's current and future performance. As noted in **Chapter 2**, the OSWM operates as an integrated modeling system that represents land use and development, commodity-based freight shipments, household and commercial travel demand, and multi-modal transportation network models.

The highway network model includes all freeways, major and minor arterials, collectors, and critical local roads that are important for representing network connectivity throughout the state. The Study network is a subset of this larger network. The OSWM produces numerous output metrics, including forecasted volumes and congested travel times on links representing this network. These two metrics are requested specifically in H.B. 23. They are part of the existing conditions and stress test approach highlighted in **Chapter 2** and are discussed in further detail later in this chapter.

The OSWM analysis area extends into neighboring states and includes a "halo" of counties representing interstate markets. This inclusion accounts for the daily travel patterns of Ohio residents and neighboring non-residents who routinely work and travel to and from Ohio. The halo is significant in Southwest, Northwest, and East Ohio, where metropolitan markets overlap state boundaries.



As noted in **Chapter 2**, ODOD developed three population growth scenarios that were integrated into OSWM analysis:

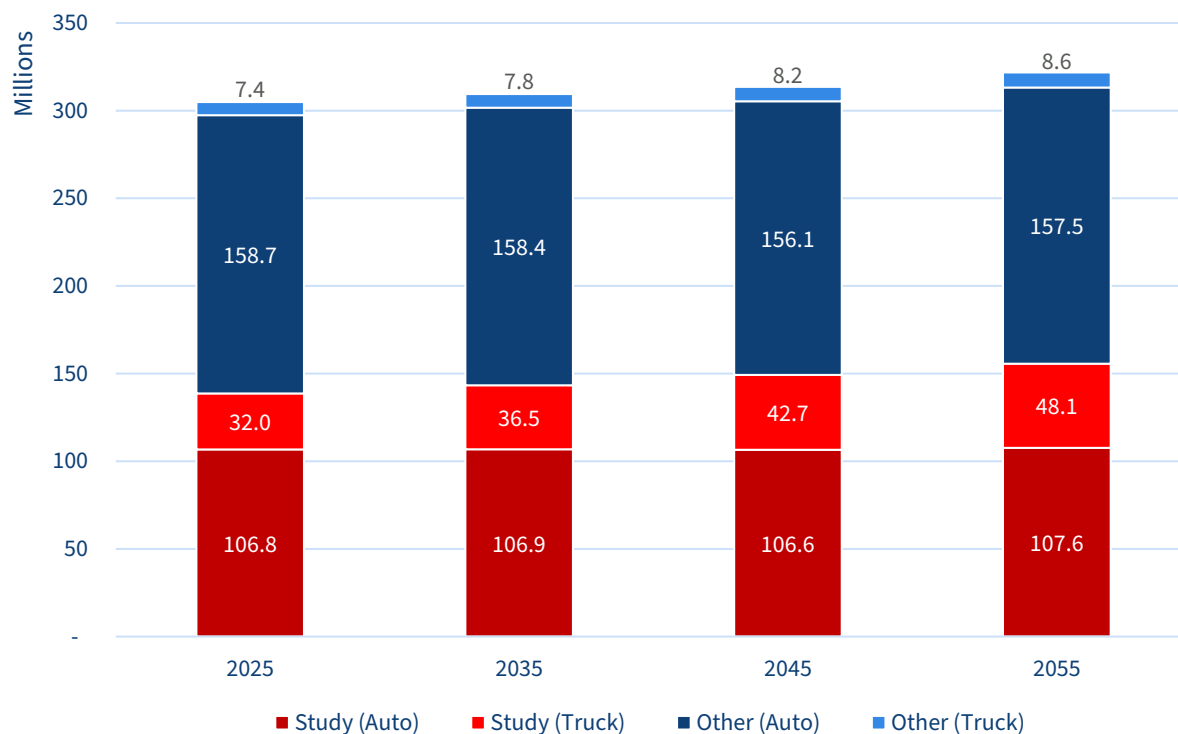
- **Baseline Scenario**—Reflects current trends, including continued growth in Central and Southwest Ohio, but also a continuation of declining economies and out-migration in Northeast and Southeast Ohio
- **Medium Growth Scenario**—Enhances growth trends where they exist today and lessens or stabilizes areas that have been declining
- **High Growth Scenario**—Is the most optimistic growth scenario, featuring accelerated growth in currently growing parts of the state and more pronounced turnarounds and stability in areas that have been declining

Additionally, the OSWM incorporates inputs from the FHWA’s FAF commodity flow tables. FAF5, the most recent version, includes present and future-year projections of the tonnage and value of commodities shipped between major metropolitan regions of the US, non-metropolitan areas, Canada, and Mexico and includes some transcontinental shipments by all modes. The FAF forecasts are independent of the three ODOD growth scenarios, and only one FAF commodity flow forecast is represented in the analysis.

Statewide Trends in the Study Network

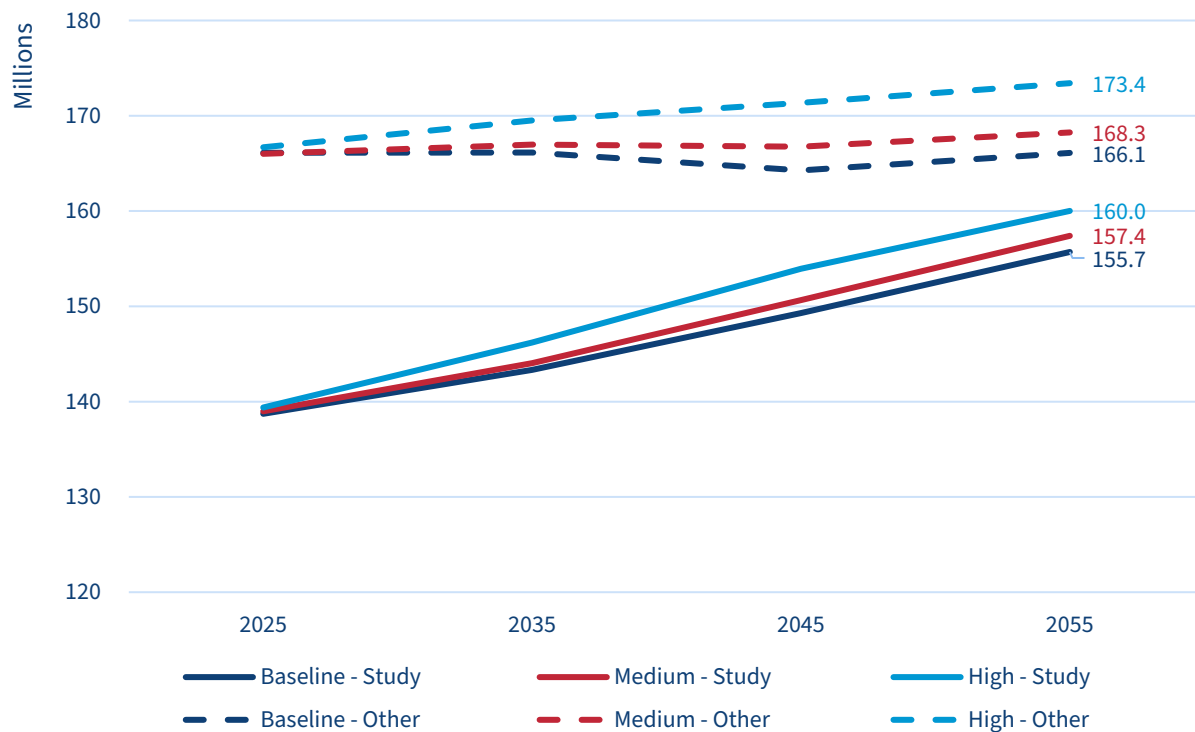
The VMT on Ohio’s highway network has remained stable over the past decade. This trend is anticipated to continue but with a significant shift in the composition of VMT on the Study network. Notably, commercial vehicles are expected to drive forecasted growth on the Study network (see **Figure 3.10**). Between 2025 and 2055, commercial VMT on the Study network is projected to increase by 50%, rising from 32 million daily to over 48 million daily commercial VMT. In contrast, total auto VMT is expected to grow by just 4% during the same period.

FIGURE 3.10—STATEWIDE VMT BY SYSTEM AND VEHICLE TYPE (BASELINE SCENARIO)



As indicated in **Figure 3.11** the Study network is forecasted to experience faster VMT growth than the rest of the highway system. From 2025 to 2055, VMT on the Study network is projected to increase by 15% to 18%, depending on the scenario. Meanwhile, VMT on the highways outside of the Study network—which includes a combination of US, ODOT, and local roads—is expected to remain relatively stagnant through 2055, with the high-growth scenario showing only a 5% increase. Consequently, the share of total statewide VMT occurring on the Study network is projected to grow from 44% in 2025 to over 48% in 2055.

FIGURE 3.11—STATEWIDE DAILY VMT FORECASTS BY SYSTEM AND SCENARIO



The projected growth in daily traffic is further detailed in **Figure 3.12** and **Figure 3.13**, which present forecasted increases for all vehicles and trucks between 2025 and 2055 under the baseline scenario. Total daily traffic increases are highest on interstates, exhibiting the greatest growth in truck traffic. While many routes are expected to see minimal or no change in daily traffic over the next 30 years, some facilities—particularly in East, Northeast, and Northwest Ohio—are projected to experience declines.

Forecasted daily traffic by segment on the OSWM network in **Figure 3.12** and **Figure 3.13** may show unexpected increases or decreases based on how vehicles are routed by the model on the network. When viewing these maps, pay attention to larger corridor trends at the county level and above to better interpret future trends.



FIGURE 3.12—AVERAGE ANNUAL DAILY TRAFFIC GROWTH: 2025–2055 BASELINE SCENARIO

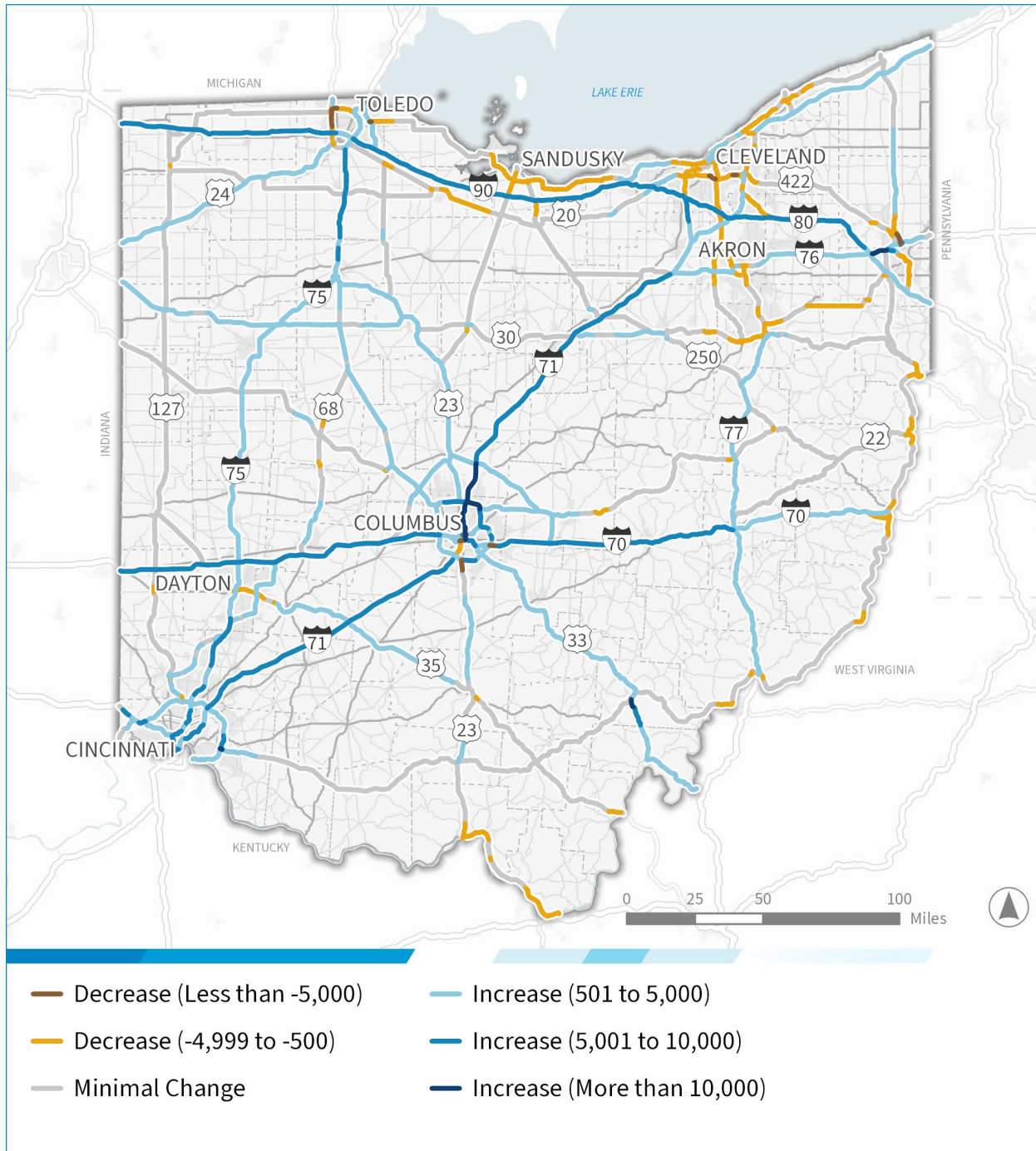
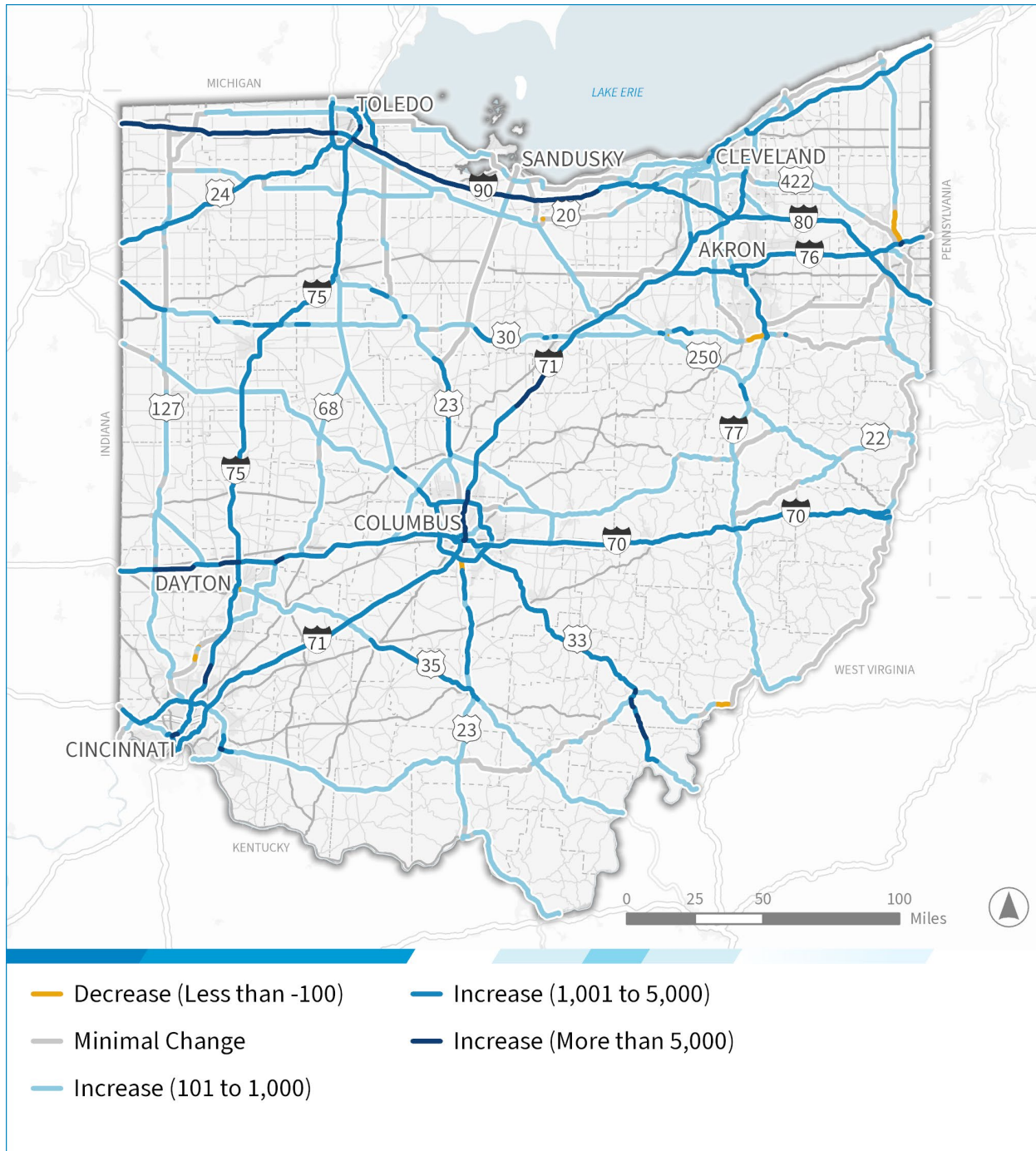


FIGURE 3.13—AVERAGE ANNUAL DAILY TRUCK TRAFFIC GROWTH: 2025–2055 BASELINE SCENARIO



Changes in travel patterns are also anticipated. As shown in **Figure 3.14**, external-external auto trips, those with both origins and destinations outside Ohio, are projected to grow slightly in all scenarios. In contrast, external-internal trips, with either origins or destinations outside Ohio, are expected to decrease, especially under the baseline scenario. Modest growth is anticipated for internal and pass-through auto traffic, while a slight decline in passenger travel between Ohio and neighboring states is expected. This trend is particularly notable along Ohio’s eastern border with Pennsylvania and West Virginia, where neighboring counties are also experiencing population declines.

In contrast, truck trip patterns show a different trend. **Figure 3.15** illustrates that external-internal and external-external truck trips are projected to grow dramatically through 2055 in all scenarios, while internal truck trips are expected to grow very little or remain stagnant. This indicates that Ohio’s commodity trade with other states is poised for significant growth, reinforcing the state's role as a critical corridor for interstate commerce.

FIGURE 3.14—STATEWIDE AUTO TRAVEL PATTERN FORECAST

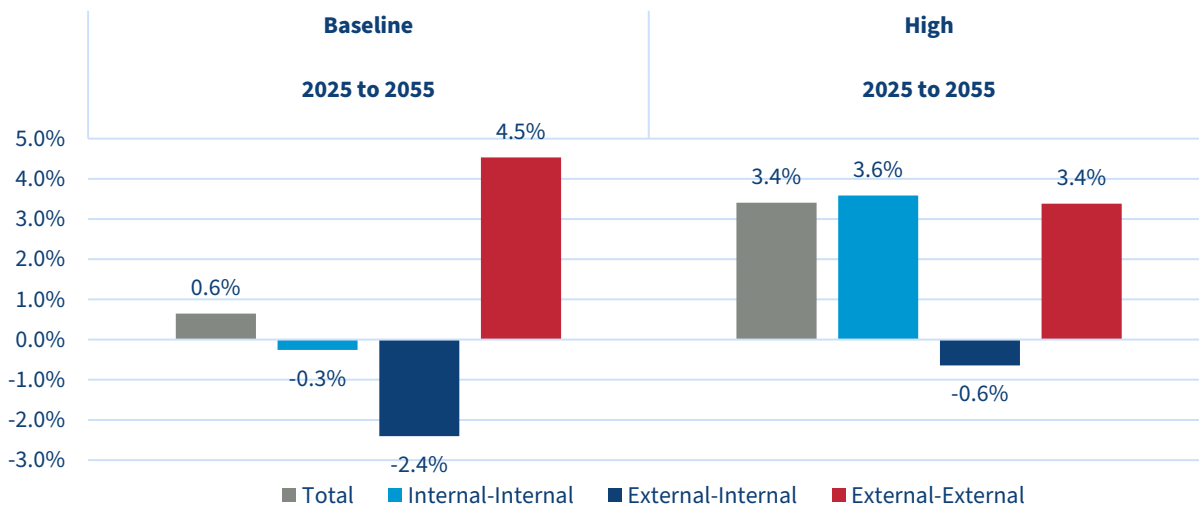
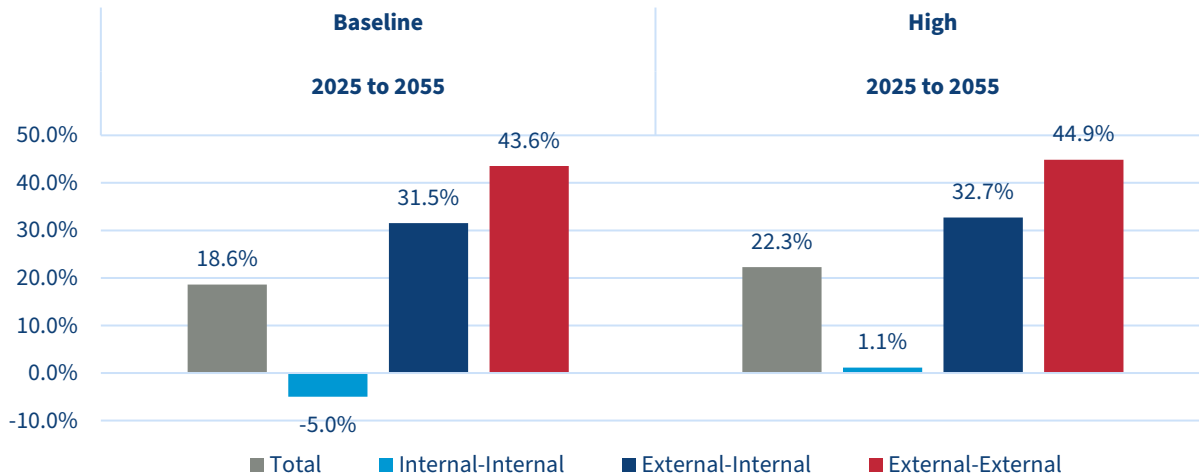


FIGURE 3.15—STATEWIDE TRUCK TRAVEL PATTERN FORECAST



Strategic Transportation and Development Analysis Network Connections

The Study network is analyzed in two distinct ways to understand opportunities to support economic growth: regional systems that facilitate movement within markets and regions and interregional connections between markets.

Chapter 4 and **Chapter 5** outline actionable recommendations that support statewide economic growth and are customized to these different connections, recognizing that most facilities on the Study network play a dual role in supporting the livelihoods of residents and businesses within each region and interregional trade.

Regional Networks

Intraregional highway networks facilitate and connect markets within regions. Freeways provide high-capacity rapid movement through a region and connect cities and towns but with controlled access points. Arterials facilitate flow through urbanized areas while allowing limited access to businesses and residences. Local roadways provide direct access to homes and businesses but are not designed to facilitate throughput. These roadways support commuting and facilitate the distribution of goods and services.

The growth in truck traffic will impact regional networks. Each region has its unique configuration of interstates, regional highways, and demand patterns, which will generate a unique set of risks and opportunities. Trucks passing through regions will encounter bottlenecks, which will lead drivers to choose alternative routes that were not designed for through truck movements, affecting the quality of life in local communities.

Interregional Connections

Ohio's regions do not operate in isolation. Trade between regions, including other states and provinces, provides the lifeblood for Ohio's economies. The interregional view of the Study network is focused on the flow of people and goods between regions. Interregional highway corridors enable Ohio to be greater than the sum of its regions and are, therefore, of strategic importance.

As trade carriers, interregional connections are composed of roadways designed to facilitate traffic flow between regions, with capacities and access control meeting demand patterns. As described above, under the baseline scenario, the most prominent trend is rapid growth in truck traffic. How this plays out by corridor will vary. Still, even in regions of the state that have been declining in population and employment, the Study network, particularly interstates, will continue to experience growth in truck volumes.

Roadways facilitating intraregional connections within markets enable safe and reliable access to job centers for workers and access for logistics and distribution networks for industries, warehousing, and retailers.

Roadways facilitating interregional connections between regions enable high-speed and reliable travel for all vehicles and include capacity and infrastructure to support commercial vehicles.



Regional Networks

Economic growth depends on the strength and efficiency of transportation infrastructure. While interregional corridors connecting regions and markets across Ohio are crucial for statewide and national economic integration, the significance of robust intraregional transportation systems cannot be overstated. These systems form the backbone of regional economies, enabling the seamless movement of goods, services, and people within regions—supporting local businesses, enhancing workforce mobility, and fostering economic development. This section outlines the critical role that regional agencies and transportation systems play in supporting economic growth and highlights current and future economic and transportation risks and opportunities.

Ohio's Regions

The geography of the Study regional networks is organized consistent with the economic development regions defined by JobsOhio, which grew from six regions to seven in 2024 (see [Error! Reference source not found.](#)). These regions represent combinations of markets with geographic and economic ties established over the last century. This organization also reflects the working relationships and unique goals of other regional entities in Ohio, including the 17 MPOs and six RTPOs, plus two new regional planning organizations finalizing LRTPs to become RTPOs.

JobsOhio Regional Network Partners

The JobsOhio regional network of partners leverages each region's unique strengths, perspective, and experience to serve companies in Ohio. The partners attract and support domestic and international businesses and connect them to local industries. The seven partners are:

- **Northwest Ohio**—The [Regional Growth Partnership](#) covers a 17-county region, including Toledo as the economic driver and smaller cities like Lima, Findlay, and Van Wert, along with rural, agricultural communities.
- **Northeast Ohio**—[Team NEO](#) covers a 14-county region centered around economic opportunity and revitalization in Cleveland, Akron, Canton, Sandusky, and neighboring suburban and rural communities.
- **East Ohio**—[Lake to River](#) covers a four-county region centered around the economies of the Mahoning Valley, including Youngstown and Warren and their connections to Lake Erie and Southeast Ohio.
- **Southeast Ohio**—[OhioSE](#) covers a 25-county region that is predominantly rural. Its economic strengths are natural resources, food processing, and tourism, with key ports along the Ohio River.
- **Central Ohio**—[One Columbus](#) covers an 11-county region anchored by the state capital and several worldwide brand headquarters, research hubs, and academic institutions, which support ongoing significant population and job growth.
- **West Ohio**—The [Dayton Development Coalition](#) covers 12 counties, including the Dayton region and its historical military and aviation economies, the Springfield region, other smaller cities and rural, agricultural communities.
- **Southwest Ohio**—[REDI Cincinnati](#), anchored by Cincinnati, covers five counties in Ohio and 10 additional counties in Indiana and Northern Kentucky.



MPOs and RTPOs

While this analysis is organized around the seven JobsOhio regions, MPOs and RTPOs serve as cornerstone entities in coordinating transportation projects at the regional level. They play a crucial role in long-range planning, needs identification, aligning transportation projects with overarching economic development objectives, and alleviating congestion that could impede future growth.

Mandated by state and federal authorities, these agencies operate under a collaborative, continuous, and comprehensive planning framework. Their processes involve a wide array of stakeholders, including local governments, state agencies, and the public, to craft plans that not only address transportation needs but also drive economic growth and support quality places within the state.

The development and maintenance of two key planning documents—the LRTP and the transportation improvement program (TIP)—are central to the responsibilities of MPOs and RTPOs.

- **LRTP:** Updated every four to five years depending on air quality attainment status, the LRTP serves as the strategic blueprint for regional transportation planning. It identifies long-term transportation needs and outlines strategies and projects to address them.
- **TIP:** A more immediate four-year plan, the TIP specifies the transportation projects scheduled for implementation.

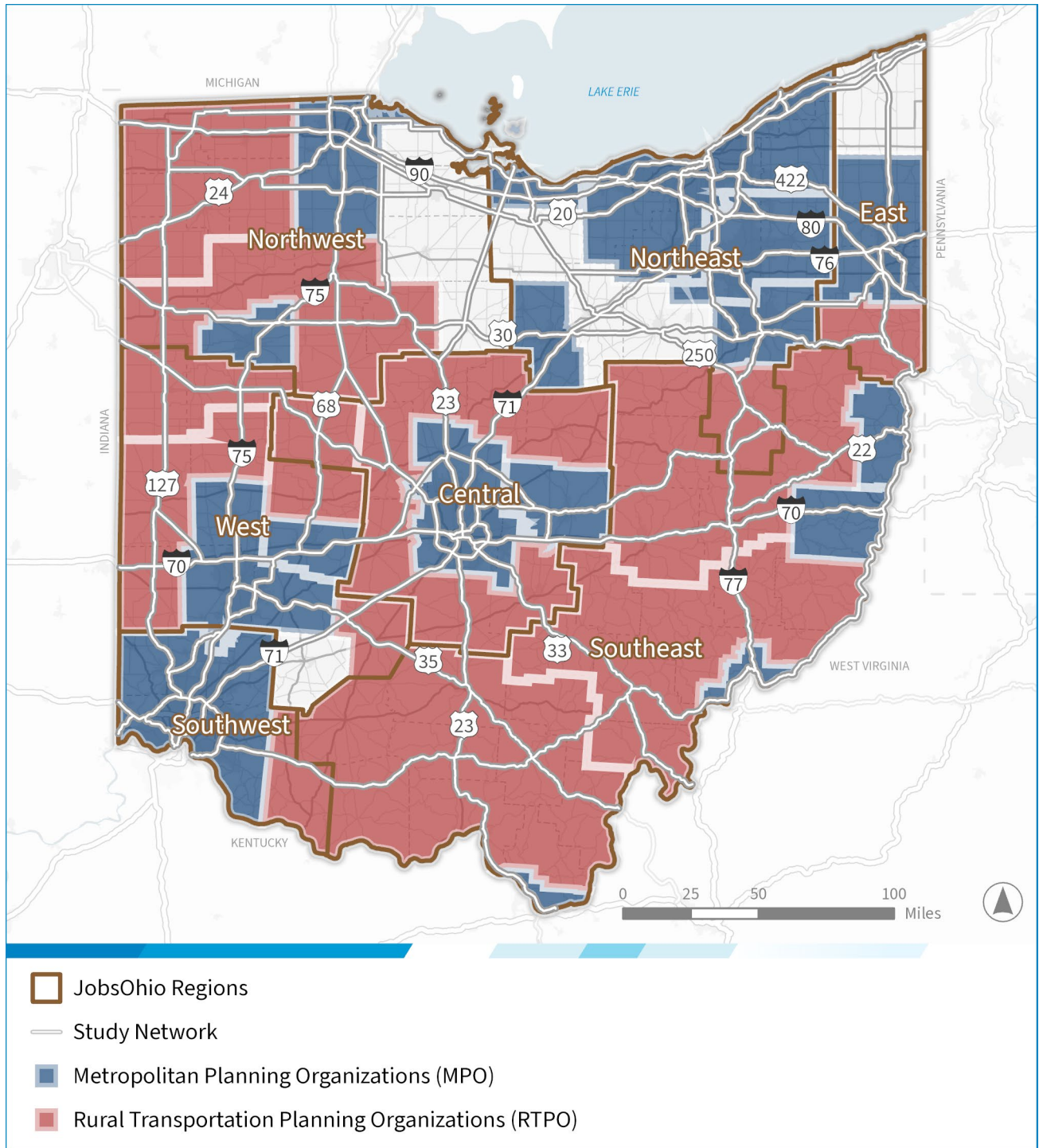
Any regionally significant project, defined by [23 CFR 450.104](#), expected to use federal funding must be included in the LRTP, and any project using federal funding must be included in the TIP. Both documents require formal approval from the governing boards of MPOs or RTPOs. These boards are composed of local elected officials or their appointees and hold the ultimate decision-making authority.

Given the integral role these planning organizations play within the broader JobsOhio regions, this section will reference these organizations, their jurisdictions, and their planning documents. **Figure 3.16** displays the MPO and RTPO boundaries aligned with the JobsOhio regional network partner boundaries and the Study network.

An MPO or RTPO represents 79 of 88 Ohio counties. This includes two new organizations that have recently developed or are currently developing their first LRTPs in partnership with Lima-Allen County and Miami Valley in Dayton. They are the West Ohio Regional Planning Organization (WORPO), covering Van Wert, Putnam, Hancock, Hardin, Auglaize, Mercer, and Wyandot counties, and the Darke-Preble-Shelby (DPS) covering Darke, Preble, and Shelby counties.



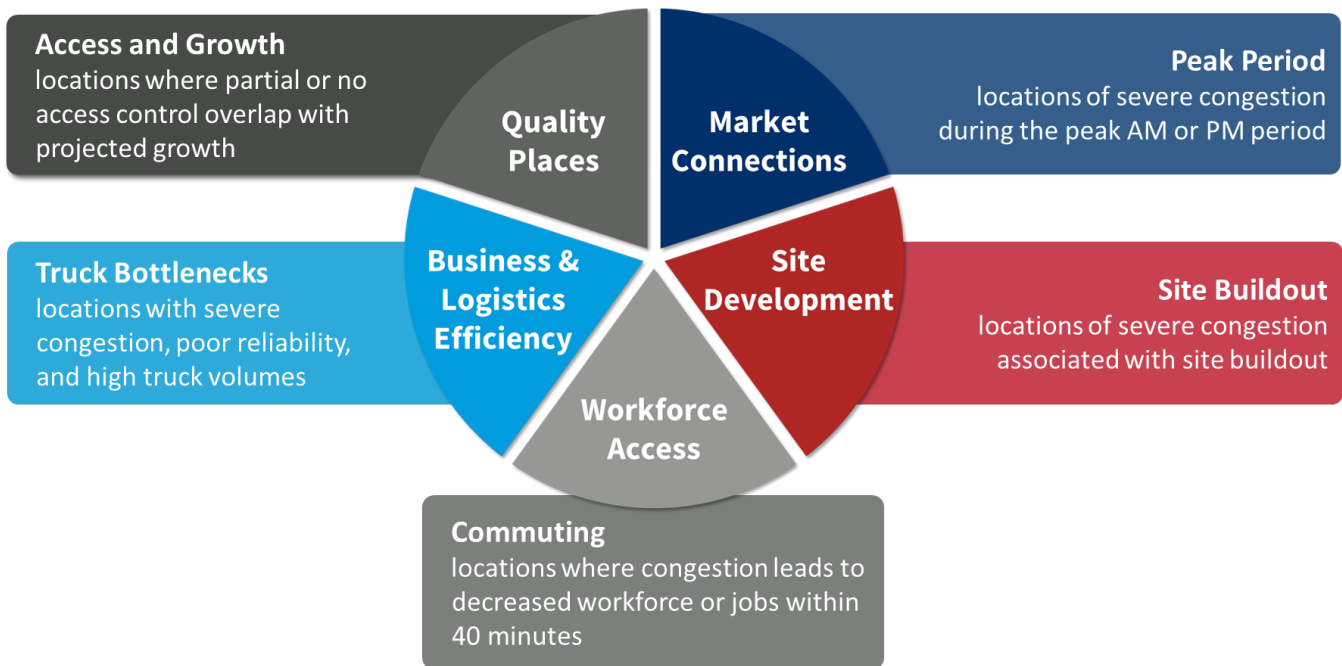
FIGURE 3.16—REGIONS AND STUDY NETWORK



Risks of Future System Congestion

H.B. 23 requires “evaluating and ranking current and potential risks of future system congestion.” Meeting this requirement involves viewing risk and congestion through the five lenses representing the intersection of transportation and economic growth presented in **Chapter 1**. The approach is highlighted in **Figure 3.17**.

FIGURE 3.17—CONGESTION RISK AND THE INTERSECTION BETWEEN TRANSPORTATION AND ECONOMIC GROWTH



Each of the five intersections between transportation and economic growth were assigned analysis measures that are represented in the regions’ analyses. Descriptions of these measures and associated statewide summary maps are highlighted below and in the following pages:

- **Market Connections—Figure 3.18** summarizes the congestion risk for 2055 across all scenarios. This measure focuses on severe congestion that disrupts the flow of people and goods on the Study network. Severe congestion includes Study network segments experiencing excessive delay—volume/capacity (v/c) ratio at or above 1.1—in the AM or PM peak period. These data are available for the existing year based on real world, observed speed data through INRIX, by horizon years 2035, 2045, and 2055, and the ODOD population growth scenarios.
- **Site Development—Figure 3.19** summarizes the congestion risk for 2055 in the baseline scenario. It focuses on the congestion impacts of site build-out for 78 priority development sites. The square footage for each site was estimated based on site characteristics and local economic conditions. With these assumptions, new traffic generated by site build-out was estimated. The resulting congestion impacts on the Study network from the added traffic were characterized as major or minor based on the v/c ratio change from forecasted congestion by scenario.

- **Workforce access—Figure 3.20** summarizes the congestion risk for 2055 in the baseline scenario. This focuses on the loss of access to workers due to congestion. The number of workers within a 40-minute commute of employment sites with and without congestion is compared in order to estimate the loss of access to workers, or the magnitude of the forfeited labor market, associated with peak period severe congestion. This congestion risk is summarized by horizon year and scenario.
- **Business and Logistics Efficiency—Figure 3.21** summarizes the congestion risk for 2055 in the baseline scenario. This focuses on the total daily truck delay. Peak period congestion is combined with total commercial vehicle volume to identify total truck delay and highlight truck bottlenecks represented by the top 100 truck volume segments on the Study network experiencing excessive delay during peak periods. Congestion risk is summarized by horizon year and scenario.
- **Quality Places—Figure 3.22** identifies Study network segments with no or partial access control in projected growth areas based on the baseline growth forecast. This focuses on access management and projected development. Existing access control on the Study network, full control, partial control, or no control, is mapped and compared to population growth areas within the baseline scenario. Study network segments with partial or no access control that pass through growth areas are highlighted as areas of congestion risk.
- **Composite Congestion Risk—Figure 3.23** summarizes the composite congestion risk in 2055. This focuses on aggregating total risk across the five views of congestion. For composite congestion risk, each segment on the Study network shows congestion across the market connection, site development, workforce access, and business and logistics efficiency perspective. Composite risk identifies the number of risks from zero to four in each Study network segment in 2035, 2045, and 2055.



FIGURE 3.18—CONGESTION RISK (PEAK PERIOD SEVERE CONGESTION)

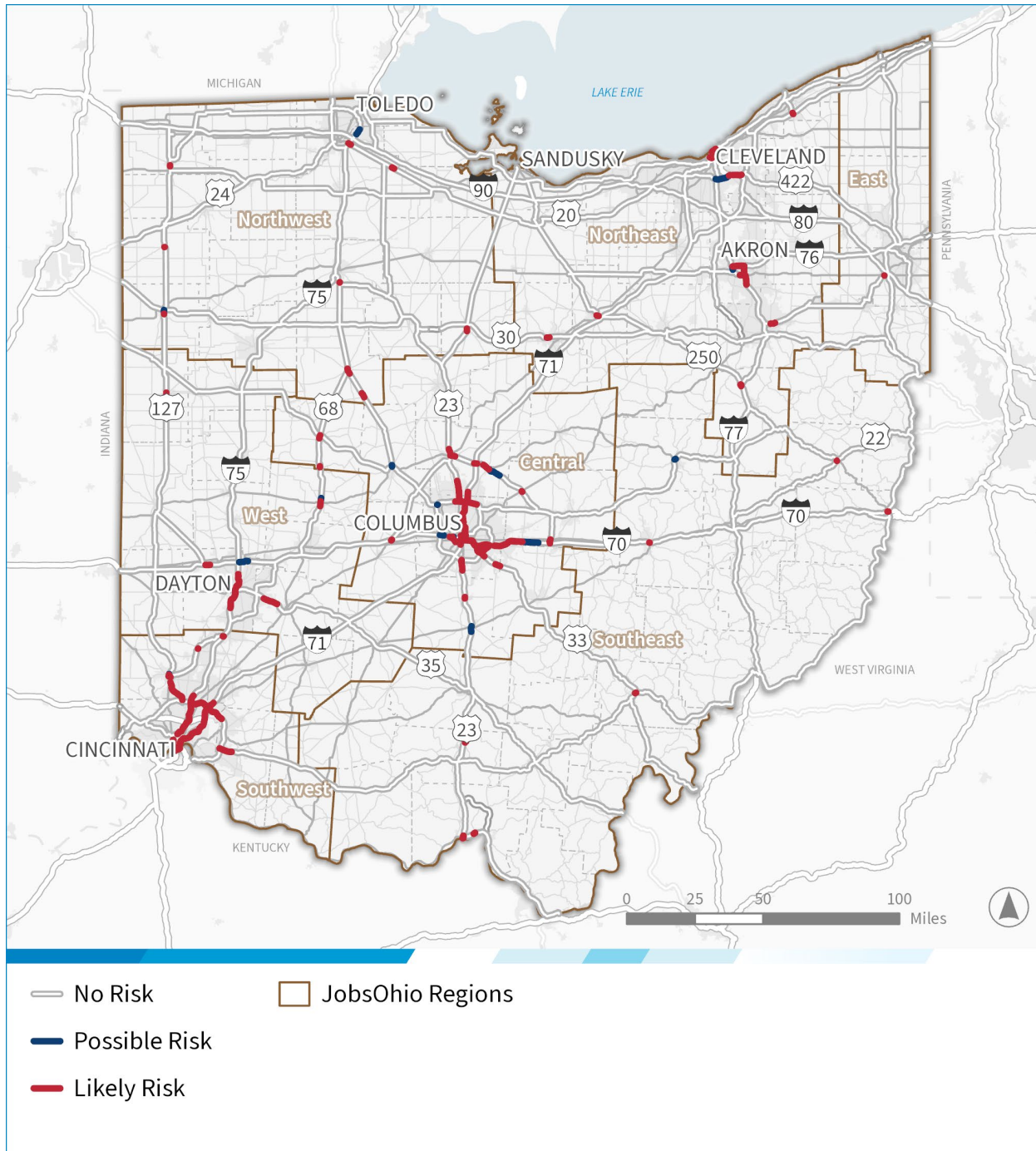


FIGURE 3.19—CONGESTION RISK (SITE BUILDOUT)

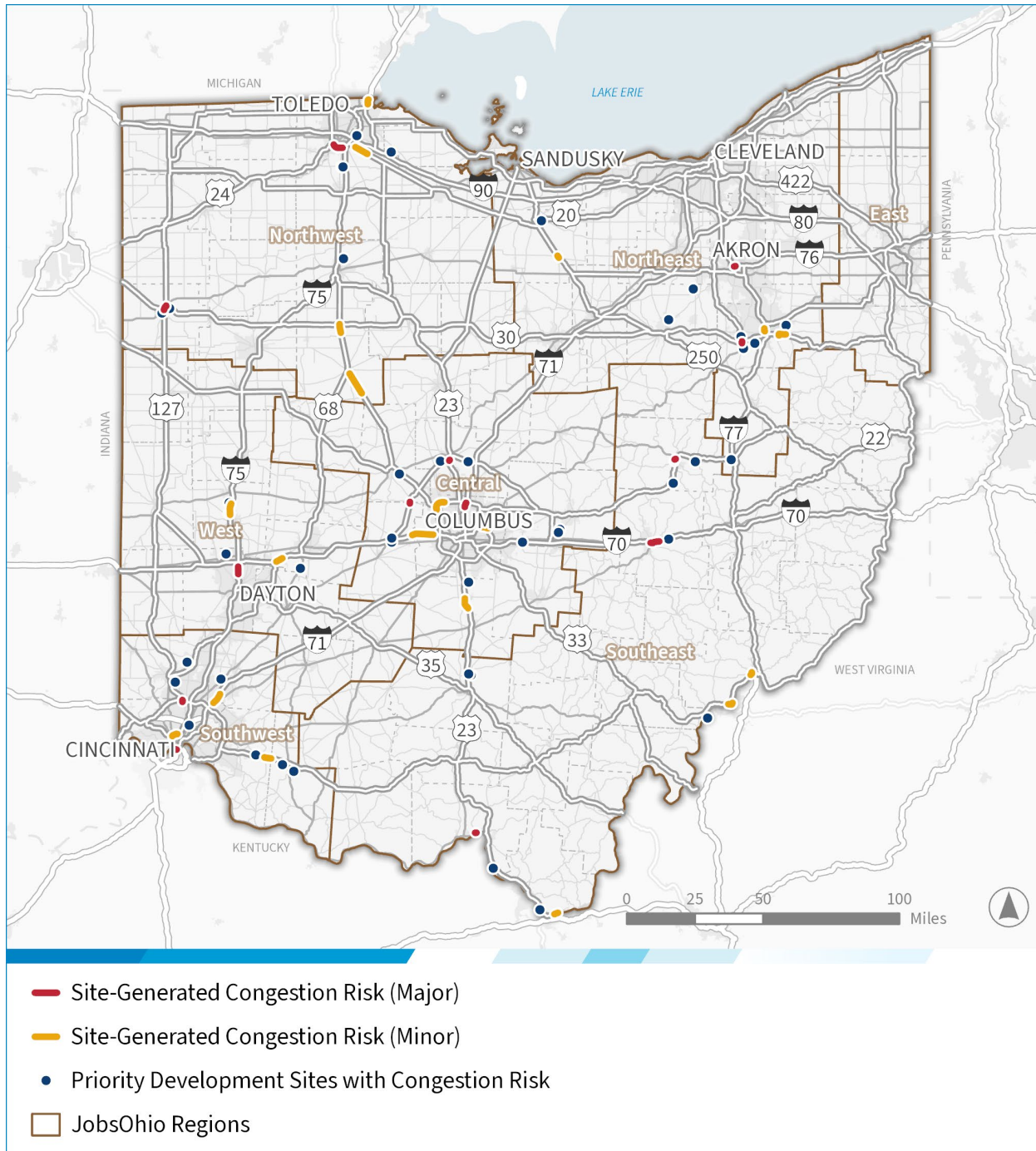


FIGURE 3.20—CONGESTION RISK (WORKFORCE ACCESS LOSS)

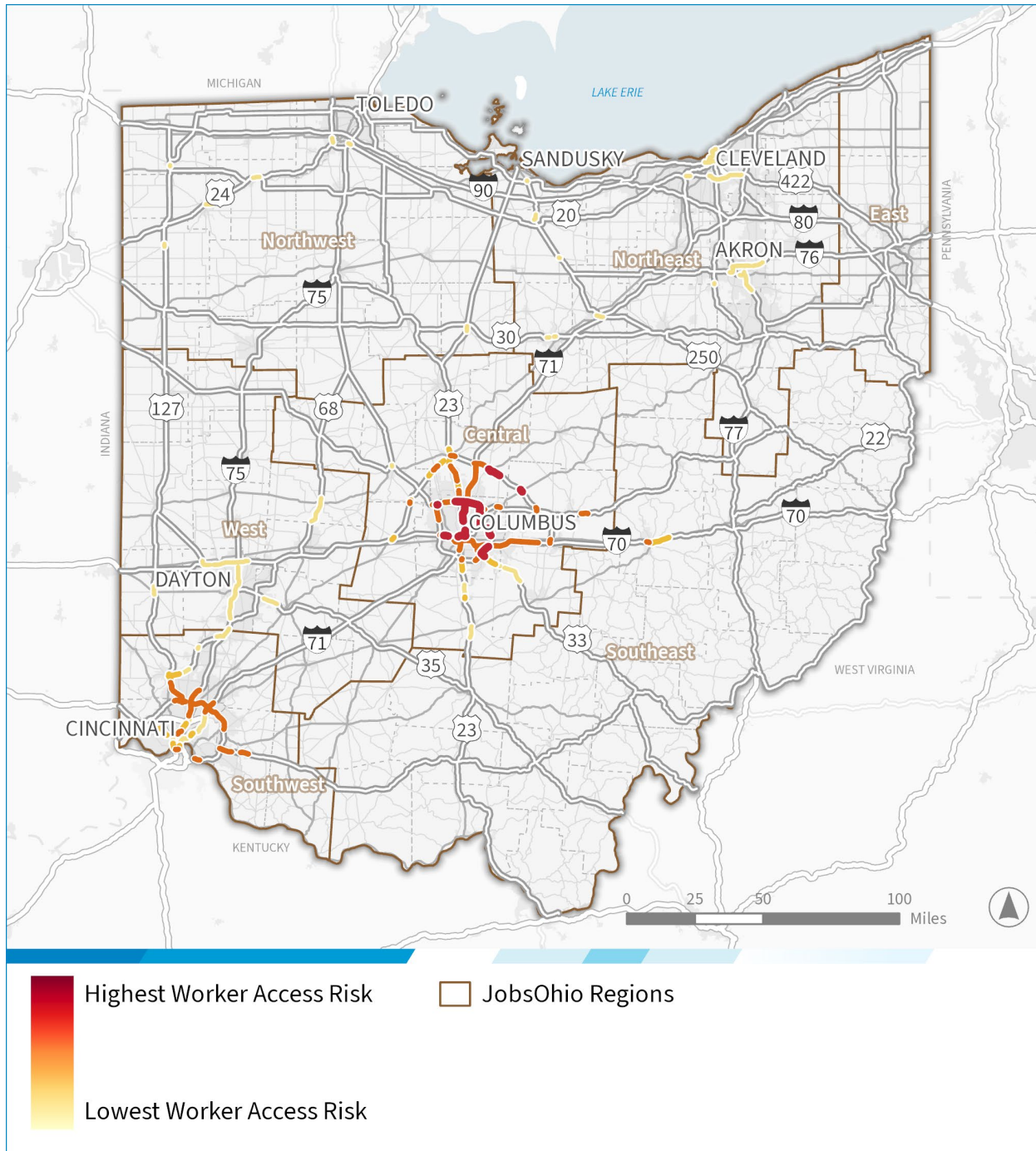


FIGURE 3.21—CONGESTION RISK (TRUCK BOTTLENECKS)

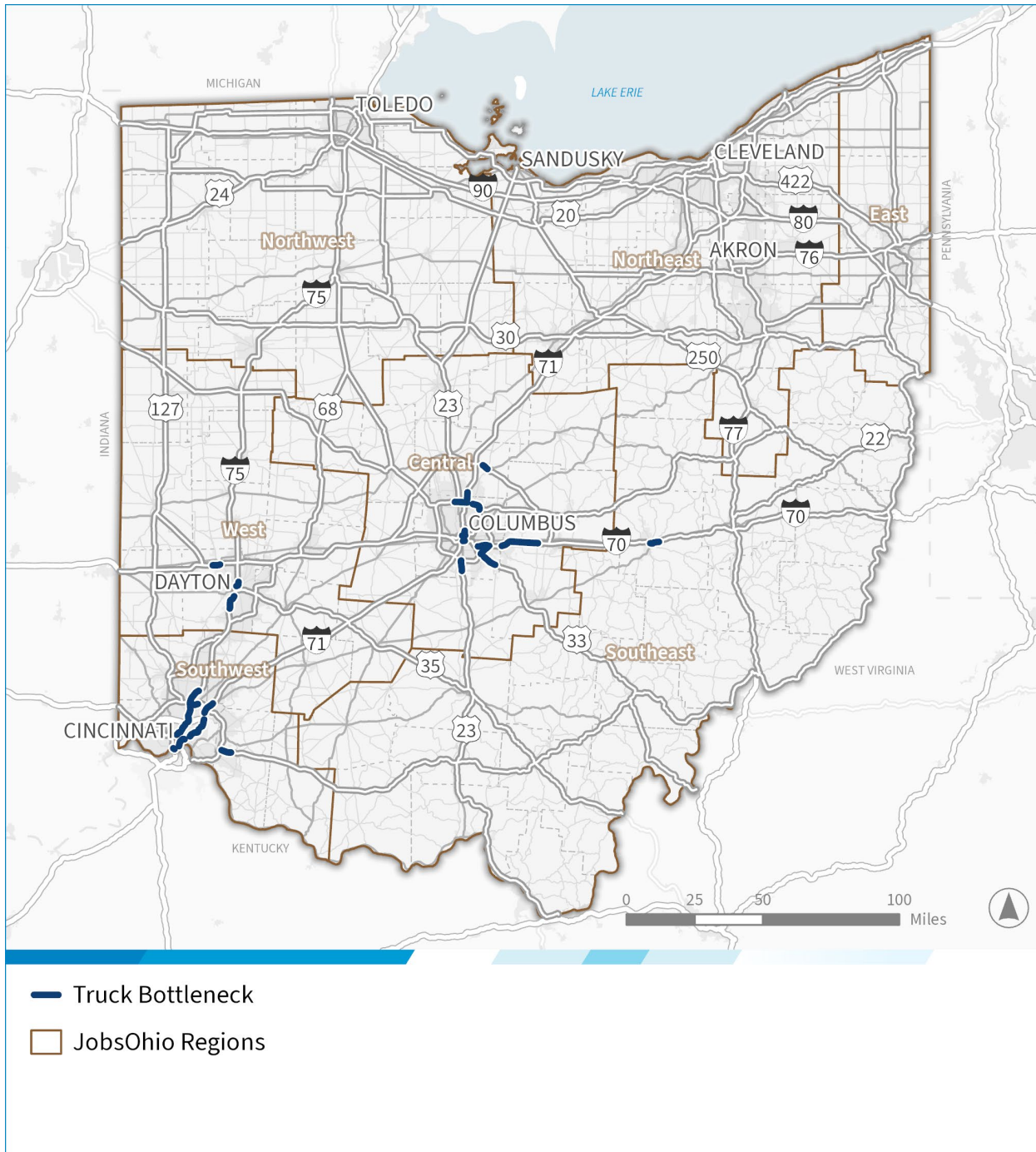


FIGURE 3.22—CONGESTION RISK (ACCESS CONTROL AND GROWTH)

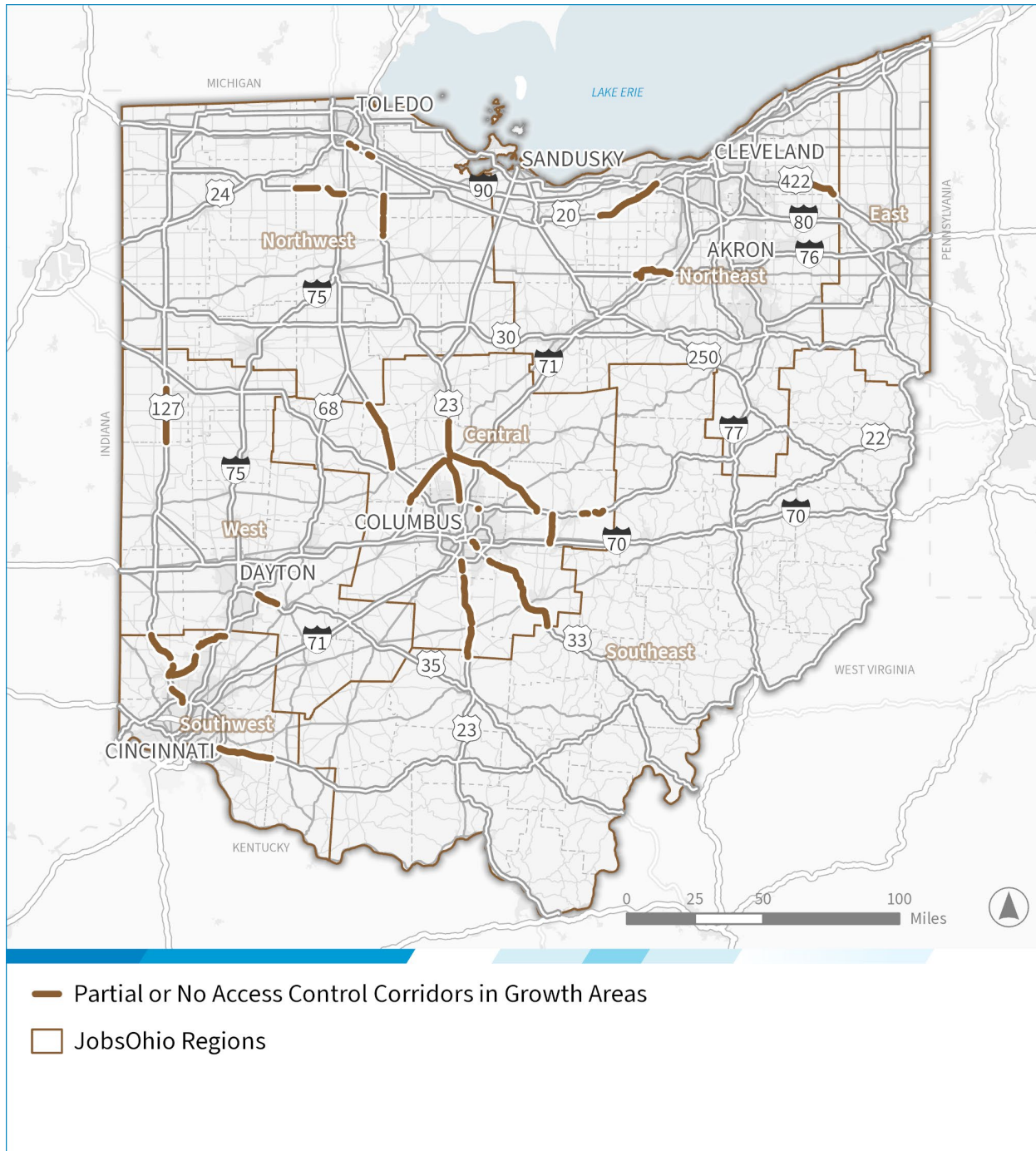
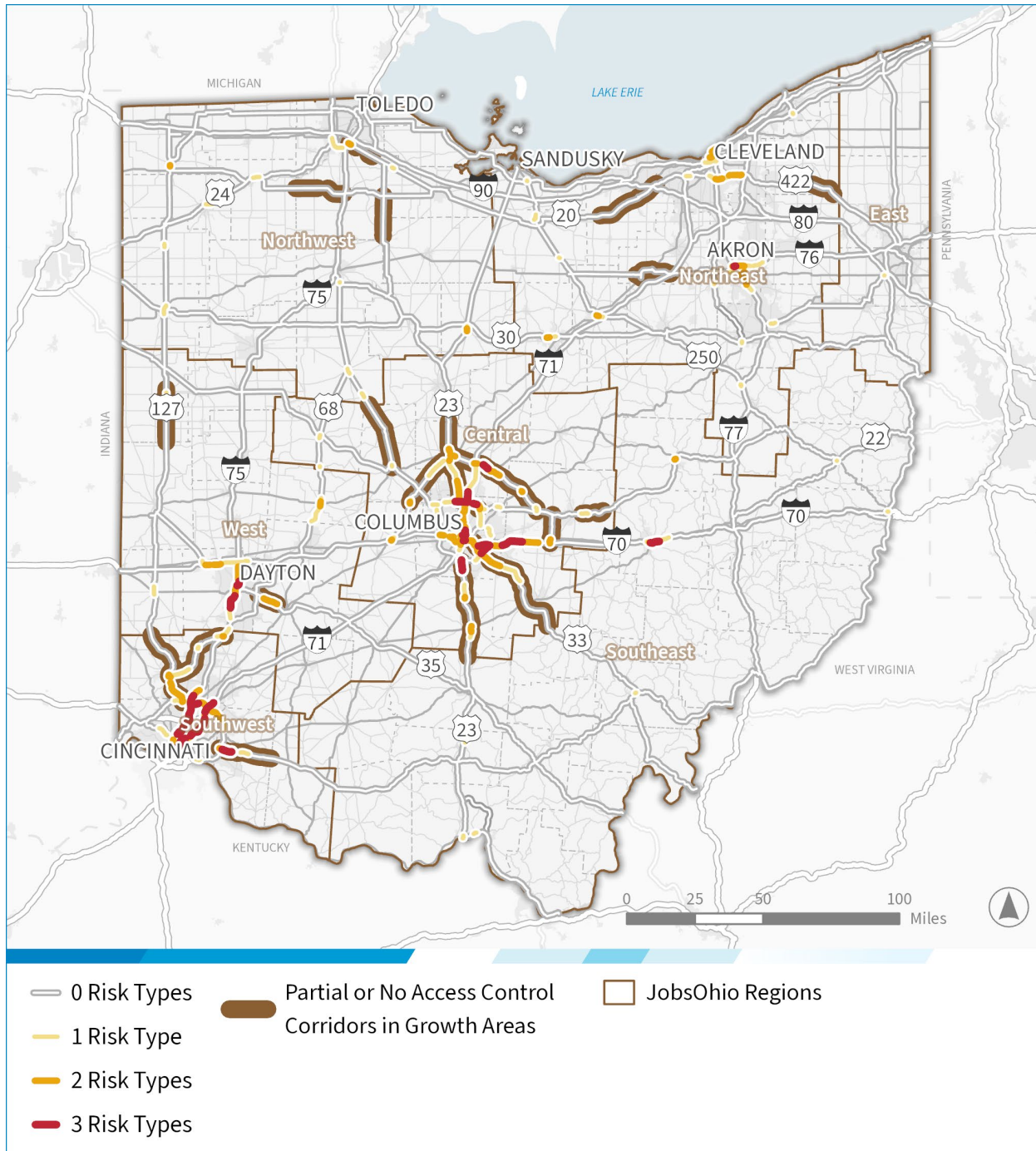


FIGURE 3.23—CONGESTION RISK (COMPOSITE)



Northwest Ohio

Northwest Ohio is the gateway region for Ohio's Midwestern trading partners. Many major Midwestern economic centers, such as Chicago, Detroit, and Minneapolis-St. Paul, connect with national and international markets through Northwest Ohio. The region supports interstate passenger and freight connectivity, is home to 1.2 million residents in urban and rural settings, boasts a comprehensive multimodal freight network, and supports a diverse workforce across dozens of industries.

The urban footprint of the Toledo metropolitan area differs from that of the rest of Northwest Ohio, which has maintained a predominately rural development pattern and character outside a few smaller cities, less than 50,000 in population, also known as micropolitan areas. These boundaries and area designations are presented in **Figure 3.24**. Within the rural counties, small cities along major corridors, such as Findlay along I-75, contain pockets of industrial development activity and growth potential along the Study network. I-75, I-80/I-90, US23, and US24 connect the region, particularly Toledo, to markets and major cities and regions outside of Ohio, including Canada. The Toledo MSA, consisting of Lucas, Ottawa, and Wood counties, marks the intersection of I-75 and I-90, epitomizing the role of transportation assets in the region's economy. Other vital transportation assets include a broad network of Class I and Short Line freight railroads shared among several owner-operators, intercity passenger operations, intermodal freight terminals operated by the Toledo-Lucas County Port Authority, other major intermodal facilities, regional and international airports, international ferry service, and intercity bus terminals.

Northwest Ohio's population decreased by over 18,885 residents from 2010 to 2020, a 1.5% decline compared to a 2.3% increase statewide. From 2020 to 2023, the region's population declined by an additional 11,443 residents. The regional population continues to urbanize, indicating a move out of Northwest Ohio's rural areas since 1990, as shown in **Figure 3.25**. Since 1990, the regional population decreased by 2%, a total of 36,453 residents.

Key industry clusters supporting the region's workforce include healthcare, transportation, distribution and logistics and automotive and manufacturing. Agriculture and food, manufacturing, retail and health, and petroleum are the driving industry clusters in rural areas. The 14 priority development sites within the region being advanced by SiteOhio represent significant economic development opportunities. Regional stakeholders identified these sites, among others, and several target industries that build on the existing economic landscape, like agriculture and warehousing and distribution, as growth opportunities. Stakeholders acknowledged the importance of leveraging existing infrastructure to strengthen legacy industries and nurture population and workforce growth through new and pioneering industries.

Northwest Ohio is the gateway region for Ohio's Midwestern trading partners through a comprehensive multimodal freight network including interstates, freight railroads, and the Port of Toledo.



FIGURE 3.24—NORTHWEST OHIO COUNTIES AND DESIGNATIONS

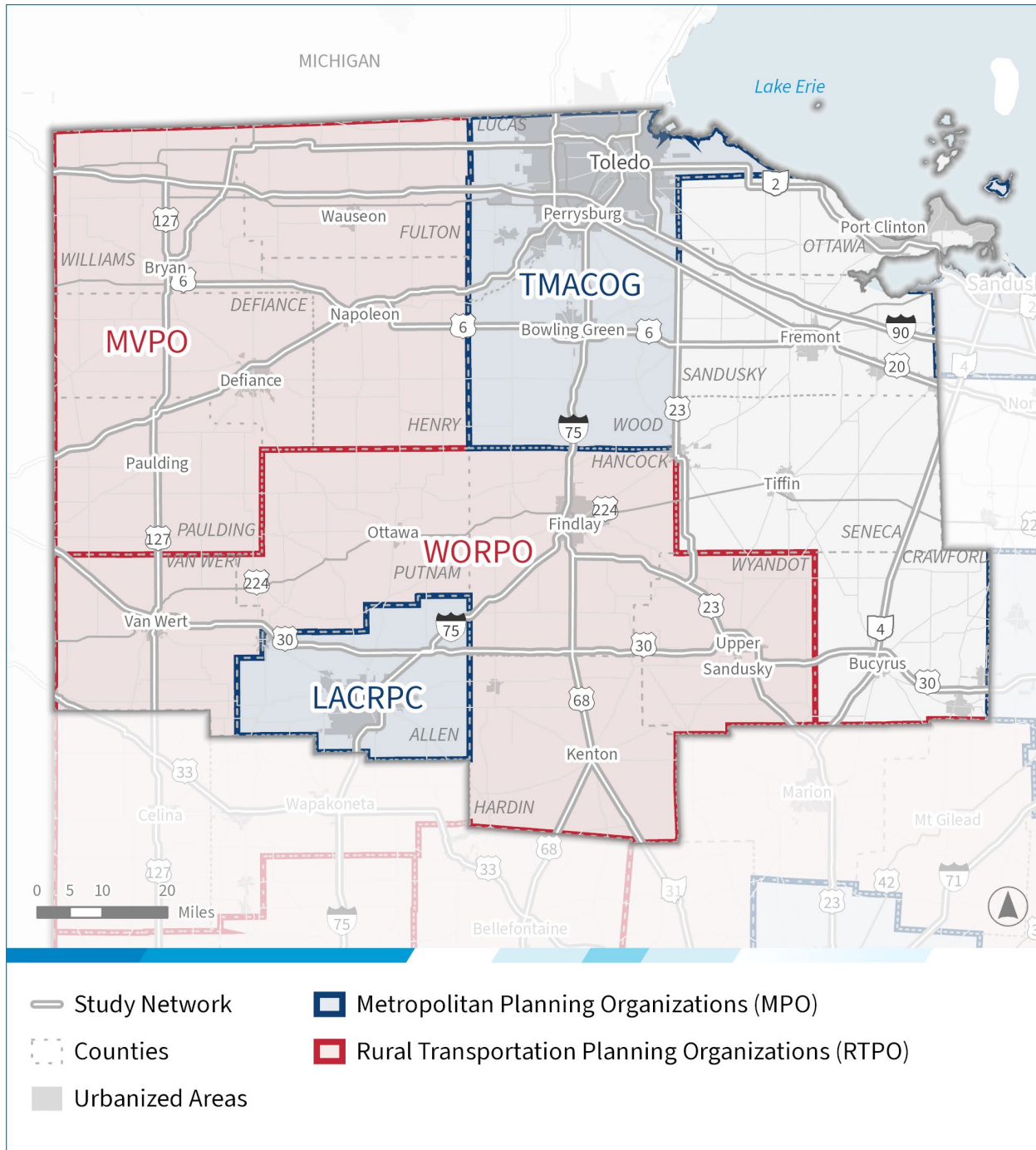
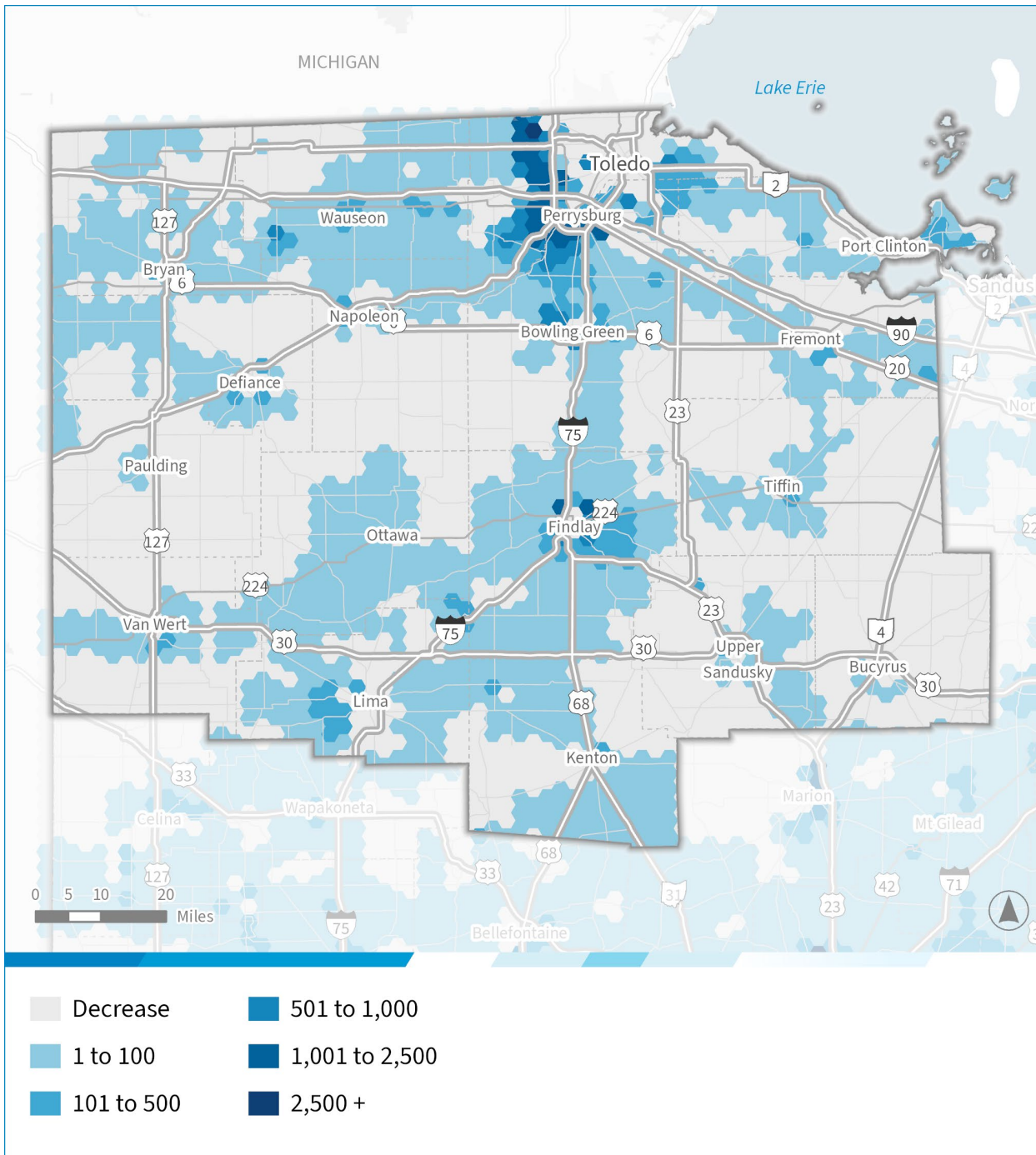


FIGURE 3.25—NORTHWEST OHIO POPULATION CHANGE (1990–2020)



Source: US Decennial Census, 1990, 2020



System Overview

The Study network totals 868 miles within the Northwest region, as presented in **Table 3.7**, accounting for 21% of total statewide Study network miles. Approximately 27% of the Study network mileage in the region is comprised of interstate highways, namely I-75, the Ohio Turnpike, and I-475 around Toledo. This is the second lowest percentage of the seven regions; only Southeast Ohio is lower. US highways, including US30, US23, and US24, comprise 60% of the Study network mileage.

TABLE 3.7—STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS NETWORK IN NORTHWEST OHIO

| Route Type | Mileage | Percent of Total |
|----------------|------------|------------------|
| Interstate | 232 | 26.7% |
| US Highways | 523 | 60.3% |
| State Highways | 113 | 13.0% |
| Total | 868 | |

*Note: Mileage does not include ramps associated with the Study network interchanges.

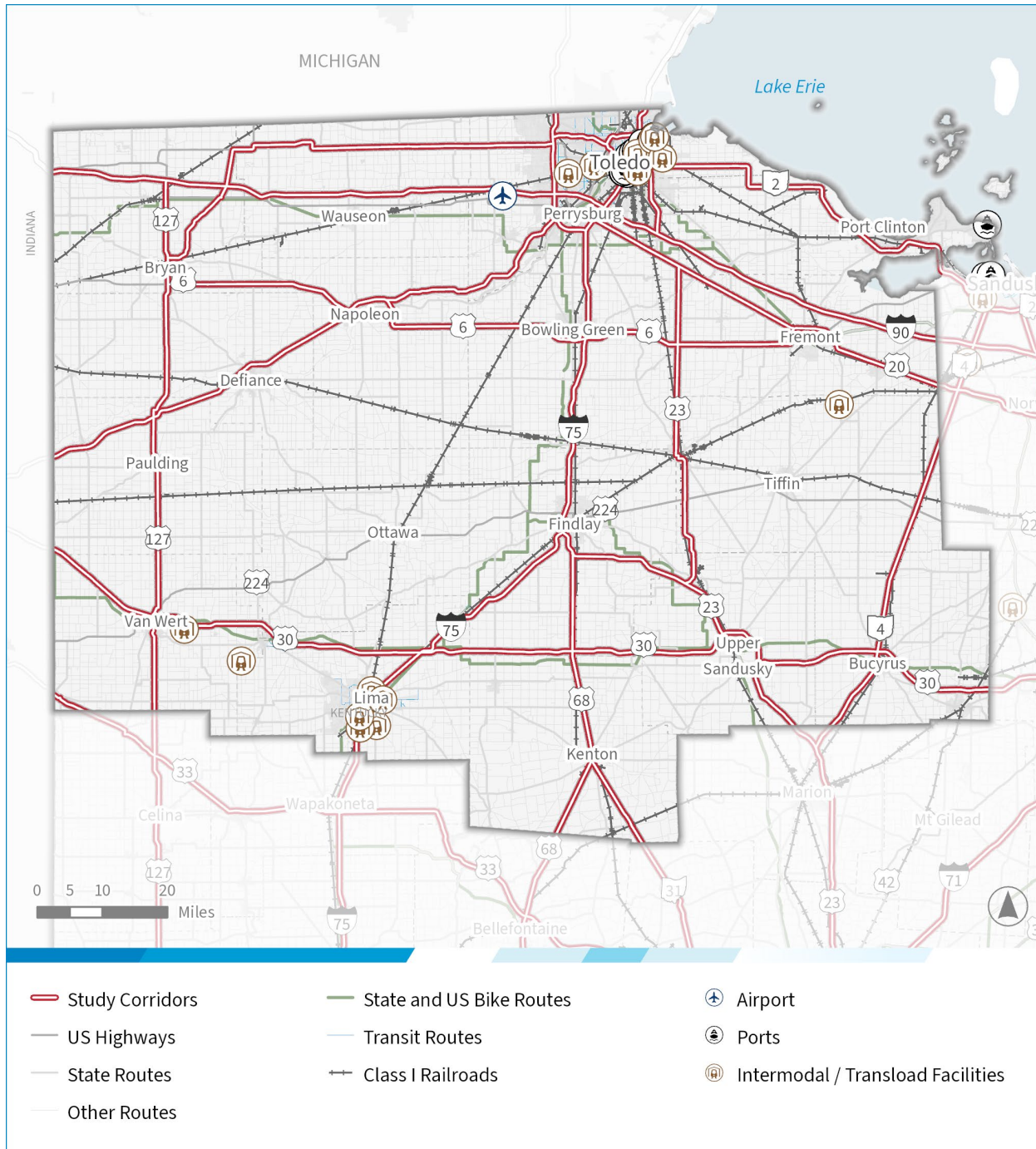
The Study network in Northwest Ohio facilitates both intraregional and interregional travel. **Figure 3.26** presents the Northwest Ohio Study network, identifying several opportunities to connect intermodal and transload facilities in Toledo, Lima, and near Van Wert. Intraregional travel includes commuting trips into the Toledo region on the Ohio Turnpike, I-75, and I-475; and trips connecting markets in the region along US24, US127, US30, and US23, such as Defiance, Van Wert, Lima, Findlay, Bowling Green, Fremont, and Bucyrus.

The predominant interregional traffic movement within the region is east-west traffic along I-90 connecting to Northeast Ohio and Indiana and north-south traffic on I-75 connecting to Michigan and Ontario, Canada, and toward Central, West, and Southwest Ohio. The scheduled fall 2025 opening of the Gordie Howe Bridge, located south of Detroit and will connect Michigan and Ontario, will reduce travel times for commercial vehicles between Ontario and Ohio, opening new opportunities for direct trade with Canada.

Interregional traffic movement in the region is dependent on I-75 as it connects the two metropolitan areas in the region, Toledo and Lima, and multiple micropolitan areas, including Bowling Green and Findlay. The Ohio Turnpike is the busiest facility in the region, serving significant commercial vehicle through traffic while connecting Toledo to major portions of rural Northwest Ohio. US23 and US24 also connect rural parts of the region to Toledo. Both US highways have major sections with either partial or no access control, including all of US23 from Carey to the intersection with US20 in Wood County. While lack of access control can restrict mobility and efficient movement of through traffic, it provides access for existing residences, agricultural operations, and potential future development in Northwest Ohio.



FIGURE 3.26—NORTHWEST OHIO TRANSPORTATION SYSTEM



Existing Travel Patterns and Congestion

This section describes existing volumes, travel patterns, and congestion on the Northwest Ohio Study network. Estimates of average daily traffic between origin-destination (OD) pairs from Streetlight, a large data source leveraging spatial location data from mobile devices to fuel travel analysis, were used to derive bi-directional flows of vehicle trips relevant to Northwest Ohio between urbanized areas. These include parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.27** presents daily trips starting or ending in Northwest Ohio, highlighting the top 50 OD pairs by daily volume. Trips outside the state are not included.

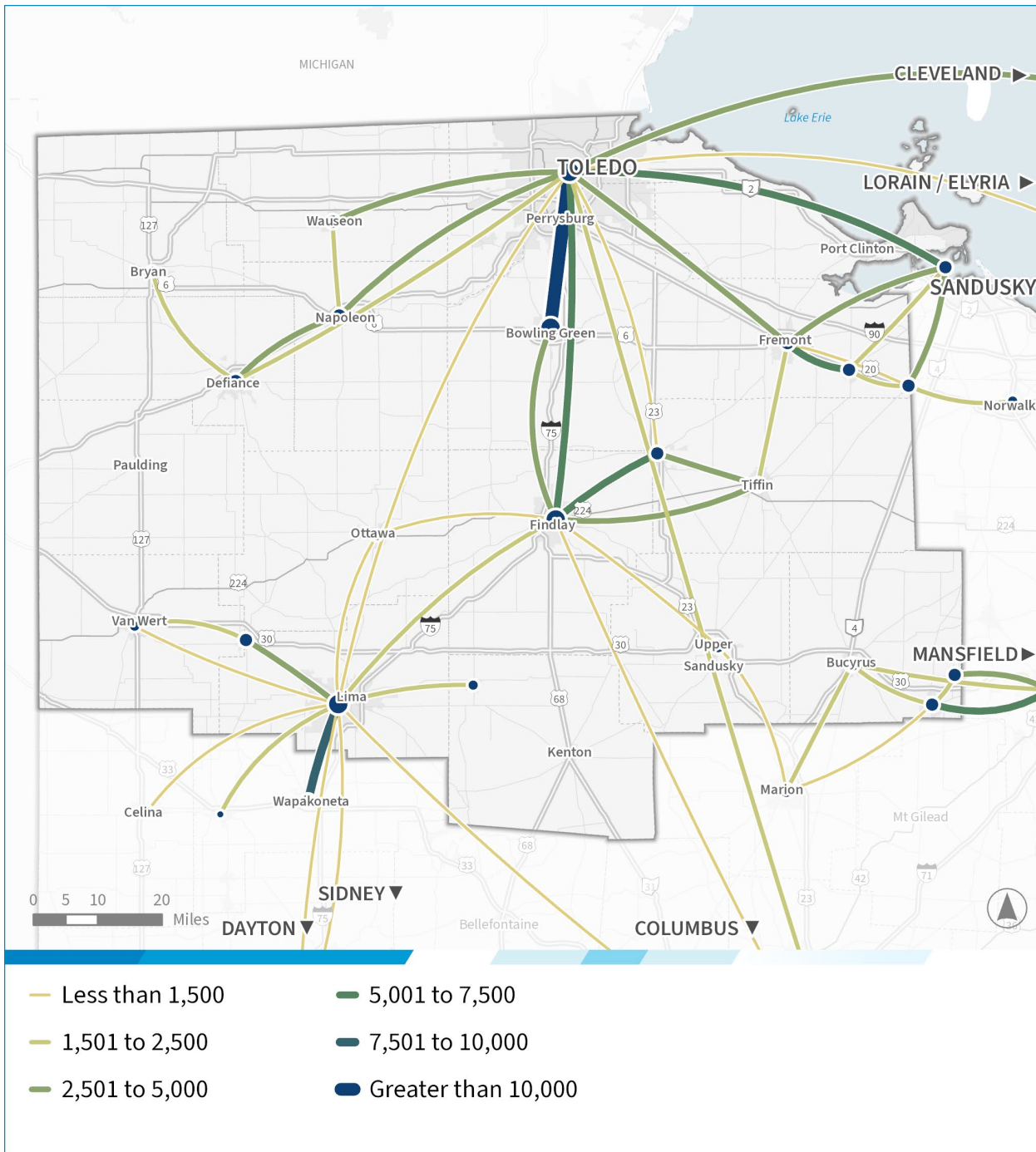
Figure 3.27 depicts Toledo as a central hub market for several smaller cities within the region, particularly to the south and west. The strongest connection between Toledo and Bowling Green represents nearly 24,000 daily bi-directional trips, generally along the I-75 corridor. The map also shows evidence of secondary market hubs in the Findlay and Lima urbanized areas along I-75. Nearly 7,900 trips per day flow between the Lima and Wapakoneta urbanized areas. Findlay also appears to have strong connections to Fostoria, Tiffin, and Bowling Green.

The most prominent interregional OD flows are between the Toledo urbanized area and the Sandusky urbanized area, representing about 5,600 trips. Roughly 4,500 daily trips are made between the Toledo and Cleveland urbanized areas. Nearly 2,400 trips flow between the Toledo and Columbus urbanized areas daily. Although technically in the Northeast region, Sandusky is itself a hub for smaller cities in Northwest Ohio, such as Fremont, Clyde, and Bellevue, while Mansfield, also in the Northeast, appears to be a hub for Crestline and Galion.

Figure 3.28 presents the 2023 AADT on the Study network in Northwest Ohio. The northern side of I-475 between I-75 and SR51 shows the highest daily volume in the region at 100,000 vehicles or more. I-475 around Toledo shows daily volumes ranging from 90,000 on the north end (south of the US23 interchange) to 75,000 in the segment between the Ohio Turnpike and I-75. The entire I-75 corridor south of Toledo and I-90 east of Toledo also show high volumes (approximately at or above 50,000 vehicles daily, depending on the segment). US24 south of I-575 (28,000 vehicles per day) and US23 near Upper Sandusky (27,000 vehicles per day) show the highest non-interstate volumes.



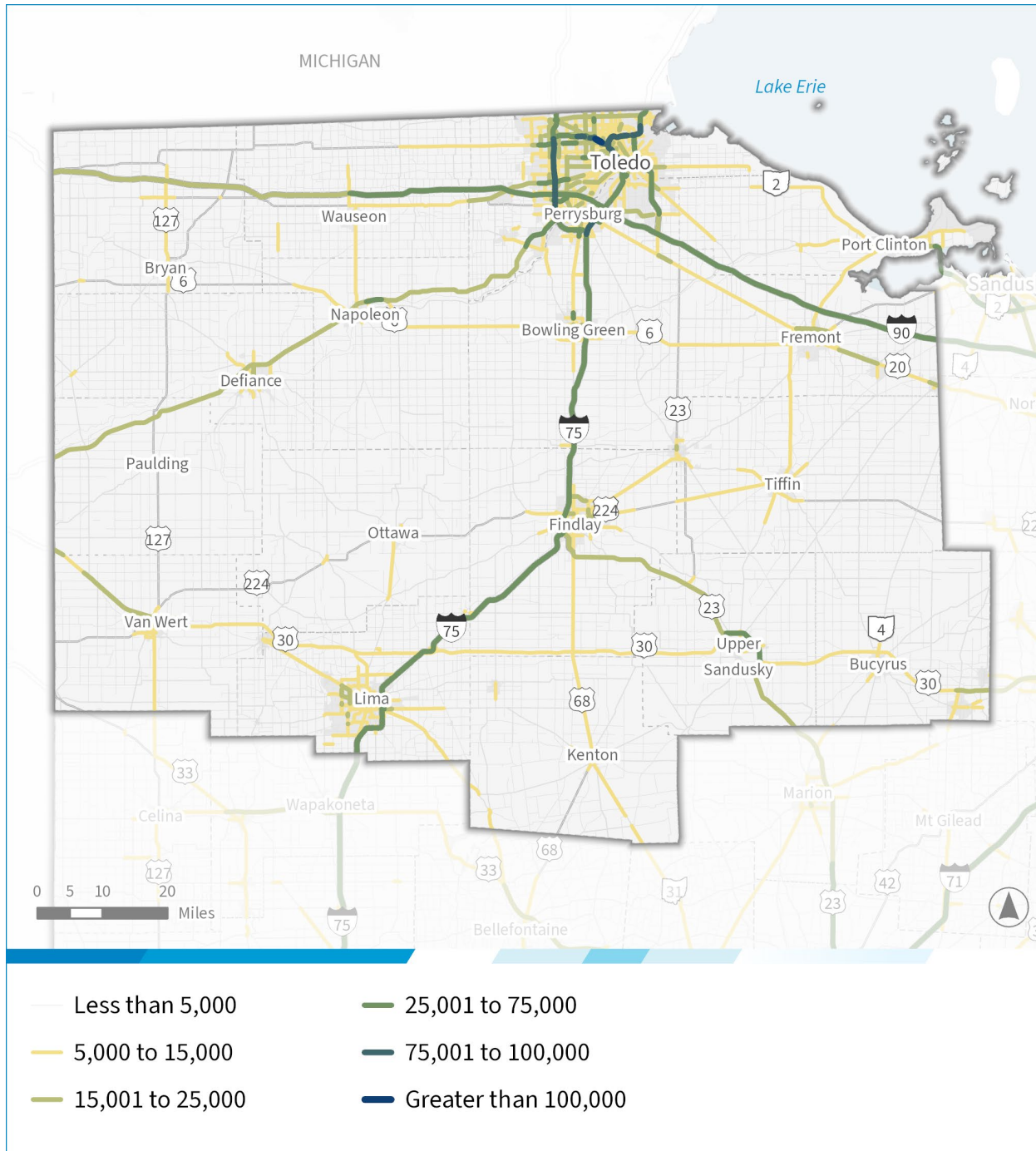
FIGURE 3.27—NORTHWEST OHIO DAILY TRIPS (2021)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



FIGURE 3.28—NORTHWEST OHIO AVERAGE ANNUAL DAILY TRAFFIC (2023)



Source: ODOT Transportation Information Mapping System (TIMS)



The OSWM estimates auto and truck demand on the state highway system by trip origins and destinations within the region, entering or leaving the region, and passing through the region. As shown in **Figure 3.29**, auto trips with both an origin and destination in the region are the largest demand segment, estimated at nearly 3.7 million daily trips, or 87% of all daily auto trips. Fifty-five percent of truck trips are internal to the region, with 26% as through trips. Across all trip types, trucks represent 4.5% of total daily vehicle trips.

FIGURE 3.29—NORTHWEST OHIO VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION (2025)

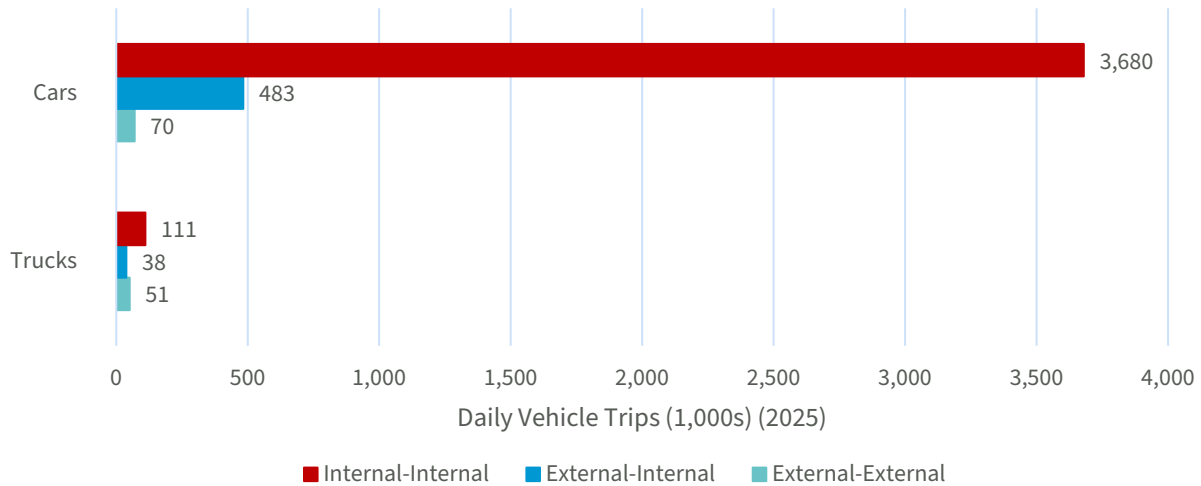
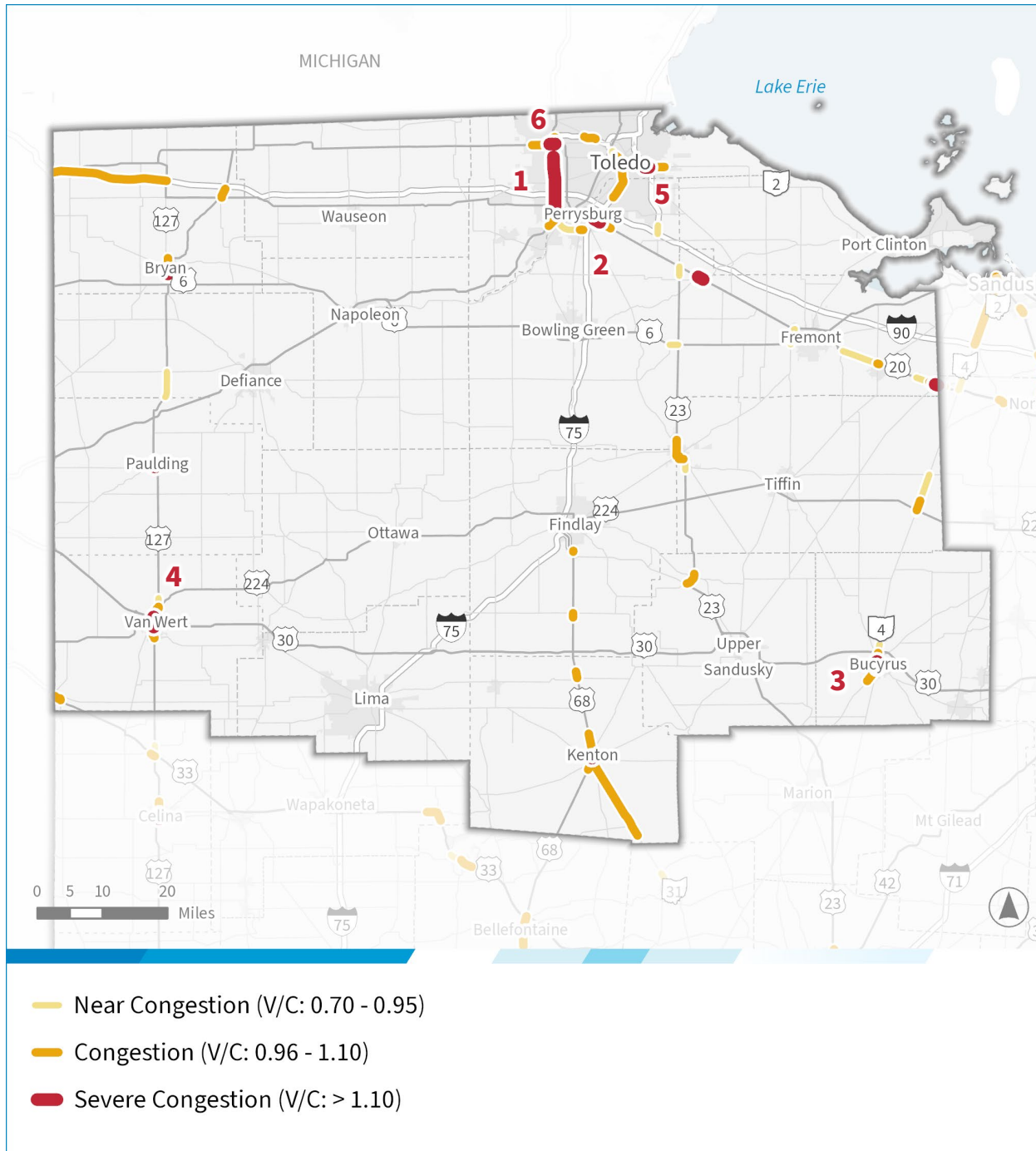


Figure 3.30 presents existing congestion based on a measure of peak period v/c ratio, where values at 1.1 or above represent severe congestion, stop-and-go traffic, and values from 0.9 to 1.1 reflect impactful slowdowns, where traffic is still moving, during the AM or PM peak travel periods. Congestion locations impact peak period commuting and commercial vehicle traffic using I-475 to distribute goods across the Toledo region or to bypass the region for moving goods along the I-75 or the Ohio Turnpike corridors. The critical existing congestion risk locations include:

- 1. I-475 between US20 and the Ohio Turnpike (I-80/I-90)**—I-475 connects with I-75 to form the beltway that encircles Toledo’s north, west, and southern suburbs, connecting the MSA to major inter- and intrastate corridors, including I-75, the Turnpike, US20, and US24. The congestion associated with this segment largely corresponds with commuter traffic mixing with commercial vehicle traffic during the peak AM and PM periods. It is also possible that north and southbound traffic on I-75 use this segment to bypass the segment of I-75 that traverses downtown Toledo due to potential time savings, particularly if taking the Ohio Turnpike westward.
- 2. US20 at I-75**—There has also been recent significant commercial and residential development in this area, particularly east of I-75 along US20, leading to peak period severe congestion at the I-75 interchange.
- 3. SR4 in Bucyrus**—SR4 is a primary corridor connecting Sandusky to Columbus. It encounters at-grade rail crossings and numerous signalized intersections and driveways, leading to peak-period congestion.
- 4. US127 in Van Wert**—The v/c ratio on US127 in Van Wert exceeds 1.1 downtown and approaches 1.1 just south of downtown and north of the interchange with US30. Other towns in Northwest Ohio with a US highway passing through see similar congestion, including Paulding and Bryan on US127, Woodville and Bellevue on US20, and Fostoria and Carey on US23. There are two notable factors consistent among these locations. First, they are located adjacent to intersections of major corridors. In Van Wert, US127 is the primary access route to downtown from traffic on US30. Secondly, the roadways have no access control and traverse developed areas within cities, towns, and villages. This results in frequent driveways and signalized intersections, which slow traffic and create conflicts with turning vehicles.
- 5. SR2 at I-280**—SR2 is an alternative route to the Ohio Turnpike connecting Toledo to Sandusky. This corridor has a high traffic volume and frequent signalized intersections, combined with seasonal traffic during the summer and traffic generated by the Mercy Health/St. Charles Hospital complex just east of I-280.
- 6. US20 at I-475**—US20 primarily facilitates intraregional travel in this area, including access for residents to various big-box retailers just east of I-475. Traffic generated by these locations, combined with frequent signals and driveways and commercial vehicles accessing the retail stores, creates severe congestion in this area.



FIGURE 3.30—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME/CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Development Trends and Future System Demand and Risks

Toledo's location along the western end of Lake Erie enabled it to become a 20th century manufacturing center, taking advantage of the ability to ship bulk commodities, such as sand, gravel and metal ore, needed for manufacturing processes. Toledo became known for glass manufacturing and auto production and parts, developing close ties to the automotive industry in Michigan. The Toledo metro area has been impacted in recent decades by plant closures but has had recent success in high-tech manufacturing.

In 2022, the Toledo MSA generated nearly \$46 billion in GDP, making it the 84th largest metropolitan economy in the US. The Toledo MSA ranked fifth among Ohio MSAs in terms of GDP, and sixth in population, total employment, and wage and salary employment. From 2017 to 2022, the Toledo MSA lost nearly 8,000 residents and more than 4,000 wage and salary jobs, roughly 1% decreases. Despite these losses, the Toledo MSA gained 2% in total jobs while increasing Real GDP by \$1.3 billion (+5%), the fifth largest increase among Ohio's MSAs.

Wood County, located in the southern portion of the Toledo MSA along I-75 and US23, has been an economic bright spot in the region, adding more than 5,000 wage and salary jobs between 2017 and 2022 (+7%), the fifth largest increase in wage and salary employment among Ohio counties. Despite no appreciable growth in population, Wood County added more than \$700 million in Real GDP over that same period (+10%), the 10th most among Ohio counties; this growth is largely attributable to solar panel manufacturing in Perrysburg, just across the Maumee River from Toledo. This suggests that Wood County is a net importer of labor, mainly from Toledo and Lucas County. During this same period, Lucas County, the Toledo core, also added about \$700 million in Real GDP (+3%), but lost almost 9,000 wage and salary jobs (-4%), the largest decrease among Ohio counties. Lucas County also lost about 6,500 residents; the second largest population decrease among Ohio counties.

While the population of Northwest Ohio has gradually declined since 2010, new development continues in some key areas that will impact future transportation system demand on the Study network. Due to Toledo's position at the crossroads of major north-south and east-west interstate freight corridors, plus significant existing industries, Class I railroads, and marine terminals along the Maumee River, distribution and warehousing continue to locate adjacent to I-75 and the Ohio Turnpike. These transportation-intensive industries require reliable and high-capacity roadway access that can accommodate commercial vehicles.

Figure 3.31 views these development patterns, as well as residential and commercial, based on where population and jobs have increased within the region compared to where impervious surface, the transition of land from undeveloped to developed, has increased since 2010. Perspectives gathered from this analysis over the last decade indicate the following growth patterns:

- Residential and retail growth in Perrysburg, south of I-475 and west of I-75, including the Town Center at Levis Commons and numerous single-family residential developments on former agricultural land spreading southward between I-75 and the Maumee River.
- Primarily residential development with some mixed commercial and retail along US24 from I-475 to the southwest, including the Monclova, Waterville, and Whitehouse areas.
- Continued residential and commercial development throughout Sylvania, including on the western edge of the city limits just south of the Michigan state line, and further residential development south of US20 and east of Secor Metropark and Irwin Prairie State Nature Preserve.



- Residential and retail development within and on the northern edge of the city limits of Bowling Green and Findlay. The development in Bowling Green is more isolated and without direct access to I-75. The development in Findlay includes commercial and light industrial development east of I-75.
- Additional industrial land development and jobs southwest of Lima associated with existing industries in the area, including the Husky Lima Refinery, General Dynamics, Ineos, and the Joint Systems Manufacturing Center, and residential and retail development northwest of Lima along SR309 toward Elida.

The three population growth forecasts for the region show a continued trend of population decline, ranging from a decline of 208,000 residents (-17%) through 2055 in the baseline scenario to a decline of 114,000 residents (-9%) in the high scenario. This decline is not uniform across the region, with some locations projected to decline less than the regional average, like Van Wert, Fulton, Williams, and Putnam counties, or even show growth from 2025 to 2055. Lucas County is forecasted to lose 89,000 residents from 2025 through 2055, accounting for 43% of the regional forecast population decrease in the baseline scenario. Wood County is forecasted to add from over 1,000 residents in the baseline scenario to as high as 15,000 residents in the high scenario.

Even with this decline in population, daily VMT, and vehicle hours traveled (VHT) on the Study network, the Northwest Region is anticipated to increase in the baseline scenario, as presented in **Table 3.8**. This increase is primarily driven by a 59% growth in truck VMT and a 56% increase in truck VHT.

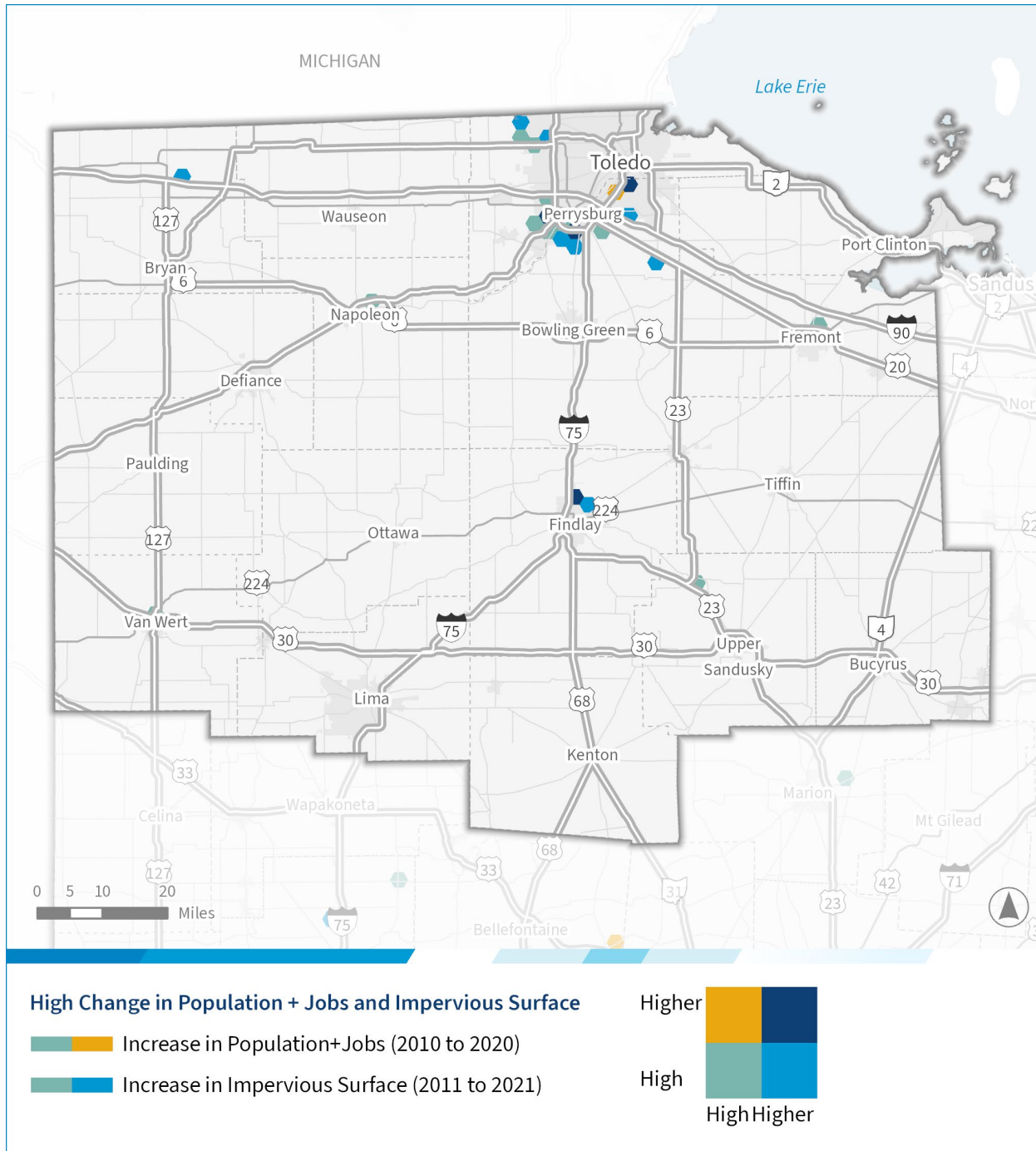
Figure 3.32 presents the resulting change in daily traffic through 2055 in the baseline scenario, showing anticipated growth particularly on the Ohio Turnpike and I-75, segments of US24 toward Napoleon and Defiance, and US23 south within Wyandot County.

TABLE 3.8—NORTHWEST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 40,415,667 | 39,200,059 | -3% |
| Truck VMT | 11,243,371 | 17,875,796 | 59% |
| Total VMT | 51,659,037 | 57,075,855 | 10% |
| Auto VHT | 822,602 | 784,647 | -5% |
| Truck VHT | 179,425 | 280,533 | 56% |
| Total VHT | 1,002,027 | 1,065,180 | 6% |



FIGURE 3.31—NORTHWEST OHIO DEVELOPMENT TREND



Source: National Land Cover Database (NLCD), US Census



FIGURE 3.32—NORTHWEST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

A risk-based approach was conducted to identify congestion risk outcomes across scenarios. This view of risk is consistent with language in H.B. 23 including, “*evaluate and rank current and potential risks of future system congestion.*” The focus centered around four congestion-oriented questions and a question on access control. The answers to these questions are aggregated into a composite congestion risk in **Figure 3.33**. Note that in some segments of the Study network, such as I-475 west of Toledo, area-specific congestion risks, or hotspots, have declined in part due to projected volume decreases. This is particularly noticeable in Northwest Ohio when comparing **Figure 3.30** to **Figure 3.33**. A summary of the grouped hotspots associated with future congestion risks are presented in **Table 3.9**.

Peak-period congestion—Where could the Study network experience severe congestion during the peak period across each scenario in 2055?

- Northwest Ohio has minimal risk of 2055 peak period congestion. The main hotspots are on I-75 and I-475 in Toledo and Perrysburg and isolated sections along US127 in Bryan and Van Wert.

Congestion impacts of site development—Where could the Study network see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- Three sites in the Toledo MSA and two in Van Wert are expected to pose major congestion hotspots if developed. The segment impacts are limited but are along key corridors in the respective areas. This includes congestion on I-475 between I-75 and US24 and along US127 north and south of US30 in Van Wert.

Workforce access congestion—For areas where access to the workforce within 40 minutes is projected to decline between 2025 and 2055, presented in **Chapter 2**, workforce section, where could the Study network experience bottlenecks be contributing to this decline?

- With limited growth in the residential and workforce population in the region, outside of Wood County, the risk associated with workforce access is minimal beyond where severe peak period congestion is forecasted to occur.

Freight bottlenecks—Where could the Study network experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- Major truck bottlenecks are not expected in Northwest Ohio in 2055. The economic landscape and demographic conditions are such that even as freight traffic is expected to increase significantly throughout the Study network, the potential decline in auto trips due to continued population losses would offset additional congestion risks for trucks.

Access control—Where could lack of access control on the Study network in areas of forecasted development contribute to future congestion?

- Continued population growth forecasted in Wood County could particularly impact future operations of partial or no access control arterials, including US6, US23/US20. New residential or commercial development in these corridors may lead to additional driveways and intersections impacting roadway safety.



FIGURE 3.33—NORTHWEST OHIO CONGESTION RISK (2055 HOTSPOTS)

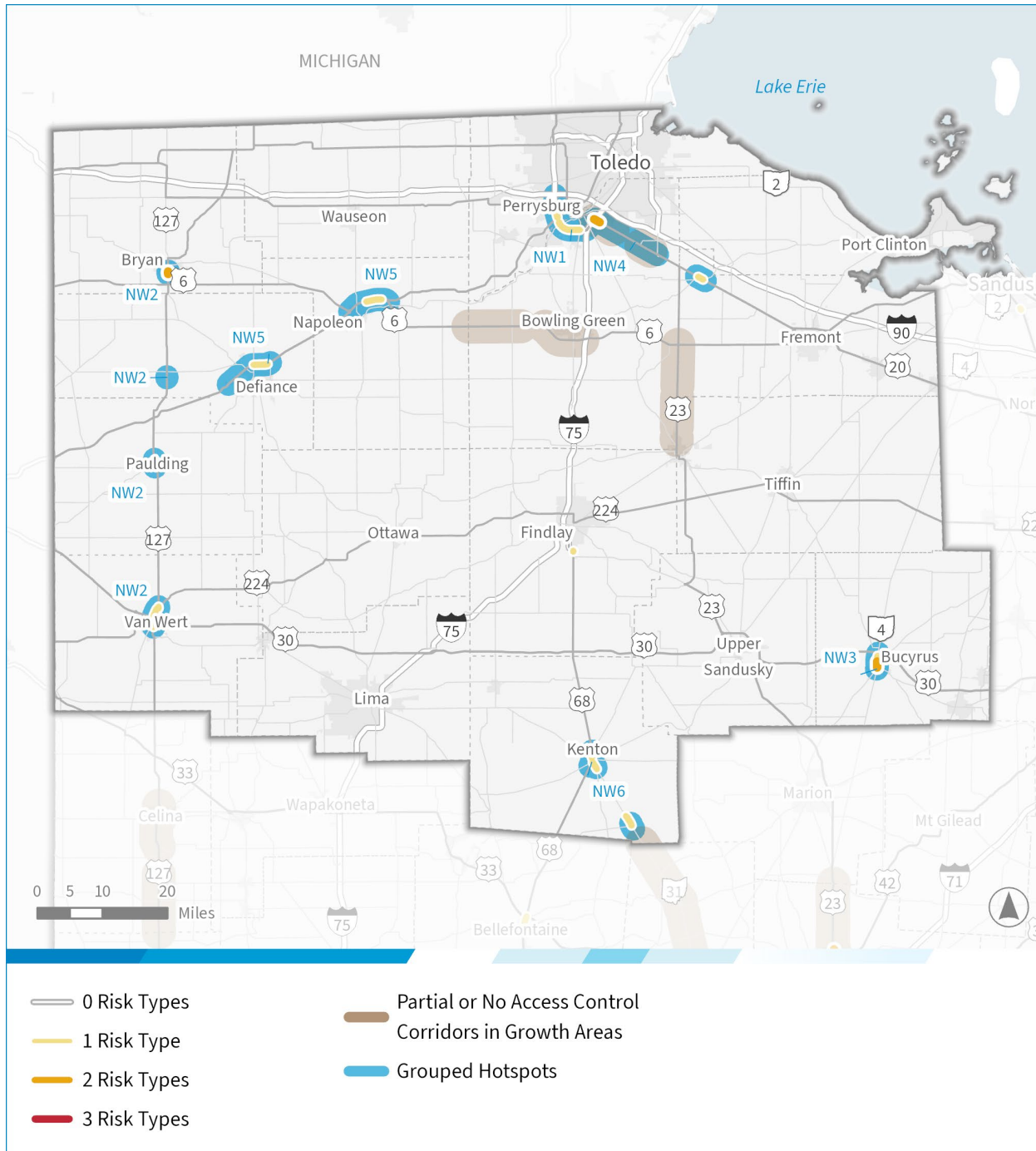


TABLE 3.9—NORTHWEST OHIO CONGESTION RISK LOCATIONS (2055 HOTSPOTS)

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|--|--|---|-------------------------------|
| NW1: I-475 (I-75 to Ohio Turnpike) | Limited congestion risk, primarily associated with peak period congestion, on I-475 between I-75 and the Ohio Turnpike | Today | Low |
| NW2: US127 (Van Wert, Paulding, Bryan) | Limited congestion risk within city/village centers | 2035 and beyond | Low |
| NW3: SR4 (Bucyrus) | Multiple congestion risks on SR4 in Bucyrus | Today | Moderate |
| NW4: US20 (Woodville to I-75) | Limited congestion risk in Woodville and near I-75, plus no/partial access control in projected growth areas on some segments in Wood County | 2035 and beyond | Moderate |
| NW5: US24 (Napoleon, Defiance) | Limited congestion risks near city centers | 2035 and beyond | Low |
| NW6: US68/SR31 (Kenton, Mount Victory) | Limited congestion risk near Kenton and Mount Victory city/village centers | 2035 and beyond | Low |

Regional and Local Plans

Northwest Ohio is comprised of 17 counties represented by two MPOs and two RTPOs:

- Toledo Metropolitan Area Council of Governments (TMACOG)
- Lima-Allen County Regional Planning Commission (LACRPC)
- Maumee Valley Planning Organization (MVPO)
- West Central Ohio Rural Planning Organization (WORPO)

Four counties—Ottawa, Sandusky, Seneca, and Crawford—are not represented currently by an MPO or RTPO but are members of the JobsOhio regional network partner, RGP. Highlights of the LRTPs for these four regions are presented in **Table 3.10**. TMACOG is currently in the process of updating its LRTP to look out to 2055. The prior plan, adopted in 2020, assessed needs through 2045. WORPO began developing its first regional LRTP in the summer of 2024.

Local plans in Northwest Ohio contain goals aiming to strike a balance between encouraging development activity and preserving natural features, farmland, and rural life. This balance helps generate more buy-in from the public while still meeting the fiscal needs of these jurisdictions. Across the region, efforts to improve quality of life have been reflected in recommended strategies, such as redevelopment and infill development within historic downtowns, activating space along waterfronts, and investments made in utility infrastructure that will help retain current businesses and industries and maintain and strengthen the region’s workforce. Additional details on local and regional development trends and priorities based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of comprehensive economic development and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



TABLE 3.10—OHIO MPO AND RTPO LONG RANGE TRANSPORTATION PLAN HIGHLIGHTS

| Lead Agency | Name | Status |
|--|--------------------------------|--------------|
| Metropolitan Planning Organizations | | |
| <u>LACRPC (Lima)</u> | 2045 Transportation Plan | July 2023 |
| <p>Within Allen County, residential and commercial growth is anticipated to continue in areas with existing utilities and adjacent to the I-75 corridor. Most residential subdivision developments are anticipated to continue in American, Bath, and Shawnee townships, and within villages, including Bluffton and Elida. There are limited long range plan projects that will impact the Study network, other than minor widenings that may support distribution of traffic onto the local road network near I-75 interchanges.</p> | | |
| <u>TMACOG (Toledo)</u> | Moving Forward 2055 | Ongoing |
| <p>TMACOG is currently updating its LRTP. In the existing plan, On the Move 2045, the region’s population is projected to decline by 4%, 25,000 people, through 2040. Expected future development patterns will continue latest trends, with the fastest residential growth occurring in western Lucas and northern Wood counties. Higher density residential development will continue near the University of Toledo and Bowling Green State University to accommodate students who desire off-campus housing. The bulk of new retail commercial development will occur in the Franklin Park Mall, Westgate, and Spring Meadows areas in Lucas County as well as the Levis Commons and Route 20 areas in Wood County. A major project in the LRTP with impacts to the Study network includes capacity and intersection improvements to the US20A corridor from the new interchange at I-475 to the Toledo Express Airport. This is a current ODOT project. The LRTP also elevates the future need to potentially widen I-475 east of the US23 interchange.</p> | | |
| Regional Transportation Planning Organizations | | |
| <u>MVPO (Maumee Valley)</u> | Moving Together 2045 | October 2022 |
| <p>Between 2015 and 2045, the population in the Maumee Valley region is projected to decline by 10.4%. The share of population over 60 is anticipated to increase and lead to greater demand and growth for the health care industry. The plan’s vision is to provide a safe, efficient, and sustainable multi-modal transportation system that fosters economic development, protects the environment, and meets the needs of all residents in the region. A major project in the MVPO LRTP is widening US20A throughout Fulton County west to US127 as an alternative route to the Ohio Turnpike. Other projects include improvements to state highways providing access to US24 within Henry and Defiance counties.</p> | | |
| <u>WORPO (West Central Ohio)</u> | Long Range Transportation Plan | Ongoing |
| <p>WORPO was officially established December 10, 2023, to support regional planning in Auglaize, Hardin, Hancock, Mercer, Putnam, Van Wert, and Wyandot counties. WORPO is in the process of developing the region’s first LRTP, which will identify multimodal and intermodal transportation policies and facilities to meet the region’s travel demand over the next 20 years.</p> | | |



Northeast Ohio

Northeast Ohio is the state's largest region by total population, with 3.651 million people, and home to the highest population density city in the state, Cleveland, along with several other major cities including Akron, Canton, Sandusky, and Mansfield, among others. The region is a critical confluence of several interstates, providing direct connections to every other major metropolitan area in the state, as well as connections to the Northeast, Mid-Atlantic, and Southeast markets. A unique landscape spanning Lake Erie and Central and Southeast Ohio supports a diversity of industries unlike any other in the state.

The urban footprint in Northeast Ohio features a densely developed east-west corridor along the lakefront counties of Lake, Cuyahoga, Lorain, and Erie in the north. This corridor intersects a densely developed north-south corridor anchored by Cleveland, including Akron and Canton, and spans Cuyahoga, Summit, and Stark counties. These three counties contain a contiguous corridor of urban development and land uses. They house 2.2 million residents, 50.4% of the region, which increases to 65% when adding other lakefront counties. Areas that are urbanizing and experiencing growth in the region include suburban areas adjacent to these corridors in Medina, Portage, and Geauga counties. Regional transportation planning in these urban areas is facilitated by five MPOs in Northeast Ohio, as represented in **Figure 3.34**.

The remainder of Northeast Ohio maintains a predominately rural development pattern and character outside a few micropolitan areas—Mansfield, Ashland, Wooster, and New Philadelphia. They are situated along major corridors such as US30, US250, I-71, and I-77 and feature a combination of established industries and emerging businesses. Huron, Ashland, and Wayne counties are not within a regional planning organization, while Tuscarawas is within the Ohio Mid-Eastern Governments Association (OMEGA) RTPO, which covers eight counties in Northeast, East, and Southeast Ohio.

The Northeast Region's population increased by 1.9% between 1990 and 2020. However, since 2000, the population has declined by over 93,000 residents. Despite losing total population, the region has seen population growth in suburban areas, with losses concentrated in the major cities like Cleveland and Akron, as shown in **Figure 3.35**. **Northeast Ohio generates the highest GDP of all regions in the state and is the only region with GDP exceeding \$200 billion annually.** The region's distribution of jobs across industries aligns with statewide averages. JobsOhio's regional network partner, TeamNeo, emphasizes these growth industries: education and health services, professional and business services, leisure and hospitality, and manufacturing. Manufacturing activities include automotive, batteries, food production, rubber, semiconductors, chemicals, polymers, metals, adhesives, advanced manufacturing, light industrial and metal stamping, and medical devices. Regional stakeholders engaged in the Study paid particular attention to logistics and distribution, healthcare and medical technology activities, natural resources and extraction, and aerospace opportunities.

Northeast Ohio is the state's largest region by total population and is located at a confluence of interstates providing direct connections to every metropolitan area in the state and connections to the Northeast, Mid-Atlantic, and Southeast markets.



FIGURE 3.34—NORTHEAST OHIO COUNTIES AND DESIGNATIONS

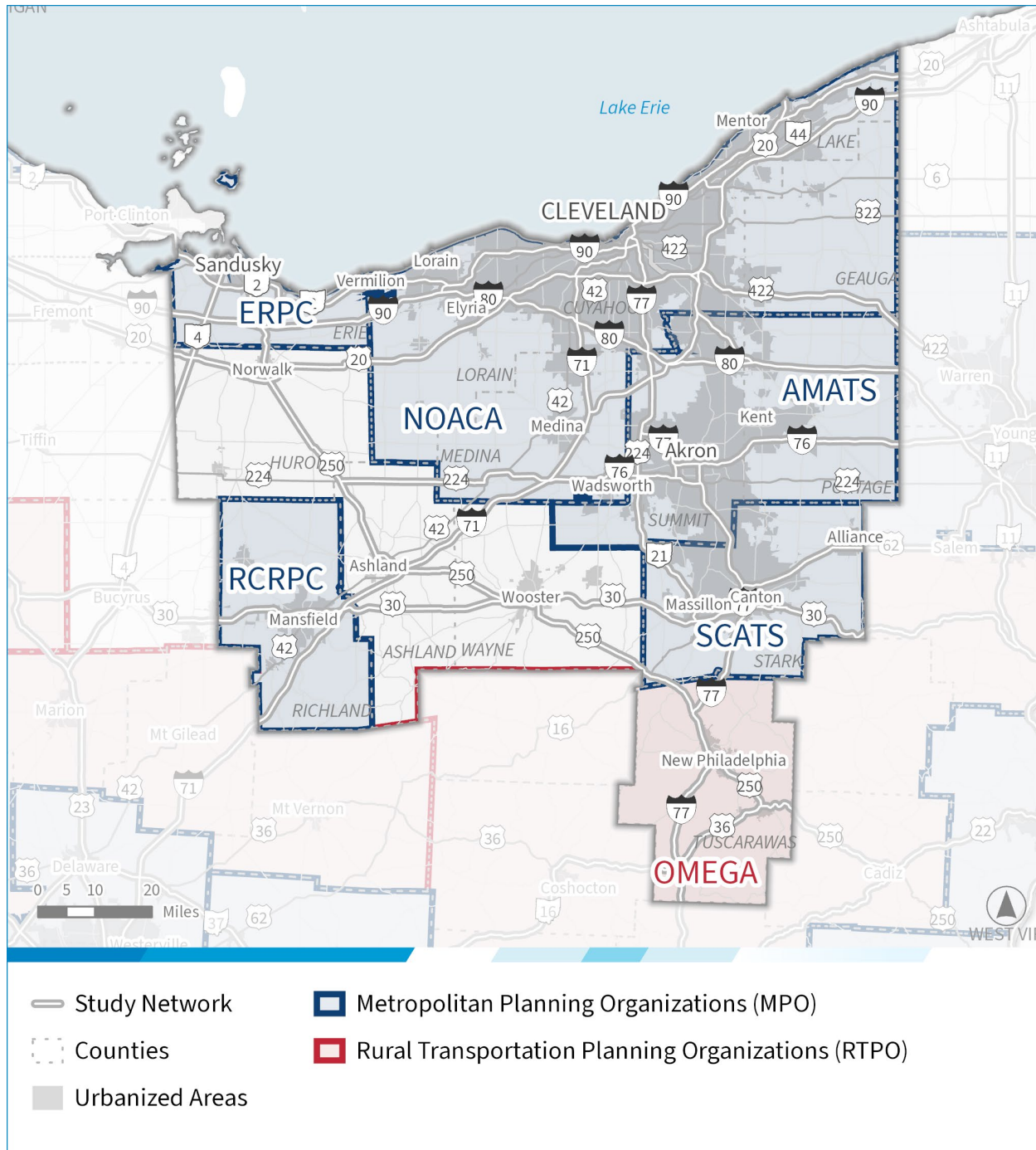
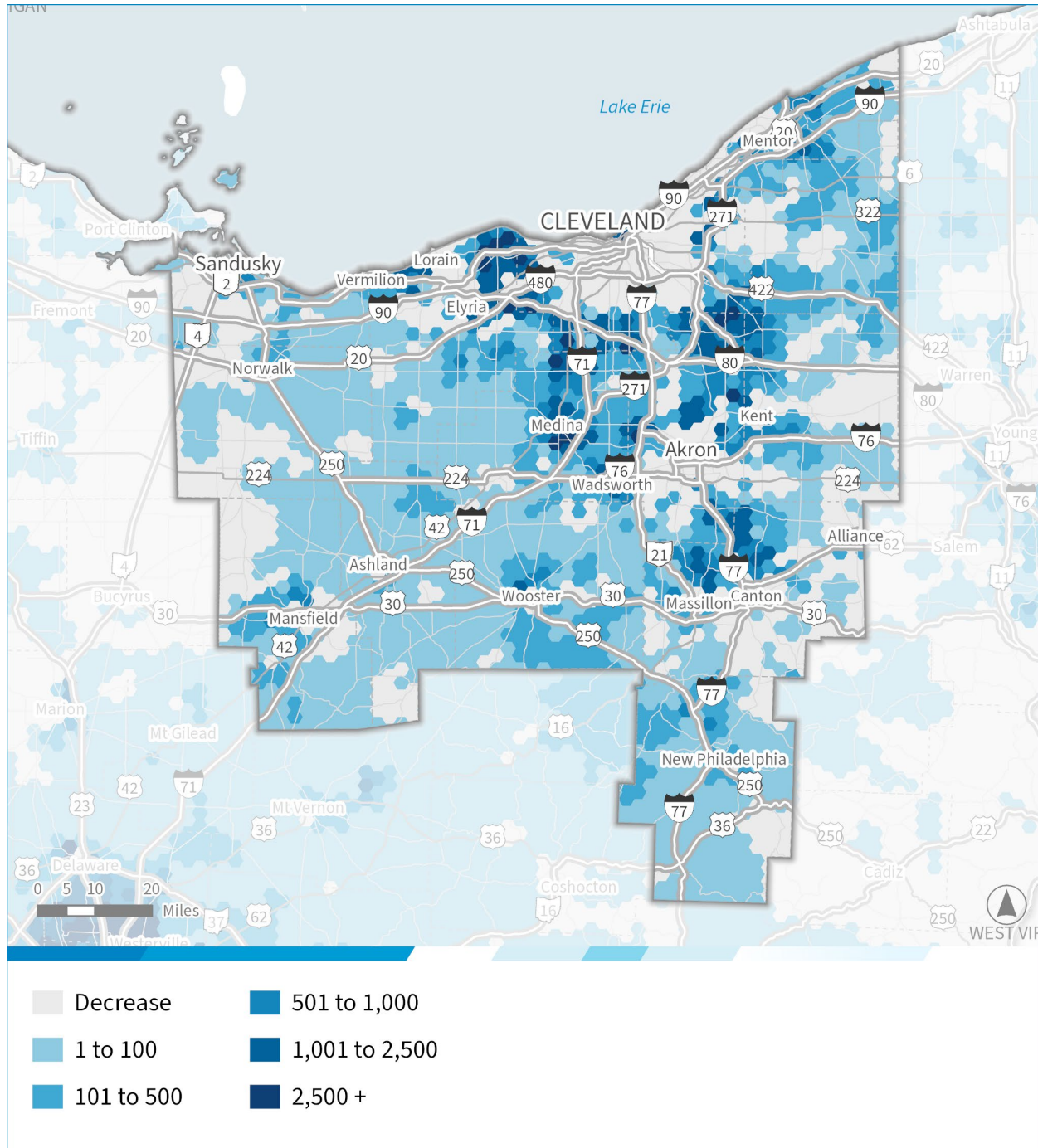


FIGURE 3.35—NORTHEAST OHIO POPULATION CHANGE (1990–2020)



Source: US Decennial Census, 1990, 2020



System Overview

Northeast Ohio has the most extensive transportation network in the state, with a high capacity and well-connected interstate and US highway system, several major airports, dozens of passenger rail and ferry terminals, and significant maritime and rail intermodal freight facilities, as shown in **Figure 3.36**. This is largely due to the concentration of multiple established industries and population centers combined with the geographic significance of the region along the Great Lakes as a major port and rail connection into natural resource producing areas in Southeast Ohio, Pennsylvania, West Virginia, and Kentucky. The Study network totals 983 miles within the region, accounting for 24% of the statewide total, as presented in **Table 3.11**. I-71, I-76, I-77, I-80, and I-90, plus connecting beltways around Cleveland, comprise 52% of the Study network mileage in the region. This is the second-highest share of any region. Another 36% of the Study network mileage in the region is on US highways, including US20, US30, US250, and US422.

TABLE 3.11—STUDY NETWORK IN NORTHEAST OHIO

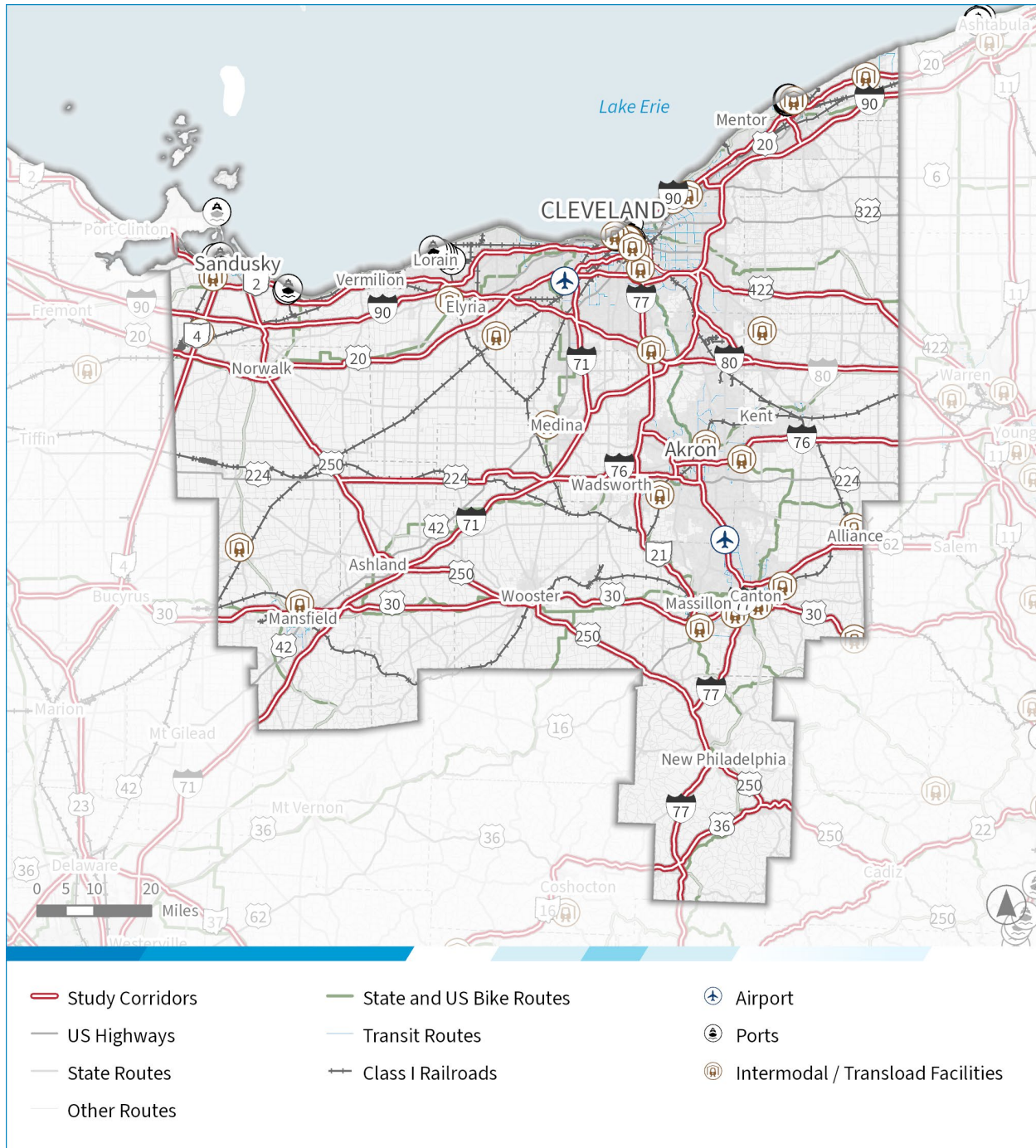
| Route Type | Mileage | Percent of Total |
|----------------|------------|------------------|
| Interstate | 507 | 51.6% |
| US Highways | 358 | 36.4% |
| State Highways | 118 | 12.0% |
| Total* | 983 | |

*Note: Mileage does not include ramps associated with Study network interchanges.

Due to the market forces shaping this region as a transfer point between the Northeast and the Midwest, the Ohio Turnpike, which includes segments of I-80, I-90, and I-76, is the most critical corridor for interstate freight movement. Youngstown and Pittsburgh are large neighboring markets and drive additional travel and economic relationships. For these reasons, I-77 and I-76 are also major corridors for the region’s transportation system. I-71 is the most direct connection to Central Ohio, making it an important route for passenger and commercial vehicle trips. The auxiliary interstate routes of I-480, I-271, and I-277 in Cleveland and Akron also play an important role in travel to and around the cities, particularly for commuters and through trucks.



FIGURE 3.36—NORTHEAST OHIO TRANSPORTATION SYSTEM



Existing Travel Patterns and Congestion

This section describes existing volumes, travel patterns, and congestion on the Northeast Ohio Study network. Estimates of average daily traffic between OD pairs from Streetlight were used to derive bi-directional flows of vehicle trips relevant to Northeast Ohio between urbanized areas. These include parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.37** presents daily trips starting or ending in Northeast Ohio, highlighting the top 50 OD pairs by daily volume. Trips outside the state are not included.

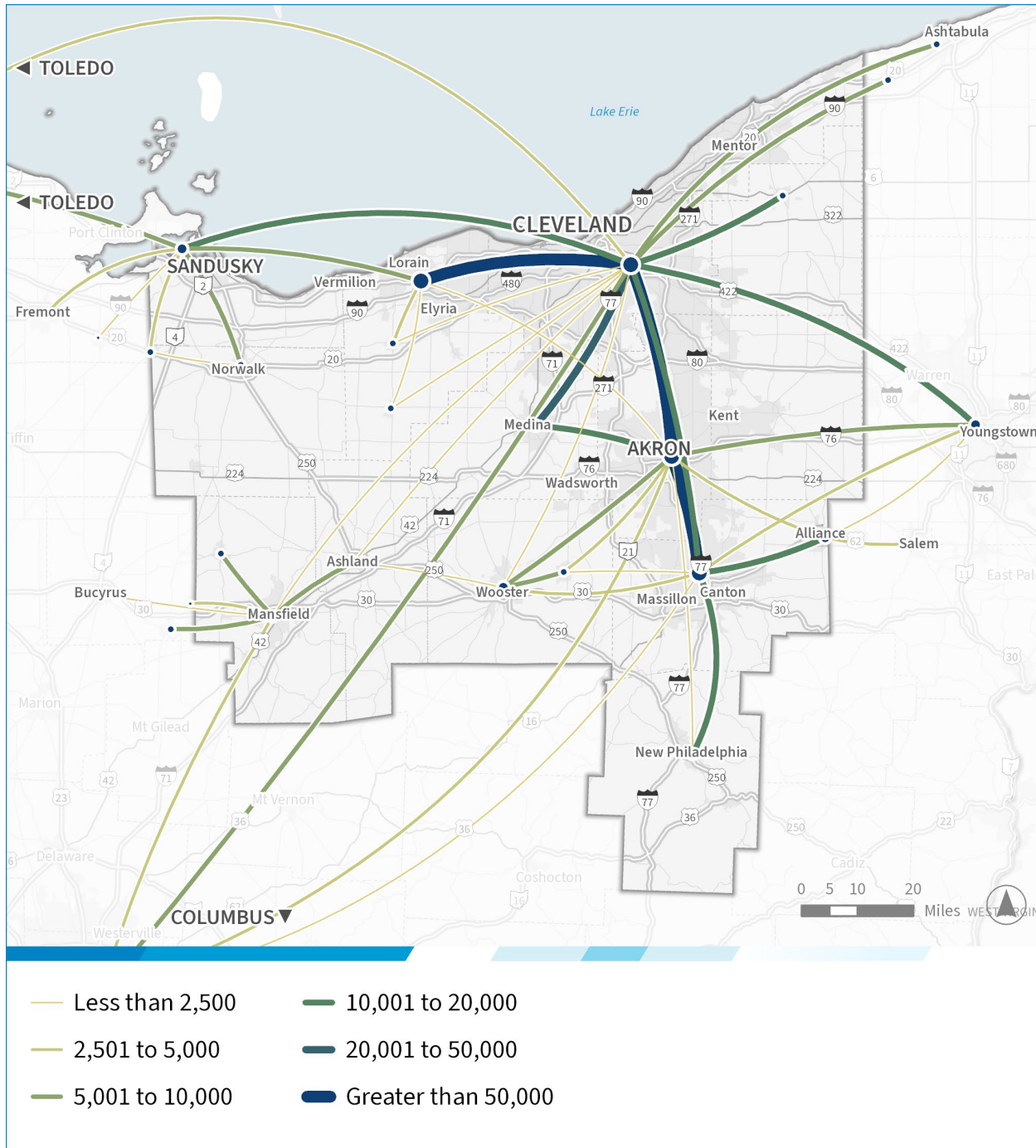
Figure 3.37 depicts the Cleveland urbanized area as the primary market hub in the region, along with other strong secondary market hubs at Sandusky, Akron, and Canton. The strongest connection shown, between the Cleveland and Lorain-Elyria urbanized areas, represents about 166,000 daily bi-directional trips, mostly using the I-90 and I-80/I-480 corridors. The Cleveland-Akron connection is similarly strong with nearly 160,000 daily trips between the two urbanized areas, while the daily bi-directional flows between Akron and Canton represent about 130,000 trips. The Cleveland-Akron and Akron-Canton markets have a deep combined history, with I-77 being the primary connection and a critical facility for the region.

The most prominent interregional OD flows are between the urbanized areas of Cleveland and Youngstown, with 14,100 daily bi-directional trips, Cleveland and Columbus via I-71 with 7,800 daily bi-directional trips, and Sandusky and Toledo with 5,600 daily bi-directional trips.

Figure 3.38 presents the 2023 AADT on the Study network in Northeast Ohio. Most of I-90, I-271, I-480, and I-71 within Cuyahoga County have daily traffic volumes of 100,000 or more. I-77 and I-76 in Akron carry daily traffic volumes of 100,000 or more. I-90 and I-71 in Lorain County and I-77 between Akron and Canton experience daily traffic volumes above 75,000. Since the region is so well connected with interstate routes, the only US highways with volumes above 25,000 per day are US20 in Lake County, US422 in Geauga County, and SR2 in Lorain and Erie counties. Other corridors, like US30 between Wooster and Canton and US62 east of Canton, carry volumes approaching 25,000 vehicles per day.



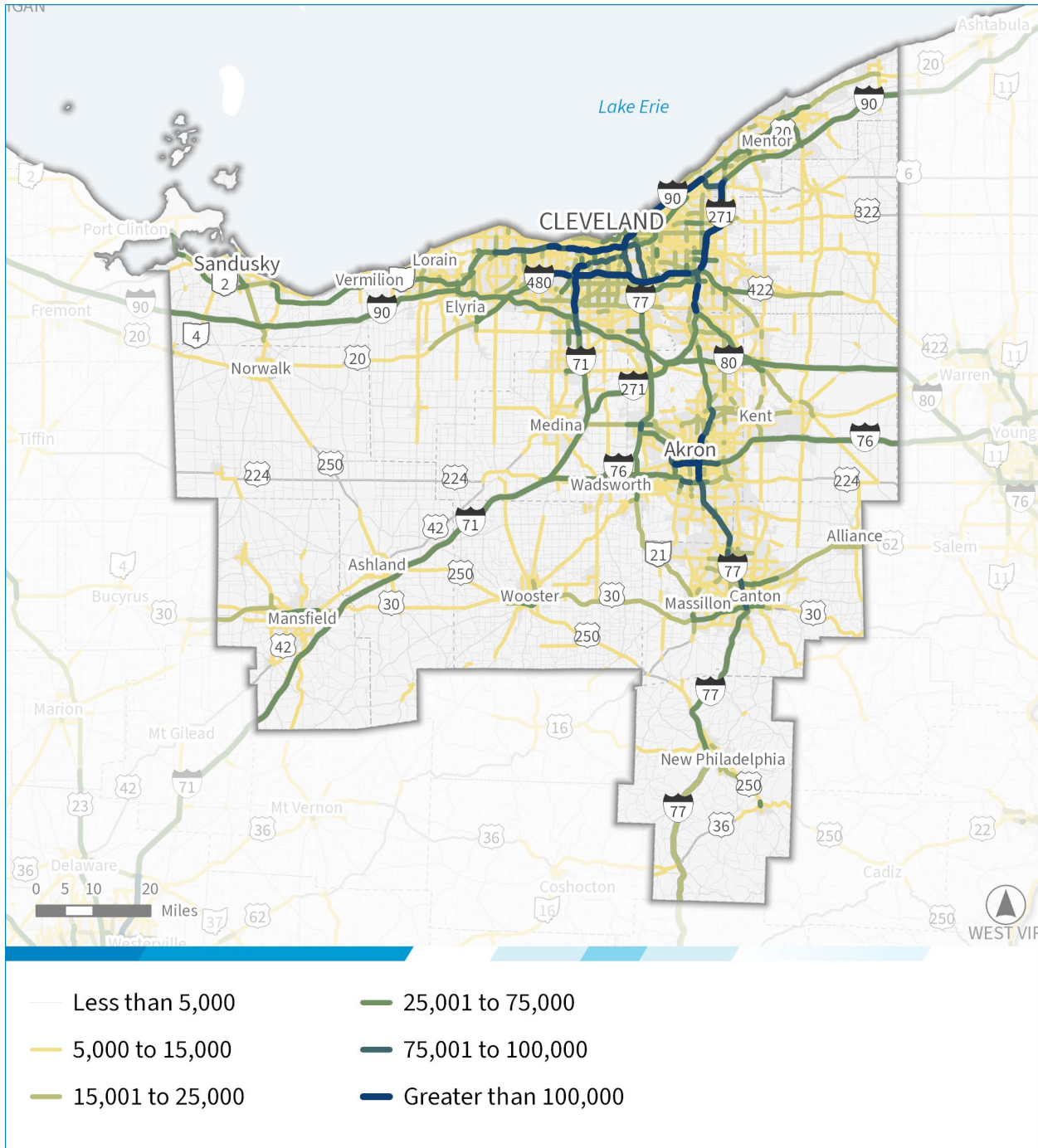
FIGURE 3.37—NORTHEAST OHIO DAILY TRIPS (2021)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



FIGURE 3.38—AVERAGE ANNUAL DAILY TRAFFIC (2023)



Source: ODOT, TIMS



The OSWM provides an estimate of auto and truck demand on the state highway system by trip origins and destinations within the region, coming into or leaving the region, and passing through the region. As shown in **Figure 3.39**, auto trips with both an origin and destination in the region are the largest demand segment, estimated at nearly 11.4 million daily trips, or 96% of all daily auto trips; 81% of truck trips are within the region. Across all trip types, trucks represent 3.7% of total daily vehicle trips.

FIGURE 3.39—NORTHEAST OHIO VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION (2025)

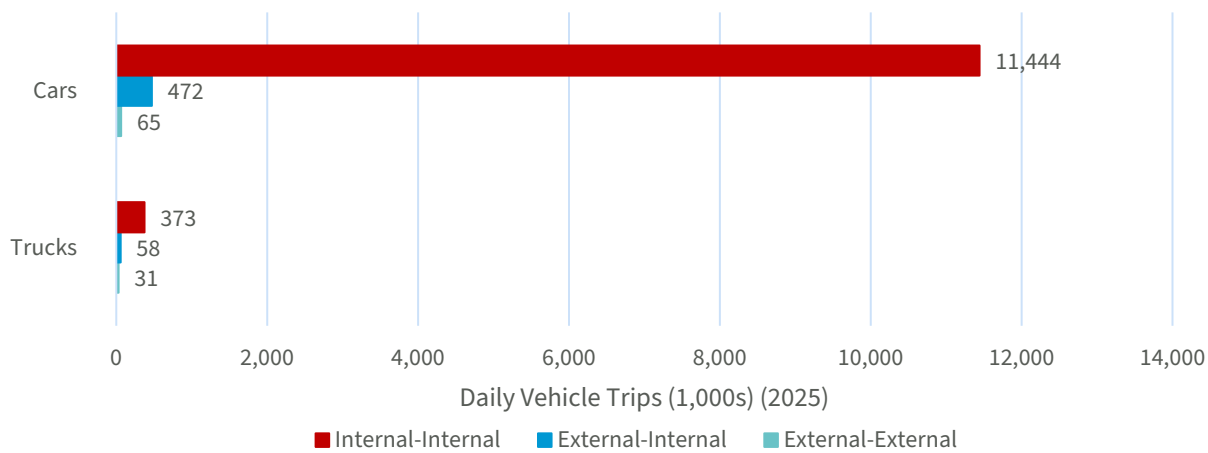


Figure 3.40 presents existing congestion based on a measure of peak period v/c, where values at 1.1 or above represent severe congestion, with stop-and-go traffic, and values from 0.9 to 1.1 reflect impactful slowdowns, where traffic is still moving. While congestion is not as widespread than in other Ohio regions, it represents potential hinderances to economic growth and development. This is particularly related to peak period commuting in Cleveland, Akron, and Canton and commercial vehicle traffic using I-480 and I-271 to distribute goods across the Cleveland region or to bypass the region for shipping goods along the I-80/I-90 corridors. The existing severe congestion risk locations include:

- 1. I-71 at I-480**—Congestion on the I-71 segment due south of I-480, west of Cleveland, is associated with multiple interchanges in a short segment between the Ohio Turnpike and I-480, and a combination of auto and truck traffic accessing the Ford Cleveland Engine Plant and Cleveland Hopkins International Airport, and local traffic accessing the Middleburg Heights and Brook Park communities. I-71 is a key commuting corridor into Cleveland from Stongsville and Medina County.
- 2. I-90 in Downtown Cleveland**—Congestion on I-90 is associated with the geometrics of the Innerbelt Curve, also known as Dead Man’s Curve, and the interchange with the Cleveland Memorial Shoreway and multiple interchange and ramps that access downtown Cleveland. The interchange with I-77 and Broadway, providing access to Progressive Field and Rocket Mortgage Fieldhouse in Cleveland, also experiences congestion during peak periods and events.

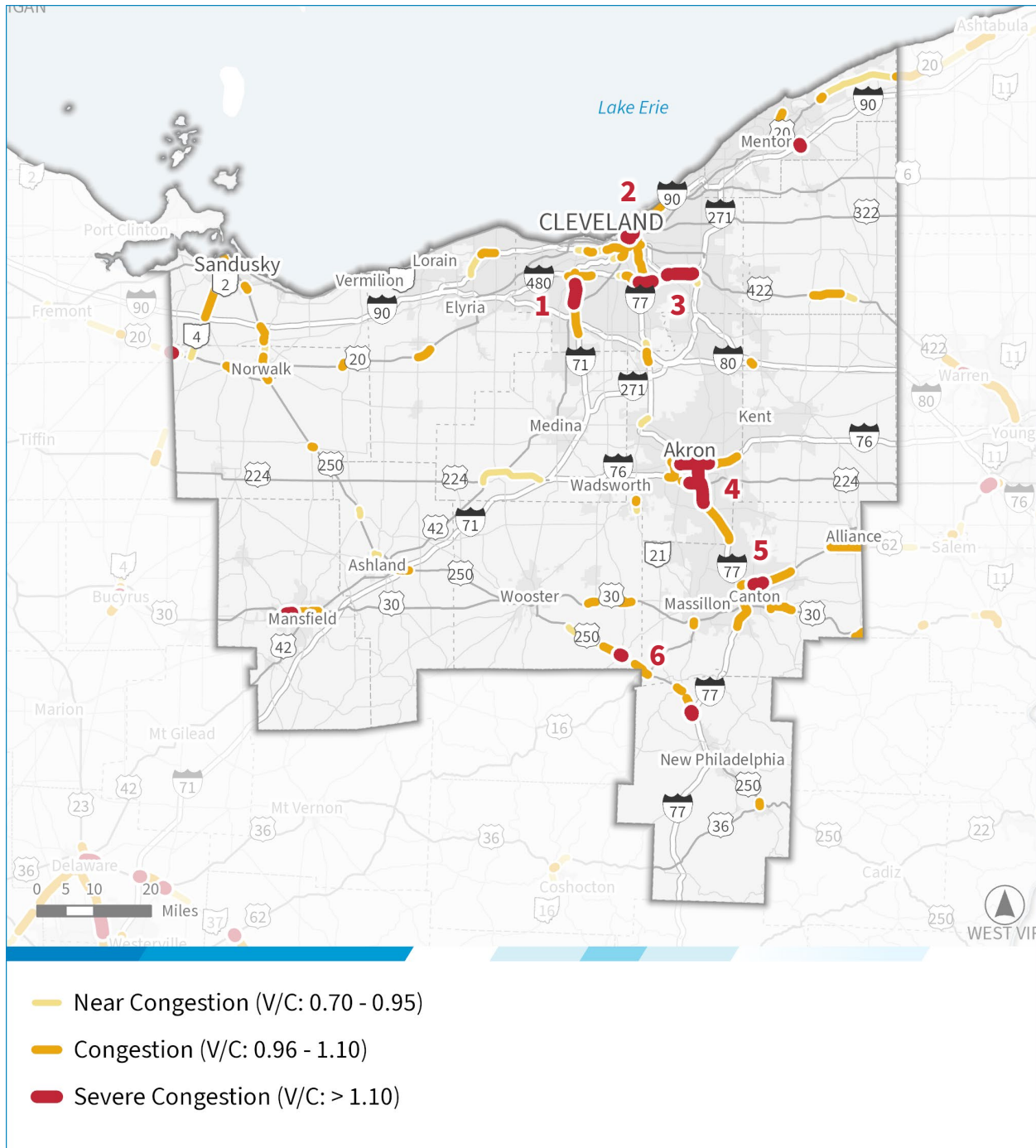


3. **I-480 from I-271/US422 to I-77**—These segments of I-480 provide a critical link into Cleveland for commuters and commercial vehicles coming from East Ohio, eastern suburbs of Cleveland, and longer distance trips using the Ohio Turnpike. Given this mix of vehicle trips, five major interchanges within this section, and the Cuyahoga River bridge, multiple bottleneck areas lead to severe congestion.
4. **I-77, I-76, and I-271 in Akron**—Severe congestion within the Akron innerbelt is a product of closely-spaced system-to-system interchanges, mixing flows of significant passenger and commercial vehicle traffic traversing east-west and north-south directions, and a number of ramps directly accessing downtown Akron and nearby neighborhoods.
5. **US62 North of Canton**—The US62 segment north of Canton is the primary corridor connecting Canton to Alliance and ultimately to markets in East Ohio. The segment of US62 east of Market Avenue has frequent driveways and signalized intersections, interrupting traffic flow and leading to congestion during peak periods.
6. **US250 at I-77 in Strasburg**—US250 through Strasburg and the interchange with I-77 experience severe congestion due in part to interchange geometry because of the area’s topography and the interaction with driveways and signalized intersections within Strasburg. US250 serves as a primary interregional connection between the Sandusky region and Southeast Ohio, and to I-77, West Virginia, and Virginia. As a result, it often facilitates recreational trips.

A few other small segments with **v/c ratios exceeding 0.90** exist on US250 through or near town centers and commercial areas in Milan, Norwalk, and Ashland; US30 in Mansfield; I-77 in Canton; US30 east of Canton; **I-90 east** and west of downtown Cleveland; and I-77 from I-480 to I-490.



FIGURE 3.40—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME TO CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Development Trends and Future System Demand and Risk

Cleveland, with its shipping connections along Lake Erie, quickly ascended and became a national industrial center during the first half of the 20th century. Cleveland developed specializations in automobiles, steel, and a diversity of other manufacturing activities and corporations, including Standard Oil. The Cleveland metropolitan region also developed strong trading relationships with other industrial centers, particularly Michigan—automotive and Western Pennsylvania—steel, and close ties to smaller industrial cities in Northeast Ohio, namely Akron, Canton, and Youngstown. Today, much of Cleveland is less of an industrial center and more diversified as a center for the finance and insurance sectors. It is also a national leader in health care, thanks to the Cleveland Clinic.

In 2022, the Cleveland-Elyria MSA generated nearly \$163 billion in GDP, making it the 35th largest metropolitan economy among MSAs in the US. The Cleveland MSA ranked third among MSAs in Ohio in terms of GDP, population, total employment, and wage and salary employment. From 2017 to 2022, the Cleveland MSA lost nearly 25,000 residents and more than 7,000 wage and salary jobs, both 1% decreases. Despite these losses, the Cleveland MSA gained 4.6% in total jobs while increasing Real GDP by \$9.6 billion (+7.5%), the third largest increase among Ohio's MSAs.

Since the 1980s, the Cleveland area has steadily lost population in the urban core and become more suburban, with recent growth directed to the south and west. Between 2017 and 2022, Lorain County, to the west of Cleveland in the I-90 corridor along Lake Erie, added almost 8,000 residents (+2.5%), the sixth largest absolute gain in population among Ohio's counties. During the same period, Lorain County lost about 2,000 wage and salary jobs (-2%), but due to self-employment had a net gain of more than 6,000 jobs (5%), gaining just 1% in Real GDP. Medina County, to the south of Cleveland (I-71), increased its population during 2017-2022 by about 4,000 (+2%), but experienced flat growth in wage and salary jobs and Real GDP. At the Cleveland MSA's core, Cuyahoga County lost more than 36,000 residents between 2017 and 2022 (-3%), the single largest decline in population among Ohio counties. Cuyahoga County also lost more than 4,000 wage and salary jobs, the sixth most among Ohio counties. Due to self-employment, however, Cuyahoga County registered a net gain of more than 41,000 jobs, the second highest among Ohio counties; and saw its Real GDP increase by more than \$9 billion (+10%), also the second largest increase among Ohio counties.

Other Northeast Ohio cities also have developed specializations of their own, such as rubber in Akron and machinery in Canton. These industrial centers developed close trading relationships with industries in Cleveland, Western Pennsylvania, and West Virginia. In 2022, the Akron MSA generated nearly \$45 billion in GDP, making it the 86th largest metropolitan economy among MSAs in the US. It fell just behind Toledo in the national rankings but remained the fifth largest MSA in Ohio in terms of population, ahead of Toledo, despite a 1% decline in population. Akron gained \$1.3 billion in Real GDP between 2017 and 2022 (+3.5%), while losing more than 5,000 wage and salary jobs (-1.5%) and gaining 3.5% in total jobs. The Akron MSA remains a center for the rubber tire industry and other chemical product manufacturers. Its proximity to the Cleveland MSA and Canton MSA enables Akron to provide regional health care and other professional services to businesses and households in these major markets.

In 2022, the Canton-Massillon MSA generated nearly \$23 billion in GDP, making it the 149th largest metropolitan economy among MSAs in the US. The Canton MSA was the only major MSA in Ohio that did not grow in Real GDP between 2017 and 2022, declining by less than half a percent, while losing more than 3,000 residents (-1%). The MSA also lost more than 5,500 wage and salary jobs (-3%) during this period while gaining more than 2% in total jobs. Once the home of Hoover vacuum cleaners, which moved its production elsewhere, the Canton metropolitan area continues



to retain some of its manufacturing base and has evolved a stronger retail sector. Canton’s proximity to the Akron metropolitan area remains an important intermarket linkage.

As depicted in **Figure 3.41**, development over the last decade in Northeast Ohio, in terms of household and job growth and land use change, increase in impervious surface, has primarily occurred in northern Medina County and throughout Lorain County, particularly in Strongsville, North Ridgeville, Avon, Avon Lake, and Sheffield Lake. This includes continued strength and growth of supporting businesses to the Ford Ohio Truck Assembly plant in Avon Lake and new residential development near the lakefront. Development has occurred in southeast Cuyahoga, northeast Summit, and west Portage counties generally in the areas bounded by Kent, Streetsboro, Aurora, and Twinsburg. Much of this development is occurring through large single family residential communities along with light industrial and warehousing near I-480 and the Ohio Turnpike. Residential development within Stark County has primarily happened in North Canton and Greentown, with new industrial development along I-77 near the Akron-Canton Regional Airport.

The three population growth forecasts for the region show a continued trend of population decline, ranging from a decline of 644,000 residents (-15% loss) through 2055 in the baseline scenario to a decline of 298,000 residents (7% loss) in the high scenario. This decline is not uniform across the region, with some locations projected to decline less than the regional average, like Medina, Portage, and Wayne counties, or even show growth, in Geauga and Lorain, from 2025 to 2055 in the baseline scenario. In the high growth scenario, Geauga, Lorain, and Medina counties see a population increase of over 63,000 residents. In the baseline scenario, Cuyahoga and Summit counties see a total decline of nearly 350,000 residents, 54% of the projected regional decline. Every other county is forecasted to see similar percentage declines, around 12% to 15% in the baseline scenario, through 2055.

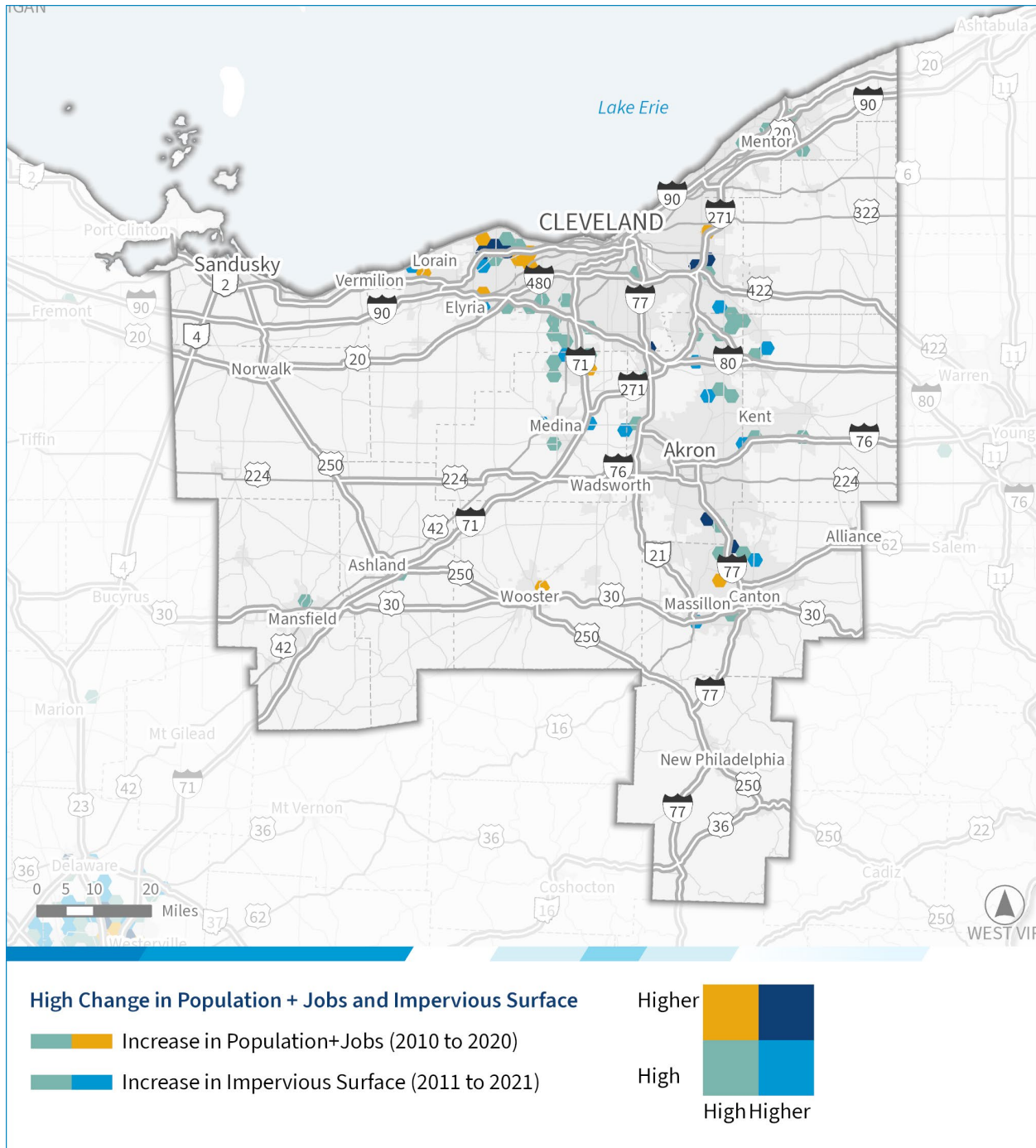
Even with this population decline, daily VMT on the Study network in the Northeast Region is forecast to increase in the baseline scenario, as presented in **Table 3.12**. This increase is primarily driven by a 45% growth in truck VMT. VHT are forecast to remain unchanged through 2055. **Figure 3.42** presents the resulting change in AADT through 2055 in the baseline scenario, showing anticipated growth particularly on the Ohio Turnpike, I-71, and I-77 south of Canton, with declines on Study network facilities in Cleveland and Akron.

TABLE 3.12—NORTHEAST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|--------------------|--------------------|----------------|
| Auto VMT | 119,688,294 | 114,928,774 | -4% |
| Truck VMT | 19,635,670 | 28,374,700 | 45% |
| Total VMT | 139,323,965 | 143,303,474 | 3% |
| Auto VHT | 2,598,334 | 2,461,768 | -5% |
| Truck VHT | 328,447 | 461,645 | 41% |
| Total VHT | 2,926,781 | 2,923,413 | 0% |



FIGURE 3.41—NORTHEAST OHIO DEVELOPMENT TREND



Source: NLCD, US Census



FIGURE 3.42—NORTHEAST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

A risk-based approach was conducted to identify congestion risk outcomes across scenarios. This view of risk is consistent with language in H.B. 23 including, “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four congestion-oriented questions and a question on access control and are aggregated into a composite congestion risk in **Figure 3.43** and summarized across 15 grouped hotspots in **Table 3.13**. Note that in some segments of the Study network, such as I-71 and I-480 in Cleveland, area-specific congestion risks, or hotspots, have declined from 2025 to 2055 in part due to projected volume decreases.

Risk of peak-period congestion—Where do Study corridors experience severe congestion during the peak period across each scenario in 2055?

- Locations that experience peak period congestion in 2025 are projected to continue to experience peak period congestion through 2055, even as AADT remains stable or declines particularly I-90, I-480, I-76—the Akron innerbelt, I-77, and within the cores of the Akron and Cleveland regions. Other than these locations, there are only small and isolated facilities with peak period congestion in Northeast Ohio.

Congestion impacts of site development—Where do Study corridors see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- Northeast Ohio has two locations where site development congestion is considered a major risk, due west of Canton on US30 and US62 near Massillon, and I-77 in Akron. The Massillon area risk is due to three priority development sites west of Canton creating potential congestion concerns for US30. The Akron risk is due more to system-level impacts of priority development site buildout in Northeast Ohio and additional traffic distributed through I-76 and I-77 in Akron.

Workforce access congestion—For areas where access to the workforce within 40 minutes is projected to decline between 2025 and 2055, as presented in **Chapter 2**, workforce section, what Study corridor bottlenecks contribute to this decline?

- The region is expected to experience very limited workforce access risk by 2055. This is largely due to the expectation of a declining or stable population and an expected decline in AADT along the corridors that are already experiencing congestion. **Minor workforce access risks exist in Akron and Cleveland along the segments of interstate highways identified as key congestion locations** in the region.

Freight bottlenecks—Where do Study corridors experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- **Major truck bottlenecks are not expected in Northeast Ohio by 2055 on the Study network.** The economic landscape and existing capacity are such that freight vehicles and freight activity are unimpacted. This gives Northeast Ohio unique opportunities to deploy resources toward target industries and their needs.

Access control—What are the locations on the Study network where lack of access control in areas of forecasted development could contribute to future congestion?

- US20 in Lorain County could see congestion risk from current and future growth and no access control.



FIGURE 3.43—NORTHEAST OHIO CONGESTION RISK (2055 HOTSPOTS)

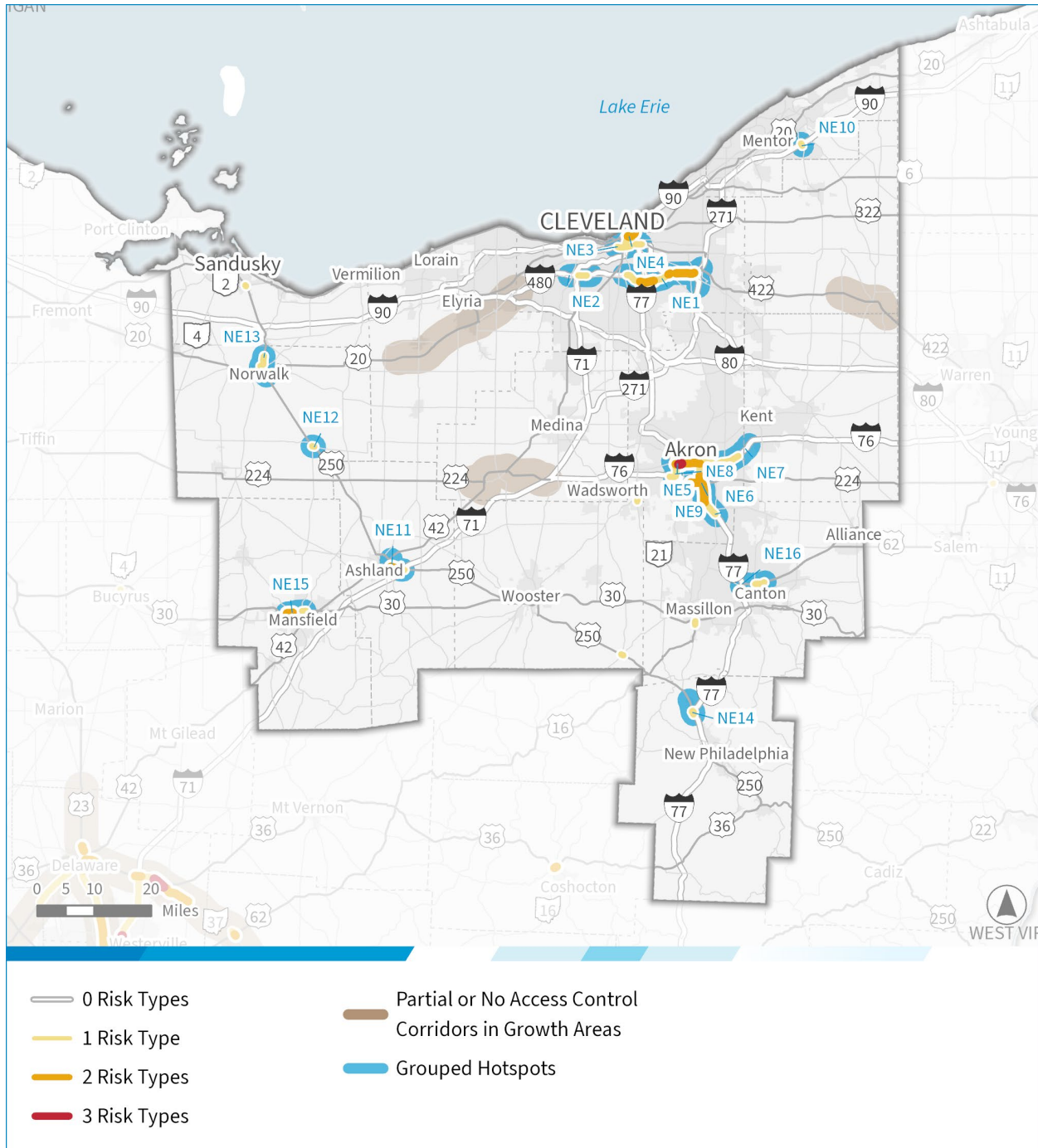


TABLE 3.13—NORTHEAST OHIO CONGESTION RISK (HOTSPOT) LOCATIONS

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|--|--|---|-------------------------------|
| NE1: I-480 (I-271 to SR176) | Multiple congestion risks from I-271 to I-77 to SR176 | Today | Medium |
| NE2: I-480 (W 130th to SR237) | Limited congestion risks from W 130th Street to Cleveland Hopkins Airport (SR237) | 2035 and beyond | Low |
| NE3: I-90/I-490 (I-77 to I-71 to W 44th) | Limited congestion risks from I-77 to I-71 to W 44th Street | 2035 and beyond | Low |
| NE4: I-90 (SR283 to I-490) | Multiple congestion risks from SR283 to SR3, I-90, and I-490 | Today | Medium |
| NE5: I-76/I-77 (I-77N/I-76W to I-77S) | Multiple congestion risks from I-76W/I-77N interchange to I-77S interchange, including 3+ risks between I-77 and SR93 interchanges | Today | High |
| NE6: I-77 (I-76 to SR241) | Multiple congestion risks from I-77N/I-76 interchange to US224 to SR241 | Today | Medium |
| NE7: I-76 (I-77S to SR532) | Limited congestion risk from I-77S interchange to SR532 | Today | Low |
| NE8: I-76 (SR619/East Avenue to I-77N) | Limited congestion risk from SR619/East Avenue to I-277 to I-77N interchange | Today | Low |
| NE9: I-277 (S. Main St. to I-77) | Multiple congestion risks from S. Main St. to I-77 interchange | Today | Medium |
| NE10: SR44 (Painesville) | Limited congestion risk at SR44 / I-90 interchange in Painesville | 2035 and beyond | Low |
| NE11: US250 (Ashland) | Multiple congestion risks from US42 to I-71 | 2035 and beyond | Medium |
| NE12: US250 (Fitchville) | Limited congestion risk at merge of US250 with SR162 in Fitchville | 2035 and beyond | Low |
| NE13: US250 (Norwalk) | Limited congestion risk on US250/SR13 north of Norwalk | 2035 and beyond | Low |
| NE14: US250 (Strasburg) | Limited congestion risk at US250 / I-77 interchange in Strasburg | 2035 and beyond | Low |
| NE15: US30 (Mansfield) | Multiple congestion risks on US30 between Trimble Road and SR39 | Today | Medium |
| NE16: US62 (I-77 to Columbus Road) | Limited congestion risk between SR43 and 34 th Street intersection (before divided section) | 2035 and beyond | Low |



Regional Plans

Northeast Ohio is comprised of 14 counties represented by five MPOs and one RTPO:

- Northeast Ohio Areawide Coordinating Agency (NOACA) representing Lorain, Medina, Cuyahoga, Geauga, and Lake counties
- Akron Metropolitan Area Transportation Study (AMATS) representing Summit and Portage counties
- Stark County Area Transportation Study (SCATS) representing Stark County
- Richland County Regional Planning Commission (RCRPC) representing Richland County
- Erie Regional Planning Commission (ERPC) representing Erie County
- Ohio Mid-Eastern Governments Association (OMEGA) representing Tuscarawas County

Three counties—Wayne, Ashland, and Huron—are not represented currently by an MPO or RTPO, but are members of the JobsOhio regional network partner, TeamNeo. Highlights from these current LRTPs are presented in **Table 3.14**. Notably, three of these regions, Akron, Mansfield, and Canton are currently updating their LRTPs. A common theme in these plans is a focus on redevelopment opportunities, preservation of aging infrastructure, and strategic highway capacity and transit service expansion to support economic development, enhance safety and accessibility, and help support community goals.

Additional details on local and regional development trends and priorities are based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of Comprehensive Economic Development Strategy (CEDS) and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.

TABLE 3.14—NORTHEAST OHIO MPO AND RTPO LONG RANGE TRANSPORTATION PLAN HIGHLIGHTS

| Lead Agency | Name | Status |
|--|-------------------------------------|-----------|
| Metropolitan Planning Organizations | | |
| AMATS (Akron) | Transportation Outlook 2045 | Ongoing |
| The greater Akron area’s population is expected to grow by 2.4% between 2010 and 2045. Areas of population growth are anticipated in western Portage and southern Summit counties. This is a continuation of the trend of low-density residential development on previously undeveloped land. AMATS proactively coordinates land use issues with local communities to ensure that communities are aware of the potential impacts of new development. Over \$5 billion in highway investments are identified in Transportation Outlook 2045, with \$4.7 billion associated with system preservation. AMATS is currently developing Transportation Outlook 2050. | | |
| ERPC (Sandusky) | 2045 Long Range Transportation Plan | July 2020 |
| Forecasts from ODOD, used for the LRTP, reflect a 19% decline in population through 2045. Commercial and nearby residential growth along US250 from Bogart to the Ohio Turnpike is a key area of investment focus within the LRTP, as is support for maintaining reliable and safe access for all transportation modes to tourism destinations along the lakeshore. | | |



| Lead Agency | Name | Status |
|---------------------------------|--------------------------|-----------|
| <u>NOACA (Cleveland)</u> | eNEO2050 Long Range Plan | June 2021 |

eNEO 2050 presents opportunities for the region to upgrade the legacy assets as well as enhance and reinvest into infrastructure that strengthens regional economies and advances each community. Workforce mobility is a key component to this plan. To address this dilemma of maintaining expansive and underutilized infrastructure, the region continues to prioritize investment, policies, and partnerships that enable it to attract talent through more diversified land use and housing stock in rapid transit-accessible neighborhoods.

| | | |
|---------------------------------|----------------------|---------|
| <u>RCRPC (Mansfield)</u> | Looking Forward 2045 | Ongoing |
|---------------------------------|----------------------|---------|

Half of the Richland County population, 125,319 in 2022, lives in the cities of Mansfield, Shelby, and Ontario. The region is predicted to gradually lose population through 2045, declining to 115,000 based on projections in 2018. RCRPC is currently in the process of developing its next LRTP, Looking Forward 2050.

| | | |
|------------------------------|---------------------------|----------|
| <u>SCATS (Canton)</u> | Moving Stark Forward 2050 | May 2021 |
|------------------------------|---------------------------|----------|

Stark County’s population is anticipated to decline by 4%, a loss of around 15,000 residents, through 2050. The [2040 Comprehensive Plan](#) includes a future land use map which prioritizes growth along existing transportation corridors and within developed areas, primarily Massillon to Canton to Louisville and northward including North Canton, Jackson, Lake, and Plain townships. The plan identifies I-77, US30, and US62 as key corridors and includes significant capacity-adding projects, particularly on US30, to manage congestion, safety, and system continuity issues.

Regional Transportation Planning Organization

| | | |
|---|--|-----------|
| <u>OMEGA (Mid-Eastern Ohio RTPO)</u> | 2020-2045 Regional Transportation & Development Plan— Mapping a Route Forward to a Strong & Resilient Region | June 2020 |
|---|--|-----------|

The OMEGA region is forecast by ODOD to lose 1.66% of its population between 2018 and 2040. While people have moved away for opportunities in larger urban areas, the presence of petrochemical and logistics industries have been expanding. The region is preparing for additional growth, but it is anticipated to be at a slower rate than urbanized areas in the state. The plan identifies four regional goals: preserve regional assets to support local economies, increase the safety of regional infrastructure, facilitate economic and community development, and develop and maintain regional resiliency.



East Ohio

East Ohio is the smallest region in the state. It borders Lake Erie to the north, Pennsylvania to the east, and West Virginia to the south. The area is predominantly suburban and rural with high density urban pockets in Warren and Youngstown. Economic assets include two ports, several universities, multiple hospitals, and multimodal facilities. The region has a population of 622,996, with about 72% of the regional population residing in urban areas in Mahoning and Trumbull counties, including Youngstown, Warren, and nearby communities as shown in **Figure 3.44**. The region has seen some population growth east and south of Youngstown in areas like Smith Corners, Canfield, Meadowood, and New Middletown, and east of Warren along SR11 in Howland Center as presented in **Figure 3.45**.

The area faces a number of challenges including low levels of educational attainment, a need for workforce training, underinvestment in disadvantaged communities, and a high rate of poverty. Approximately 10% to 20% of the adult population does not have a high school diploma and 40% have earned at most a high school diploma. From 2010 to 2020, the region's population decreased by 28,431 residents, a 4.3% decline, as residents moved in search of better economic prospects and employment opportunities. This decline has continued since 2020, with an additional loss of 7,046 residents through 2023. From 1990 to 2020, the regional population declined by 77,720 residents or 10.1%, the highest total and percent decrease of the seven regions.

The primary industries in this region are manufacturing and agriculture. Manufacturing focuses on steel production, advanced materials and machinery, automotive parts, and metalworking. Jobs in manufacturing have declined significantly, creating brownfield sites with adverse impacts on public health. Promising economic growth and burgeoning industries like tourism and recreation, healthcare, green energy jobs, and education have added some jobs to the region. Some manufacturing jobs are also returning, including the Ultium Cells plant in Lordstown which began initial cell production in August 2022 and currently employs 1,700 people in high-tech jobs. The plant supplies battery cells to various GM facilities throughout North America, using advanced battery cell manufacturing processes.

Lake to River Economic Development, the new JobsOhio Network partner representing the four-county region of Ashtabula, Trumbull, Mahoning, and Columbiana counties, focuses on economic revitalization in East Ohio. The organization is leveraging existing resources, such as an abundance of land, corridors that connect to major economic and cultural hubs, and a workforce with manufacturing experience to spur construction and train job seekers for jobs in electrification. Strong workforce development programs exist to support growth in the region, including Youngstown State University, Mahoning Valley Manufacturers Coalition, and the more than 20 partners that came together in 2020 to execute the [JobsOhio's Ohio To Work](#) program and formed the Regional Workforce Coalition. These regional partnerships helped create the impetus for Lake to River and will be important to support funding for economic development and creating a shared vision focusing on the Mahoning Valley's unique needs.

East Ohio is the gateway region to Northeast and Mid-Atlantic markets and supports a variety of economic assets including two ports, several universities, major health care facilities, intermodal freight hubs, and historic manufacturing centers.



FIGURE 3.44—EAST OHIO COUNTIES AND DESIGNATIONS

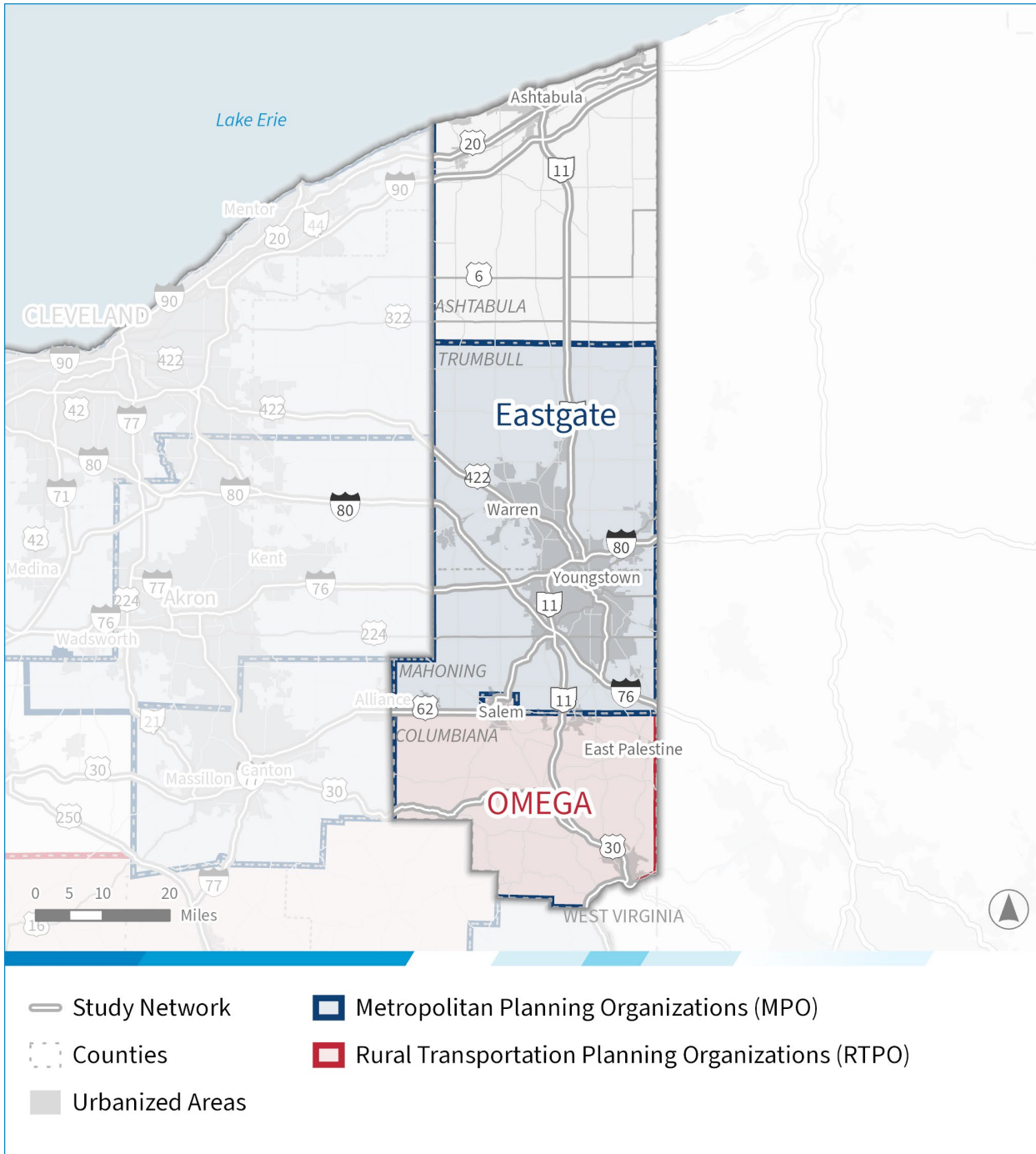
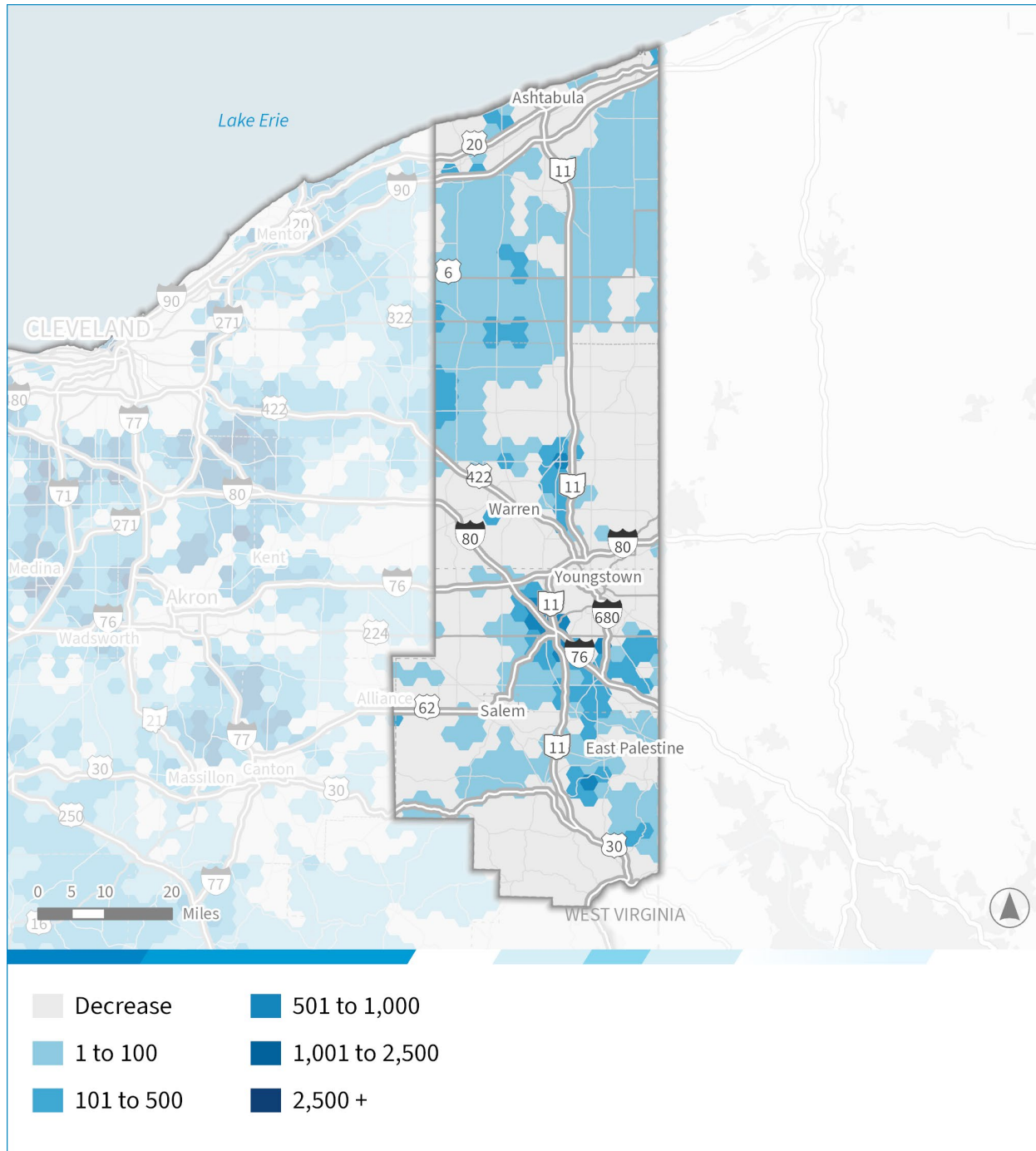


FIGURE 3.45—EAST OHIO POPULATION CHANGE (1990–2020)



Source: US Decennial Census, 1990, 2020



System Overview

The Study network totals 296 miles within East Ohio, as presented in **Table 3.15**, accounting for 7% of total statewide Study network miles. Approximately 36% of the Study network mileage in the region is comprised of interstate highways, including the Ohio Turnpike (segments of I-80 and I-76 in the region), non-tolled sections of I-76 and I-80, I-90, and I-680 through Youngstown. Another 33% of the Study network mileage in the region is US highways, including US30, US20, US62, and US422. SR11 is the primary north-south corridor connecting Ashtabula to Warren, Youngstown, and East Liverpool on the Ohio River.

TABLE 3.15—STUDY NETWORK IN EAST OHIO

| Route Type | Mileage | Percent of Total |
|-----------------------|------------|------------------|
| Interstate | 107 | 36.1% |
| US Highways | 97 | 32.7% |
| State Highways | 93 | 31.2% |
| Total | 296 | |

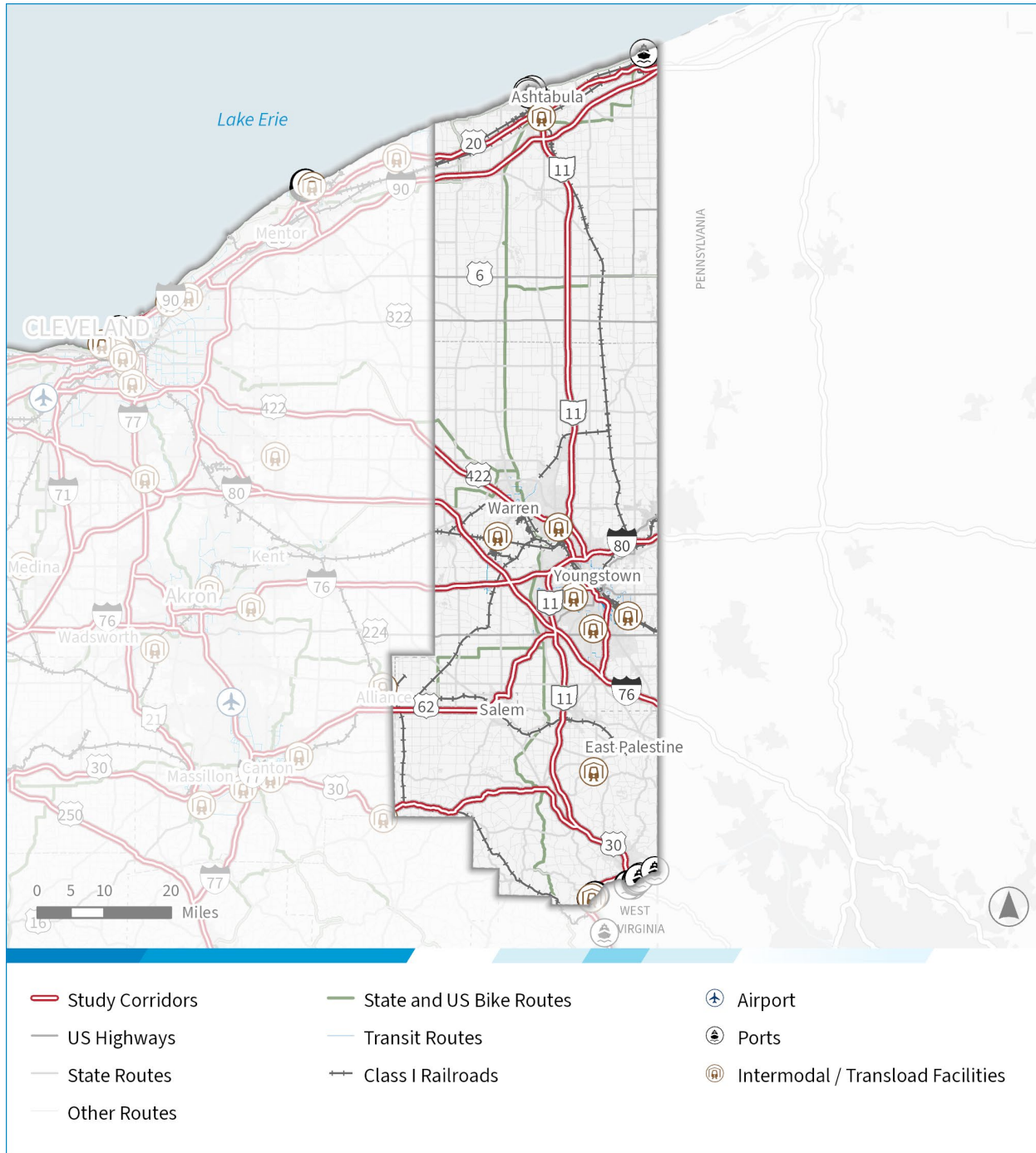
*Note: Mileage does not include ramps associated with Study network interchanges.

The Study network in East Ohio facilitates both intraregional and interregional travel. **Figure 3.46** presents the East Ohio Study network, which includes the following routes:

- I-90 and US20 traverse Ashtabula County in the north and provide a connection between rural communities including Geneva, Ashtabula, North Kingsville, and Conneaut as well as to two marine terminals and an intermodal facility. I-90 sees significant through truck traffic in this area, facilitating goods movement from the Cleveland and Akron regions toward Erie, Buffalo, and western New York.
- SR11 travels through all four counties in the region and is the main corridor providing a north-south connection. The corridor is an important freight route connecting directly to Lake Erie's marine terminals in Ashtabula and barge facilities in East Liverpool on the Ohio River. SR11 is a partial access control facility for its entire length within the East Region.
- I-80 travels east to west through the communities of Lordstown, Austintown, Girard, and Churchill in Trumbull and Mahoning counties, providing a direct connection between the Cleveland area to Youngstown and into west central Pennsylvania. US422 is an alternative route connecting Youngstown to Warren and into the eastern suburbs of Cleveland. I-480 provides a direct, limited access connection from I-80 into Youngstown and connects Youngstown to the Ohio Turnpike, I-76, for the most direct connection toward Pittsburgh.
- I-76 is the primary east-west corridor connecting Akron to Youngstown and east toward Pittsburgh.
- US62 provides a connection between Canton and Youngstown, as well as Salem, and primarily has no access control and is a two-lane facility in some areas.
- US30 connects Canton to rural communities across Columbiana County and into East Liverpool. Beyond East Liverpool, US30 passes through West Virginia and then into Pennsylvania. Pittsburgh International Airport is approximately 24 miles from East Liverpool on US30.



FIGURE 3.46—EAST OHIO TRANSPORTATION SYSTEM



Existing Travel Patterns and Congestion

This section describes existing volumes, travel patterns, and congestion on the Study network in East Ohio. Estimates of average daily traffic between OD pairs from Streetlight were used to derive bi-directional flows of vehicle trips relevant to East Ohio between urbanized areas. These include parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.47** presents daily trips starting or ending in East Ohio highlighting the top 50 OD pairs by daily volume. Trips outside the state are not included.

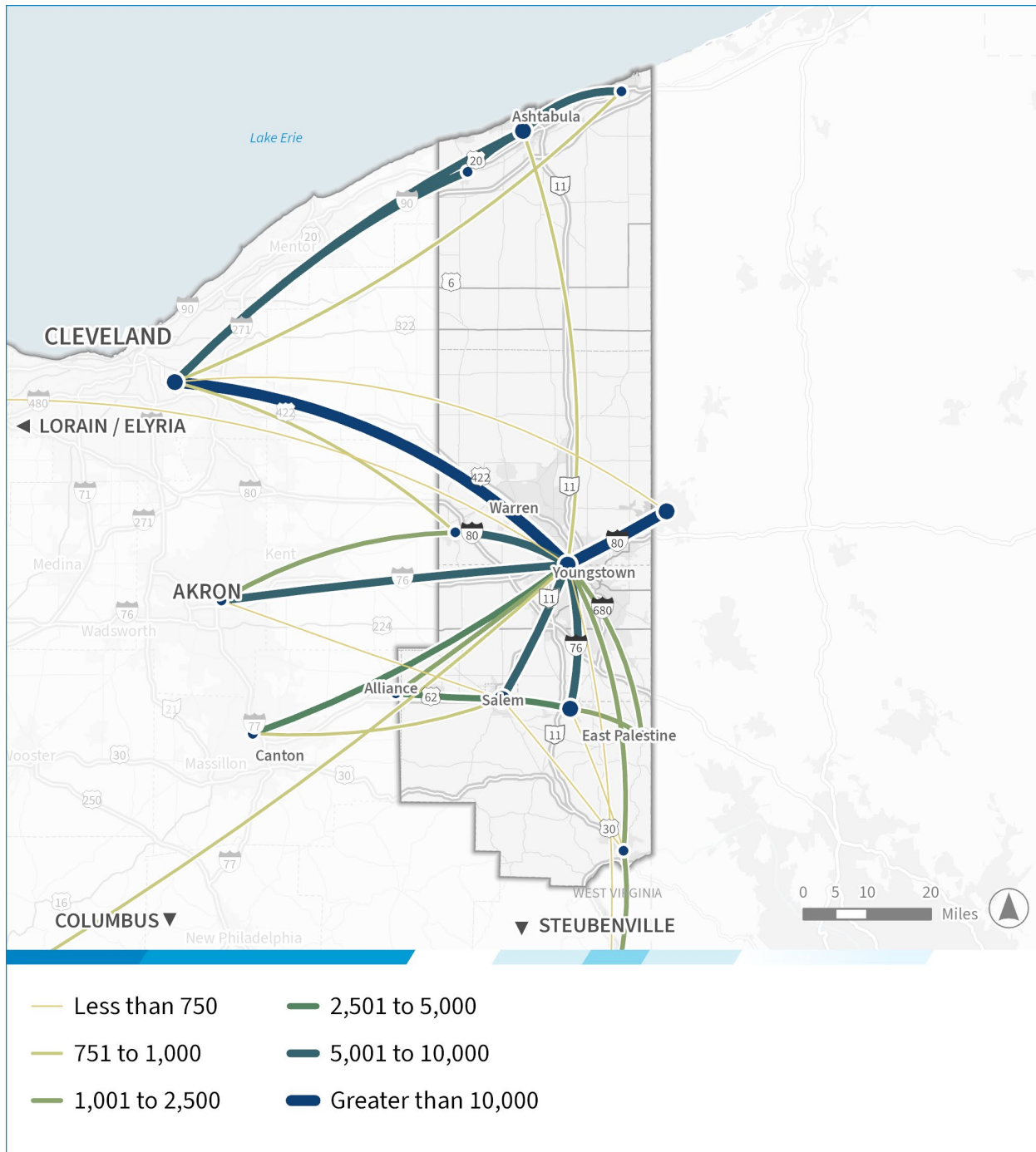
As a close neighbor to Northeast Ohio, particularly the Cleveland, Akron, and Canton markets, and Pennsylvania, particularly the Pittsburgh market, the region's Study network supports several major interregional and interstate connections. As depicted on the map, the Youngstown urbanized area serves as the primary market hub for numerous smaller urbanized areas in the East Ohio region, particularly to the south for communities like Alliance, Salem, Columbiana, and East Palestine, and to the northwest for Lordstown and Warren. However, the largest OD flow shown on the map is between the Youngstown urbanized area and the urbanized area of Sharon-Hermitage, which is mostly in Pennsylvania and represents a bi-directional flow of about 17,600 daily trips.

Interregional OD flows Figure prominently in the East Ohio region. As depicted on the map, the Youngstown-Cleveland connection represents more than 14,100 daily trips between these urbanized areas, much of it via US422. The Youngstown-Akron connection represents more than 9,800 daily trips between these urbanized areas, relying heavily on I-76. In addition, lakefront communities in the East Ohio region, such as Geneva, Ashtabula, and Conneaut show strong interregional connections to the Cleveland urbanized area via I-90. Along the Ohio River, there is a prominent connection between the urbanized areas of East Liverpool and Steubenville.

Figure 3.48 presents the 2023 AADT on the Study network facilities in East Ohio. I-80 between the Ohio Turnpike and I-680 interchange has the highest daily volume in the region, between 52,000 and 57,000 vehicles per day. I-680 in downtown Youngstown also surpasses 50,000 vehicles per day. SR11 between Youngstown and Warren and SR5 around Warren are the only non-interstate facilities in East Ohio with an AADT of over 25,000 vehicles per day.



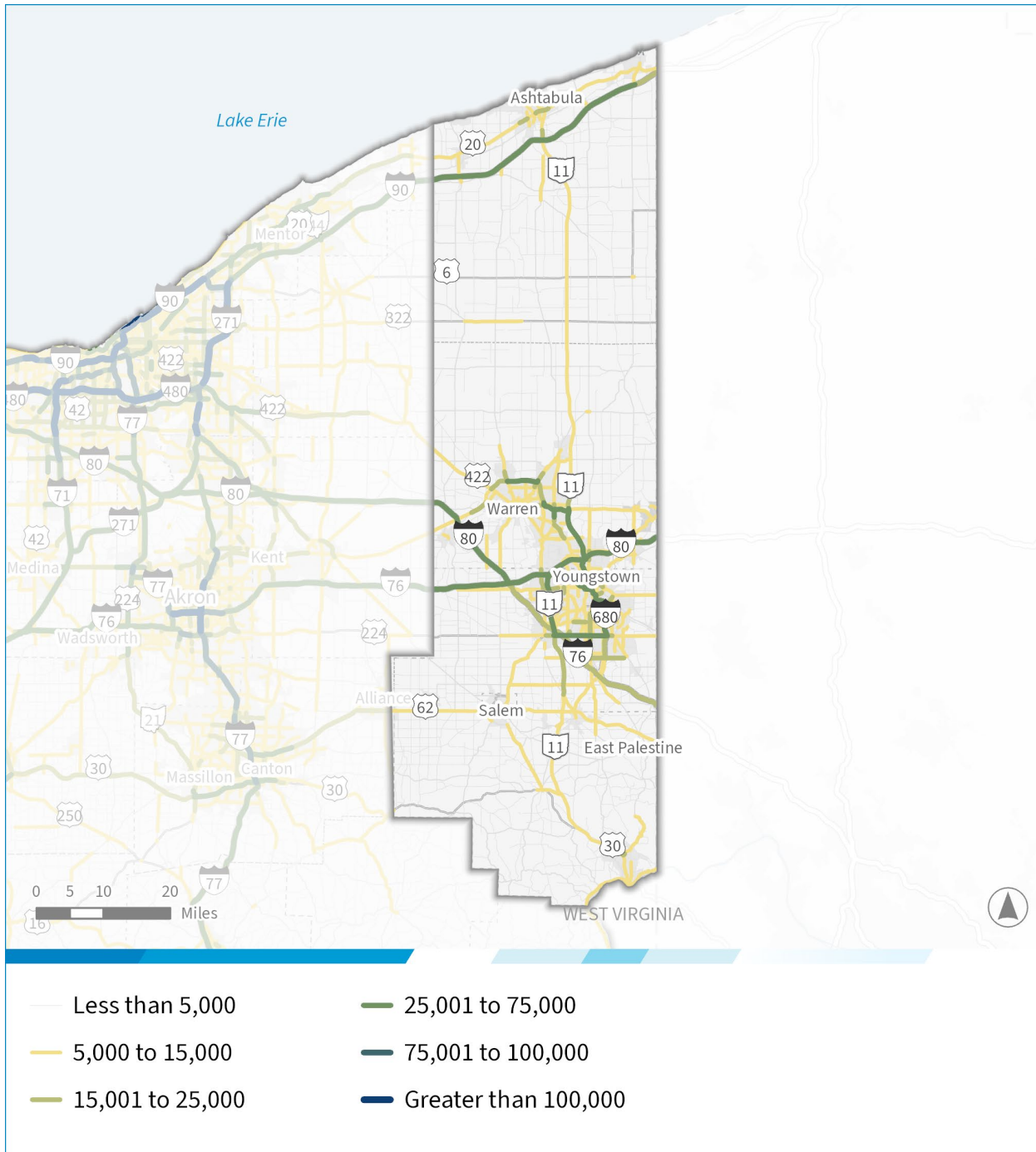
FIGURE 3.47—EAST OHIO DAILY AUTO AND TRUCK TRIPS (2025)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



FIGURE 3.48—AVERAGE ANNUAL DAILY TRAFFIC (2023)

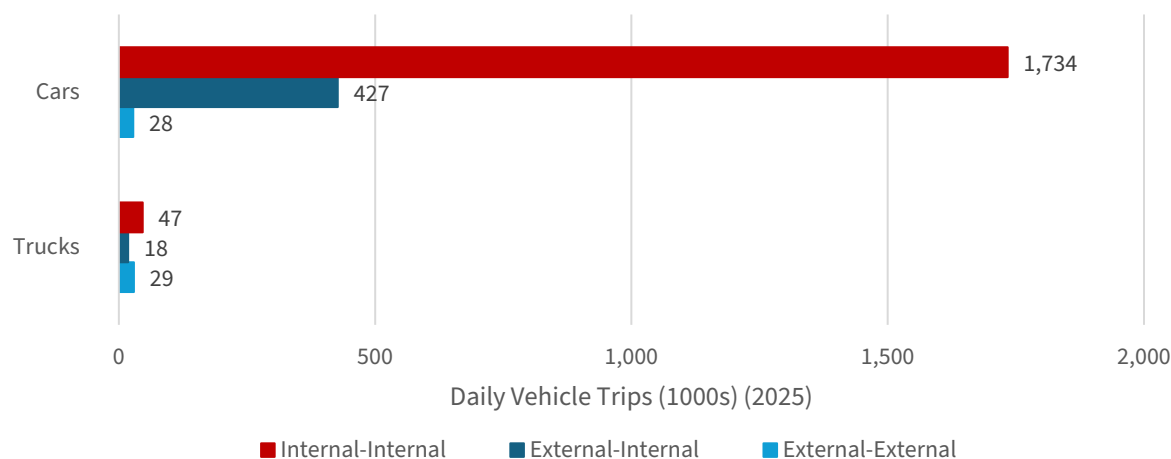


Source: ODOT, TIMS



The OSWM estimates auto and truck demand on the state highway system by trip origins and destinations within the region, entering or leaving the region, and passing through the region. As shown in **Figure 3.49**, and like other regions, auto trips with both an origin and destination within the region are by far the largest demand segment, estimated at over 1.7 million daily trips, or 79% of all daily vehicle trips for autos. Across all trip types, trucks represent 4.1% of total daily vehicle trips.

FIGURE 3.49—VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION FOR EAST OHIO



East Ohio is one of the least congested regions in the state, but a few corridors are at or over capacity, causing travel delays as presented in **Figure 3.50**. The relatively low congestion on most of the region’s Study network is likely the result of several factors, including a declining population, a struggling regional economy, and a lack of a robust workforce. The busiest corridors in this region are I-90, I-76, I-680, and I-80 but most of the traffic on those corridors is related to cars and trucks traveling between regions to Pennsylvania and West Virginia. For residents in Ashtabula, the travel patterns are to and from Lake Erie’s waterfront ports and communities along the US20 corridor. The number of regional trips is the highest in Youngstown, Warren, and the surrounding communities. The critical existing congestion risk locations include:

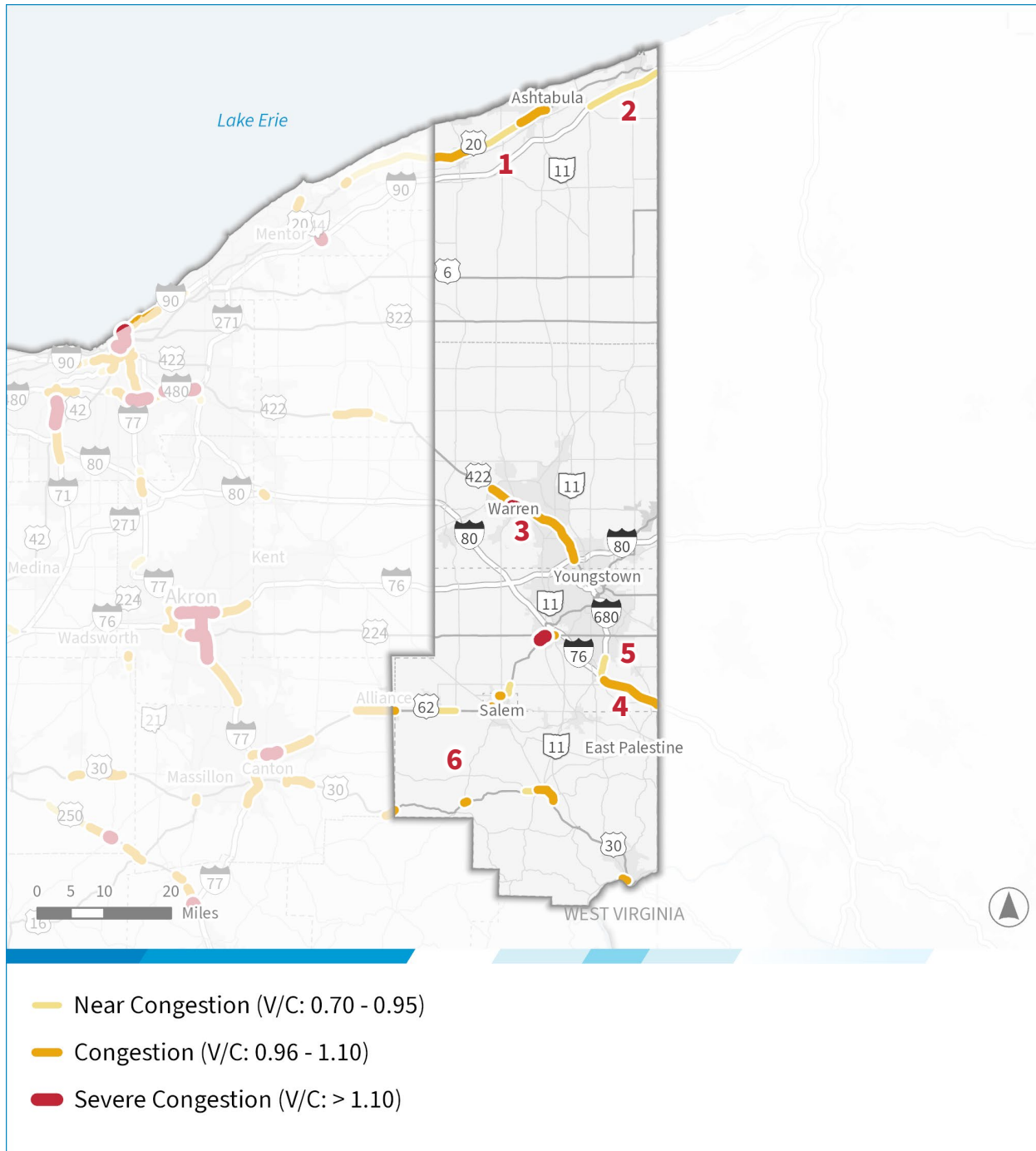
- 1. US20 in Ashtabula County**—This section of US20 is at capacity from the county line to SR11. This congestion is associated with a broad string of at least modest congestion that follows US20 into the Northeast Ohio region toward Cleveland. The congestion is an element of access to lakeside trip attractions and major waterfront cities.
- 2. I-90**—I-90, which travels in parallel and just south of US20, is experiencing moderate congestion from Kingsville to the state line. This corridor is in high demand for cars and trucks but currently experiences some of the lower congestion in the region due to the high capacity the interstate provides. The importance of interstate routes, though, cannot be understated and congestion in this area should continue to be monitored.
- 3. US422**—US422 is over capacity and congested from the outskirts of Warren to Girard. This segment represents the most direct route between Warren and Youngstown, making it a critical corridor for commutes and local supply chains. The corridor is also not access controlled, providing a higher level of access for residents when selecting routes for all trips compared to interstate or other access-controlled alternatives.



4. **I-76**—This interstate is also experiencing significant congestion between I-680 and the state line. The traffic along this corridor is most likely from interregional travel as well.
5. **Parts of I-680**—Segments of I-680 from the I-76 interchange to E Western Reserve Road are heavily congested and over capacity. This area has several key tourism and recreation points of interest that contribute to a high number of trips.
6. **Sections of US62 and US30**—These areas are congested and over capacity. The areas north of Salem and Lisbon are also experiencing significant congestion and delays.



FIGURE 3.50—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME TO CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Development Trends and Future System Demand and Risks

East Ohio faces challenges that threaten its quality of life and economic growth. In the last two decades, the population has grown in urban areas such as Youngstown and Warren, while overall, it has declined as people moved to urban areas or other parts of Ohio. This trend may impact workforce availability and investment in the region.

This regional trend is projected to continue across all three population growth scenarios through 2055. Each county is projected to show continued population declines, particularly Columbiana, Mahoning, and Trumbull, from a low of 13% decline in the high growth scenario in Trumbull to a high of a 25% decline in the baseline scenario in Columbiana. Ashtabula is projected to show lower declines across all three scenarios, approaching nearly a stable population by 2055 in the high scenario, a 4% decline, or a loss of 3,800 residents.

A declining population is not expected everywhere. Growth is projected to occur in the urban areas of Warren and Youngstown, near Lake Erie, and along US20 and I-90. Four priority development sites have been identified to foster economic development and add jobs to this area. All have good highway access, but constrained workforce access. For example, the waterfront along Lake Erie, located near I-90, with its natural beauty, beaches, and ports is a desirable destination for recreation, tourism, and logistics/shipping activities.

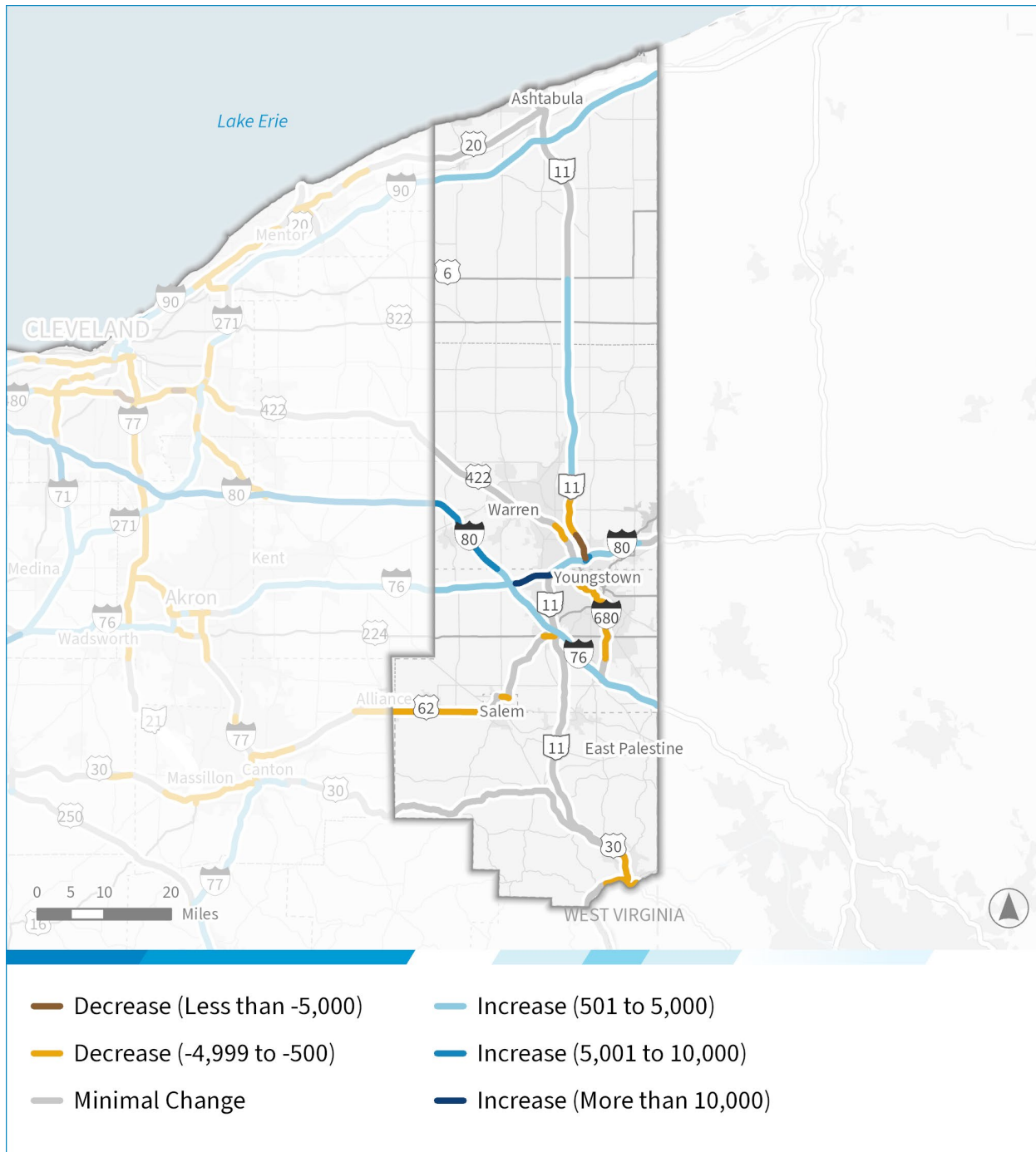
With the moderate development growth projections and anticipated overall population decline, as depicted in **Figure 3.51** vehicle volumes are expected to decline on US62 near Salem, on I-680 in Youngstown, and on SR11 and SR5 in Warren. Vehicle volumes are expected to increase on the interstate routes, particularly I-80 throughout the region. SR11 is also projected to see growing volumes between Warren and I-90/Ashtabula. Most of the projected volume growth on interstates is associated with continued growth in truck VMT, as indicated in **Table 3.16**. While total truck VMT is projected to increase by 51% through 2055 on the Study network in East Ohio, auto VMT is projected to decrease by 5%.

TABLE 3.16—EAST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 18,504,524 | 17,535,144 | -5% |
| Truck VMT | 3,184,723 | 4,811,266 | 51% |
| Total VMT | 21,689,248 | 22,346,410 | 3% |
| Auto VHT | 390,400 | 366,272 | -6% |
| Truck VHT | 51,234 | 76,262 | 49% |
| Total VHT | 441,634 | 442,534 | 0% |



FIGURE 3.51—EAST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

As an alternative to analyzing and presenting each scenario and horizon year within this report, a risk-based approach for compiling findings across scenarios was implemented. This view of risk is consistent with language in HB23 including, “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four specific congestion-oriented questions focused on the peak period severe congestion, site development, workforce access, and truck bottlenecks. The East Region is unique in that there are no high-risk congestion concerns through 2055 based on this Study’s approach. However, while future congestion risks are not appearing in the region due in part to overall declines in travel, there are corridors with potential performance risks, as identified in the interregional section of this chapter, including US30 and SR11. In addition, while population growth is isolated in this region through 2055, there are a number of corridors including US20, US422 west of Warren, US62, and US30 where there is partial to no access control. If development does occur along these corridors, careful consideration will be required to manage access, given the potential impact of new driveways and intersections on corridor throughput and safety.

Regional Plans

East Ohio is served by one MPO, Eastgate in Trumbull and Mahoning counties, and one RTPO, OMEGA in Columbiana County. Ashtabula County is not within an MPO or RTPO’s limits. The Port Authority, the local planning department, and chambers of commerce drive transportation planning and economic development. Highlights of the current LRTPs for these two regions are presented in **Table 3.17**. These plans focus on facilitating economic and community development, addressing major transportation needs, and improving the quality of life for the region. Ashtabula County does not fall within an MPO, hence economic development and transportation planning.

Broadband access is a key issue identified in each plan and by Study stakeholders. Ohio is investing millions to expand broadband access across 23 counties, including all four counties in the East Region. Two internet service providers will complete six projects to expand broadband access within these counties as part of the Ohio Residential Broadband Expansion Grant Program. This will enable underserved communities to participate in the modern economy, education, and healthcare systems, encouraging local business growth and workforce development.

Additional details on local and regional development trends and priorities based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of CEDS and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



TABLE 3.17—EAST OHIO MPO AND RTPO LONG RANGE TRANSPORTATION PLAN HIGHLIGHTS

| Lead Agency | Name | Status |
|--|---|-----------|
| Metropolitan Planning Organization | | |
| <u>Eastgate (Youngstown)</u> | 2050 Metropolitan Transportation Plan (MTP) | June 2023 |
| <p>Forecasts from ODOD, utilized for the MTP, reflect a 21% decline in population through 2050. Recognizing the aging population in the region, Eastgate focuses planning activities on supporting mixed-use communities that are walkable, bikeable, and accessible by public transit which can enhance quality of life and improve access to services for all residents, particularly aging populations.</p> | | |
| Regional Transportation Planning Organization | | |
| <u>OMEGA (Mid-Eastern Ohio RTPo)</u> | 2020-2045 Regional Transportation & Development Plan—Mapping a Route Forward to a Strong & Resilient Region | June 2020 |
| <p>The OMEGA region is forecasted to lose 1.66% of its population between 2018 and 2040. However, while people have moved away for opportunities in larger urban areas, the presence of petrochemical and logistics industries has been expanding. The region is preparing for additional growth, but it is anticipated to be at a slower rate than urbanized areas in the state. The plan identifies four regional goals: preserve regional assets to support local economies; increase the safety of regional infrastructure; facilitate economic and community development; and develop and maintain regional resiliency.</p> | | |

The Study stakeholders expect certain types of manufacturing activities to grow within the region including automotive, batteries, metals, advanced manufacturing, and medical devices. I-90 and SR11 are important corridors for logistics and distribution, with freight movement expected to grow along with a corresponding uptick in manufacturing activities. Participants identified opportunities for commercial development in Youngstown along SR11, and tourism and recreation in Ashtabula and Trumbull counties. Remediating brownfield sites in Trumbull County was included as a development opportunity. Still, participants also noted that the cost of environmental cleanup is often higher than the property value of many brownfield sites. This disparity poses a serious barrier to development. Other barriers to economic growth and development included shrinking population, workforce availability and development, and lack of affordable housing.

The region’s connectivity presents numerous opportunities. Regional plans and Study stakeholders note a need for intercounty coordination to examine utilities and transit services across county lines to support workforce access. Some collaboration among local agencies is underway to improve access and connections across the region; however, region-to-region transit service is currently limited.



Southeast Ohio

Southeast Ohio is characterized by its natural resources and largely rural landscape, encompassing 15 state parks, three nature preserves, seven state forests, 14 hunting and fishing areas, and the Muskingum and Ohio Rivers. The region also features an abundance of industrial sites.

Southeast Ohio makes up almost one-third of Ohio's land mass and has a population of over 1 million people. It is comprised of 25 counties and is home to seven university towns. As shown in **Figure 3.52**, four of these counties are part of urbanized areas and are represented by one of four MPOs. OhioSE is the JobsOhio network partner representing Southeast Ohio.

Southeast Ohio is the only region in the state that is majority rural at 66%. It has a population density three times lower than the state's average with a development pattern where most people have concentrated around small college towns and riverfront communities with limited development opportunities outside of these communities.

Cities in the region are located along its major corridors, which are US23—Chillicothe and Portsmouth, US33—Athens, I-70—Zanesville, and I-77—Marietta. Most secondary corridors are less than four lanes in width, with smaller communities lacking some vital east-west connectors. Communities not adjacent to these four major corridors can have trouble accessing major nearby cities, such as Cincinnati, Columbus, or Pittsburgh, and have limited access to basic quality of life needs such as hospitals.

Southeast Ohio has grown by 1.4%, approximately 4,177 additional residents, since 1990. As depicted in **Figure 3.53**, population growth in Southeast Ohio has primarily occurred in areas around Hillsboro, Chillicothe, and Zanesville given closer proximity to Southwest Ohio and Central Ohio, around Logan in Hocking County associated with a strong economy around tourism and recreation, and in northeast Holmes County as part of local Amish communities. As seen with other regions across the state, every county is expecting an aging workforce. Where population growth is occurring, most of that growth is in ages 65-plus.

The region is defined by its strong manufacturing sector. Companies located in this area have concentrations in metals, polymers and petrochemicals, hardwood products, food processing, heavy truck assembly, auto components, energy production, logistics, and back-office operations.

The Southeast Ohio areas with development potential share several opportunities: focusing growth in existing developed areas, increasing broadband access, investing in tourism as an economic priority, facilitating reinvestment and redevelopment activity, diversifying transportation and housing options, and generating positive community interactions whenever possible. According to OhioSE, given the lower workforce participation in the region, "there are investments and partnerships across the region to enable sustainable economic growth and a better quality of life. The six varied industry sectors in Southeast Ohio produce raw materials, root materials, supply chain components, and finished consumer products for more than 30 Fortune 500 companies and international businesses from 21 countries."

Southeast Ohio is known for its natural resources, recreational assets, access to the Ohio River, and abundance of industrial sites focused on natural resource extraction and manufacturing.



FIGURE 3.52—SOUTHEAST OHIO COUNTIES AND DESIGNATIONS

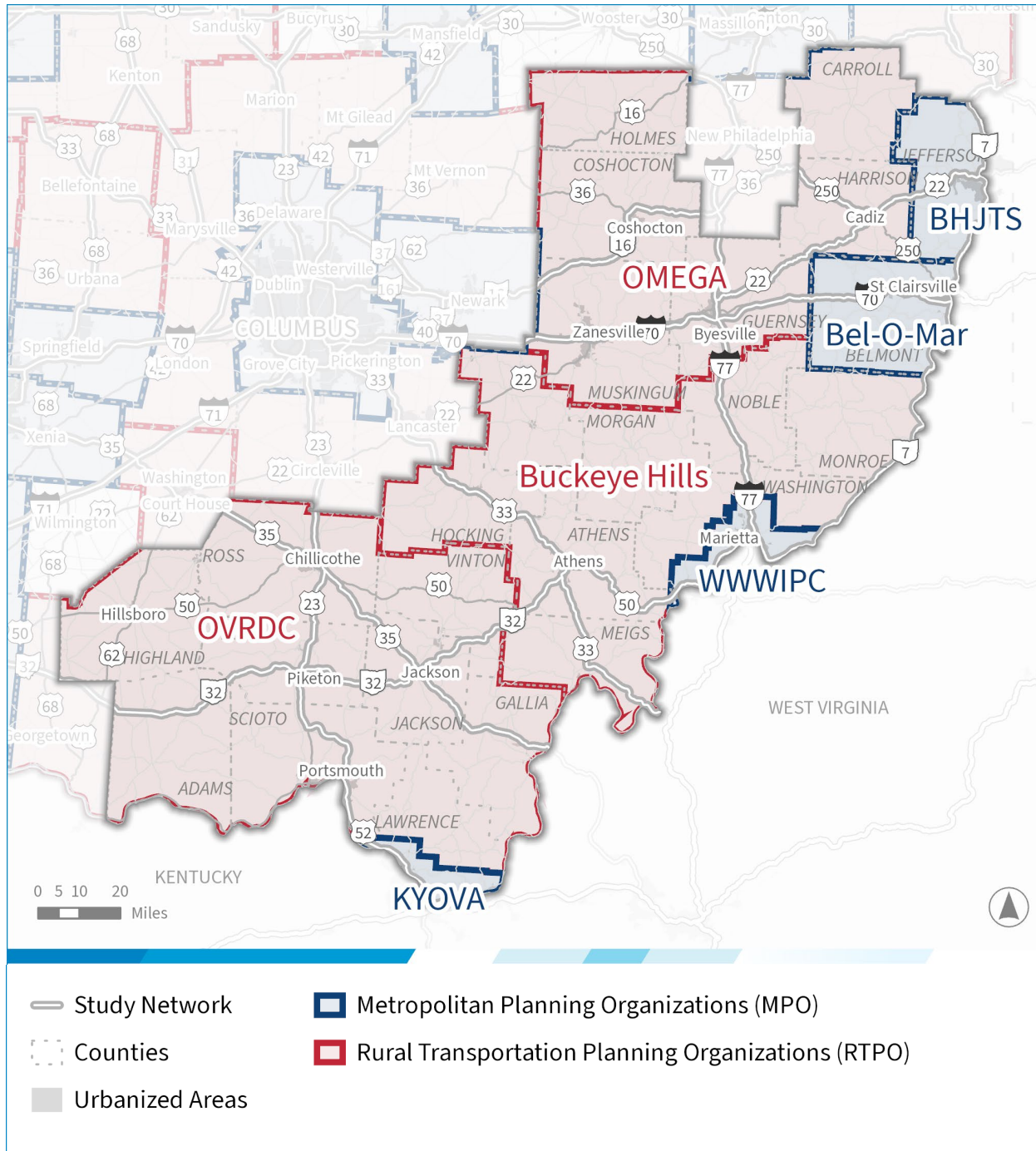
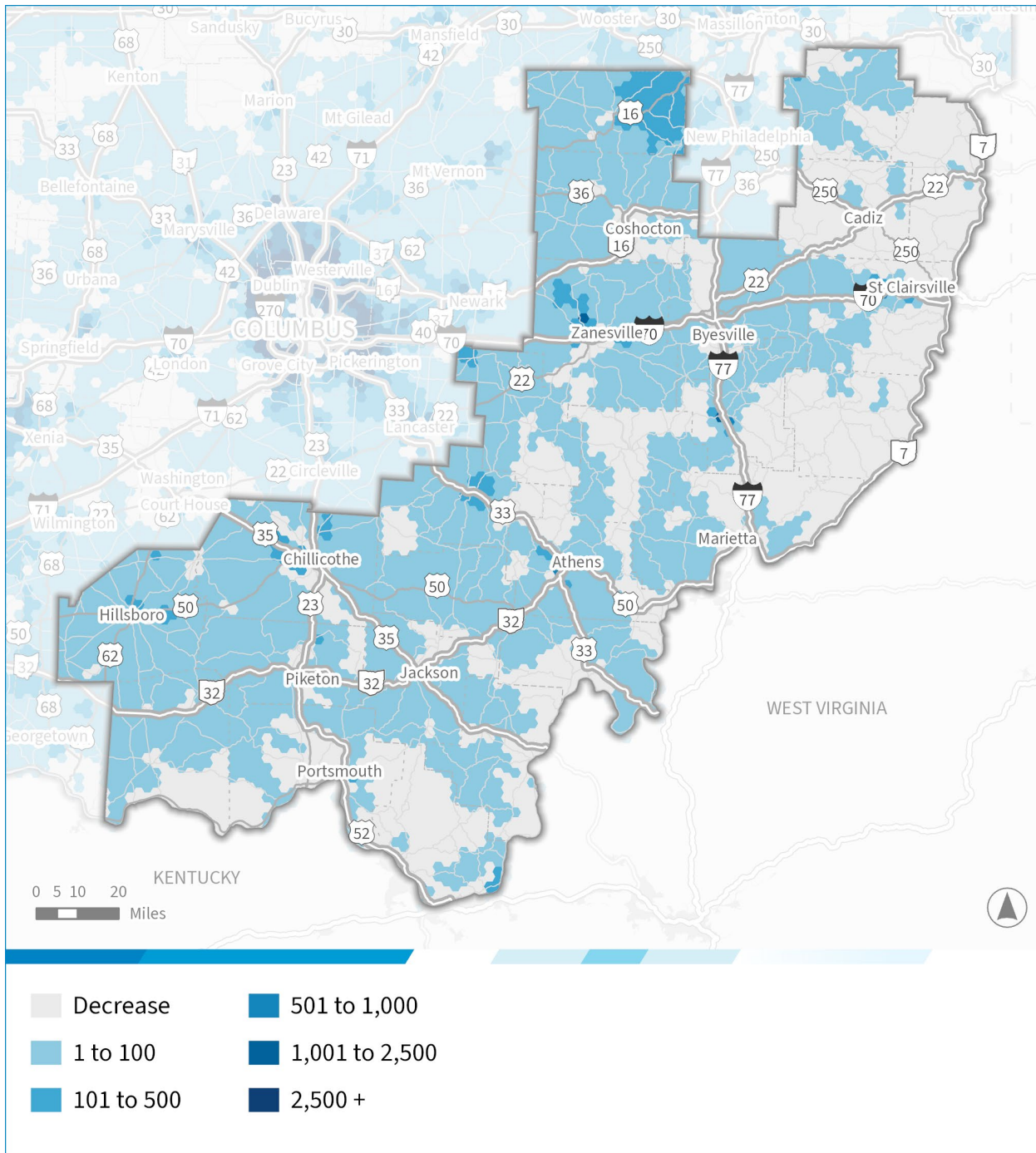


FIGURE 3.53—SOUTHEAST OHIO POPULATION CHANGE (1990–2020)



Source: US Decennial Census, 1990, 2020



System Overview

The Study network totals 816 miles within Southeast Ohio, as presented in **Table 3.18**, accounting for 20% of total statewide Study network miles. **Figure 3.54** presents the Southeast Ohio Study network, identifying a number of connection opportunities to intermodal and transload facilities near Byesville and Coshocton. The region shares 355 miles of shoreline with the Ohio River, including 14 ports or terminals connected to industries and markets through highway access and two Class 1 railroads.

Approximately 18% of the Study network mileage in the region is comprised of interstate highways, namely I-70 and I-77. Another 48% of the Study network mileage in the region is US highways, including US23, US35, US33, US50, and US22.

TABLE 3.18—STUDY NETWORK IN SOUTHEAST OHIO

| Route Type | Mileage | Percentage |
|----------------|------------|------------|
| Interstate | 150 | 18.3% |
| US Highways | 395 | 48.4% |
| State Highways | 272 | 33.3% |
| Total | 816 | |

*Note: Mileage does not include ramps associated with Study network interchanges.

Given the geographic scope of the region, the Study network facilitates different types of connectivity to nearby markets when viewing US33 as a dividing line between northeast areas of the region and southwest areas. For example:

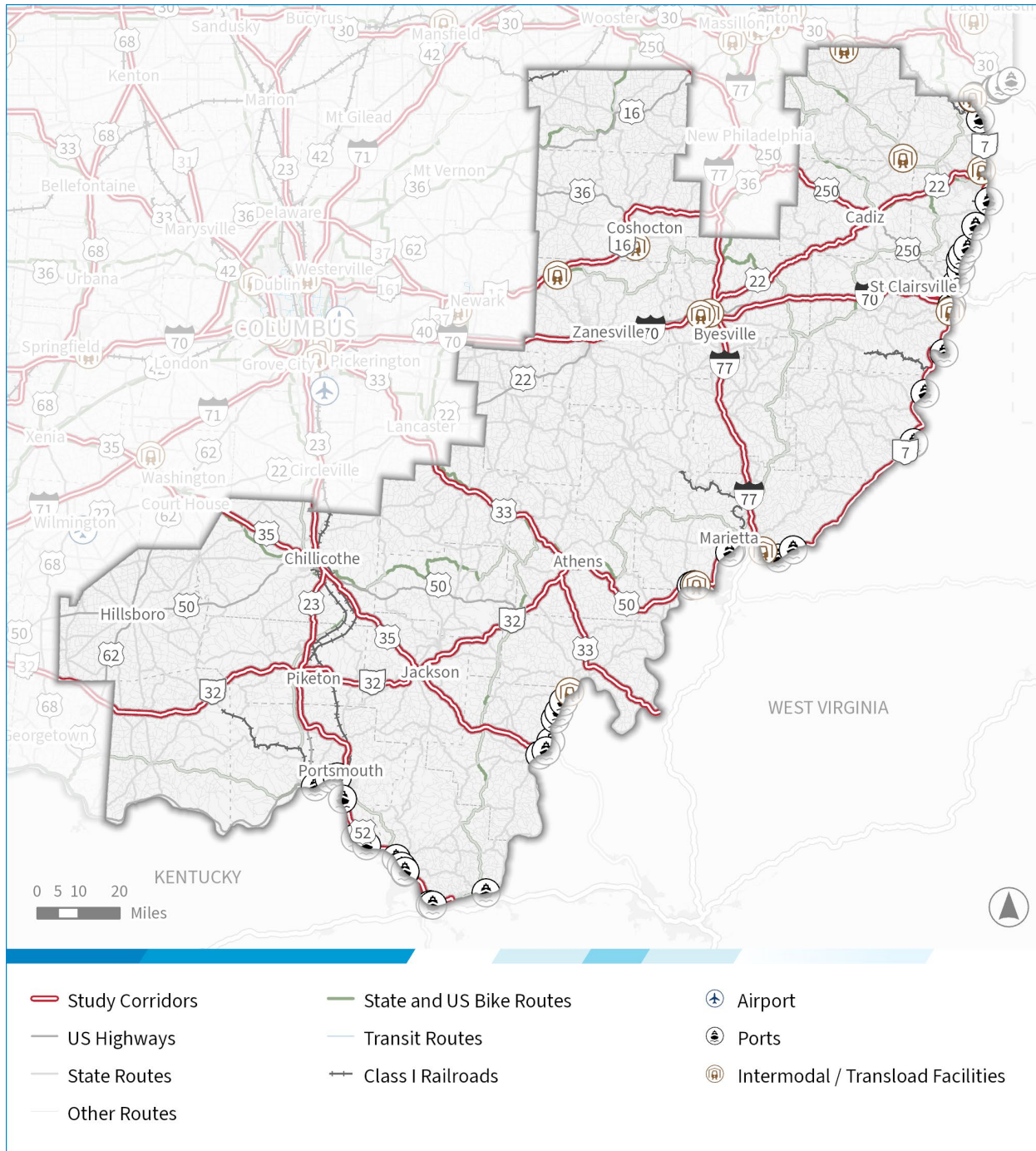
- For areas northeast of US33, including most of Hocking Hills, the OMEGA RTPO, and MPOs representing urbanized areas centered in Parkersburg, Wheeling, and Weirton, WV, the primary corridors are I-77 providing north-south connections and I-70 providing east-west connections. Other US and state highways within this sub-region include SR16 and US24 which provide alternative east-west connections to I-70, US250 which provides connections to Northeast and Northwest Ohio, and SR7 which provides access to marine terminals and manufacturing facilities along the Ohio River. East-west corridors facilitate connections to Columbus and Pittsburgh, while north-south corridors enable connections to Canton, Akron, Cleveland, and West Virginia.
- For areas southeast of US33, corridors like US33 and US23 facilitate north-south connections to Columbus and West Virginia or Kentucky, while east-west corridors like SR32 and US35 facilitate connections toward Cincinnati, Dayton, and the I-71 corridor.

Many US and state highways in this region have no or partial access control. This is critical to provide access to existing properties and facilitate access to new development. However, it also creates safety risks and isolated congestion in some areas near cities, towns, and villages.

Large areas of this region lack direct connections to an Study network corridor within five miles or less. This includes all of Carroll and Morgan counties and large areas of Perry, Monroe, Vinton, Gallia, Lawrence, Adams, and Highland counties. In these areas, connections to Study corridors, most of which are four-lane divided facilities, are along two-lane state highways, many of which have lower speeds given the region's mountainous terrain.



FIGURE 3.54—SOUTHEAST OHIO TRANSPORTATION SYSTEM



Existing Travel Patterns and Congestion

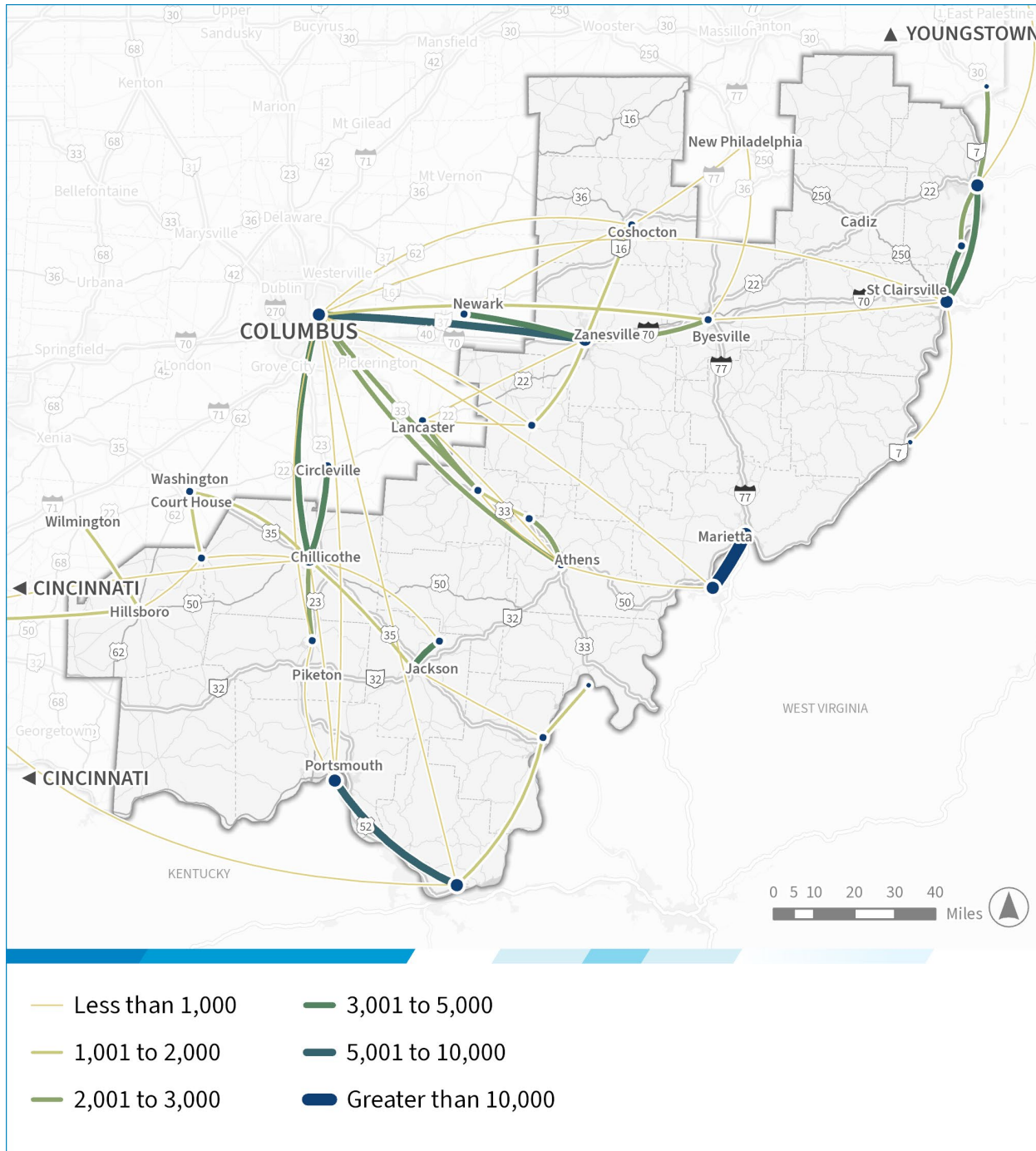
This section describes existing volumes, travel patterns, and congestion on the Southeast Ohio Study network. Estimates of average daily traffic between O-D pairs from Streetlight were used to derive bi-directional flows of vehicle trips relevant to Southeast Ohio between urbanized areas. These include parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.55** presents daily trips starting or ending in Southeast Ohio highlighting the top 50 OD pairs by daily volume. Trips outside the state are not included.

As depicted in **Figure 3.55**, this largely rural region of the state can be characterized by two types of flow patterns— intraregional flows along the Ohio River and a strong connection to Central Ohio. The largest OD flow shown on the map is between the Marietta and Parkersburg, WV urbanized areas, representing about 17,500 daily bi-directional trips for these communities along the Ohio River. Similarly, there are about 8,900 daily bi-directional trips between Portsmouth and Huntington, WV urbanized areas, and strong connections between St. Clairsville and Steubenville, also along the Ohio River. These flow patterns highlight the importance of the preservation and capacity of bridges across the Ohio River, particularly I-77, US33, US52, and US23.

The interregional connections between Southeast Ohio and Central Ohio are also strong, with Columbus serving as a hub for many communities in the Southeast, such as Chillicothe, Athens, and Zanesville. The Zanesville-Columbus connection accounts for more than 5,400 daily bi-directional trips between these urbanized areas. Smaller urbanized areas in Central Ohio also demonstrate significant flows between urbanized areas in the Southeast Ohio region, such as Newark-Zanesville, Lancaster-Logan, and Circleville-Chillicothe.



FIGURE 3.55—SOUTHEAST OHIO DAILY TRIPS (2021)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



The OSWM provides an estimate of auto and truck demand on the state highway system by trip origins and destinations within the region, coming into or leaving the region, and passing through the region. As shown in **Figure 3.56**, auto trips with both an origin and destination within Southeast Ohio is the largest demand segment, estimated at nearly 2.5 million daily trips. Across all trip types, trucks represent 4% of total daily vehicle trips.

FIGURE 3.56—SOUTHEAST OHIO VEHICLE TRIPS BY ORIGIN & DESTINATION (2025)

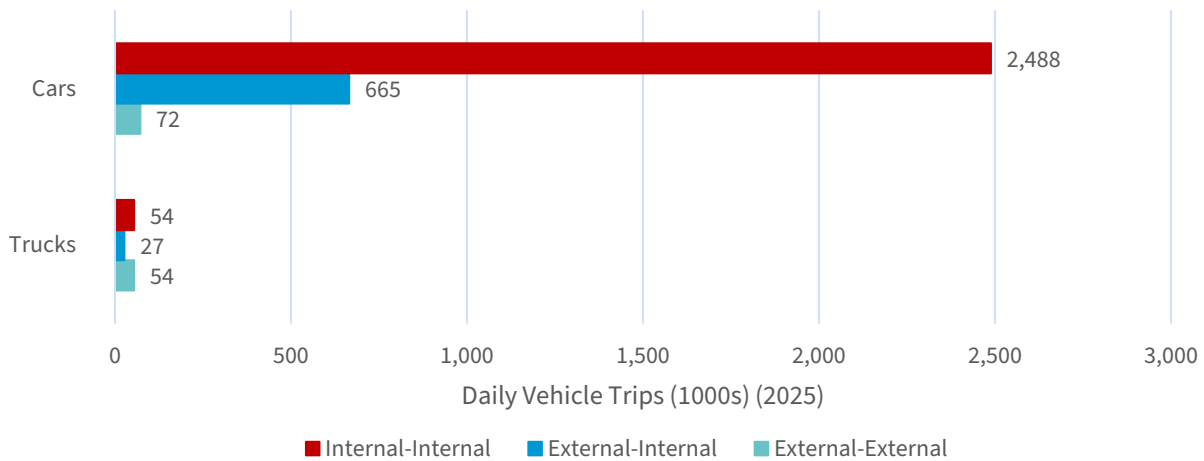
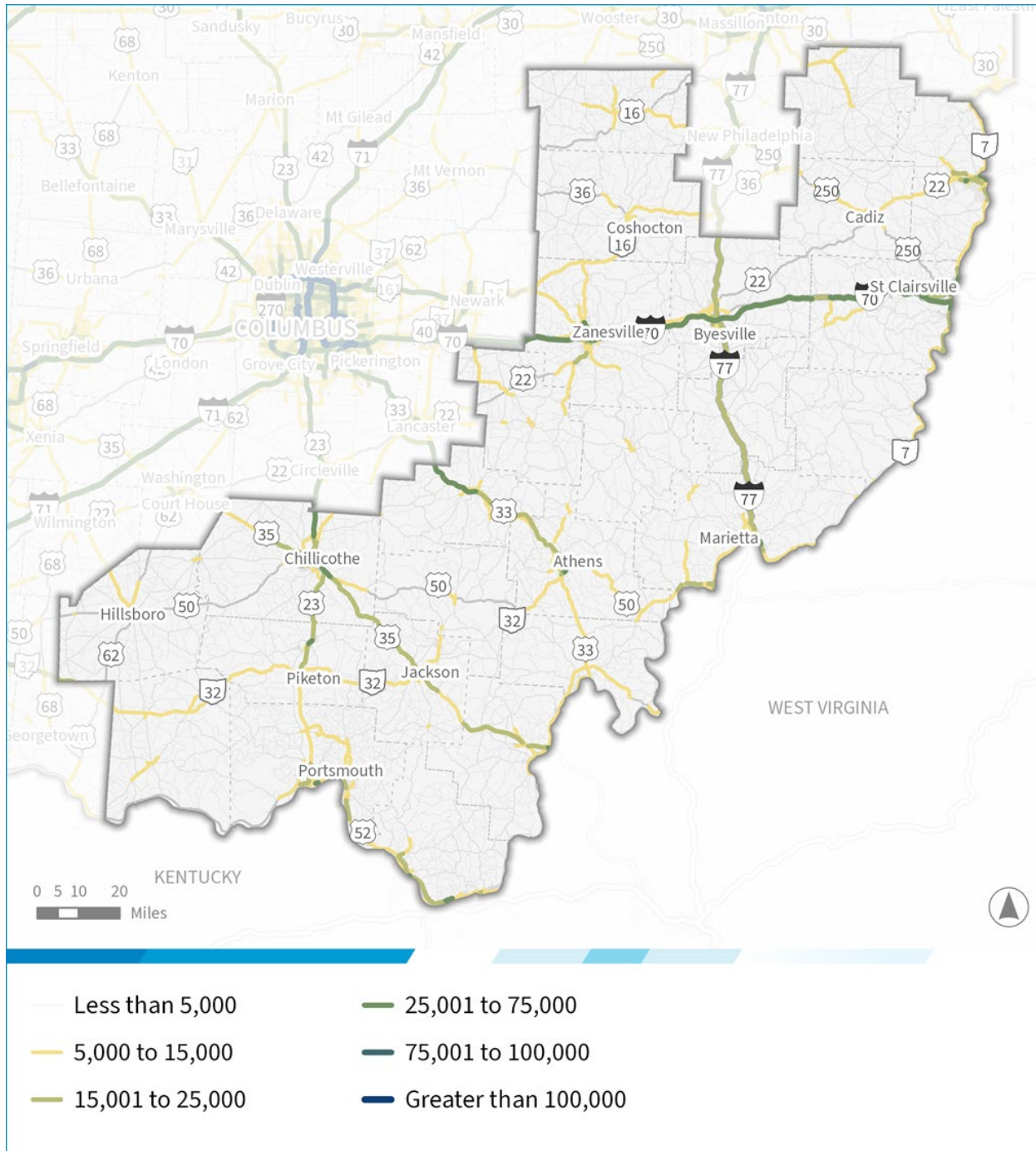


Figure 3.57 presents the 2023 AADT on the Study network in Southeast Ohio. I-70 in Zanesville and to the west toward Licking County shows daily traffic in the region at around 36,000 vehicles daily. On I-70, just west of the split with I-470 near St. Clairsville, daily traffic totals around 48,000 vehicles, the highest traffic count segment within the region. The region also depends on I-77 as it provides the primary north-south connection from Northeast Ohio to West Virginia. This route connects five universities and over 15 medical centers in the region, with the highest daily volume just north of I-70 near Cambridge, with nearly 25,000 vehicles. Near Marietta at the Ohio River, total daily volume is just below 20,000 vehicles. Other high-volume segments in Southeast Ohio include US33 north of Logan with 27,000 vehicles per day and US23 north of Chillicothe with 26,000 vehicles per day.



FIGURE 3.57—SOUTHEAST OHIO AVERAGE ANNUAL DAILY TRAFFIC (2023)



Source: ODOT, TMS

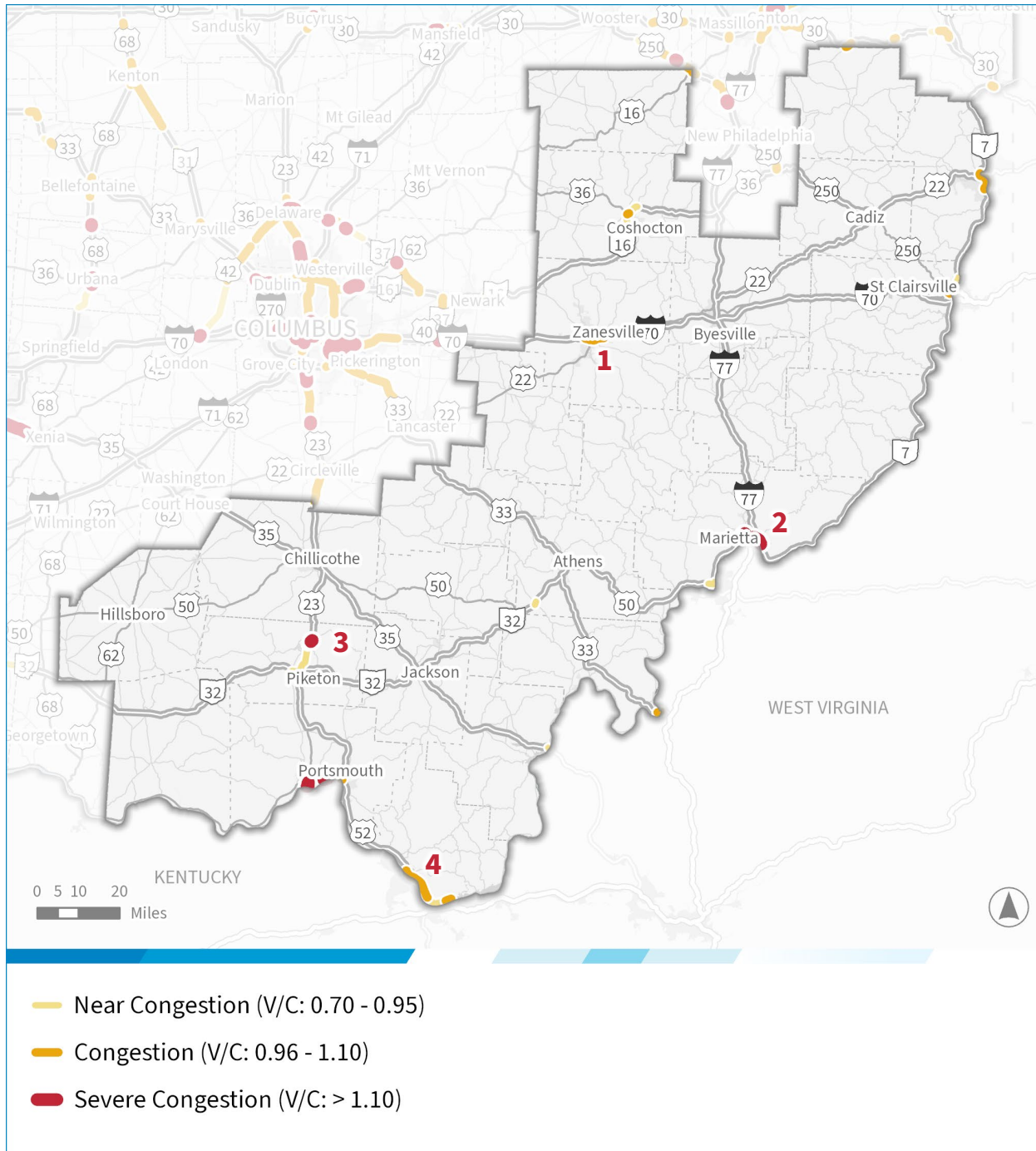


Southeast Ohio faces unique challenges as it is a mostly rural and low-density region, compared to other regions in Ohio. Specifically related to traffic congestion and the reliability of its highway network, Study stakeholders noted congestion issues on US35, I-70 between Columbus and I-77, which suffers from flooding on ramps during heavy rain events. Several key corridors within Southeast Ohio experience limited areas of peak period congestion as presented in **Figure 3.58**. These areas are critical to regional mobility and economic activity, and their congestion, though less intensive compared to other regions in Ohio, can have far-reaching impacts on a region. The critical existing congestion risk locations include:

- 1. I-70 through Zanesville**—I-70 from Exit 157 to Exit 153 experiences peak period traffic congestion with volume to capacity ratios at or above 1.0. Closely spaced interchanges and weaving traffic due to ramp merges contribute to congestion. ODOT's ongoing major rehabilitation of I-70 pavement, ramps, and bridges in this area also impacts reliability. This project is anticipated to be completed in 2027.
- 2. SR7 in Marietta**—SR7 around the I-77 interchange and in downtown Marietta from SR550 to the Muskingum River bridge sees severe peak period congestion across multiple segments. Most of this is associated with a combination of high traffic volumes, including truck traffic, and frequent signalized intersections and driveways.
- 3. US23 in Waverly**—A small segment of US23 in Waverly sees severe peak period congestion associated with multiple signalized intersections and frequent driveways. This segment of US23 features a combination of truck traffic, local traffic and multiple turning vehicles leading to delays.
- 4. US52 from SR243 in Coal Grove to Ohio River Bridge into West Huntington, WV**—This segment of US52 has partial access control. Where there are intersections, most are signalized, resulting in peak period delays, with volume to capacity ratios at or above 1.0. This corridor also has high truck volumes and turning movements to and from industrial facilities and port terminals.



FIGURE 3.58—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME TO CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Development Trends and Future System Demand and Risks

Southeast Ohio is the only region in the state with a higher rural population, which has grown by 4% since 1990 while urban county populations have decreased. Counties with the largest populations in the region are co-located with mid-size city centers and attractions, including educational centers and state parks and forests. Examples include Muskingum County, which contains the city of Zanesville; Ross County, which contains the city of Chillicothe; Athens County, which supports the population of Ohio University students; and Hocking and surrounding counties, which contain Hocking Hills State Park and Wayne National Forest.

Key industries in the Southeast Ohio region include manufacturing, energy and chemicals, and food and agribusiness. Ohio's iron and steel manufacturing began in the eastern and southern counties of the state 200-plus years ago using local ore and energy resources and the mighty Ohio River for transport. Today, those counties make up the Southeast Ohio region, which boasts more than 178 businesses in the metals sector and relies on a skilled workforce, abundant low-cost energy, and the powerful Ohio River. The metals manufacturing subsectors include primary metals, fabricated products, and machinery; and represent approximately 20% of the region's manufacturing workforce. Regarding the energy and chemicals sector, Southeast Ohio sits atop of the Utica Shale and adjacent to the Marcellus Shale formations, which together now account for 43% of US shale gas production. Local plans and studies affirmed that this region has notable strengths in oil and gas generation, as well as manufacturing. These plans and studies noted the area had direct access to major thoroughfares, US23, US33, I-70, and I-77, though it lacked major east-west connections.

These abundant resources, combined with Ohio's regulatory environment, have yielded over \$90 billion in upstream, midstream, and downstream investment in the shale energy and petrochemical sectors since 2011. Finally, food manufacturing has a long, successful heritage in Southeast Ohio. The region boasts some of the largest food manufacturing facilities in the United States and has a concentration of food processing workforce 51% above the national average. Ohio's food value chain, coupled with a versatile infrastructure, abundant fresh water, low-cost natural gas, and competitive business climate, gives companies the ability to obtain raw materials, produce goods, and deliver products to market with greater efficiency.

Other key development trends in the Southeast region are characterized by burgeoning industries and challenges such as a lack of private and public investment. Key industries in this region expected or desired to grow include energy, healthcare, manufacturing, logistics and distribution, and tourism. Present day growth is occurring at several JobsOhio sites and locations formerly used by industry. This includes commercial growth in the healthcare industry in Athens; manufacturing growth in Coshocton, Hillsboro, and Portsmouth; and industrial, logistics, and distribution growth in Zanesville. Study stakeholders mentioned Athens, Chillicothe, Coshocton, Albany, and Zanesville for residential growth. The Hocking Hills area is seeing some promising tourism activities, and Coshocton also offers an opportunity for recreational tourism development.

Workforce accessibility is forecasted to decline in the Southeast region over the coming decades. The reason for this change is primarily associated with population declines, including the working age population, in these regions. Southeast Ohio has the lowest labor force participation rate of 54.9% compared to Central Ohio with the highest rate of 67.3%. Southeast Ohio consistently underperforms the statewide rate by 7 to 8 percentage points. Southeast Ohio also has a much lower share of professional and business services employment compared to other regions.



In Southeast Ohio 47.5% of workers commute outside the region, including into neighboring states. Worker accessibility is significantly lower in part due to the greater distances to large employment centers from the population. This factor is particularly noticeable in the areas of Southeast Ohio that lack access to regional corridors and interstates, such as Monroe, Morgan, and Vinton counties. This distance has significant implications for workforce and economic development, as smaller workforces and longer commute times represent two barriers to business location decisions.

Like other regions across the state, Southeast Ohio is losing population. According to ODOD, the region is projected to lose an average of 18% of its population per county by 2050. With some of these communities currently having less than 25,000 people, this could have intense effects on the viability of local economies. Like much of Ohio, the population of this region is aging, and communities are struggling to retain younger residents. These communities have a limited labor force and need to attract more workers to sustain the local economies.

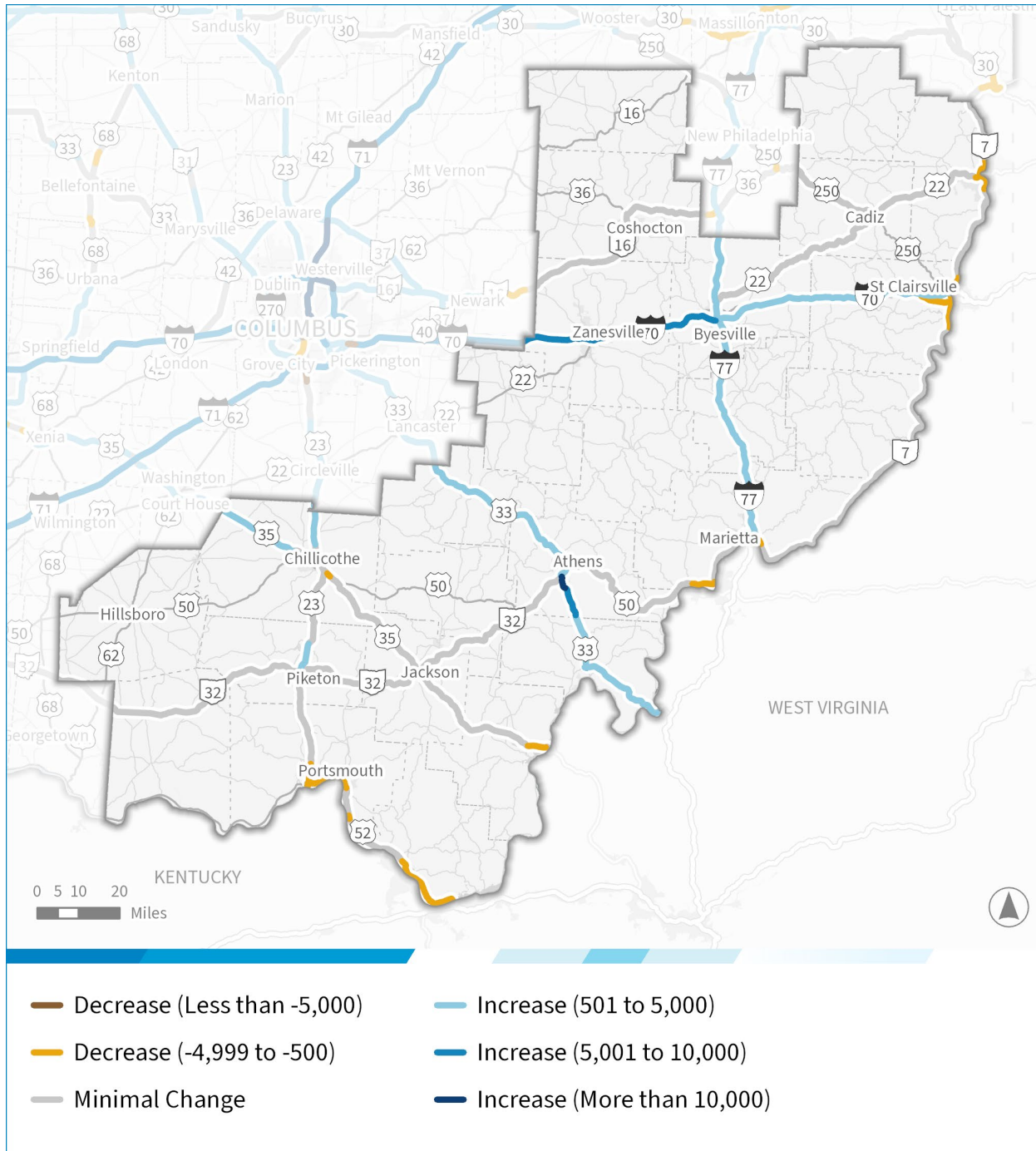
Even with this population decline, daily VMT and VHT on the Study network in the Southeast Region are anticipated to increase in the baseline scenario, as presented in **Table 3.19**. This increase is primarily driven by a 58% growth in truck VMT and a 56% increase in truck VHT. **Figure 3.59** presents the resulting change in daily traffic through 2055 in the baseline scenario, showing anticipated growth particularly on I-77 from Marietta to Byesville and on I-70 from Zanesville to St. Clairsville.

TABLE 3.19—SOUTHEAST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 28,340,252 | 27,513,254 | -3% |
| Truck VMT | 6,079,491 | 9,583,506 | 58% |
| Total VMT | 34,419,742 | 37,096,760 | 8% |
| Auto VHT | 591,057 | 565,435 | -4% |
| Truck VHT | 97,419 | 151,935 | 56% |
| Total VHT | 688,476 | 717,370 | 4% |



FIGURE 3.59—SOUTHEAST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

As an alternative to analyzing and presenting each scenario and horizon year within this report, a risk-based approach for compiling findings across scenarios was implemented. This view of risk is consistent with language in H.B. 23 including, “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four specific congestion-oriented questions that are presented as a composite congestion risk in **Figure 3.60**. A summary of these hotspots is presented in **Table 3.20**.

Peak period congestion—Where could the Study network experience severe congestion during the peak period across each scenario in 2055?

- The Southeast region has minimal peak period congestion risk through 2055. The main locations include along US33 just outside of Hills Crossing and at the Ravenswood Bridge. US33 in Athens, at the junction of US50 south of the Hocking River, just west of Ohio University, is also predicted to experience congestion.

Congestion impacts of site development—Where could the Study network see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- Congestion associated with site development in the Southeast region includes along I-70 in Zanesville and along segments of SR7 from Marietta to Pomeroy/US33.

Workforce access congestion—For areas where access to the workforce within 40 minutes is projected to decline between 2025 and 2055, as presented in **Chapter 2**, workforce section, where could the Study network experience bottlenecks be contributing to this decline?

- There are no specific locations in Southeast Ohio where projected peak period congestion may lead to substantive declines in workforce access within 40 minutes of employers.

Freight bottlenecks—Where could the Study network experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- Truck bottlenecks are not expected in the Southeast region by 2055. I-70 in Zanesville is the only noted rural interstate bottleneck.

Access Control—What are the locations on the Study network where lack of access control in areas of forecasted development could contribute to future congestion?

- Study network partial or no access control facilities in Southeast Ohio are widespread. However, based on population growth projections, these areas do not overlap with potential population growth. Note that these corridors with partial or no access control may see some congestion risks if new development requires frequent access points on these corridors, leading to driveways and intersections that can create congestion and safety issues.



FIGURE 3.60—SOUTHEAST OHIO CONGESTION RISK (2055 HOTSPOTS)

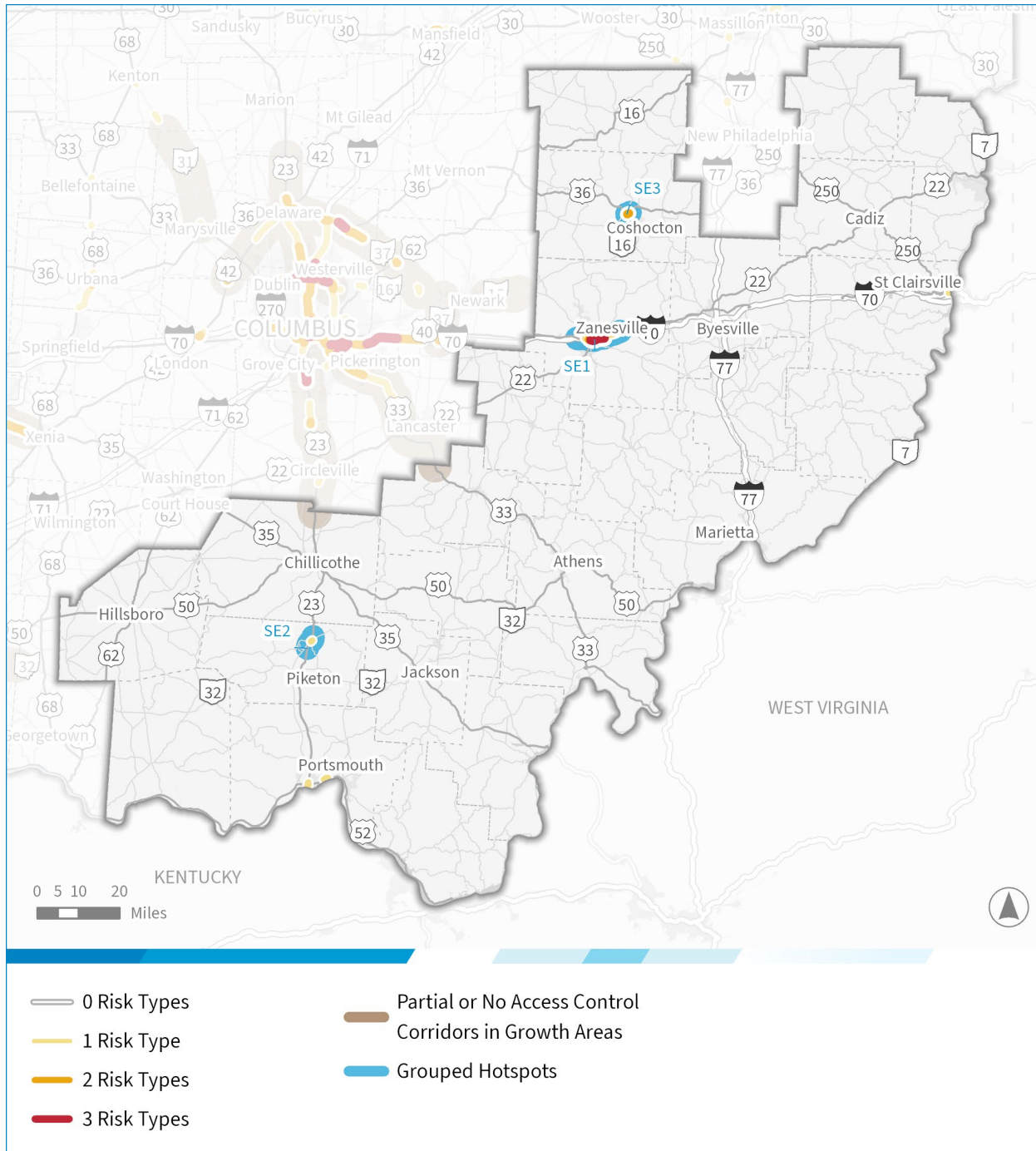


TABLE 3.20—SOUTHEAST OHIO CONGESTION RISK LOCATIONS (2055 HOTSPOTS)

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|----------------------------------|---|---|-------------------------------|
| SE1: I-70 (Zanesville) | Multiple congestion risk, including 3+ risks between SR60 and SR93 interchanges | Today | Medium |
| SE2: US23 (Waverly) | Limited congestion risk within Waverly City | Today | Low |
| SE3: US36 (Coshocton) | Limited congestion risk between SR16 and SR83 | 2035 and beyond | Low |

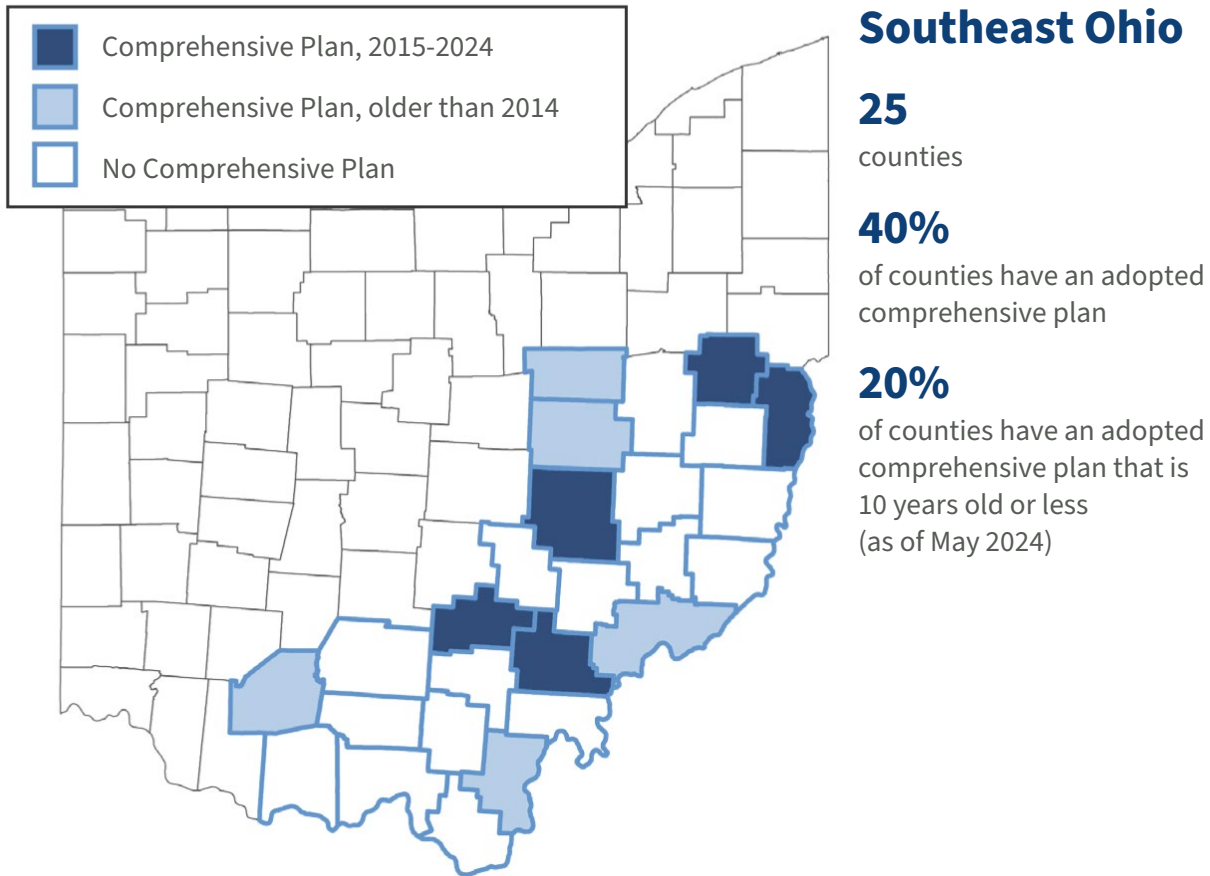
Regional Plans

Southeast Ohio counties and towns have developed comprehensive plans, as well as land use, strategic, or economic development plans that help guide more immediate development. Communities with recently adopted plans are scattered throughout the region. Southeast Ohio counties that have adopted a comprehensive plan are displayed in **Figure 3.61**. Counties with a current plan, adopted in the past 10 years, are highlighted in dark blue and those that have adopted a plan over 10 years ago are highlighted in light blue. Only five, 20%, of the counties in this region have a comprehensive plan that has been adopted in the last 10 years.

An MPO or an RTPO represents every county in Southeast Ohio. This includes Kentucky Ohio West Virginia (KYOVA) Interstate Planning Commission—Lawrence County, Wood-Washington-Wirt Interstate Planning Commission—Washington County, Bel-O-Mar Regional Council—Belmont County, and Brooke-Hancock-Jefferson Metropolitan Planning Commission—Jefferson County. Three RTPOs represent the other 21 counties, including OMEGA, Buckeye Hills-Hocking Valley Regional Development District, and OVRDC.



FIGURE 3.61—COMPREHENSIVE PLAN ADOPTION IN SOUTHEAST OHIO



Key topics that emerged from these plans include current economic opportunities and struggles, concerns around an aging population and subsequent impacts on a shrinking labor force, lower wages for workers in the region compared to the rest of the state, the region’s ability to attract younger residents, and opportunities to cultivate tourism. Some plans noted strategies to include focusing growth on existing development or developed areas, investing in tourism as a main economic industry, increasing broadband access, and diversifying transportation options, including expanding east-west capacity. Local plans and studies affirmed that this region has notable strengths in oil and gas generation, as well as manufacturing. These plans and studies noted the area had direct access to major thoroughfares, US23, US33, I-70, and I-77, though they lacked major east-west connections.

As noted in **Table 3.21**, recently approved long-range and comprehensive plans further detail specific strengths and weaknesses that were directly linked to transportation and development. These include a lack of quality east-west connections and the need for more active and public transportation options in the region.

Additional details on local and regional development trends and priorities are based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of CEDS and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



TABLE 3.21—SOUTHEAST OHIO LONG RANGE AND COMPREHENSIVE PLAN HIGHLIGHTS

| Lead Agency | Name | Status |
|---|---|---------------|
| Metropolitan Planning Organizations | | |
| <u>KYOVA (Lawrence County)</u> | KYOVA 2040 Metropolitan Transportation Plan | 2023 |
| The KYOVA study area has experienced modest growth over the years even as the physical geography created challenges to connectivity. The KYOVA 2040 MTP addresses anticipated growth through the continued development of a multimodal transportation system that fosters economic growth without compromising the region’s natural appeal and character. | | |
| <u>BHJTS (Jefferson County)</u> | 2050 Long Range Transportation Plan | 2024 |
| Jefferson County’s economy is roughly 1.5 times the size of Brooke and Hancock counties in West Virginia combined. The driving forces of this economy are healthcare and social assistance, manufacturing, and retail trade. The current bridge system in the region has sufficient capacity to handle present traffic volumes; however, it has a number of significant deficiencies. Efforts to address these deficiencies require construction of a new bridge across the Ohio River south of Wellsburg, WV connecting to Wells Township in Jefferson County. | | |
| <u>Bel-o-Mar (Washington County)</u> | Long Range Transportation Plan | 2021 |
| The rapid growth in the energy sector is boosted by a strong service economy in the region. In a short span of less than five years, many new hotels/motels and restaurants were built to support the influx of transient workers associated with the natural gas recovery. | | |
| Regional Transportation Planning Organizations | | |
| <u>Ohio Valley Regional Development Commission (OVRDC, Chillicothe)</u> | 2045 Comprehensive Transportation Plan | 2023 |
| Agricultural land is projected to expand in some areas of the northern and western regions of OVRDC while the south and the east are projected to remain roughly the same. Commercial development is expected to see the most development of any type of land use in the region. Brown and Fayette counties are expected to have the highest level of commercial development due to more acreage used for commercial activities. The highest areas for residential growth are found in counties closest to the major urban areas of Columbus and Cincinnati. | | |
| <u>Buckeye Hills (Athens)</u> | Long Range Transportation Plan 2020-2045 | November 2023 |
| The top transportation trends and issues in the region are a lack of public transportation options, a lack of transportation funding for local transportation projects, a growing demand for non-motorized infrastructure, and a chronic underutilization of the Ohio River as a mode of transportation. | | |
| <u>OMEGA (Zanesville)</u> | Regional Transportation & Development Plan | 2020 |
| Over one-half, 56.02%, of the OMEGA region is forest. Two significant land uses are pastured land and cultivated crops at 25.19% and 6.24% respectively. In contrast, just under 8% of the total region is developed. The predominantly rural nature of the OMEGA region continues to present infrastructure related challenges when considering new and/or improved utilities because of the vast open areas between serviced entities. | | |



Central Ohio

From 2020 to 2023, the Columbus metropolitan area added 38,376 residents, making it the second fastest growing region in the Midwest and the 32nd fastest growing region in the nation. The region includes the state capital and Columbus, the 14th most populous city in the country.

The Central Ohio region aligns with the One Columbus region boundary and is comprised of 11 counties with a total population of 2.291 million people in 2023. It includes Ohio's most populous county, Franklin County with 1.329 million people in 2023, and Ohio's fastest growing county, Delaware County, adding over 17,000 people in 2020. Six of Ohio's top 10 population growth counties since 2020 are in Central Ohio. As shown in **Figure 3.62**, the region is represented by two MPOs: the Mid-Ohio Regional Planning Commission (MORPC) and Licking County Area Transportation Study (LCATS), and two RTPOs: the Central Ohio Regional Planning Organization (CORPO) and Logan-Union-Champaign Regional Planning Commission (LUC). Since 1990, population growth in Central Ohio has represented 78% of the state's total.

In 2022, the Columbus MSA generated nearly \$169 billion in GDP, making it the 33rd largest metropolitan economy among MSAs in the US. Notably, Columbus is the only major metro region in Ohio that did not fall in the national rankings between 2017 and 2022. During this period, the Columbus MSA added almost 76,000 residents (+4%), 120,000 total jobs (+9%), 44,000 wage and salary jobs (+4%), and more than \$14 billion in Real GDP (+11%), making it first among Ohio MSAs on each of these measures.

The Central region's labor force participation rate is consistently the highest in the state, outperforming the statewide rate by approximately 5 percentage points. The region has a high concentration of professional and business services, financial activities, and construction jobs. Compared with other regions and the state, Central Ohio has a greater share of construction associated with the continued expansion of businesses, transportation and other public infrastructure, and residential development. Due to its designation as the state's capital, there is also a much higher concentration of state government employment in Central Ohio, with 37%, compared to other regions.

As shown in **Figure 3.63** population growth within Central Ohio has occurred just outside of I-270 within every county since 1990. This growth has expanded in all directions, except westward through the Big Darby Creek Watershed area, along corridors like US33, US23, SR161, I-71, and I-70. These locations are seeing the most intense growth and highest magnitude of land use change of any region in Ohio, leading to transportation system impacts such as increased congestion and safety issues. A significant amount of land has transitioned from undeveloped or agricultural to large-scale retail and mixed commercial uses and single-family residential. Land is also transitioning to warehousing, data centers, and light industry and manufacturing, particularly along I-70 and I-71 and associated with Intel in the New Albany area of Licking County.

Central Ohio is the second fastest growing region in the Midwest and features a dynamic and growing economy centered around the state capital, emerging tech industries, health care, and research conducted at The Ohio State University.



FIGURE 3.62—CENTRAL OHIO COUNTIES AND DESIGNATIONS

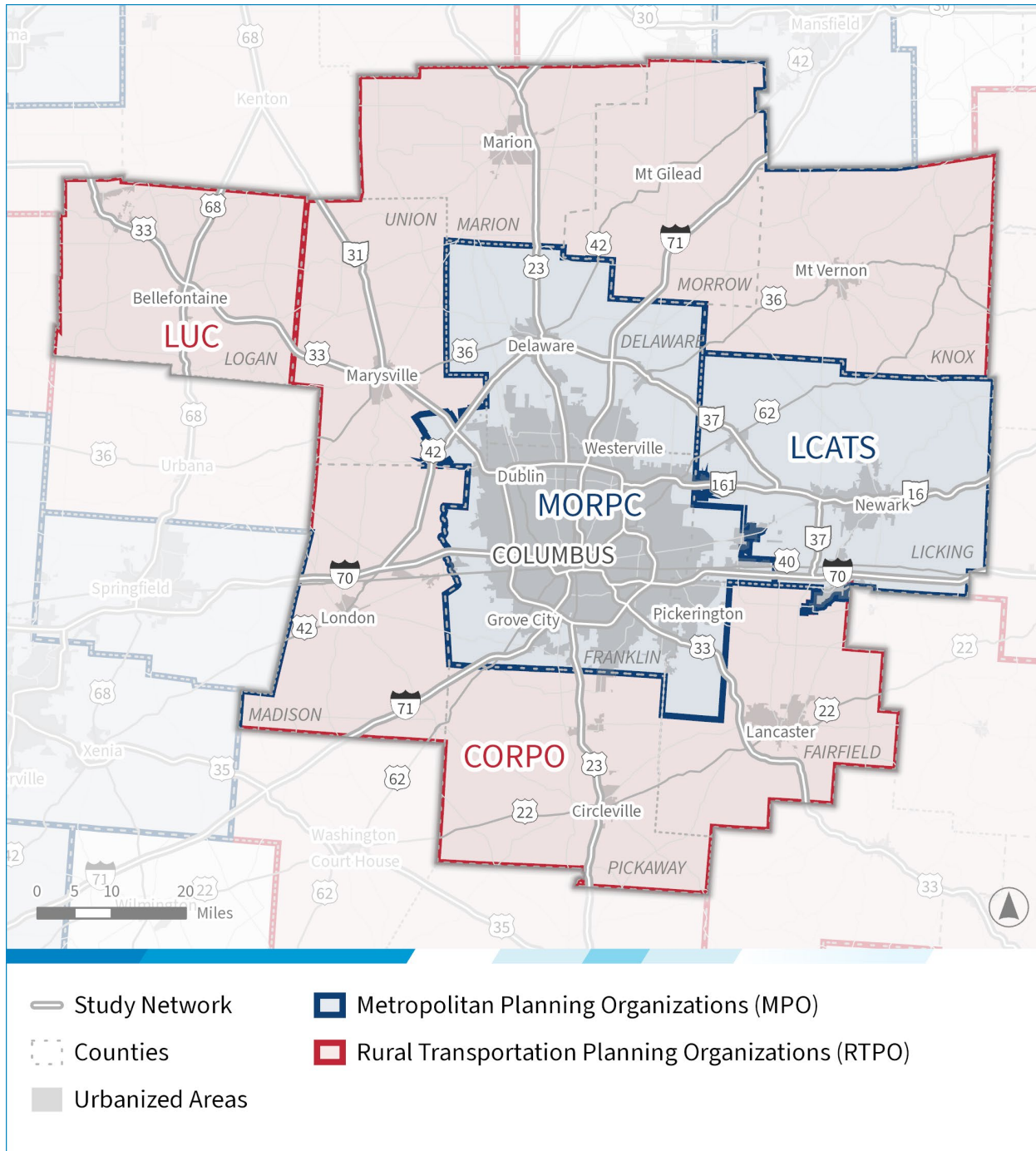
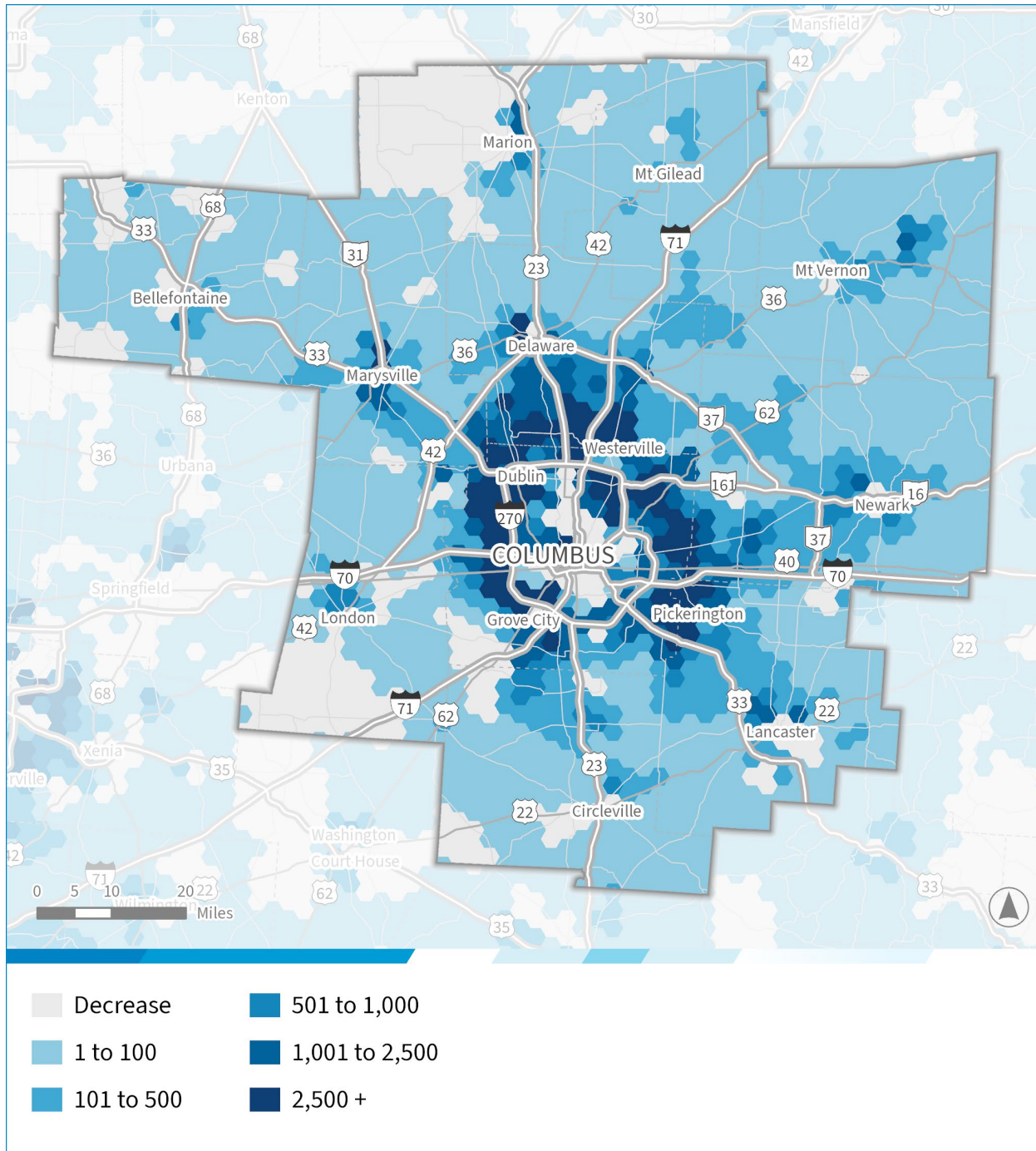


FIGURE 3.63—CENTRAL OHIO POPULATION CHANGE (1990-2020)



Source: US Decennial Census, 1990, 2020



System Overview

There is a total of 536 miles of the Study network in Central Ohio. Forty-one percent of these miles are interstate highways including I-70, I-71, and I-270, and 42% is comprised of US highways including major north-south facilities like US23, US33, and US68 and major east-west facilities like US42 and US36. State highways on the Study network in Central Ohio include SR37, SR161, and SR16, which are all critical facilities supporting connectivity in high-growth areas in Delaware and Licking counties.

While the Study network in Central Ohio as summarized in **Table 3.22** represents 13% of the statewide total Study network route miles, the region represents 19% of the state’s population in 2023. This disconnect represents an imbalance of major high-capacity facilities in the region relative to the current and projected population. Part of this disconnect is attributed to excluding US highways and state routes from the Study network inside of I-270 as they primarily facilitate local travel within Columbus and Franklin County.

TABLE 3.22—STUDY NETWORK IN CENTRAL OHIO

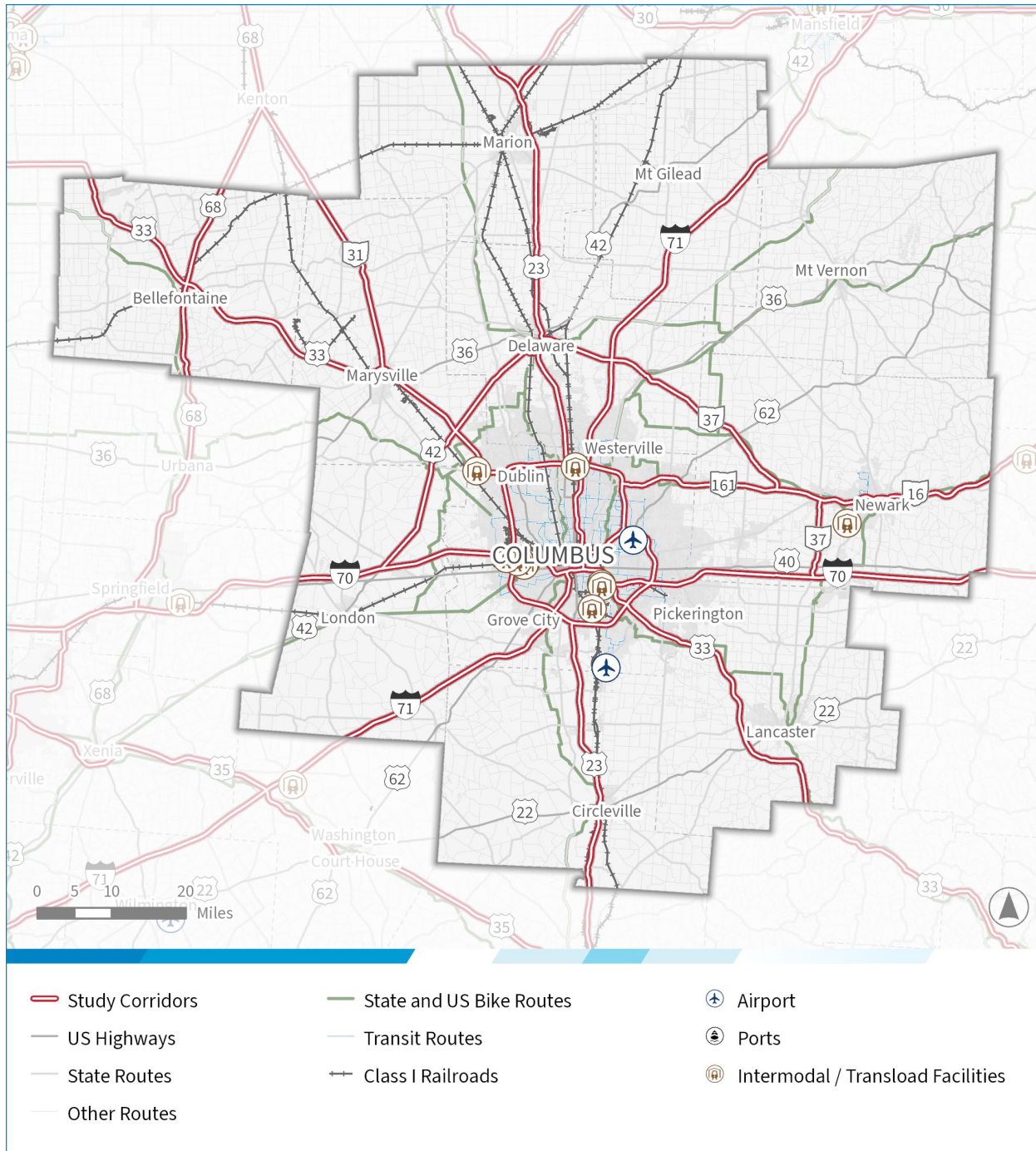
| Route Type | Mileage | Percent of Total |
|----------------|------------|------------------|
| Interstate | 219 | 40.7% |
| US Highways | 227 | 42.2% |
| State Highways | 91 | 17.1% |
| Total* | 536 | |

*Note: Mileage does not include ramps associated with Study network interchanges.

As shown in **Figure 3.64**, the Central Ohio Study network provides radial and circumferential routes across the region that link Central Ohio to Cincinnati and Cleveland via I-71, Dayton and Pittsburgh via I-70, and Toledo/Sandusky and Kentucky/West Virginia via US23 and US33. The radial routes also represent the primary commuting corridors into Columbus. The circumferential routes like I-270, US36, US42, and SR37 provide connections between the radial routes and between suburbs. These routes also distribute commercial vehicles to key intermodal facilities such as Rickenbacker International Airport and activity centers along the I-270 corridor.



FIGURE 3.64—CENTRAL OHIO TRANSPORTATION SYSTEM



Existing Travel Patterns and Congestion

This section describes existing volumes, travel patterns, and congestion on the Central Ohio Study network. Estimates of average daily traffic between OD pairs from Streetlight were used to derive bi-directional flows of vehicle trips relevant to Central Ohio between urbanized areas. This includes parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.65** presents daily trips starting or ending in Central Ohio highlighting the top 50 OD pairs by volume. Trips outside the state are not included.

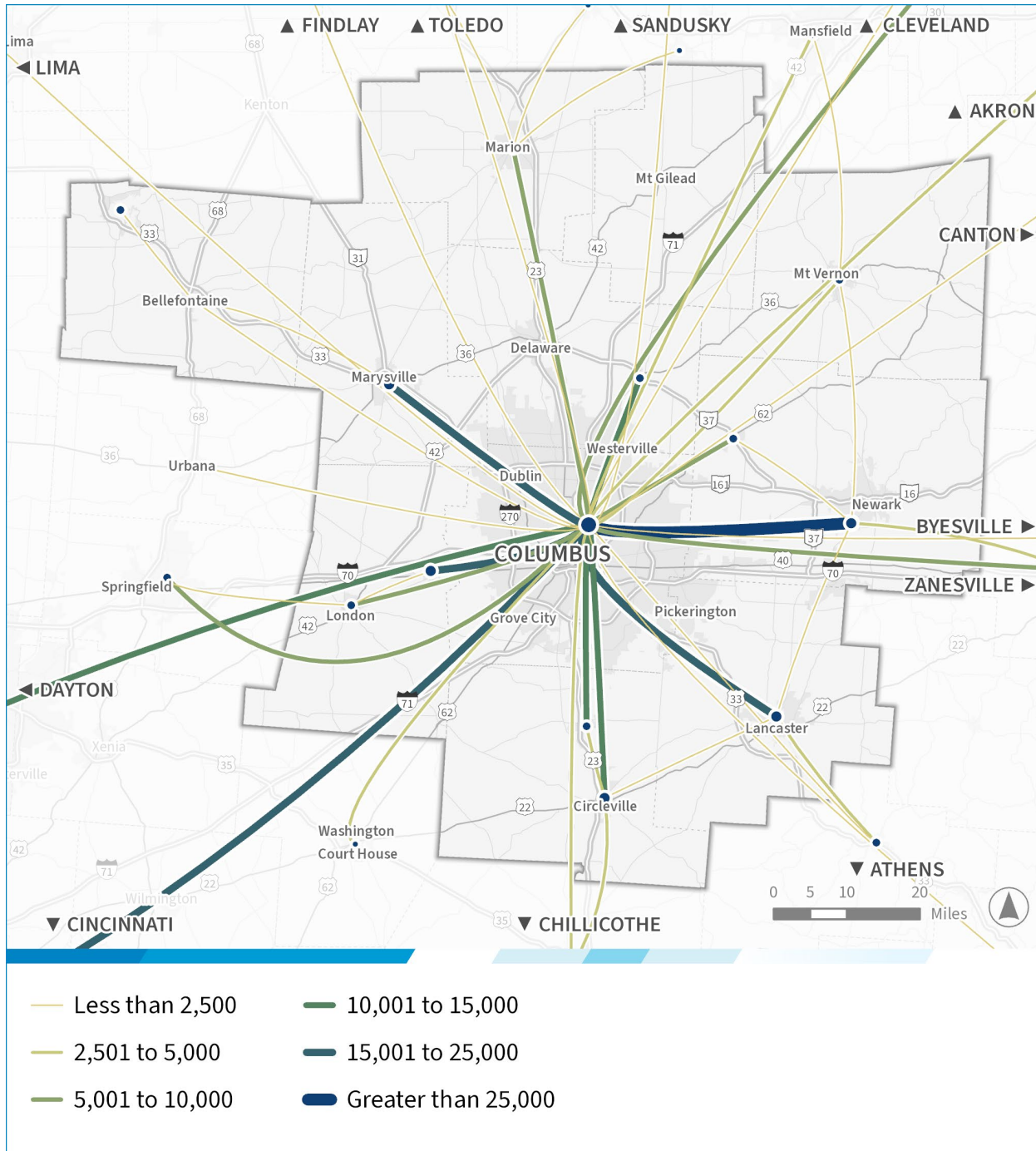
As depicted on the map, the Columbus urbanized area is a dominant market hub for the Central Ohio region. The largest OD flow depicted on the map, between Columbus and the fast-growing Newark urbanized area, represents nearly 39,000 daily bi-directional trips. Similarly large flows exist between the Columbus and Marysville urbanized areas, with 22,000 daily bi-directional trips; Columbus and West Jefferson, with 20,000 bi-directional trips; Columbus and Lancaster, with 24,000 daily bi-directional trips; and Columbus and Circleville, with 10,000 daily bi-directional trips.

The centrality of the Columbus urbanized area as a primary market for the rest of the state is also evident from the maps. Interregional flows between the Columbus urbanized area and the Cincinnati urbanized area represent more than 15,100 daily bi-directional trips; Columbus-Dayton represent about 13,000 daily bi-directional trips; Columbus-Cleveland represent about 7,800 daily bi-directional trips; and nearly 2,400 trips flow between the Toledo and Columbus urbanized areas daily. These major market connections demonstrate the importance of I-71 and I-70 in facilitating commerce between Central Ohio and the state's other major markets as well as the potential for US 23.

Figure 3.66 presents the 2023 AADT on the Study network in Central Ohio. The I-70/I-71 split and interchanges and I-670 serve the major employment centers in downtown Columbus and carry over 100,000 vehicles a day. I-670, which serves the north side of downtown and connects to I-270 and I-70, is a major east-west highway carrying over 100,000 vehicles a day and serves John Glenn Columbus International Airport, The Ohio State University, Greater Columbus Convention Center, and northern neighborhoods of Columbus. I-270 connects I-70, I-71, and I-670 with other parts of the Study network, fast-growing suburbs, and emerging activity centers. Several segments of I-270 carry over 125,000 vehicles per day, with the segment on the north end between SR315, US23, and I-71 carrying over 160,000 vehicles per day. US23, US33 and SR161 provide critical connections to communities outside of Columbus. AADT on these facilities are highest adjacent to I-270 and range from a high of 80,000 on US33 in southeast Columbus to a low of 39,000 on US23 just south of I-270.



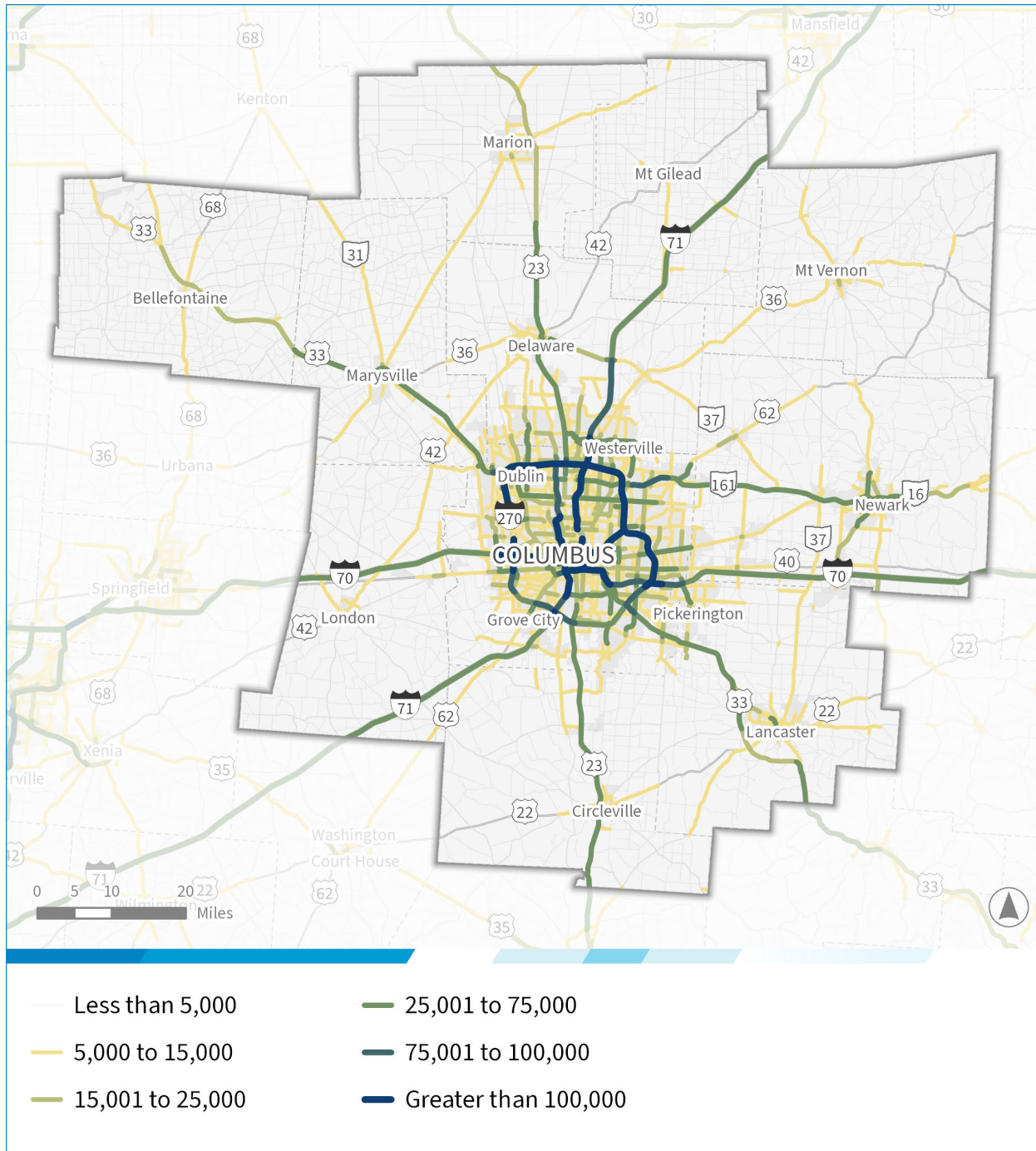
FIGURE 3.65—CENTRAL OHIO DAILY TRIPS (2021)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



FIGURE 3.66—CENTRAL OHIO AVERAGE ANNUAL DAILY TRAFFIC (2023)

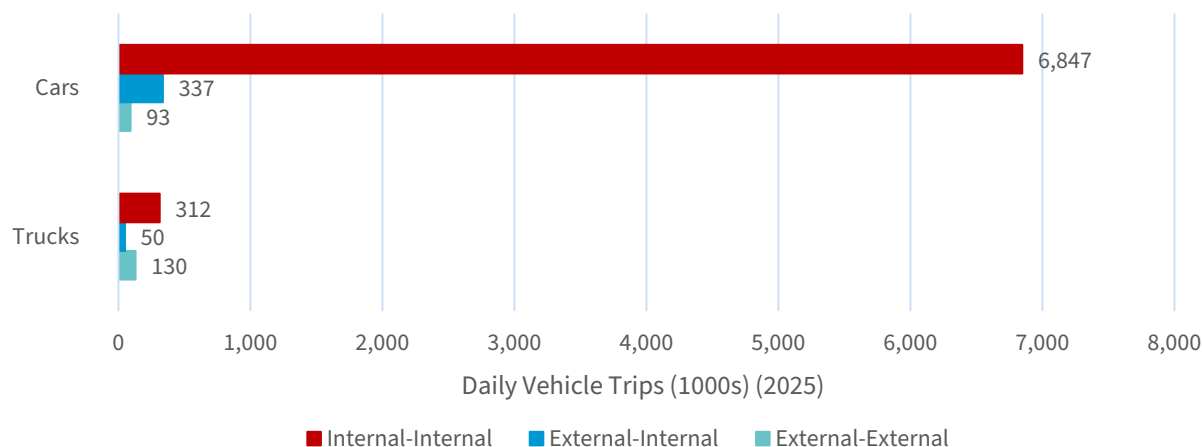


Source: ODOT, TMS



The OSWM provides an estimate of auto and truck demand on the state highway system by trip origins and destinations within the region, coming into or leaving the region, and passing through the region. As shown in **Figure 3.67** auto trips with both an origin and destination in the region are the largest demand segment, estimated at nearly 6.9 million daily trips, or 94% of all daily auto trips; 64% of truck trips are within the region. Across all trip types, trucks represent 6.3% of total daily vehicle trips.

FIGURE 3.67—CENTRAL OHIO VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION (2025)



Central Ohio faces widespread areas of congestion on the Study network. **Figure 3.68** presents existing congestion based on a measure of peak period v/c ratio, where values at 1.1 or above represent severe congestion, stop-and-go traffic, and values from 0.9 to 1.1 reflect impactful slowdowns—where traffic is still moving. From the regional perspective, Central Ohio faces the most widespread peak period congestion of Ohio’s regions. This congestion particularly impacts peak period commuting and other travel needs, leading to wasted time spent in traffic, particularly for workers and families who are taking kids to school and other activities. Peak period congestion also impacts commercial vehicles, particularly delivery vehicles moving goods to and from local businesses and service vehicles. Some of this congestion is also associated with ongoing major construction projects in the region, such as the I-70/I-71 Downtown Ramp Up project which is reconstructing I-70/I-71 in downtown Columbus to alleviate safety and congestion problems along the corridor. The existing severe congestion risk locations include:

- 1. I-71/I-70/I-670 inside I-270:** All three corridors see varying levels of severe congestion or congestion approaching severe levels during the peak period. The segments with severe levels include I-71 from 11th Avenue to the I-70 interchange, the I-70/I-71 split, the I-71/I-670 interchange, I-70 west of the I-71 interchange through I-670, and I-70 from I-270 to US33 on the east side of Columbus.
- 2. US33 and US23 south of I-270:** Both corridors see severe congestion at the I-270 interchanges and approaching segments. US33 between I-270 and I-70 also sees severe congestion.
- 3. I-270 from northwest to southeast:** I-270 from US33 in Dublin east to US23, I-71, and I-670 experience varying congestion levels during the peak period. The section of I-270 between I-70 east and US33 experiences severe peak period congestion.
- 4. US23 north of I-270:** US23 from I-270 experiences congestion and severe congestion through Delaware and the intersection with US36.

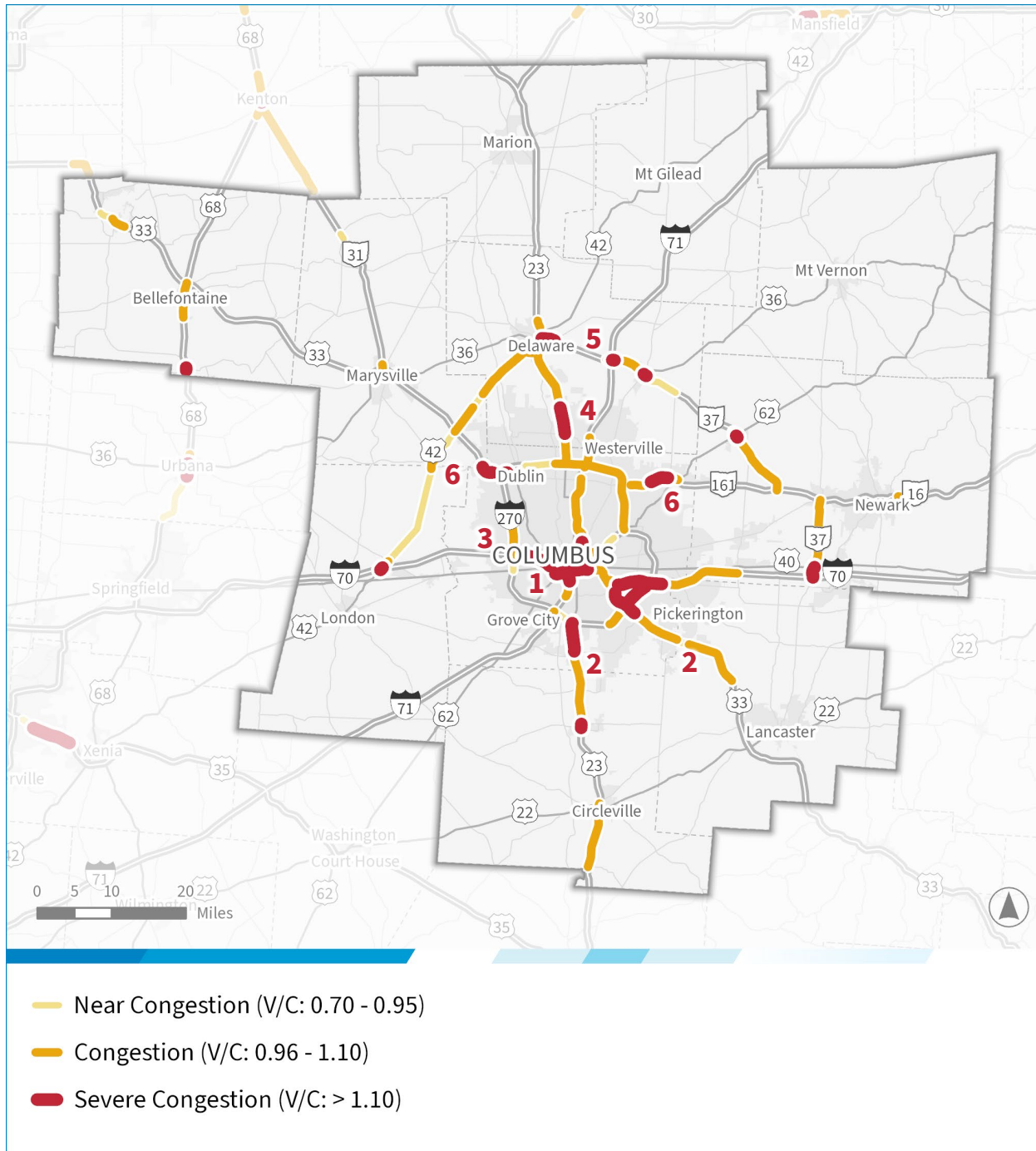


5. **US36 and SR37 in Delaware and Licking counties:** These corridors experience congestion and severe congestion in multiple segments from US23 to SR161 and from SR161 to I-70.
6. **SR161 east of I-270 and US33 northwest of I-270:** In both corridors, segments immediately outside I-270 experience severe peak period congestion.

There are other isolated areas of severe congestion or areas approaching severe congestion across the region including US42 in Delaware and Union counties, US42 interchange with I-70 in Madison County, US68 in Logan County—particularly through Bellefontaine, US23 throughout Pickaway County, and US33 throughout Fairfield County.



FIGURE 3.68—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME TO CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Development Trends and Future System Demand and Risks

Central Ohio is one of two regions in Ohio showing recent and projected population growth. Creating better connected and accessible transportation options in these growing regions can increase economic and workforce opportunities in other major urban areas projected to sustain or lose population. In turn, not making targeted investments in the transportation system can hinder economic growth, causing more congestion, impacting travel flows, and putting extra costs on supply chains and commuters.

While Central Ohio grew slowly during its first 150 years due to a lack of natural transportation advantages, the construction of the interstate highway system in the mid-20th century and the shift of freight shipments from rail and water to trucking put Columbus at the center of major east-west and north-south trade routes, I-70 and I-71, making Central Ohio an ideal location for supply chain and regional distribution. In recent decades, the global shift to a knowledge-based economy positioned Columbus well for more rapid growth than other areas of the state, supported by the state's flagship research university and investments in high-technology industries and services.

Central Ohio has a high concentration of professional and business services and financial activities jobs. This aligns with the focus of JobsOhio, which has identified financial services as one of 10 areas of intentional growth. Additionally, over the last decade, three industries have driven employment growth in Ohio: trade, transportation, and utilities, professional and business services, and construction. This strong and growing environment for high-paying jobs, aligned with competitive housing costs, a comfortable climate, and a centralized location between the East Coast and Midwest markets, creates many advantages for Central Ohio. All of these factors are, in part, reasons for generational economic opportunities for the region, such as the two Intel chip factories in Licking County and the Honda-LG battery plant in Fayette County. The population of Ohio's capital city grew 1.1% during the third and fourth quarters of 2023, earning the top spot in the US based on a new Bank of America Institute study.

In the next 30 years, it is anticipated that growth will continue along high-capacity highway corridors in suburban counties, with the greatest growth pressure in suburban areas around Columbus and between Cincinnati and Dayton. These three regions are becoming more connected, positioning as a future mega-region, with development potential increasing with in-between counties like Clark, Madison, Fayette, and Clinton. These counties have access to a large and skilled workforce, good highway access, and ample developable land.

Figure 3.69 depicts these development patterns, as well as residential and commercial, based on where population and jobs have increased within the region compared to where impervious surface, the transition of land from undeveloped to developed, has increased since 2010. Perspectives gathered from this analysis over the last decade indicate several major growth patterns:

- Growth continues to spread outwards from Columbus along Study highways outside of I-270 and into the suburbs of Franklin County and areas of adjacent counties
- The strongest residential growth has occurred along I-270 in suburbs such as Dublin, New Albany, Pickerington, and Grove City
- Robust commercial and mixed-use development has occurred in areas such as Polaris Fashion Place, located between I-71 and US23 in southern Delaware County, and Easton Town Center, located on I-270 just south of SR161. These developments are large retail shopping centers with a mix of residential and commercial uses.



- Areas of growth have also occurred further out in the cities of Delaware and Marysville on the north side of Columbus and in Reynoldsburg on I-70 to the east
- Strong employment growth in warehousing and logistics-related industries has occurred near Rickenbacker International Airport on the southeast side of Columbus. The airport is accessed via US23 and US33 and serves a growing number of major manufacturing, retail, and e-commerce businesses.
- Mixed-use redevelopment continues in downtown, near the Ohio State campus, around the Arena District, and in Franklinton west of the Scioto River
- Employment has stayed relatively stable in downtown but has increased steadily across the Central Ohio region, which continues to drive development demand

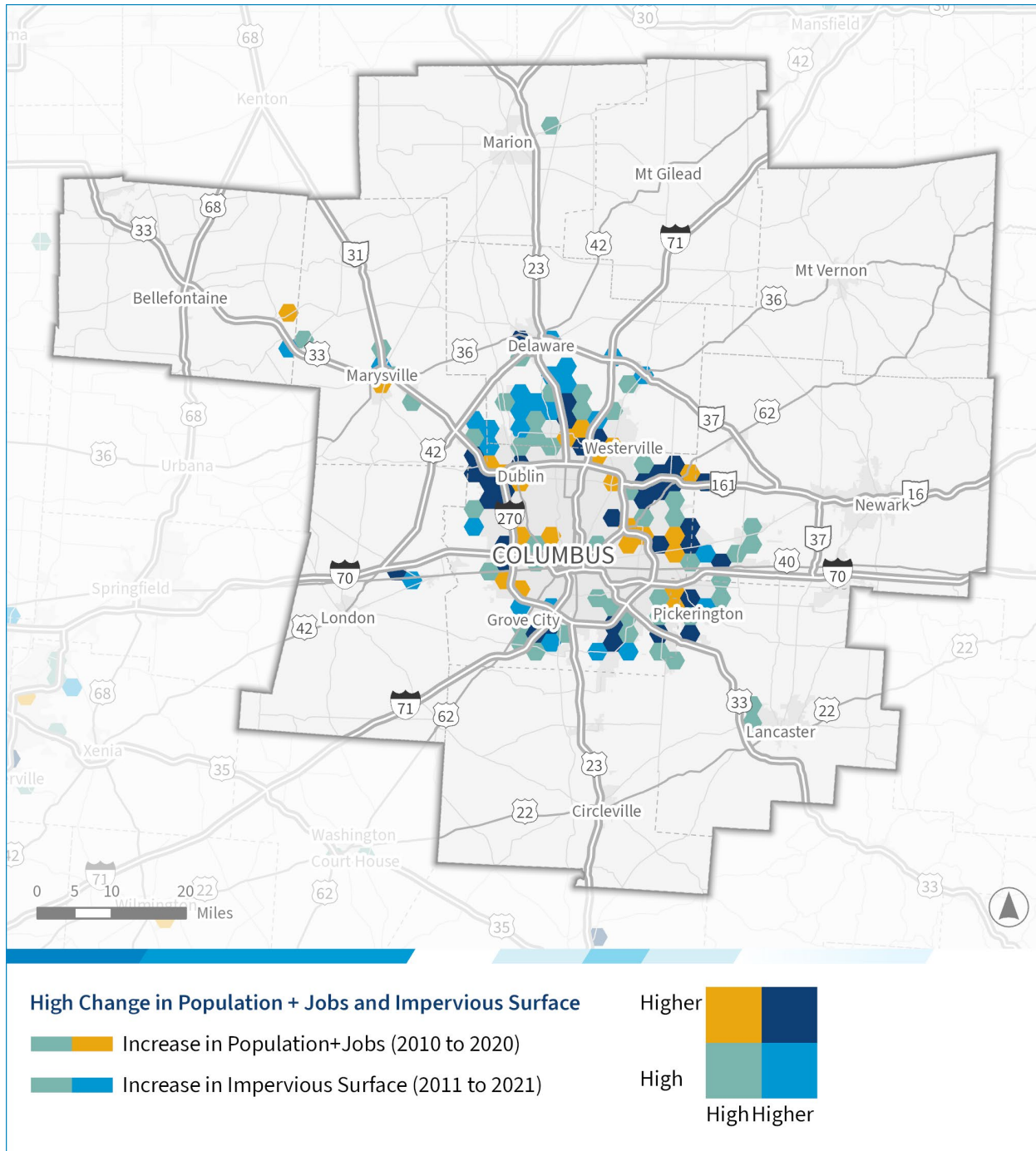
The three population forecasts for the region show a continued growth trend, ranging from an increase of 299,000 residents, a 13% increase, through 2055 in the baseline scenario to an increase of 556,000 residents, a 24% increase, in the high scenario. Given the strong population forecasts, daily VMT and VHT on the Study network in Central Ohio are anticipated to increase, as shown in **Table 3.23**. This increase is primarily driven by a 41% growth in truck VMT and a 39% increase in truck VHT. **Figure 3.70** presents the resulting change in daily traffic through 2055 in the baseline scenario, showing considerable growth in volumes on most Study segments but especially on segments of I-71 between downtown and SR37 and I-270 on the north side of Columbus between I-71 and US23.

TABLE 3.23—CENTRAL OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 72,133,829 | 78,232,526 | 8% |
| Truck VMT | 13,974,980 | 19,742,614 | 41% |
| Total VMT | 86,108,809 | 97,975,140 | 14% |
| Auto VHT | 2,085,097 | 2,422,303 | 16% |
| Truck VHT | 314,425 | 437,719 | 39% |
| Total VHT | 2,399,522 | 2,860,021 | 19% |



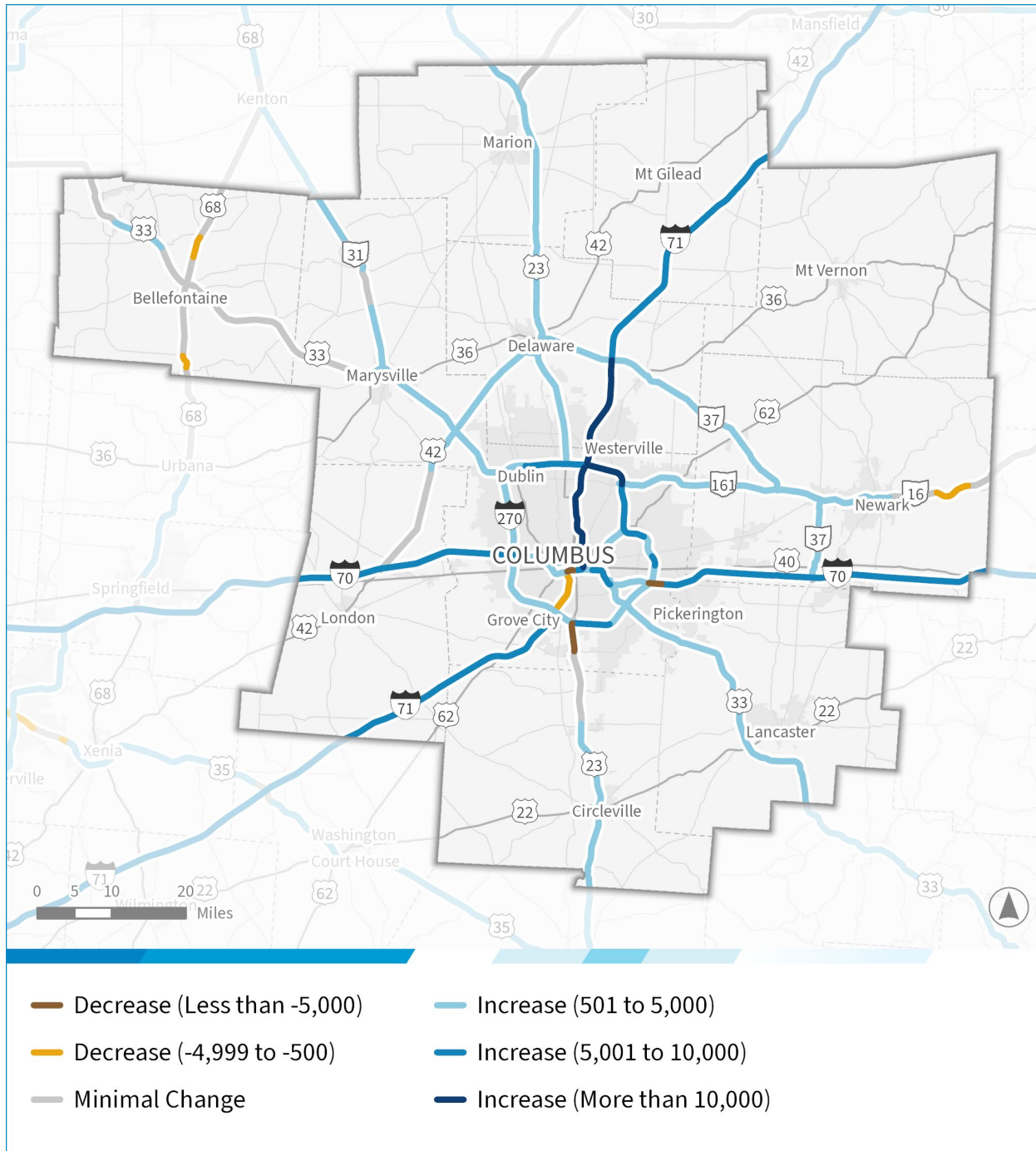
FIGURE 3.69—CENTRAL OHIO DEVELOPMENT TREND



Source: NLCD, US Census



FIGURE 3.70—CENTRAL OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

As an alternative to analyzing and presenting each scenario and horizon year within this report, the Strategic Transportation and Development Analysis team decided on a risk-based approach for compiling findings across scenarios and addressing different congestion and risk dynamics. This view of risk is consistent with language in H.B. 23 including, “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four congestion-oriented questions and a question on access control that are presented as a composite congestion risk in **Figure 3.71**. A summary of the grouped hotspots associated with future congestion risks are presented in **Table 3.24**.

Peak-period congestion—Where could the Study network experience severe congestion during the peak period across each scenario in 2055?

- Segments identified with future severe congestion align with many of the segments where traffic congestion occurs today—predominantly on I-70 and I-71 inside I-270 which serves downtown, and on segments north and east of Columbus in Delaware and Pickerington where high population growth is projected.

Congestion impacts of site development—Where could the Study network see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- There are nine segments with congestion risks. The heaviest future congested corridors, I-70 and I-71, have one adjacent high priority development site. Two high priority sites and two medium priority sites are located along future congested corridors, including SR31, US23, and US42. Five of the seven high priority sites and one medium priority site are located in areas with limited future congestion along SR37, US62, US22, and near the I-70/US42 interchange.

Workforce accessibility congestion—For areas where accessibility to the workforce within 40 minutes is projected to decline between 2025 and 2055, as presented in **Chapter 2**, workforce section, where could the Study network experience bottlenecks be contributing to this decline?

- The Central Ohio region was home to a fifth of the state’s workforce in 2022. The workforce is heavily concentrated in urban areas, representing 94.6% of the total regional workforce.
- Worker access risk, or areas where highway congestion reduces the ability for workers to access jobs, is highest on corridors in the Columbus region. The corridors with the greatest risk of bottlenecks impacting worker access are located mostly in the northern and eastern segments of I-270, the US42 and US36/SR37 corridors in Delaware and Licking counties, US23 north, I-70 east, and on I-70 and I-71 near downtown Columbus.



Freight bottlenecks—Where could the Study network experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- Freight bottlenecks are concentrated on I-70 and I-71 near downtown, segments of I-270 near the US23 and I-71 interchanges in the north, and segments of I-270 at the US23 and US33 interchanges near Rickenbacker International Airport in the south. Ohio’s statewide freight plan, [Transport Ohio](#), identified highway freight bottlenecks based on truck travel time reliability and total delay, which used an analysis performed in 2021. Four locations within Central Ohio were included as freight bottlenecks on I-71 south and I-70 east.

Access control—What are the locations on the Study network where lack of access control in areas of forecasted development could contribute to future congestion?

- There are several locations on the Study network in the Central Region where lack of access control in areas of forecasted development could contribute to future congestion.
- With development expected to continue in Delaware, growth could impact future operations on segments with partial or no access control on US23 and US42. This focus on improving infrastructure has become a hot button issue for many of the local jurisdictions.
- US33 serves Downtown Lancaster, and there is no access control in this region. This area has attracted new investment, including residential, commercial, and logistics-related development. Suburban residential growth is expected to continue on greenfield development sites further out from Columbus and Lancaster on US33, creating additional future access issues.



FIGURE 3.71—CENTRAL OHIO CONGESTION RISK (2055 HOTSPOTS)

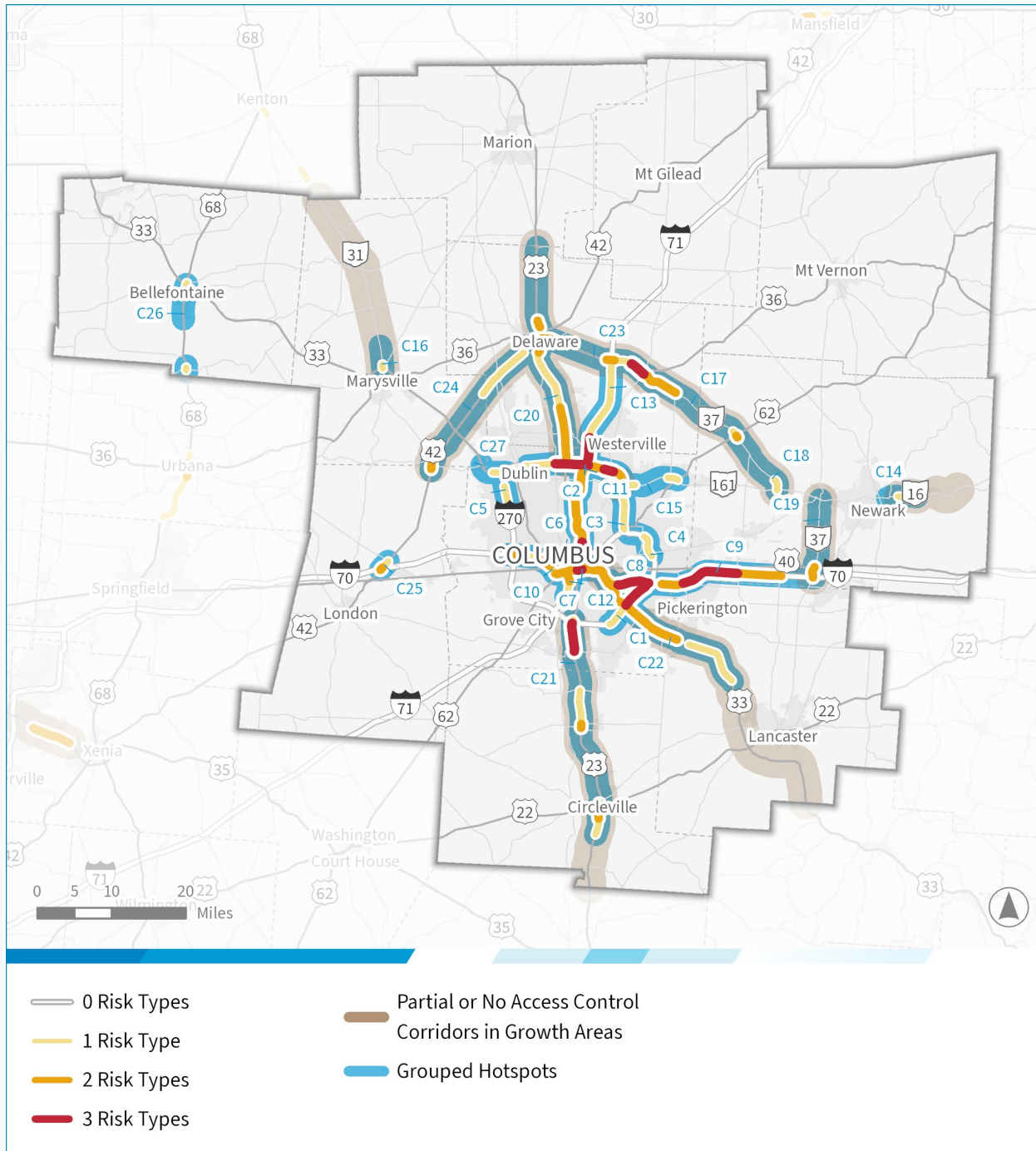


TABLE 3.24—CENTRAL OHIO CONGESTION RISK LOCATIONS (2055 HOTSPOTS)

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|---|---|---|-------------------------------|
| C1: I-270E (I-70 to Alum Creek Drive) | Multiple congestion risks, including 3+ risks from I-70 to US33 | Today | High |
| C2: I-270N (Sawmill to I-71) | Multiple congestion risks, including 3+ risks from SR315 to I-71 | Today | High |
| C3: I-270E (SR317 to SR16) | Limited congestion risk near airport | Today | Low |
| C4: I-270NE (I-71 to I-670) | Multiple congestion risks, including 3+ risks from I-71 to SR3 | Today | High |
| C5: I-270NW (Hilliard to US 33) | Multiple congestion risks | 2035 and beyond | Medium |
| C6: I-670 (I-71N to SR315 to I-70W) | Multiple congestion risks including 3+ risks at I-71N interchange | Today | High |
| C7: Crossroads (I-70/I-71/I-670) | Multiple congestion risks, including 3+ risks at I-670/I-71 interchange and I-71N/I-70E interchange | Today | High |
| C8: I-70E (I-71N to I-270E) | Multiple congestion risks, including 3+ risks from US33 to I-270E | Today | High |
| C9: I-70E (I-270E to SR37) | Multiple congestion risks, including 3+ risks from SR256 to SR310 | Today | High |
| C10: I-70W (I-270W to I-71S) | Multiple congestion risks | Today | Medium |
| C11: I-71 (I-270 to I-670) | Multiple congestion risks, including 3+ risks from 11th Avenue to I-670 interchange | Today | High |
| C12: I-71 (I-70 west to SR104) | Multiple congestion risks | Today | Medium |
| C13: I-71 (US36 to I-270) | Multiple congestion risks, including 3+ risks from Ikea Way to I-270 interchange | Today | High |
| C14: SR16 (east of Newark) | Limited congestion risk near Newark and no access control in projected growth areas in Eastern Licking County | 2035 and beyond | Low |
| C15: SR161 (I-270 to US 62) | Limited congestion risk near I-270 and US62 interchanges | 2035 and beyond | Low |



| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|--|---|---|-------------------------------|
| C16: SR31 (Marysville) | Limited congestion risk in Marysville plus no access control in projected growth area in Union County | 2035 and beyond | Low |
| C17: SR37 (US36 to US62) | Multiple congestion risks, plus no access control in projected growth area, also direct access to Johnstown/Intel from I-71 | Today | Low |
| C18: SR37 (US62 to SR161) | Limited congestion, plus no access control in projected growth area | Today | Low |
| C19: SR37 (SR161 to I-70E) | Limited congestion risk near I-70 and no access control in projected growth area throughout Licking County | Today | Low |
| C20: US23 North (SR229 to I-270) | Multiple congestion risks throughout corridor, including no access control in projected growth areas from Delaware to SR229 | Today | High |
| C21: US23 South (I-270 to Circleville / Dupont Road) | Multiple congestion risks throughout corridor, including 3+ risks from I-270 to SR317, and including no/partial access control in projected growth areas across Pickaway County | Today | Medium |
| C22: US33 South (I-70 to I-270 to US33 Bus.) | Multiple congestion risks throughout corridor, including no/partial access control in projected growth areas across Fairfield County | Today | Medium |
| C23: US36 (US23 to I-71 to SR3/SR37) | Multiple congestion risks, including 3+ risks between I-71 and Sunbury, plus no access control in projected growth area | Today | Medium |
| C24: US42 (US23 to US33, and in Plain City) | Multiple congestion risks, plus no access control in projected growth area | 2035 and beyond | Medium |
| C25: US42 (SR29 to I-70) | Multiple congestion risks, plus no access control in projected growth area | 2035 and beyond | Medium |
| C26: US68 (Bellefontaine, West Liberty) | Limited congestion risk in Bellefontaine and West Liberty | 2035 and beyond | Low |
| C27: US33 North (SR160/SR4 to I-270) | Limited congestion risk on US33 in Dublin | Today | Low |



Regional Plans

In Central Ohio, eight counties have adopted a long range, comprehensive or economic plan. Key subjects that have emerged from these plans focus on how to further the region’s quality of life while balancing the impacts of development and new strains on infrastructure. These plans highlight municipalities’ concerns with fiscal responsibility and managing growth in a sustainable manner while addressing current and future economic development needs.

Table 3.25 presents highlights from the LRTPs developed by Central Ohio’s MPOs and RTPOs.

TABLE 3.25—CENTRAL OHIO MPO AND RTPO LONG RANGE TRANSPORTATION PLAN HIGHLIGHTS

| Lead Agency | Name | Status |
|--|--|-----------|
| Metropolitan Planning Organizations | | |
| <u>LCATS (Newark)</u> | Long Range Transportation Plan | 2021 |
| While Ohio has had an overall 3% population increase since 2000, Licking County has far exceeded the state average. Between 2000 and 2018, Licking County grew 20.6%, making it the sixth fastest growing county in the state during that time. It is projected that only 22 of Ohio’s 88 counties will experience population growth through 2030. Licking County is expected to be the fourth fastest growing county during that time. | | |
| <u>MORPC (Columbus)</u> | 2024-2050 Metropolitan Transportation Plan | May 2024 |
| In the first quarter of 2023, MORPC developed population and employment forecasts that would inform the MTP. These forecasts looked out over the 2024-2050 MTP planning horizon and distributed the expected population and job growth across the region. The region is expected to grow significantly in the coming decades, growing from the current 2.4 million residents to a projected population of 3.1 million across the 15-county Central Ohio region. Jobs are also expected to grow 28% from 1.3 million to 1.6 million. The priority infrastructure projects supporting this growth include nearly \$35 billion of investment to address multimodal needs. | | |
| Regional Transportation Planning Organizations | | |
| <u>CORPO (Circleville)</u> | CORPO 2023-2050 Transportation Plan | 2023 |
| By 2050, the CORPO region is expected to experience significant population, household, and employment growth, growing to over a half a million people and almost a quarter of a million households and jobs. Reaching over a half a million people by 2050 requires the region to add more population each year than was added each year since 1980. | | |
| <u>LUC (Bellefontaine)</u> | 2050 Long Range Transportation Plan | July 2023 |
| ODOD’s 2050 population projections were used to identify the two-county region’s future socioeconomic characteristics. The population is expected to slightly decrease, 6.6%, over the next 30 years. The LRTP includes significant proposed investments on Study network corridors, including multiple improvements to US68. | | |

Additional details on local and regional development trends and priorities are based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of CEDS and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



West Ohio

West Ohio is comprised of 12 counties near the state’s border with Indiana, as shown in **Figure 3.72**. Geographically the region is split between its urban core to the south—the Dayton metropolitan area—and primarily rural communities to the north. The Dayton MSA consists of Greene, Miami, and Montgomery counties and sits at the intersection of I-75 and I-70. A unique aspect that differentiates West Ohio from other regions in the state is that the Dayton metropolitan area is bookended by two larger metropolitan regions—Cincinnati and Columbus. As a result, West Ohio is uniquely positioned to leverage economic opportunities that stem from proximity to those regions. Proximity to those metropolitan regions also impacts current and projected travel patterns for West Ohio, particularly its southern half.

Multiple corridors, including I-75, I-70, and I-71, connect West Ohio to major markets nationwide. Other vital transportation assets include a rail network with two Class I rail operators, CSX Transportation and Norfolk Southern, and multiple Short Line freight railroads, the Dayton International Airport, and intercity bus terminals.

Since 1990, West Ohio’s population has remained generally stable, with an increase of 13,953 residents, or 1.3%. However, though the region’s total population has remained mostly unchanged, *where* those residents live has changed. Increasingly, West Ohio’s population is becoming more urban and concentrated within the Dayton MSA. Of the West Ohio region’s nearly 1.3 million residents nearly 940,000 or 73% live in an urbanized area. Some communities within Montgomery and Greene counties between US42 and I-75 have experienced population gains of 2,500 or more residents since 1990. As shown in **Figure 3.73**, the northern portion of the Cincinnati metropolitan area has been growing into the Dayton MSA, particularly between Middletown and Centerville along the I-75 corridor. Growth also continues east of Dayton, north of Springfield, in Champaign County, and in Troy, while areas in the centers of Dayton and Springfield have seen population declines since 2000.

Despite having little population growth, West Ohio has continued to be economically productive. GDP for the Dayton MSA has continually risen since 2001 aside from brief downturns in 2009, 2011, and 2020 downturns. In 2022, total GDP was over \$53 billion, ranking the Dayton MSA as the 75th largest MSA in the county based on total GDP. Goods-producing industries, including aviation and advanced aeronautics, are key contributors to this growth.

West Ohio is uniquely positioned to leverage economic opportunities that stem from its proximity to the Central Ohio and Southwest Ohio regions and its strong national position as a hub for aviation and advanced aeronautics.



FIGURE 3.72—WEST OHIO COUNTIES AND DESIGNATIONS

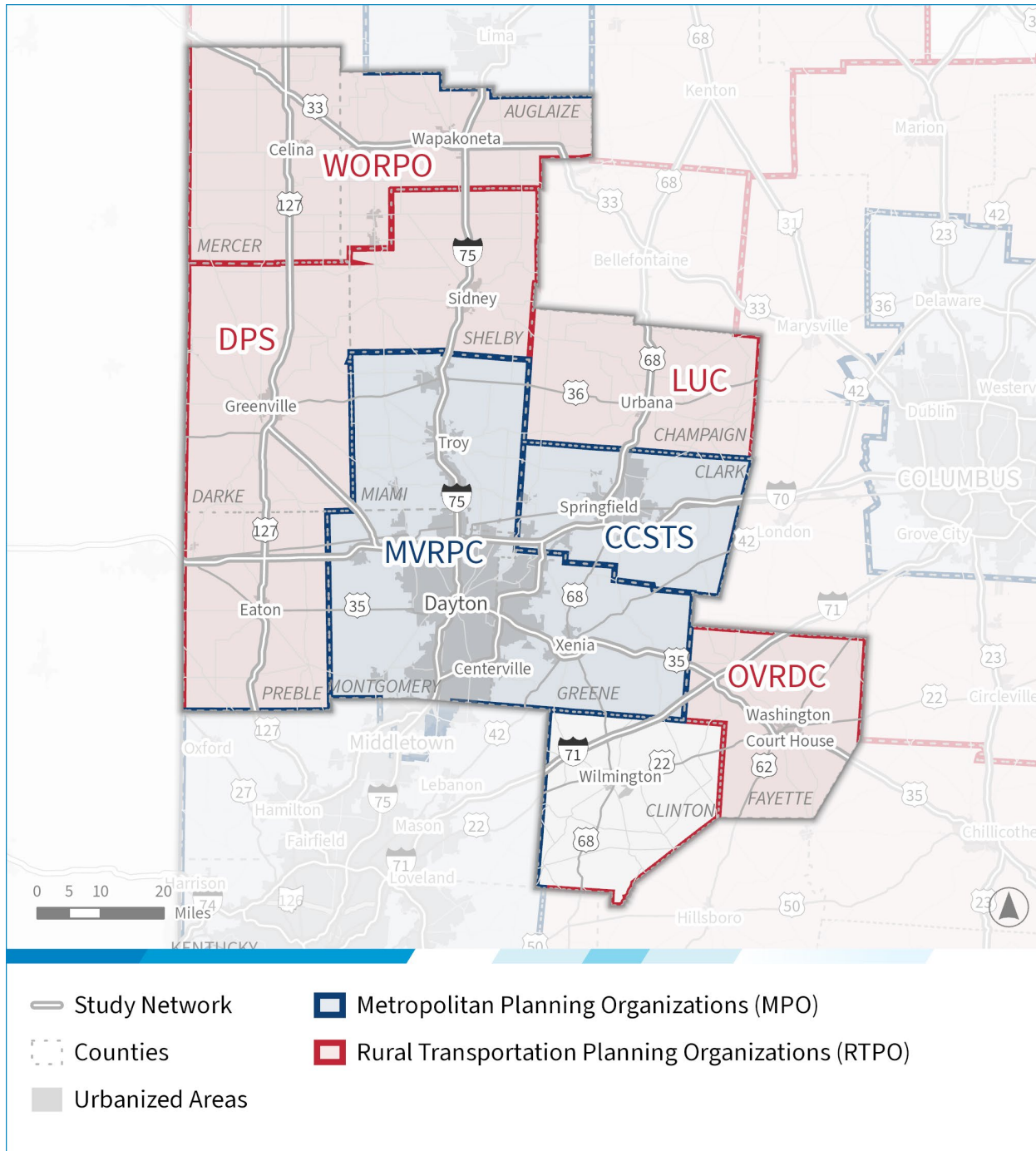
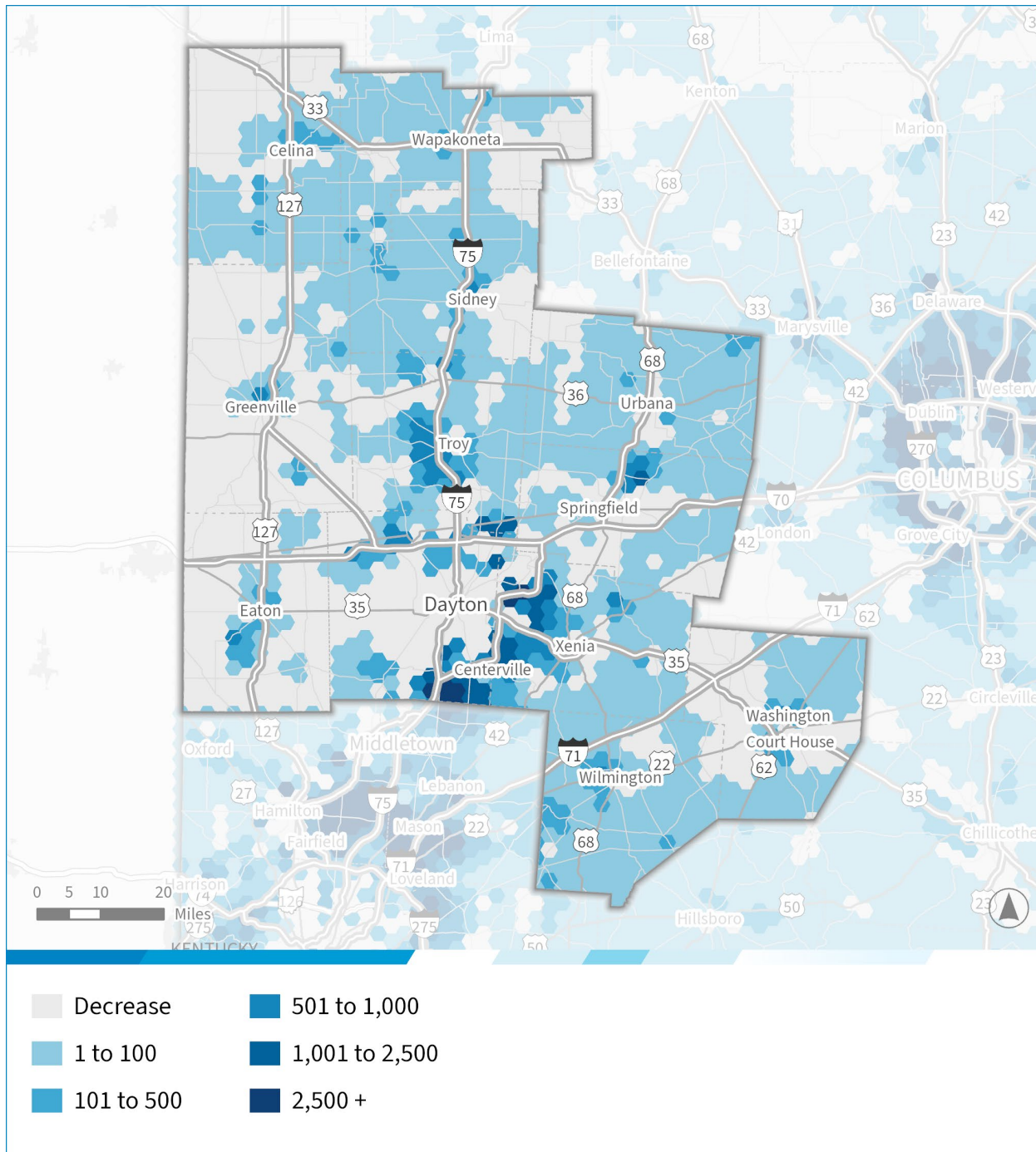


FIGURE 3.73—POPULATION CHANGE IN WEST OHIO (1990-2020)



Source: US Decennial Census, 1990, 2020



System Overview

There is a total of 446 miles of the Study network located within West Ohio, about 11% of the network total, as presented in **Table 3.26**. The Study network is nearly evenly split between Interstate highways and US highways. Interstate highways, namely I-75, I-70, I-71, and I-675, make up approximately 47%, 209 miles of the Study network in West Ohio, while US highways comprise 48%, 215 miles. State highways comprise a much smaller share of the Study network compared to the statewide total—only about 5%, 21 miles, in West Ohio while the statewide average is 18%. This low total of state highways is more a product of a grid that interstates and US highways create for major connections inside and outside the region, enabling state highways to primarily focus on regional and local trips.

TABLE 3.26—STUDY NETWORK IN WEST OHIO

| Route Type | Mileage | Percent of Total |
|-----------------------|------------|------------------|
| Interstate | 209 | 46.9% |
| US Highways | 215 | 48.3% |
| State Highways | 21 | 4.7% |
| Total* | 446 | |

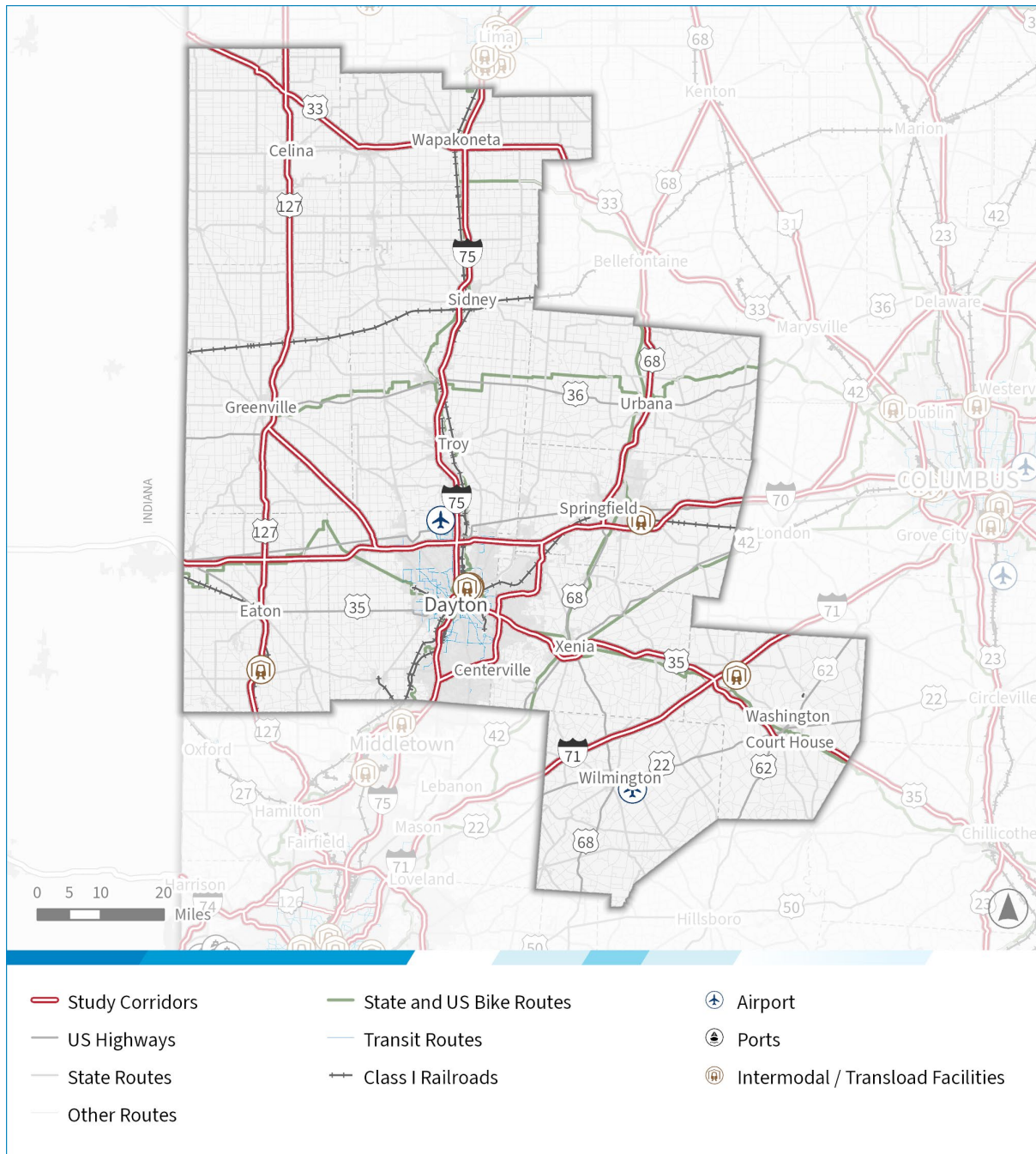
*Note: Mileage does not include ramps associated with the Study network interchanges.

As shown in **Figure 3.74**, the West Ohio Study network has four parallel north-south corridors, US127, I-75, US68/I-675 and I-71, that connect the region to Northwest Ohio and Dayton toward Cincinnati. The region is heavily dependent on I-75 as the highway traverses much of West Ohio. Apart from serving through traffic, it connects the Dayton metropolitan area to West Ohio’s rural communities to the north.

US127 and US68 also serve as vital connections for rural parts of the region. They provide north-south alternatives to I-75. US33 is also an important route for the region. It provides West Ohio access to the Fort Wayne and Columbus metropolitan areas and serves as an east-west alternative to I-70 for rural communities in the northern portion of the region. US35 is the primary east-west connection between Dayton and Southeast Ohio and ultimately connects to West Virginia.



FIGURE 3.74— STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS NETWORK IN WEST OHIO



Existing Travel Patterns and Congestion

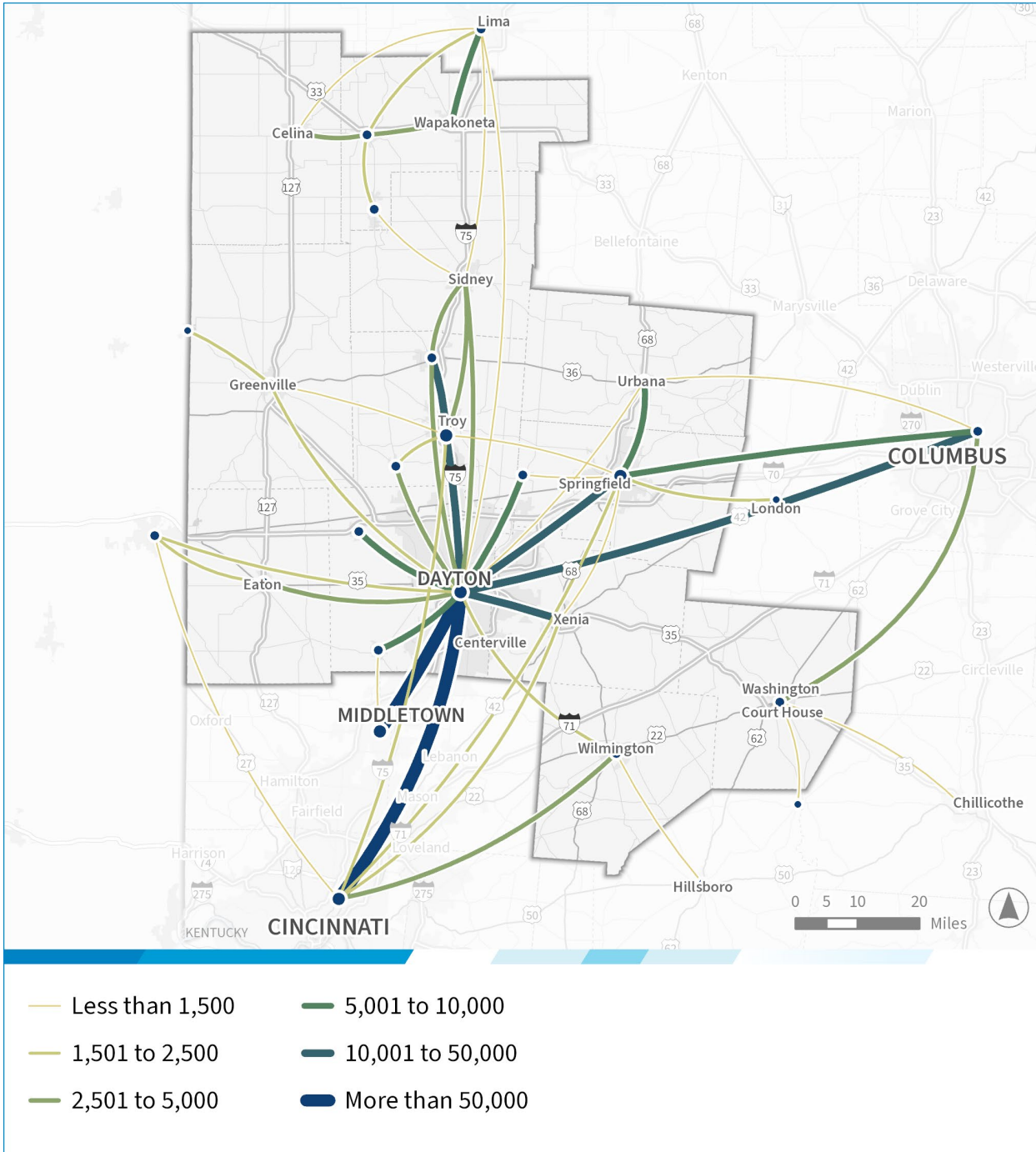
This section describes existing volumes, travel patterns, and congestion on the West Ohio Study network. Streetlight data showing average daily traffic estimates between OD pairs were used to derive bi-directional flows of vehicle trips relevant to West Ohio between urbanized areas. This includes parts of the 33 markets originally identified for the interregional analysis presented later in this chapter. **Figure 3.75** presents daily trips starting or ending in West Ohio, highlighting the top 50 OD pairs by volume. Trips outside the state are not included.

Figure 3.75 depicts a clear pattern in which the Dayton urbanized area plays a role as a regional hub for smaller urbanized areas throughout the West region while maintaining strong interregional connections to Southwest and Central Ohio. The largest intraregional OD flow is between the Dayton and Troy urbanized areas in the I-75 corridor, representing about 34,700 daily bi-directional trips. Dayton's historic role as an urban hub for smaller cities to the north along the I-75 corridor is also evident in the flows between the Dayton urbanized area and Piqua and Sidney. The connection between the Dayton and Xenia urbanized areas with 31,900 daily bi-directional trips, mostly through the US35 corridor, is also strong. The Dayton-Springfield connection also remains prominent, with 25,900 daily bi-directional trips between the two urbanized areas, mostly via I-70.

As depicted on the map, interregional connections play a large role in West Ohio. As historic trading partners, the Dayton and Cincinnati urbanized areas represent about 77,500 daily bi-directional trips along I-75. The Dayton-Middletown connection has roughly 55,300 daily bi-directional trips, which use both I-75 and SR4. To the east, there are about 13,000 daily bi-directional trips between the Dayton and Columbus urbanized areas, and about 6,200 daily bi-directional trips between the Springfield and Columbus urbanized areas. Wapakoneta, Saint Marys, and Celina are part of an interregional connection with Lima in the Northwest Ohio region.



FIGURE 3.75—WEST OHIO DAILY AUTO AND TRUCK TRIP PATTERNS (2025)

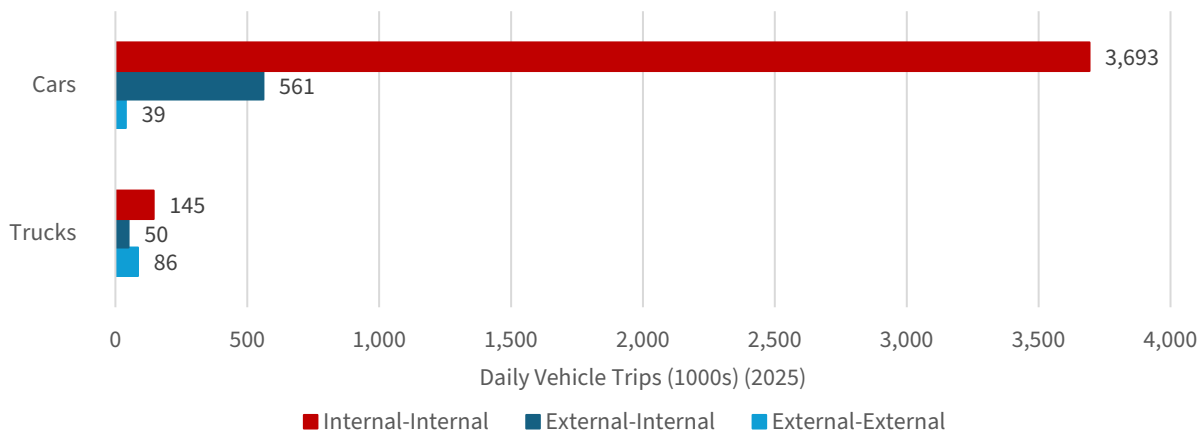


Source: Streetlight Data and Strategic Transportation and Development Analysis Team



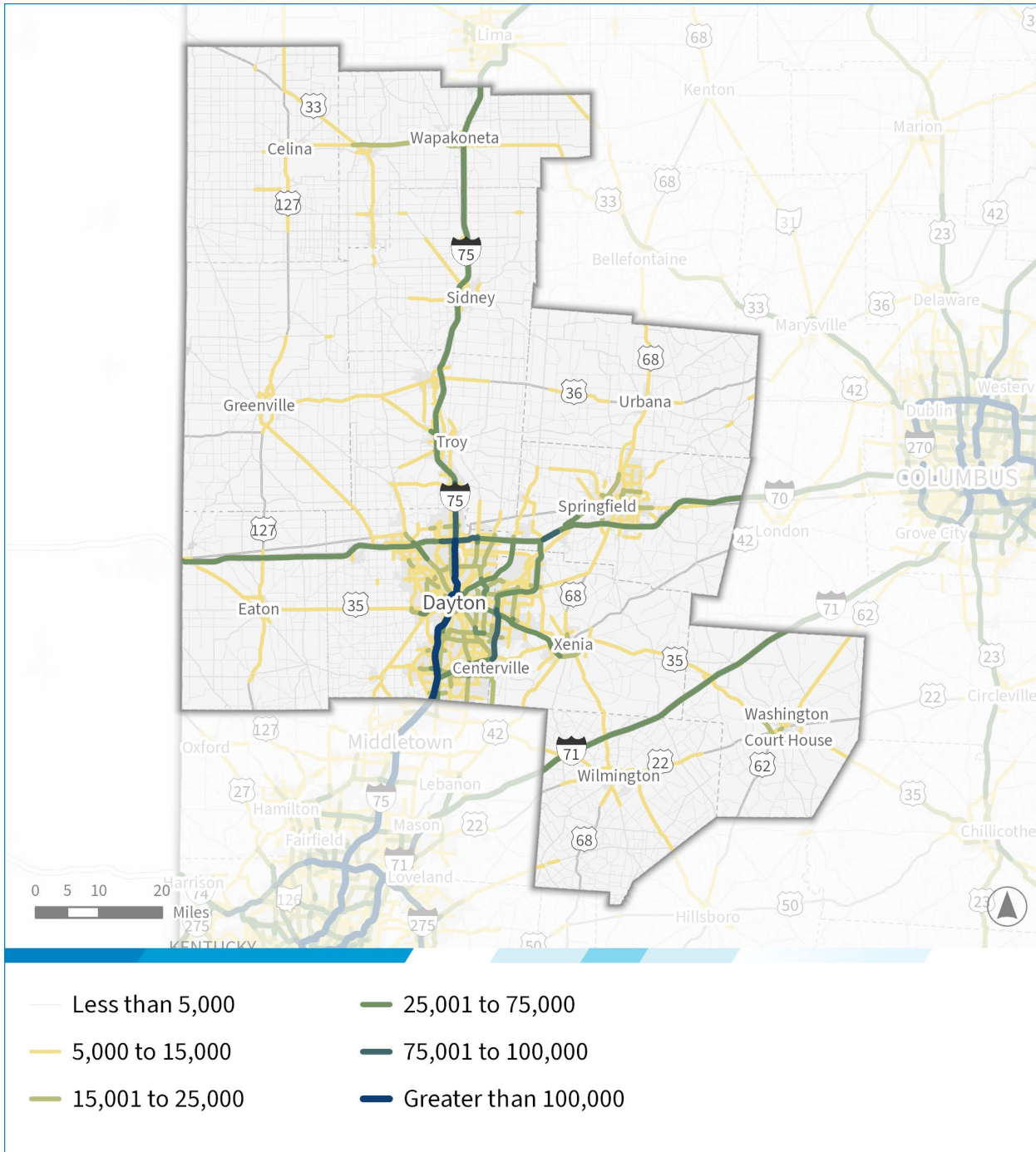
The OSWM provides an estimate of auto and truck demand on the state highway system for trips that are internal to West Ohio, have an endpoint in West Ohio (i.e., an origin or destination), and that pass through the region. As shown in **Figure 3.76**, auto trips with both an origin and destination within the region are the largest demand segment, estimated at nearly 3.69 million daily trips, or 86% of all daily vehicle trips for autos and trucks combined. Across all trip types, trucks represent 6.1% of total daily vehicle trips.

FIGURE 3.76—WEST OHIO VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION (2025)



I-75 through Dayton carries nearly 60,000 to over 100,000 vehicles per day, while volumes on I-70 range from about 72,000 to 76,000 vehicles per day, as shown in **Figure 3.77**. Though US33 only travels through a relatively small portion of West Ohio in Mercer and Auglaize counties, it forms a critical east-west alternative to I-70. It provides direct connectivity to the Columbus metropolitan region. Near its intersection with US127, US33 is estimated to carry about 7,500 vehicles per day. SR49 between Dayton and Greenville carries nearly 9,400 vehicles per day.

FIGURE 3.77—AVERAGE ANNUAL DAILY TRAFFIC (2023)



Source: ODOT, TMS

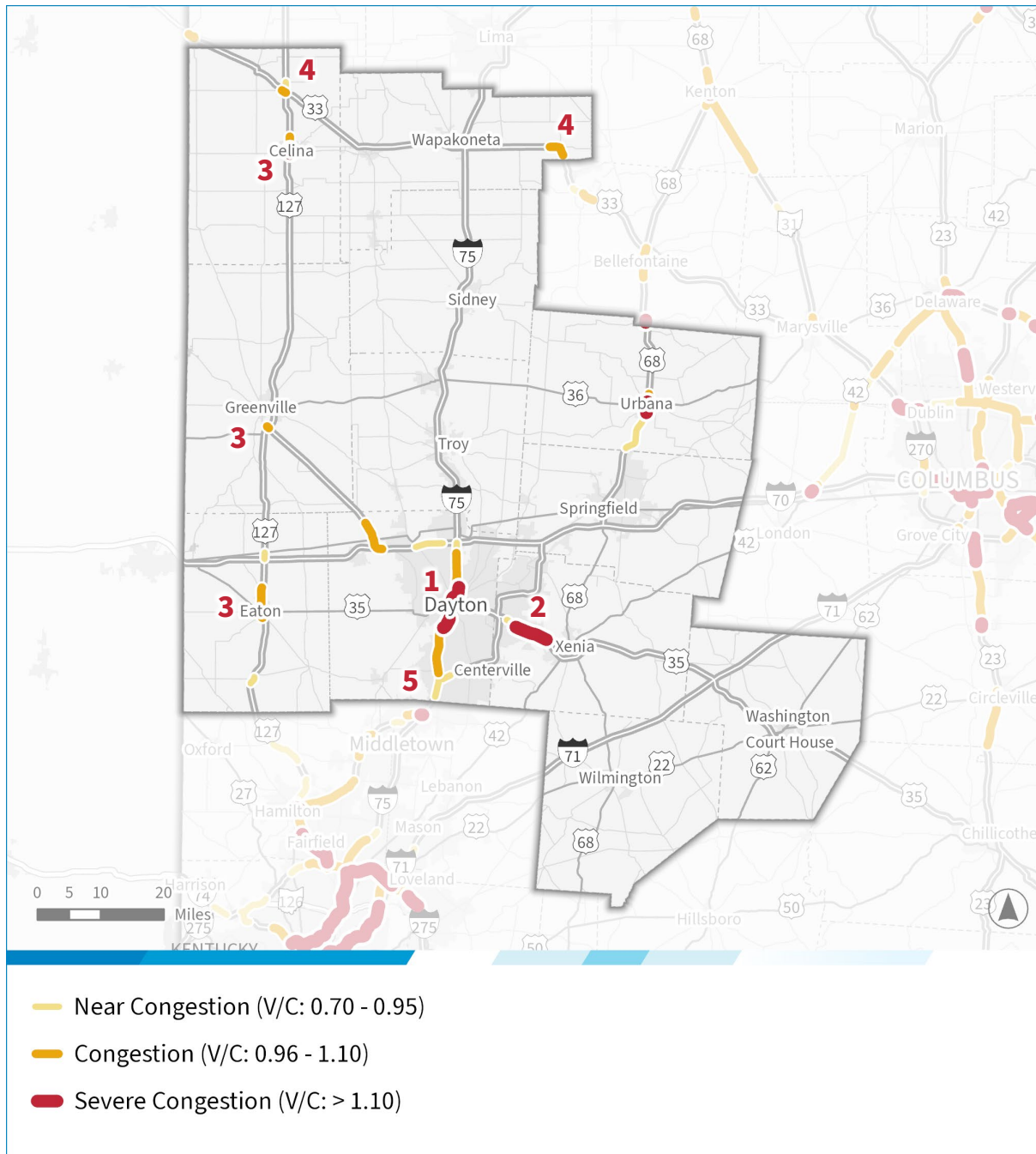


Figure 3.78 presents existing congestion based on a measure of peak period v/c ratio, where values at 1.1 or above represent severe congestion, stop-and-go traffic, and values from 0.9 to 1.1 reflect impactful slowdowns—where traffic is still moving. Congestion in West Ohio is less prevalent than in other regions, such as Northeast and Southwest Ohio. However, there are a few key corridors in West Ohio that experience moderate to severe levels of congestion. While congestion is not as widespread as other regions in the state, it could hinder economic growth and development. The critical existing congestion risk locations include:

- 1. I-75 between I-675 and I-70**—This portion of I-75 goes through the core of the Dayton metropolitan region. It experiences v/c ratios at or exceeding 1.0, indicating high congestion levels. Congestion along this corridor is particularly severe at its interchange with US35.
- 2. US35 between I-675 and US35**—Much of the Dayton metropolitan region’s population growth has been concentrated in communities north and east of Dayton. Traffic conditions on US35 east of downtown Dayton experience some of the highest levels of congestion in the region.
- 3. US127 at Various Locations in Preble, Darke, and Mercer counties**—US127 traverses the largely rural western half of the West Ohio region which sits along the Ohio-Indiana border. Congestion on this corridor is not prevalent or severe. However, some elevated v/c ratio levels are observed through the primary cities that sit along this corridor—Eaton, Greenville, and Celina. Some congestion is also observed at the intersection of US127 with US33 north of Celina.
- 4. US33 at Various Locations in Mercer and Auglaize counties**—Similar to US127, US33 traverses a largely rural portion of West Ohio. There is no severe congestion on this corridor and elevated v/c ratios are not prevalent along its length. However, some elevated v/c ratios are observed at its intersection with US127 as well as through the New Hampshire community in Auglaize County.
- 5. SR49 at I-75 (West)**—The west interchange of SR49 with I-75, just west of Clayton in Montgomery County, exhibits some modest congestion levels. It experiences v/c ratios around 1.0, indicating that the interchange may be at its capacity.



FIGURE 3.78—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME/CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



Trends and Future System Demand and Risks

Population growth in West Ohio has remained largely flat since 2000. Though the region’s total population has remained mostly unchanged, increasingly West Ohio residents are migrating to urbanized areas within the region and are becoming more concentrated within the Dayton MSA. In particular, communities within Montgomery and Greene counties along US42 and I-75 have experienced significant population gains. **Figure 3.79** depicts the development patterns resulting from this population trend. Specifically, it shows where population and jobs have increased within the region compared to where impervious surface, the transition of land from undeveloped to developed, has increased since 2010. Some useful insights may be gleaned from this analysis:

- Residential and retail growth in Miamisburg and Centerville, south of I-675 and primarily west of I-75, include numerous single- and multi-family residential developments. There are also several commercial developments in this area, especially along SR725.
- There is primarily residential development with some mixed commercial and areas north of I-70 along US40 in Vandalia as well as unincorporated areas in Miami County east of I-75.
- North of Dayton there is significant industrial development along I-75 from Tipp City to Troy.
- East of Dayton there is primarily residential development along I-675 in Fairborn.

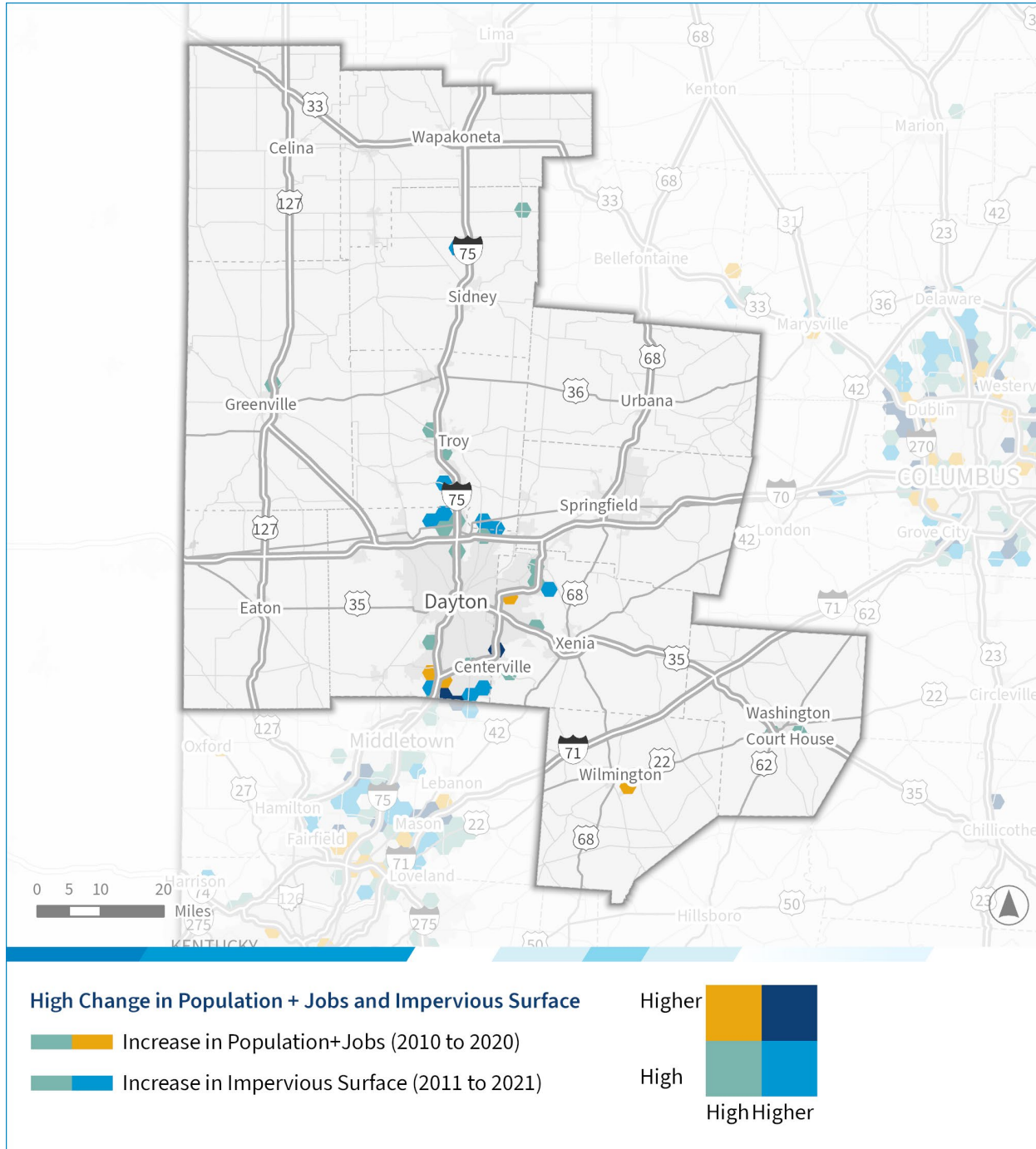
Despite the region’s relatively flat population growth, total daily VMT and VHT on the Study network in West Ohio is anticipated to increase in the baseline scenario as presented in **Table 3.27**. This increase is entirely driven by a 44% growth in truck VMT and a 42% increase in truck VHT. Auto VMT and VHT are expected to either remain constant or decline. **Figure 3.80** depicts the change in daily traffic volumes through 2055 in the baseline scenario. Growth in traffic volumes is primarily concentrated on the region’s interstate highways, namely I-75, I-70, and I-71. These corridors carry the highest volumes of trucks and through traffic, which are the driving factors behind the VMT and VHT results.

TABLE 3.27—WEST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 41,868,707 | 41,702,934 | 0% |
| Truck VMT | 11,518,259 | 16,591,829 | 44% |
| Total VMT | 53,386,966 | 58,294,762 | 9% |
| Auto VHT | 932,608 | 878,102 | -6% |
| Truck VHT | 188,361 | 267,785 | 42% |
| Total VHT | 1,120,968 | 1,145,887 | 2% |



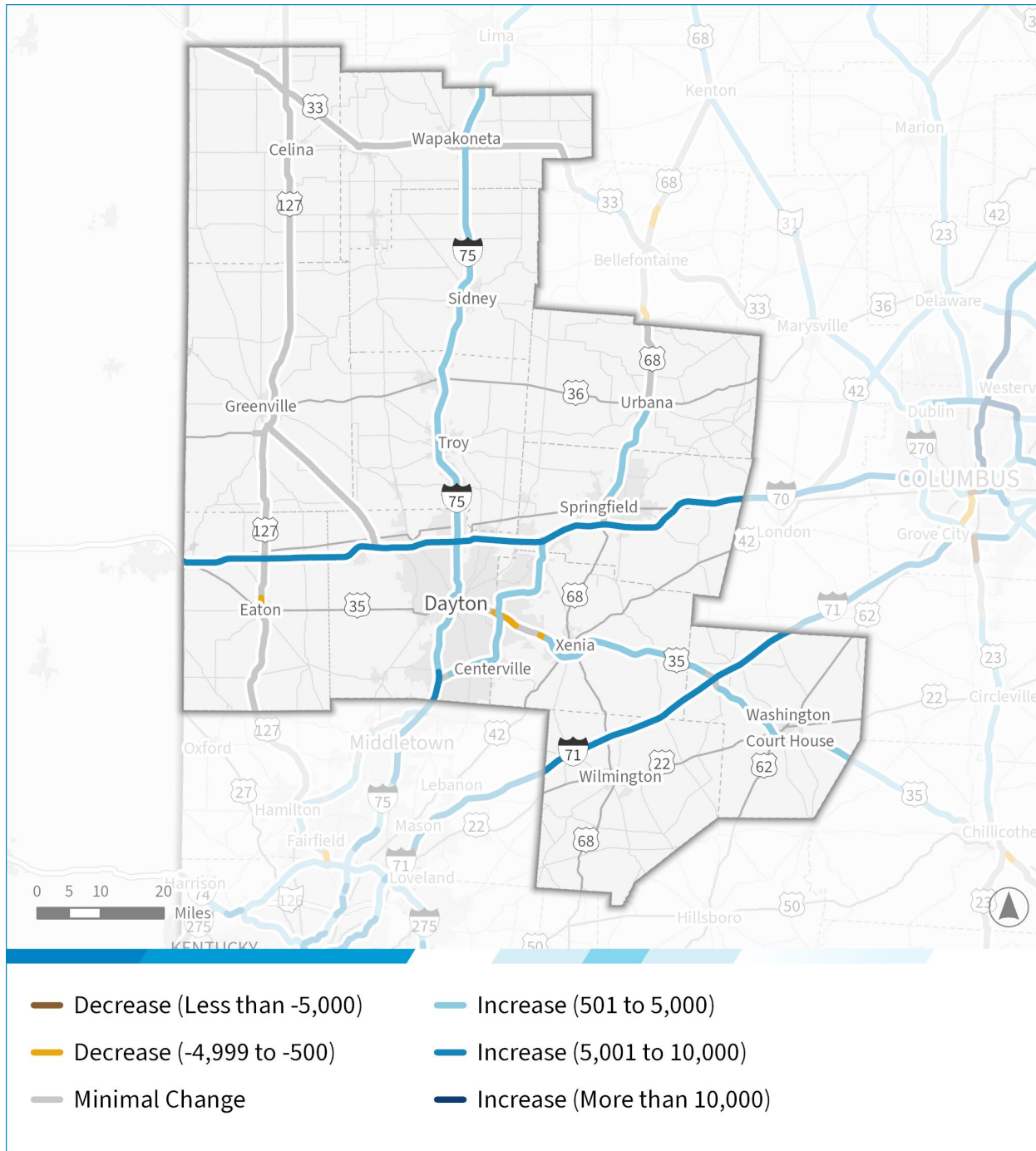
FIGURE 3.79—WEST OHIO DEVELOPMENT TREND



Source: NLCD, US Census



FIGURE 3.80—WEST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

As an alternative to analyzing and presenting each scenario and horizon year within this report, the Strategic Transportation and Development Analysis team decided on a risk-based approach for compiling findings across scenarios and to address different congestion and risk dynamics. This view of risk is consistent with language in H.B. 23 including “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four congestion-oriented questions and a question on access control that are presented as a composite congestion risk in **Figure 3.81**. A summary of the grouped hotspots associated with future congestion risks are presented in **Table 3.28**.

Peak-period congestion—Where could the Study network experience severe congestion during the peak period across each scenario in 2055?

- It is important to consider not only the Study corridors and locations currently experiencing severe congestion, but also those that may experience severe congestion in the future based on trends in traffic volumes, activity patterns, and land use development patterns. Overall, severe congestion risk in West Ohio is expected to be minimal.

Congestion impacts of site development—Where could the Study network see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- Study corridors in West Ohio may also experience significant increases in congestion associated with new vehicle trips generated through build out of priority development sites. There are nine sites in West Ohio. While the segment impacts are likely limited, they are located on or near Study network corridors. For example, the Greene Regional Business Park sits along US35 in Xenia, the Growing Acres site near Celina sits just south of US33, and the Piqua Cornerstone Commerce Park is near I-75.

Workforce accessibility congestion—For areas where accessibility to the workforce within 40 minutes is projected to decline between 2025 and 2055, as presented in **Chapter 2**, workforce section, where could the Study network experience bottlenecks be contributing to this decline?

- Considering the limited growth in the residential and workforce population in the region, there is minimal risk of reduced workforce access due to congestion in West Ohio. Workforce access congestion risks are largely concentrated in the Dayton metropolitan region along I-75 and I-70 in Montgomery County.

Freight bottlenecks—Where could the Study network experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- There is minimal risk to freight mobility in West Ohio. Generally, the Study network in this region is not projected to experience recurring congestion and reliability issues over the long term that impact goods movement. Congestion-related risks to freight mobility are limited to I-75 near its interchange with US35 and I-70 near its interchange with SR49.

Access control—What are the locations on the Study network where lack of access control in areas of forecasted development could contribute to future congestion?

- As US127 is a two-lane highway with no access control, increased traffic brought on by new development in this area poses a limited risk for congestion.



FIGURE 3.81—WEST OHIO CONGESTION RISK (2055 HOTSPOTS)

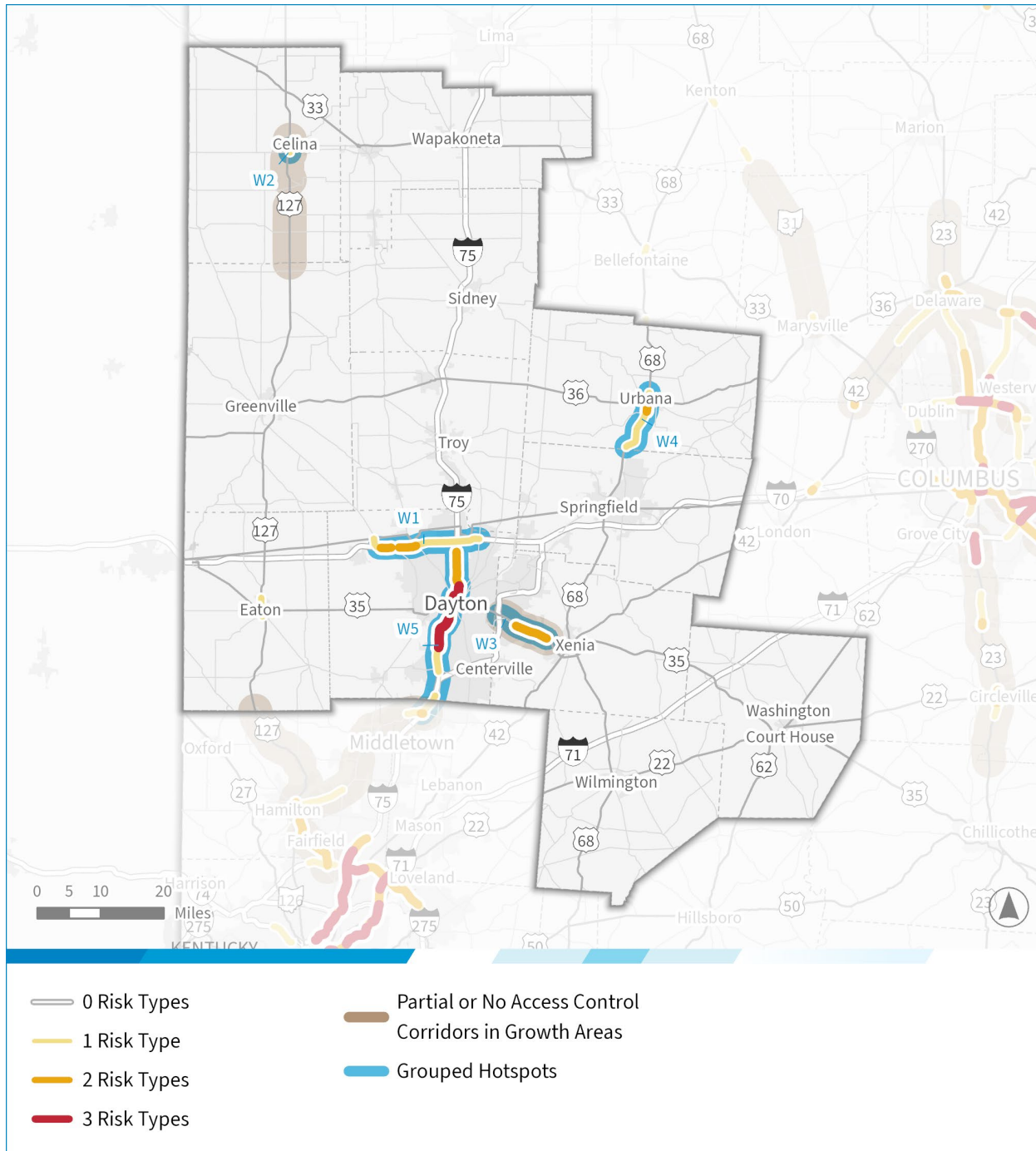


TABLE 3.28—WEST OHIO CONGESTION RISK LOCATIONS (2055 HOTSPOTS)

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|---|--|---|-------------------------------|
| W1: I-70 (SR202 to SR49) | Multiple congestion risks from SR202 to I-75 to SR49 interchanges | 2035 and beyond | Medium |
| W2: US127 (Celina) | Limited congestion risk in Celina | 2035 and beyond | Low |
| W3: US35 (I-675 to US35 Bus./Xenia) | Multiple congestion risks from I-675 to Xenia, plus no or partial access control in projected growth area | Today | Medium |
| W4: US68 (Champaign/Urbana) | Multiple congestion risks on US68 in Champaign County, including through Urbana at intersection with US36 | Today | Medium |
| W5: I-75 (I-70 to SR73) | Multiple congestion risks from I-70 to SR73, including three-plus risks from Exit 56 to 54 in Dayton and from the Great Miami River to Exit 47 in the West Carrollton area | Today | High |

Regional Plans

Regional plans are important for understanding how changes in transportation and land use patterns may impact the long-term operations and performance of the Study network. In West Ohio, a combination of different MPOs and RTPOs supports long range planning as presented in **Table 3.29**.

- Miami Valley Regional Planning Commission (MVRPC), the MPO for Montgomery, Miami, and Greene counties, plus a portion of northern Warren County
- Clark County Springfield Transportation Coordinating Committee (CCSTCC), the MPO for Clark County
- Logan Champaign RTPO, the RTPO for Champaign County in West Ohio and Logan County in Central Ohio
- WORPO, a future RTPO covering Auglaize and Mercer counties in West Ohio, profiled in the Northwest Ohio section, and OVRDC, an RTPO covering Fayette County in West Ohio, was profiled in the Southeast Ohio section
- DPS, a future RTPO covering Darke, Preble, and Shelby counties

MVRPC’s 2050 LRTP notes that the region is heavily dependent on personal vehicles—about 93% of work trips are made by autos. As part of the congestion management process, the 2050 LRTP observed that by 2050 roadway congestion will be increasingly present on the region’s existing and committed network, the current highway network, and future transportation projects that have been funded. This includes multiple Study network corridors including I-75, I-70, and surface roadways in rural sections of Greene County, particularly US42 and US68, and in parts of western and southern Montgomery County.



TABLE 3.29—OHIO MPO AND RTPO LONG-RANGE TRANSPORTATION PLANS

| Lead Agency | Name | Status |
|---|---|-----------|
| Metropolitan Planning Organizations | | |
| <u>MVRPC (Dayton)</u> | 2050 Long Range Transportation Plan | May 2021 |
| <p>The LRTP assumes development patterns of the past will continue, with development along freeway corridors and their fringes. Total population is expected to remain unchanged, with population loss stabilizing in older urban areas, growth continuing in the suburbs, and some growth expanding into rural areas. Employment is expected to grow by 17.5% between 2010 and 2050. In 2012, MVRPC endorsed a Concentrated Development Vision to concentrate development around regional assets and in areas that already have infrastructure, rehabilitate and/or repurpose vacant and underused structures and preserve agricultural land and other open space.</p> | | |
| <u>CCSTCC (Springfield)</u> | 2050 Long Range Transportation Plan | May 2021 |
| <p>The 2018 Clark County Comprehensive Plan provides the framework for future transportation needs and projects identified in the LRTP. Given the advantageous location between Columbus and Dayton, the Comprehensive Plan identifies 14-character areas that help manage growth responsibly, protect rural and natural places, and enhance the built environment, particularly in Springfield, and other town centers and villages. The 2050 LRTP focuses first on maintenance and preservation of the system and prioritizes investments to improve circulation and accessibility for all users within Springfield.</p> | | |
| Regional Transportation Planning Organizations | | |
| <u>LUC (Logan Champaign RTPO)</u> | Logan and Champaign Counties Long Range Transportation Plan | 2023 |
| <p>The population of the two-county region is forecast to slightly decrease by 6.6% over the next 30 years by ODOD. The plan lays out five major objectives, including improve safety; promote safe, reliable, and efficient travel for all road users; improve and expand the public transportation network and non-motorized transportation; improve economic growth by providing transportation options that support existing and new businesses; and evaluate the social, environmental, and financial circumstances surrounding each project.</p> | | |
| <u>DPS (Darke, Preble, Shelby Region)</u> | 2050 Regional Transportation Plan | June 2024 |
| <p>MVRPC coordinated with ODOT and the counties through the RTPO pilot program to develop the region’s first LRTP in 2023 and 2024. This is the first step toward achieving official RTPO designation. The RTP strives to improve the multimodal transportation system in a manner that supports enhanced accessibility and mobility for all people and freight resulting in a higher quality of life for its residents and economic development opportunities for the region.</p> | | |
| <u>WORPO (West Central Ohio)</u> | Long Range Transportation Plan | Ongoing |
| <p>See details in Northwest Ohio section.</p> | | |

Additional details on local and regional development trends and priorities are based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of CEDS and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



Southwest Ohio

As seen in **Figure 3.82**, Southwest Ohio sits at the state's border with Kentucky and Indiana and is comprised of five counties: Brown, Butler, Clermont, Hamilton, and Warren. It is the third most populous of the state's seven regions with more than 1.7 million residents, but also the smallest in total area.

The Cincinnati MSA encompasses the entirety of the Southwest Ohio region, including Cincinnati in Hamilton County. While the urban core of Southwest Ohio is located to the southwest part of the region along the Ohio River, communities in the region's northern and eastern counties range from suburban to rural in character.

Multiple corridors in the Study, namely I-75, I-71, and I-74, connect Southwest Ohio to major markets across the country. Other vital transportation assets include a rail network that features two Class I rail operators, CSX Transportation and Norfolk Southern, and multiple Short Line freight railroads, intercity bus terminals, and passenger rail service. The region's airport, Cincinnati/Northern Kentucky International Airport, sits across the Ohio River in Kentucky.

Southwest Ohio has experienced the second highest growth rate among the state's regions. Since 1990, the region's population has increased by nearly 18%, equivalent to 271,229 additional residents. The population of Hamilton County declined during this period by 4% or 35,589 residents, while the population of Butler and Clermont counties both grew by around 30% and Warren County grew by 81%, an increase of 128,428 residents. Warren County's growth is the second highest in Ohio for percentage, only behind Delaware County, and third highest for absolute total, only behind Delaware County and Franklin County. As shown in **Figure 3.83**, much of this growth has occurred in areas outside the I-275 perimeter—namely Butler County, Warren County, Clermont County, and western Hamilton County near the Ohio-Indiana border.

Southwest Ohio's continued high growth and concentrated employment opportunities are supported by a multimodal transportation system of interstate highways, freight and passenger rail, a massive inland port complex on the Ohio River, and direct access to an international air cargo hub in Northern Kentucky.



FIGURE 3.82—SOUTHWEST OHIO COUNTIES AND DESIGNATIONS

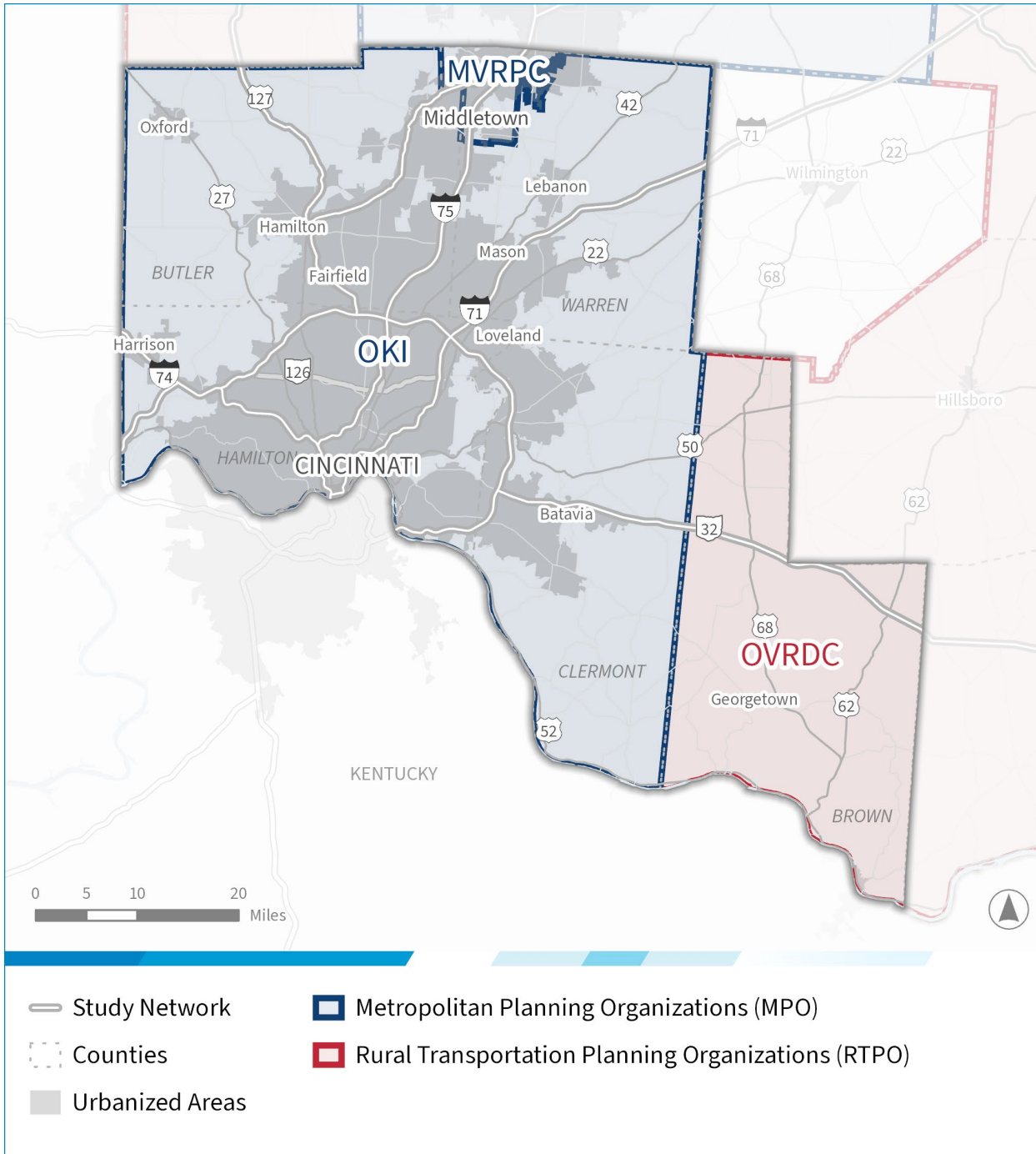
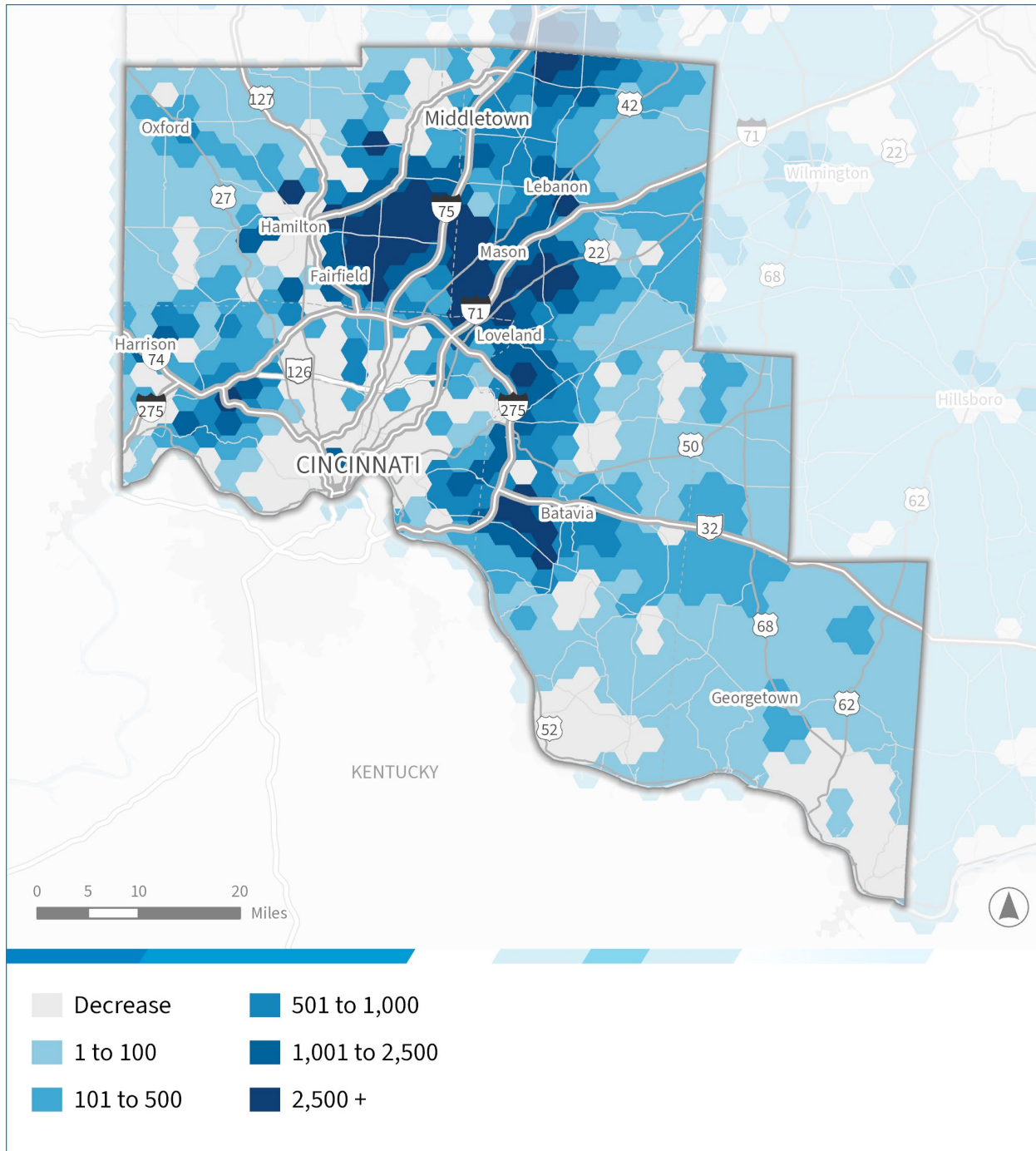


FIGURE 3.83—POPULATION CHANGE IN SOUTHWEST OHIO (1990-2020)



Source: US Decennial Census, 1990, 2020



System Overview

There is a total of 238 miles of the Study network located within Southwest Ohio, about 6% of the network total, as shown in **Table 3.30**. The Study network in Southwest Ohio primarily consists of interstate highways—nearly two-thirds, or about 66%. State highways comprise the second highest share at 67 miles, about 28%. US highways comprise a much smaller share of the Study network compared to the statewide total, only about 6%, 15 miles, in Southwest Ohio, while the statewide average is 18%. The intersection of I-74, I-75, and I-71 in Cincinnati shows the critical importance of the Brent Spence Bridge to intraregional travel and interregional and interstate connections facilitated by these interstates.

TABLE 3.30—STUDY NETWORK IN SOUTHWEST OHIO

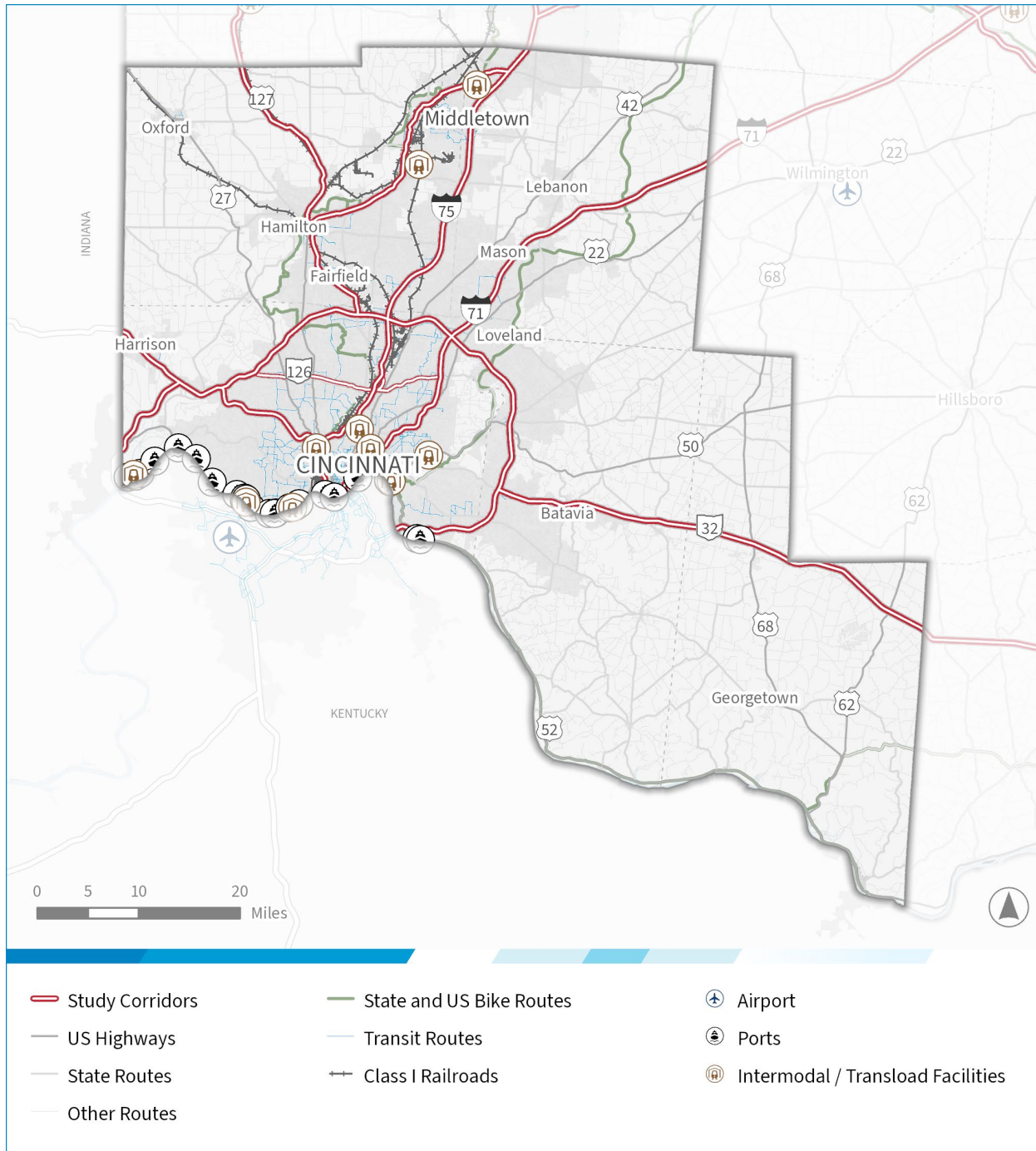
| Route Type | Mileage | Percent of Total |
|----------------|------------|------------------|
| Interstate | 156 | 65.6% |
| US Highways | 15 | 6.4% |
| State Highways | 67 | 28.0% |
| Total* | 238 | |

*Note: Mileage does not include ramps associated with Study network interchanges.

The Study network in Southwest Ohio is shown in **Figure 3.84**. I-275 provides east-west and north-south connections among Cincinnati suburbs, alternative connections across the Ohio River into Northern Kentucky, including access to Cincinnati/Northern Kentucky International Airport, and connections into southeast Indiana. I-275 provides connections to critical east-west corridors such as SR32 providing connection through growing Clermont County and to Southeast Ohio and I-74 which is the primary interstate connection to the Indianapolis region. Non-Study network routes also providing intraregional mobility that interchange with I-275 include US27, connects northwest toward Oxford, home of Miami University, US42 and US22, primary suburban corridor connecting communities within Warren County toward Central Ohio, and US50, an alternative connection into Southeast Ohio and ultimately across the state toward West Virginia.



FIGURE 3.84—STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS NETWORK IN SOUTHWEST OHIO



Existing Travel Patterns and Congestion

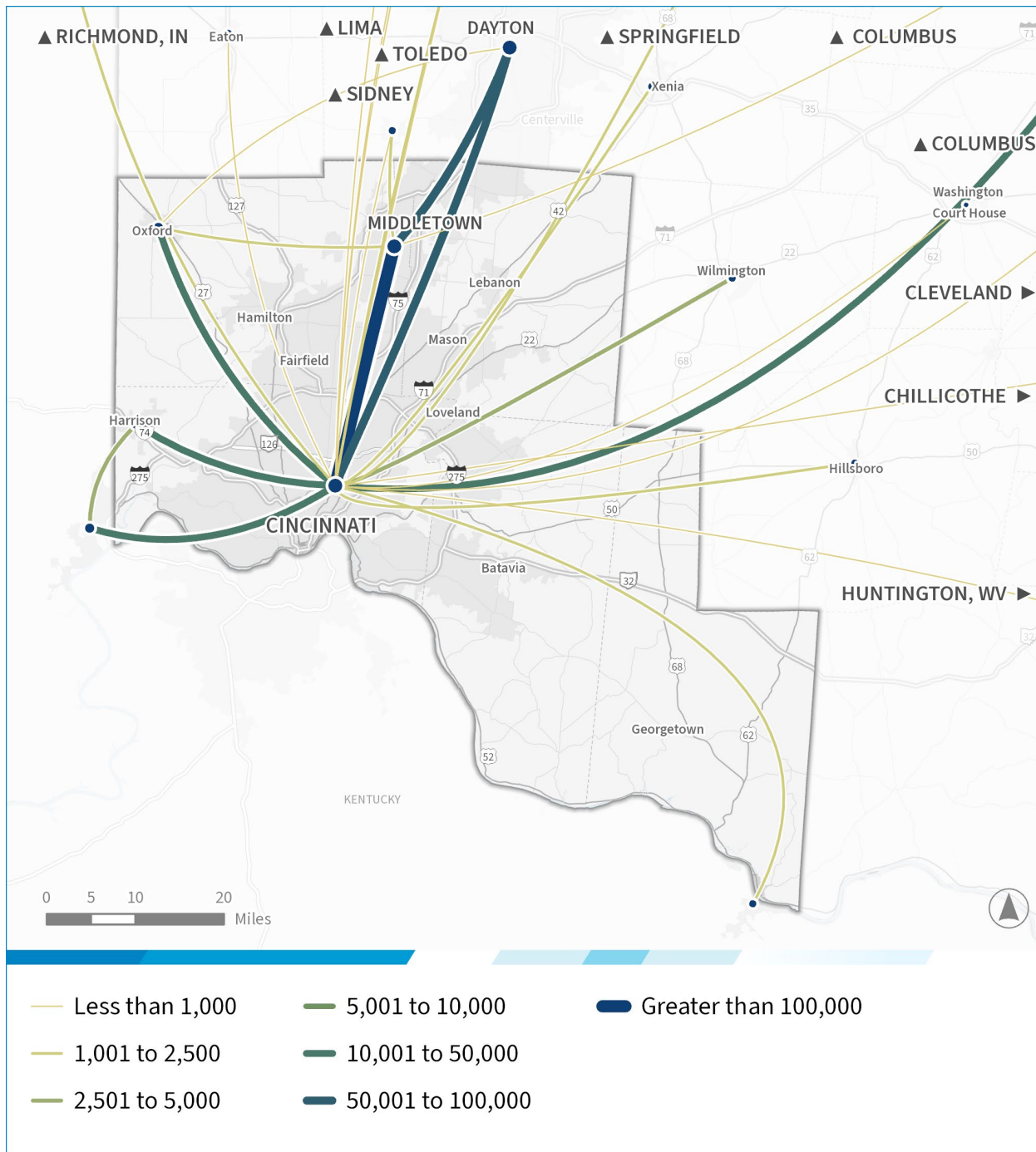
This section describes existing volumes, travel patterns, and congestion on the Southwest Ohio network. Data from Streetlight showing estimates of average daily traffic between OD pairs were used to derive bi-directional flows of vehicle trips relevant to Southwest Ohio between urbanized areas, which include parts of the 33 markets originally identified for the interregional analysis presented later in this chapter.

Figure 3.85 presents daily trips starting or ending in Southwest Ohio highlighting the top 50 OD pairs by volume. Trips outside the state are not included. As depicted in the flow map, the Southwest Ohio region is dominated by the Cincinnati urbanized area, which extends into Northern Kentucky. The largest intraregional flows depicted on the map between the Cincinnati and Middletown urbanized areas, totaling nearly 124,000 bi-directional trips daily, many of which travel along parts of the I-75 and SR4 corridors. There are also prominent OD flows between the Cincinnati urbanized area and communities to the west, such as Greendale-Lawrenceburg-Hidden Valley, with 29,900 daily bi-directional trips, Harrison, with 27,100 daily bi-directional trips, and Oxford, with 12,000 daily bi-directional trips.

The Southwest Ohio region's strongest interregional connections are between the Cincinnati and Dayton urbanized areas, representing about 77,500 daily bi-directional trips along I-75, and between the Middletown and Dayton urbanized areas representing roughly 55,300 daily bi-directional trips, which use I-75 and SR4. Connecting two of the state's top regional economies, travel between Cincinnati and Columbus urbanized areas produces more than 15,100 bi-directional trips daily.



FIGURE 3.85—SOUTHWEST OHIO DAILY AUTO AND TRUCK TRIP PATTERNS (2025)

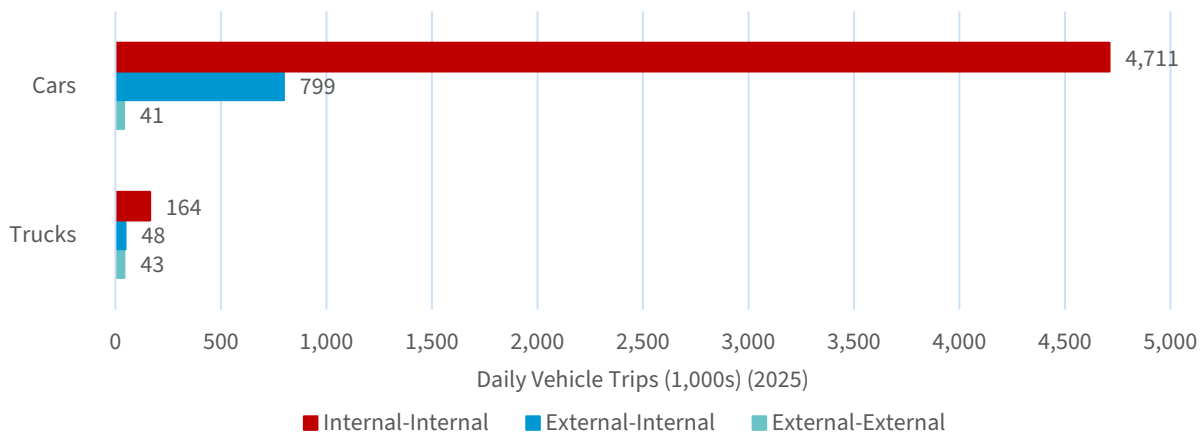


Source: Streetlight Data and Strategic Transportation and Development Analysis Team



The OSWM provides an estimate of auto and truck demand on the state highway system for trips that are internal to Southwest Ohio, have an endpoint in Southwest Ohio, i.e., an origin or destination, and pass through the region. As shown in **Figure 3.86**, auto trips with both an origin and destination within the region are the largest demand segment, estimated at over 4.7 million daily trips, or 85% of all daily vehicle trips for autos and trucks combined. Across all trip types, trucks represent 4.4% of total daily vehicle trips.

FIGURE 3.86—SOUTHWEST OHIO VEHICLE TRIPS BY TRIP ORIGIN AND DESTINATION (2025)



In addition to results from the OSWM, traffic monitoring data also provides insight into existing travel patterns as presented through 2023 AADT in **Figure 3.87**. For example, I-71 between Pfeiffer Road and I-275 in Hazelwood was estimated to carry nearly 149,000 vehicles per day making it one of the highest volume locations in Southwest Ohio. I-75 between Sharon Road and I-275 carries nearly 142,000 vehicles per day while volumes on I-275 reach up to 122,000 vehicles per day at its busiest locations, i.e., between US42 and I-75.

This Study found that non-interstate routes also play a crucial role in facilitating intraregional travel. US127 is an important route for north-south intraregional travel throughout Southwest Ohio. Traffic counts along that corridor indicate that it carries as many as 25,000 vehicles per day. SR32, as a primary connection through Clermont County and toward Southeast Ohio, carries over 44,000 vehicles per day between I-275 and Batavia and between 26,000 and 38,000 for the remainder of its length in Clermont County through Williamsburg.

Multiple facilities along the Study network within Southwest Ohio experience moderate to severe levels of congestion as shown in **Figure 3.88**. Largely, impacted facilities are concentrated in Hamilton County. While congestion is not as widespread in other counties in Southwest Ohio because the impacted facilities serve the entire region and are critical for interregional travel and trade, they represent potential hindrances to economic growth and development.

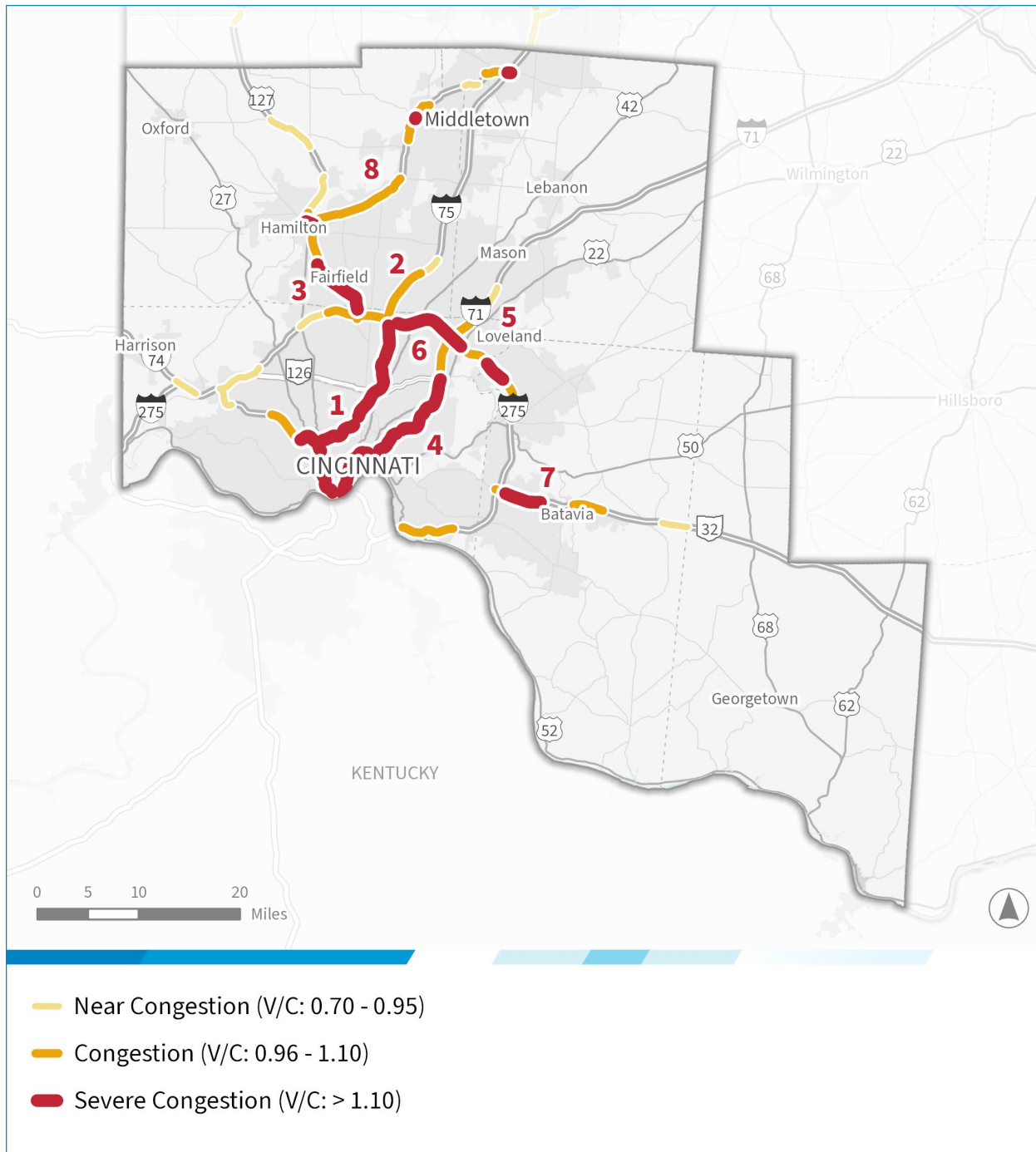
- 1. I-75 between the Ohio-Kentucky State Line and I-275**—This portion of I-75 experiences v/c ratios at or exceeding 1.1, indicating that volume exceeds capacity and that the corridor shows severe congestion levels in peak periods. It traverses the most densely populated portion of Southwest Ohio and provides access to its largest activity and employment centers. It also provides direct access to major freight facilities such as the Norfolk Southern Cincinnati Intermodal Terminal along West 8th Street and the CSX Intermodal Terminal along Western Avenue in Cincinnati.
- 2. I-75 between I-275 and Tylersville Road in West Chester Township**—Congestion on I-75 north of I-275 is generally less severe than levels to the south. However, congestion is still considerable, with v/c ratios ranging from 0.96 to 1.1. This implies that traffic volumes on the corridor exceed its capacity and show congestion during peak periods. Notably, this portion of the I-75 corridor in Southwest Ohio is flanked by freight-intensive land uses. Specifically, multiple truck terminals, warehousing and distribution facilities, a United States Postal Service Network Distribution Center, manufacturing facilities, and other freight-generating industries are to the corridor's east along local roadways—Reading Road, Crescentville Road, and Mosteller Road. To the west of the I-75 corridor, freight-intensive land uses are even more substantial as they extend along SR474 and SR4, which is also a Study network corridor, and also along local roads—Mulhauser Road, Port Union Road, and Symmes Road/Union Centre Boulevard in West Chester Township and the city of Fairfield.
- 3. SR 4 between I-275 and Symmes Road**—SR4 through Fairfield experiences high levels of congestion as indicated by v/c ratios that exceed 1.1. This corridor is characterized by commercial and freight-generating land uses to its north with single-family residential development to its south. Furthermore, there is no access control and at-grade driveways are prevalent throughout the corridor. Economic activity on this corridor contributes to the high volume of interregional trips and freight flows, both trips and tonnage, between the Cincinnati and Dayton regions.
- 4. I-71 between the Ohio-Kentucky State Line and SR126**—Like I-75, this portion of I-71 traverses the most densely populated portion of Southwest Ohio and provides access to its largest activity and employment centers. It experiences v/c ratios at or exceeding 1.1, indicating that volume exceeds capacity and that the corridor shows severe levels of congestion in peak periods.
- 5. I-71 between SR126 and Western Row Road**—Congestion on I-71 north of SR126 is generally less severe than to the south. However, this portion of I-71 still experiences considerable congestion with v/c ratios around 1.0—indicating that the corridor is at capacity and experiencing congestion during peak periods. Adjacent land uses along this corridor are mixed. At the I-71/I-275 interchange, there is a large cluster of freight-intensive land uses including warehousing and distribution centers to the west of this location. There is primarily single-family residential development to its east. Further north along the corridor, there is a mix of commercial and single-family residential development between I-275 and Western Row Road.



6. **I-275 between I-75 and SR131**—I-275 between I-75 and SR131 exhibits v/c ratios that range from 0.96—1.1, indicating high levels of congestion during peak periods. While large portions of this corridor are characterized by relatively low population densities and limited commercial or industrial development, portions of I-275 west of I-71 have much more intensely developed land that would contribute to the performance challenges observed on this corridor. Furthermore, I-275 at this location provides access to multiple north-south routes including US22 and US42 in addition to I-71 and I-75.
7. **SR32 between I-275 and Olive Branch-Stonelick Road**—SR32 is a Study network corridor that provides access to Southeast Ohio as well as West Virginia. The portion of SR32 between I-275 and Olive Branch-Stonelick Road experiences high levels of congestion. It has partial access control and its adjacent land uses are characterized by commercial and single-family residential development. This particular area in Clermont County continues to see significant development pressure.
8. **SR4 to SR73 through Hamilton and Middletown**—Collectively, SR4 and SR73 form a north-south alternate to I-75 for Butler County—one of the highest population growth counties in Ohio. Various portions of SR4 and SR73 experience congestion, as indicated by v/c ratios near or above 1.0. Much of the corridor is median-separated, but there is no access control. The locations for the most severe congestion on the corridor are at the intersection of SR4 and SR129 in Hamilton, through Middletown where SR4 is routed through the city as a set of one-way pairs, and at the SR73-I-75 interchange.



FIGURE 3.88—EXISTING REGIONAL CONGESTION (PEAK PERIOD VOLUME/CAPACITY RATIO)



Source: ODOT, Ohio Statewide Model



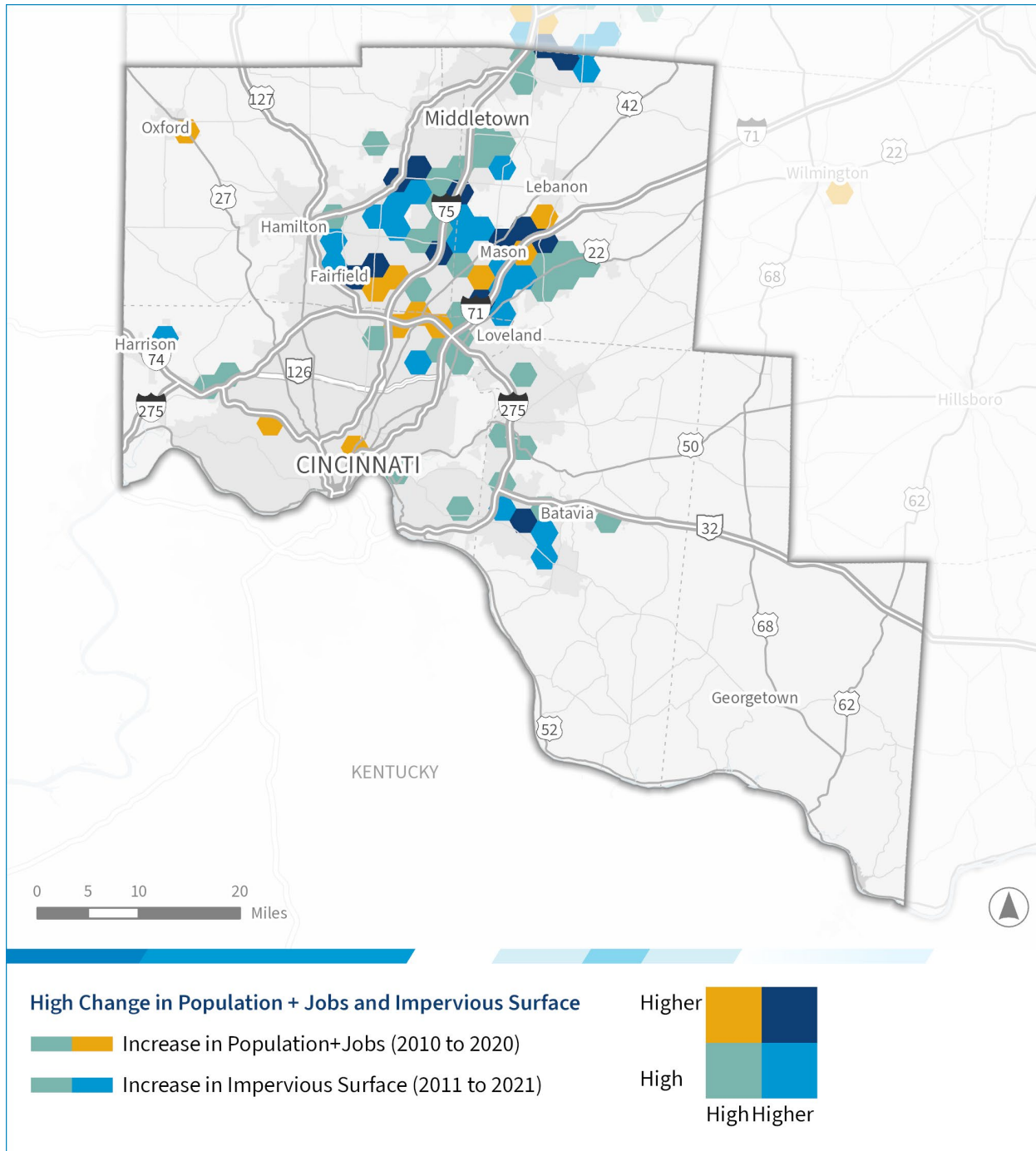
Development Trends and Future System Demand and Risks

Since 2000, Southwest Ohio has continued to grow in population. With an annual growth rate of about 0.49%, Southwest Ohio has the second highest growth rate among the state's regions, behind only Central Ohio. Much of this growth has occurred in areas outside I-275—namely Butler County, Warren County, Clermont County, and western Hamilton County near the Ohio-Indiana border. **Figure 3.89** depicts the development patterns resulting from this population trend. Specifically, it shows where population and jobs have increased within the region compared to where the impervious surface has increased since 2010. Overall, the results indicate the following:

- There has been substantial growth north of I-275, particularly in Warren County. This growth has been concentrated along critical north-south corridors for the region—I-75, I-71, US42, and SR4. Given the development style, generally suburban residential and commercial, it has led to substantive land use change in this area, from large-lot residential, undeveloped, and agricultural to single and mixed-family residential.
- Along I-71 and US42, this growth has primarily been residential and mixed commercial, especially around Mason and toward Lebanon.
- I-75 and SR4 near I-275 have substantial new and ancillary industrial development including warehousing, truck terminals, and distribution centers.
- At I-75 and SR4, in and near Middletown, there has been substantial residential development, primarily single-family.
- Southwest Ohio has also experienced growth in residential, single- and multi-family, and mixed commercial developments along SR32 east of Cincinnati and outside I-275. This includes unincorporated communities in Clermont County as well as incorporated municipalities such as Batavia.



FIGURE 3.89—SOUTHWEST OHIO DEVELOPMENT TREND



Source: NLCD, US Census



Daily VMT and VHT on the Study network in Southwest Ohio are anticipated to increase in the baseline scenario, as presented in **Table 3.31**. Projected household and employment growth in Southwest Ohio is presented in **Chapter 2** and generally shows a continuation of growth trends since 2000 into Butler, Warren, and Clermont counties. This increase is primarily driven by a 36% growth in truck VMT and a 34% increase in truck VHT. Combined with 5% growth in auto VMT, total regional VMT increases 8% while total VHT increases 7%.

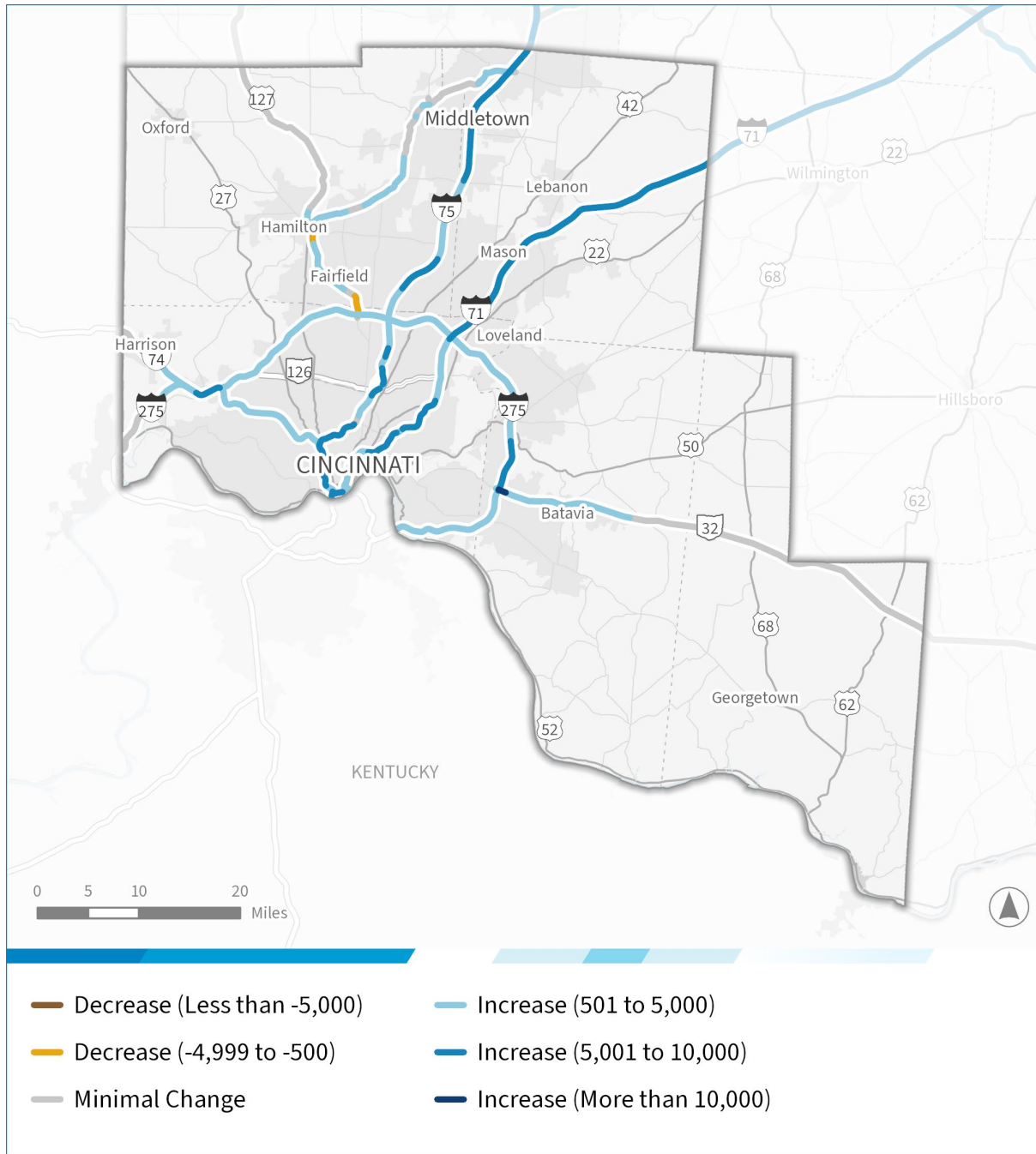
Figure 3.90 presents the resulting change in daily traffic through 2055 in the baseline scenario. The highest growth in Southwest Ohio is projected on the eastern wall of I-275—north of SR32 and south of US50 in Clermont County. I-71 just north of the Hamilton-Warren County line is also expected to experience significant volume growth, greater than 5,000 vehicles per day. The rest of the I-71 corridor in Warren County will also see volume growth consistent with growing interregional travel demand to Fayette County and Central Ohio.

TABLE 3.31—SOUTHWEST OHIO VMT AND VHT CHANGE (2025 TO 2055)

| Study Network Travel | 2025 | 2055 | Percent Change |
|----------------------|-------------------|-------------------|----------------|
| Auto VMT | 51,114,758 | 53,478,881 | 5% |
| Truck VMT | 5,632,576 | 7,655,420 | 36% |
| Total VMT | 56,747,334 | 61,134,300 | 8% |
| Auto VHT | 1,162,130 | 1,215,390 | 5% |
| Truck VHT | 101,410 | 135,993 | 34% |
| Total VHT | 1,263,540 | 1,351,383 | 7% |



FIGURE 3.90—SOUTHWEST OHIO AADT CHANGE THROUGH 2055 (BASELINE SCENARIO)



Source: ODOT, Ohio Statewide Model



Future Congestion Risks

As an alternative to analyzing and presenting each scenario and horizon year within this report, the Study team decided on a risk-based approach for compiling findings across scenarios and to address different congestion and risk dynamics. This view of risk is consistent with language in H.B. 23 including “*evaluate and rank current and potential risks of future system congestion.*” The focus on future risk centered around four congestion-oriented questions and a question on access control that are presented as a composite congestion risk in **Figure 3.91**. A summary of the grouped hotspots associated with future congestion risks are presented in **Table 3.32**.

Peak-period congestion—Where could the Study network experience severe congestion during the peak period across each scenario in 2055?

- Throughout Southwest Ohio, there are 16 hotspots that are likely to develop congestion where congested travel has not previously been observed; or are locations that already experience congestion, but conditions may worsen. In addition, there are corridors located in growth areas for Southwest Ohio that have partial or no access control, which puts those areas at risk for experiencing severe congestion in the future.

Congestion impacts of site development—Where could the Study network see significant increases in congestion associated with new vehicle trips generated through build out of priority development sites through 2055?

- There are seven sites in Southwest Ohio. Generally, they are located on or proximate to Study network corridors. For example, Amberley's 2100 Section Road site is proximate to SR126 and I-75, while the Mt. Orab Megasite in Brown County is accessed via SR32. The Trenton Industrial Park and Hamilton Enterprise Park are located in a high-growth area of Southwest Ohio and would add to traffic volumes on SR4.

Workforce accessibility congestion—For areas where accessibility to the workforce within 40 minutes is projected to decline between 2025 and 2055, as presented in **Chapter 2**, workforce section, where could the Study network experience bottlenecks be contributing to this decline?

- The highest workforce accessibility risks in Southwest Ohio are along primary commuting routes in the Cincinnati region already facing and projected to face severe peak-period congestion. These include SR4, SR 32, I-71, and I-75 as well as most of the northern and eastern quadrants of I-275.

Freight bottlenecks—Where could the Study network experience recurring congestion and reliability issues in 2055 across each scenario that impact high commercial vehicle volumes?

- The corridors most at risk of worsening freight bottlenecks include I-75 and I-71 in Cincinnati from roughly the Ohio River to outside I-275.

Access control—What are the locations on the Study network where lack of access control in areas of forecasted development could contribute to future congestion?

- SR32, SR4, and SR73 have congestion risks from new development. Portions of SR32 already experience congestion and the corridor only has partial access control. Much of the SR4 and SR73 corridor is median separated, but there is no access control.



FIGURE 3.91—SOUTHWEST OHIO CONGESTION RISK (2055 HOTSPOTS)

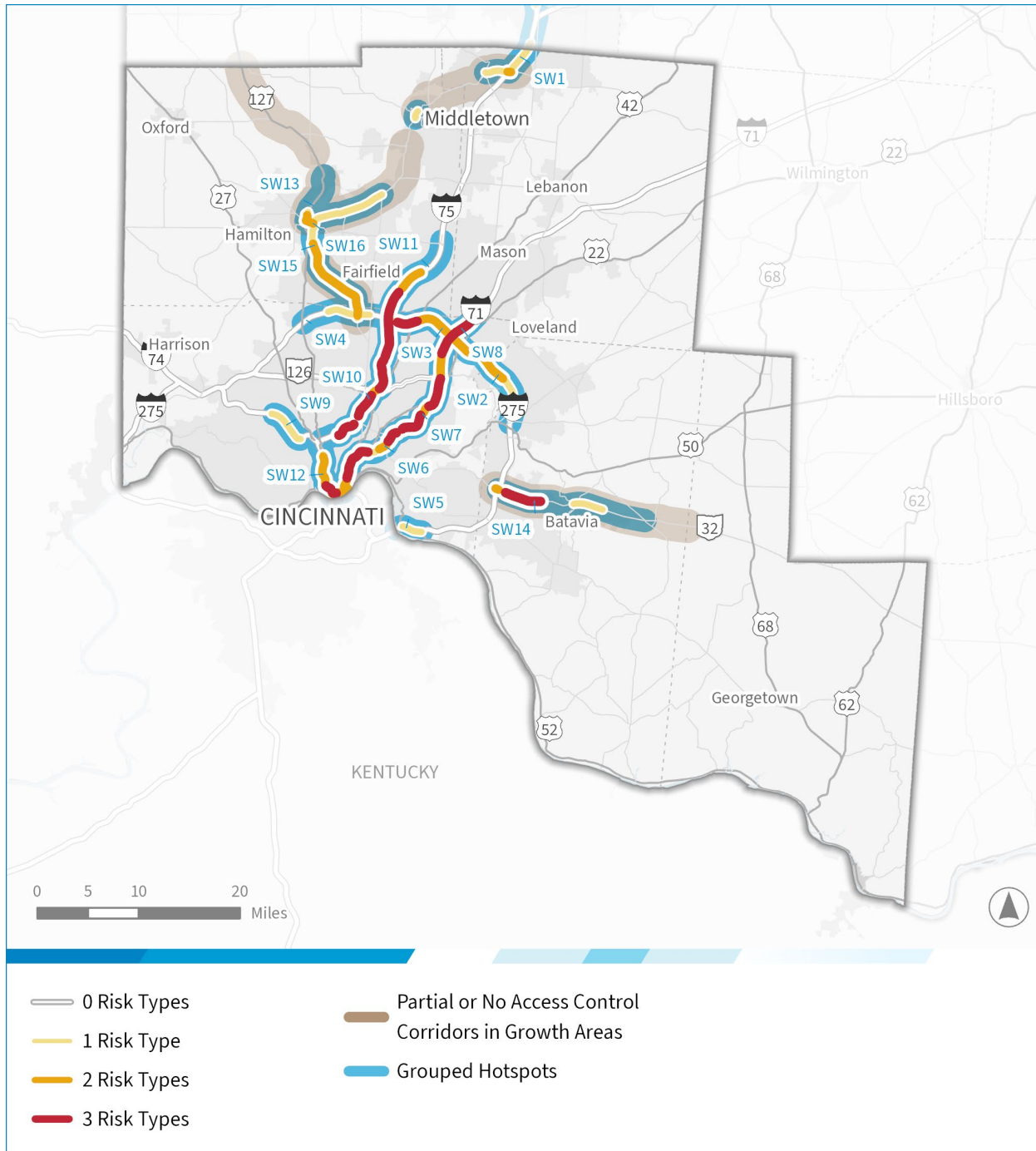


TABLE 3.32—SOUTHWEST OHIO CONGESTION RISK LOCATIONS (2055 HOTSPOTS)

| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|---|--|---|---------------------------------------|
| SW1: I-75 (I-70 to SR73) | Multiple congestion risks from I-70 to SR73, including 3+ risks from Exit 56 to 54 in Dayton and from the Great Miami River to Exit 47 in the West Carrollton area | Today | High |
| SW2: I-275NE (SR131 to I-71) | Multiple congestion risks from SR131 to I-71 interchange | Today | Medium |
| SW3: I-275N (I-71 to I-75) | Multiple congestion risks from I-71 to I-75, including 3+ risks between SR42 and I-75 | Today | High |
| SW4: I-275N (I-75 to Forest Park area) | Limited congestion risk from I-75 through Forest Park area | 2035 and beyond | Low |
| SW5: I-275SE (Interchanges with US52) | Limited congestion risk on segment between US52 interchanges | 2035 and beyond | Low |
| SW6: I-71/I-471 (SR562 to I-75) | Multiple congestion risks from SR562 to I-75/ Downtown including 3+ risks from Exit 7 to Exit 6, from SR3 to E. Liberty Street, and at I-75 interchange (I-75 S to I-71 E) | Today | High |
| SW7: I-71C (SR562 to I-275) | Multiple congestion risks from I-275 to SR562, including 3+ risks for almost the entire corridor, only 2 risks from Pfeiffer Road to SR126 | Today | High |
| SW8: I-71N (Fields Ertel Road to I-275) | 3+ congestion risks for entire segment of I-71 | Today | High |
| SW9: I-74 (N. Bend Road to Montana Avenue) | Multiple congestion risks from N. Bend Road to Montana Avenue | 2035 and beyond | Medium |
| SW10: I-75 (I-275 to I-74) | Multiple congestion risks from I-275 to I-74, including 3+ risks for nearly the entire corridor from I-275 to W. Mitchell Avenue | Today | High |
| SW11: I-75N (SR129 to I-275) | Multiple congestion risks from SR129 to I-275, including 3+ risks from Union Centre Boulevard to I-275 | Today | High |
| SW12: I-75 (I-74 to I-71/Brent Spence Bridge) | Multiple congestion risks from I-74, including 3+ risks in Downtown Cincinnati | Today | High |



| Location | Description | Timing (does congestion exist today) | Intensity (how many risks) |
|---|--|---|-------------------------------|
| SW13: US 127 (Hamilton/Butler County) | Limited congestion risk in Hamilton, plus no access control in projected growth areas throughout Butler County | 2035 and beyond | Low |
| SW14: SR32 (I-275 to Williamsburg area) | Multiple congestion risks, including 3+ risks between I-275 and Batavia area, plus no access control in projected growth area throughout Clermont County | Today | Medium |
| SW15: SR4 (I-275 to SR129/Hamilton) | Multiple congestion risks from I-275 to SR129, plus no access control in projected growth areas | Today | Medium |
| SW16: SR4/SR73 (Hamilton-Middletown-I-75) | Limited congestion risks along corridor, plus no access control in projected growth areas throughout Butler County | Today | Low |

Regional Plans

To understand how changes in transportation and land use patterns may impact the long-term operations and performance of the Study network, local and regional plans for Southwest Ohio were reviewed. The Ohio-Kentucky-Indiana Regional Council of Governments (OKI) conducts long range planning in the region. It is the MPO for Butler, Clermont, Hamilton, and Warren counties in Ohio. OKI also extends into Dearborn County in Indiana and Boone, Campbell, and Kenton counties in Kentucky. It should be noted that OVRDC’s planning area also extends into Southwest Ohio, specifically Clermont County. Summaries of OKI and OVRDC recent LRTPs are presented in **Table 3.33**.

OKI’s 2050 MTP update observed that, on average, nearly 79% of trips taken in the region consisted of travelers driving alone. It also noted that the majority of person-miles traveled on the National Highway System (NHS) network in the region were considered reliable—92.2% for interstates and 89.7% for non-interstates. I-75 and I-71 through Cincinnati are among the most unreliable segments of the highway system in Southwest Ohio. However, it is expected, with the significant investment in multiple projects along these corridors underway by ODOT and in partnership with Kentucky at the Brent Spence Bridge, that these corridors are positioned to support the region’s continued growth.

Regarding land use and its potential impact on the Study area, the 2050 MTP noted that the combined population of all eight counties in the region is expected to grow 6% between 2020 and 2050, from 2.12 million to 2.25 million. Warren County is projected to experience the highest absolute population growth in the region with an additional 50,172 residents by 2050, a 20.7% increase from 2020. The 2050 MTP did not note any expected changes in current development patterns given the projected growth in the region. The 2050 MTP recommended that alternatives to capacity expansions be explored first given the financial, environmental, and social impacts of new or expanded roadways for handling the region’s growth.



TABLE 3.33—OHIO MPO AND RTPO LONG RANGE TRANSPORTATION PLANS

| Lead Agency | Name | Status |
|--|--|-----------|
| Metropolitan Planning Organizations | | |
| OKI (Cincinnati) | 2050 Metropolitan Transportation Plan | June 2024 |
| <p>OKI is currently updating the 2050 Plan with completion expected in June 2024. The OKI Board maintains the Strategic Regional Policy Plan (SRPP) and integrates the SRPP recommendations with the region’s transportation project prioritization process. This MTP incorporates, by reference, the SRPP Goals, Opportunity Areas, and Policy Recommendations. The SRPP contains a vision for regional vitality, sustainability, and competitiveness, focusing on the land use–transportation connection. Warren County has the highest absolute population growth in the OKI region with an additional 50,172 residents by 2050, a 20.7% increase from 2020. Most of the growth in Warren County, consistent with the Warren County Comprehensive Plan is planned to occur in the western half of the county, with pockets of growth in the eastern half around Morrow, Waynesville, and Harveysburg.</p> | | |
| Regional Transportation Planning Organizations | | |
| OVRDC (Ohio Valley RTPO) | 2045 Comprehensive Transportation Plan | May 2021 |
| <p>It is anticipated that the Ohio Valley region will grapple with declining and aging populations over the next 30 years. Between 2010 and 2050, ODOD forecasts that the region’s population will decrease by 7.9%. The greatest decline is anticipated for the region’s southern and eastern area, while little change is anticipated for the population in areas closer to Cincinnati and Columbus. The preservation of existing transportation assets will be a challenge as the region loses population and tax revenue declines. Beyond system preservation, the plan’s goals include safety, environmental awareness, efficiency and reliability, mobility and accessibility, economic competitiveness, and quality of life.</p> | | |

Additional details on local and regional development trends and priorities are based on stakeholder input are in **Appendix H, Study Engagement** and on the results of a scan of CEDS and local comprehensive plans, where they are available and recent, are in **Appendix I, Development Process**.



Interregional Connections

Interstate and interregional trade corridors, such as interstate and US highways, facilitate Ohio's economic growth across existing and emerging sectors that rely upon the trade and transport of goods and services. Existing and future industries place a premium on locating along these trade corridors which provide direct access to Ohio's economic centers and markets and facilitate the efficient and reliable import and export of goods and materials.

Role of Interregional Trade Routes

Interregional trade routes represent economic relationships between the regional network presented in the prior section, and the individual markets within each region, forming a network for the distribution of raw materials, finished goods, and services.

Interregional trade includes producers of raw materials, manufacturers of intermediate products, and producers of finished goods. The commodities produced by one industry or firm require inputs from potentially dozens of other commodities produced by other industries or firms. This includes not only tangible products, but also energy and information, financial, transportation, and other services that enable industries and firms producing commodities to operate.

Exchange activities involve transporting commodities produced in one location and consumed in another. These activities include direct transport and larger logistics systems. These systems have evolved to provide more efficient pathways for exchanging goods and services. They may include for-hire trucking, warehousing and distribution centers, and intermodal nodes, such as rail yards, marine ports, and airports.

Relationships between regions have strong historical roots throughout Ohio. Many of these relationships can be traced back to the operation of canals funded by the Ohio legislature in the 1820s. Running along the state's western side, the Miami-Erie Canal connected the Ohio River near Cincinnati to Lake Erie via the Maumee River near Toledo. While the canal was soon superseded by railroads and eventually highways, namely I-75, the corridor which it served established trade relationships between cities along the original canal path which endure today, including Cincinnati, Hamilton, Middletown, Dayton, Troy, Piqua, Sidney, Delphos, Toledo, and a host of rural communities in between.

Similarly, the Ohio-Erie Canal was built to connect the Ohio River to Lake Erie along the eastern side of the state, beginning with connections between Cleveland and Akron and traversing south through Massillon in what is today part of the I-77 corridor. The canal then turned westward through Newark and passed just south of Columbus before heading south through Chillicothe and to the Ohio River at Portsmouth. The last stretch is essentially today's US23 corridor. Other canal spurs reached out to Marietta and Athens. The importance of these historical relationships is seen today in Northeast Ohio between Cleveland, Akron, and Massillon/Canton. In Central and Southeast Ohio, ties to the Columbus region remain important to smaller cities, such as Newark, Marietta, Athens, Chillicothe, and Portsmouth.

In addition to the historical trade routes described above, the construction of the interstate highway system beginning in the 1950s facilitated trade relationships between Ohio's five largest metropolitan areas. The "three Cs" of Cleveland, Columbus, and Cincinnati were connected by I-71; Dayton and Columbus by I-70; and Toledo and Cleveland by I-90. These newer interstate facilities largely paralleled existing US and state highways, which provide alternative paths and access to local communities today.



Existing Vehicle Flows, Tonnage, and Value

Region-to-region and market-to-market flows are important to understanding the economic value of the connections between the markets. Intraregional market connections, or connections between markets within the same JobsOhio region, such as Akron-Canton, Dayton-Springfield, and Toledo-Findlay, are discussed in the prior section of this chapter, Regional Networks.

- The average daily auto trips between select markets are shown in **Figure 3.92**
- Average daily truck trips are shown in **Figure 3.93**
- Daily truck trips are translated to freight tons and shown in **Figure 3.94**
- Freight tons are organized by commodity and translated to shipment values and shown in **Figure 3.95**

Markets that are closer together have a higher mix of passenger car trips relative to truck trips, and the share of auto trips within regions, intraregional, will be higher than interregional. For more distant interregional pairs, the higher the truck percentage, the more likely market relationships will be focused on commodity trade.

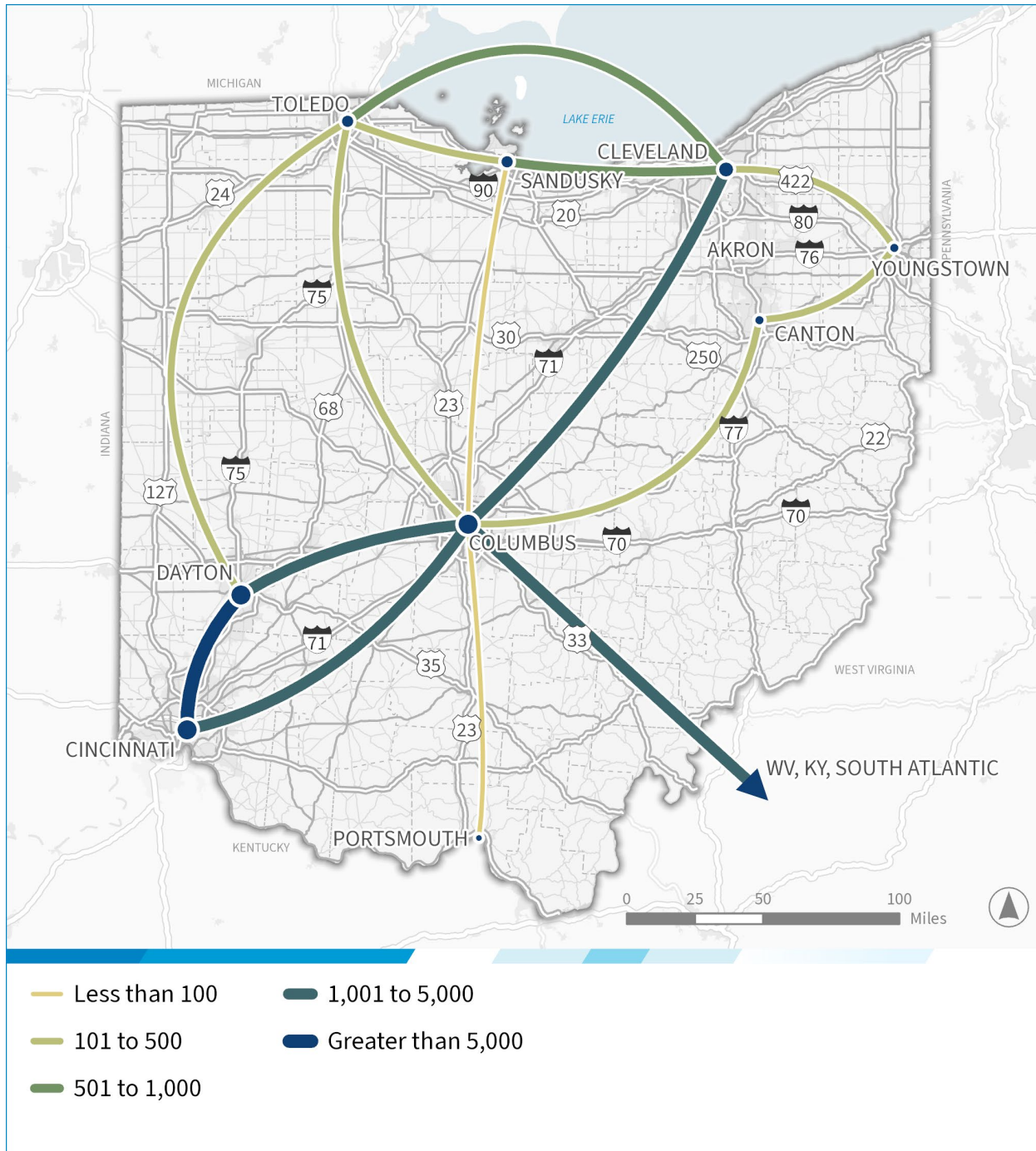
Cincinnati-Dayton represents the strongest interregional market-to-market connection as measured by either passenger vehicles or commercial truck volumes. Between these two primary markets, there are more than 250,000 daily passenger car trips and nearly 10,000 daily truck trips. This market connection links two of the top four economic regions in the state. The growing residential and economic centers in Warren County and Butler County, between Cincinnati and Dayton, provide options for work and non-work activities in both primary markets, which generate a high proportion of travel along the Study network facilities like I-75 and SR4. This corridor allows businesses to operate in both markets, producing a significant amount of commercial vehicle activity, much of it service related.

The Cleveland-Sandusky, Canton-Youngstown, and Cleveland-Youngstown market-to-market flows are also high-volume and auto-oriented in character, mainly due to proximity and historical ties. Between the principal cities is a patchwork of suburbs and small towns. Each market pair has less than 3% truck share, with commercial vehicle travel being more about service provision and local pickup and delivery. The auto flows between Cleveland and Sandusky are particularly high, with Sandusky serving as a popular lakefront recreational gateway for residents of Northeast Ohio.

Sandusky's largest trading partner in terms of commodity tons and value is Toledo. Although there are more truck trips between Sandusky and Cleveland, they are not hauling nearly as much freight, which indicates a higher proportion of commercial services relative to goods movement. The Sandusky-Toledo connection is a closer balance of auto and truck flows, an 8% truck share, with many Northwest Ohio residents accessing recreational opportunities near Sandusky. Sandusky's connection to the Columbus market lacks direct interstate access and is about twice as far compared to Toledo or Cleveland. Trucks comprise 21% of the share of vehicle movements between Sandusky and Columbus, and these shipments are of a relatively high value-to-weight ratio.



FIGURE 3.93—INTERREGIONAL DAILY TRUCK FLOWS (2025)



Source: Streetlight Data and Strategic Transportation and Development Analysis Team



The relationship between the Columbus and Dayton markets also has a strong freight movement character, with trucks comprising more than 15% of vehicle movements between these markets. The Columbus-Dayton interregional market has a substantial passenger car component but much less so than Cincinnati-Dayton, despite proximity and market size, due to fewer historical ties between the two metro areas and much less development in between. The Springfield metropolitan area between Dayton and Columbus has experienced a stagnant economy in recent years. However, growth in Greene County to the east of Dayton and in Madison County to the west of Columbus may eventually more closely link the two metros. Both Dayton and Columbus lie along the I-70 corridor, one of the busiest truck corridors in the nation, and both metros are also crossed by major north-south interstate truck routes, making them hubs for freight and logistics businesses.

Columbus-Dayton is the highest interregional market pair in terms of the total value of freight flows, edging out Cincinnati-Dayton. Although the Cincinnati-Dayton market pair generates more than four times as many daily truck trips, a large portion are service providers and local pickup and deliveries. The Columbus-Dayton market pair generates more heavy truck movements, carrying more tons per vehicle, and with higher average payload values.

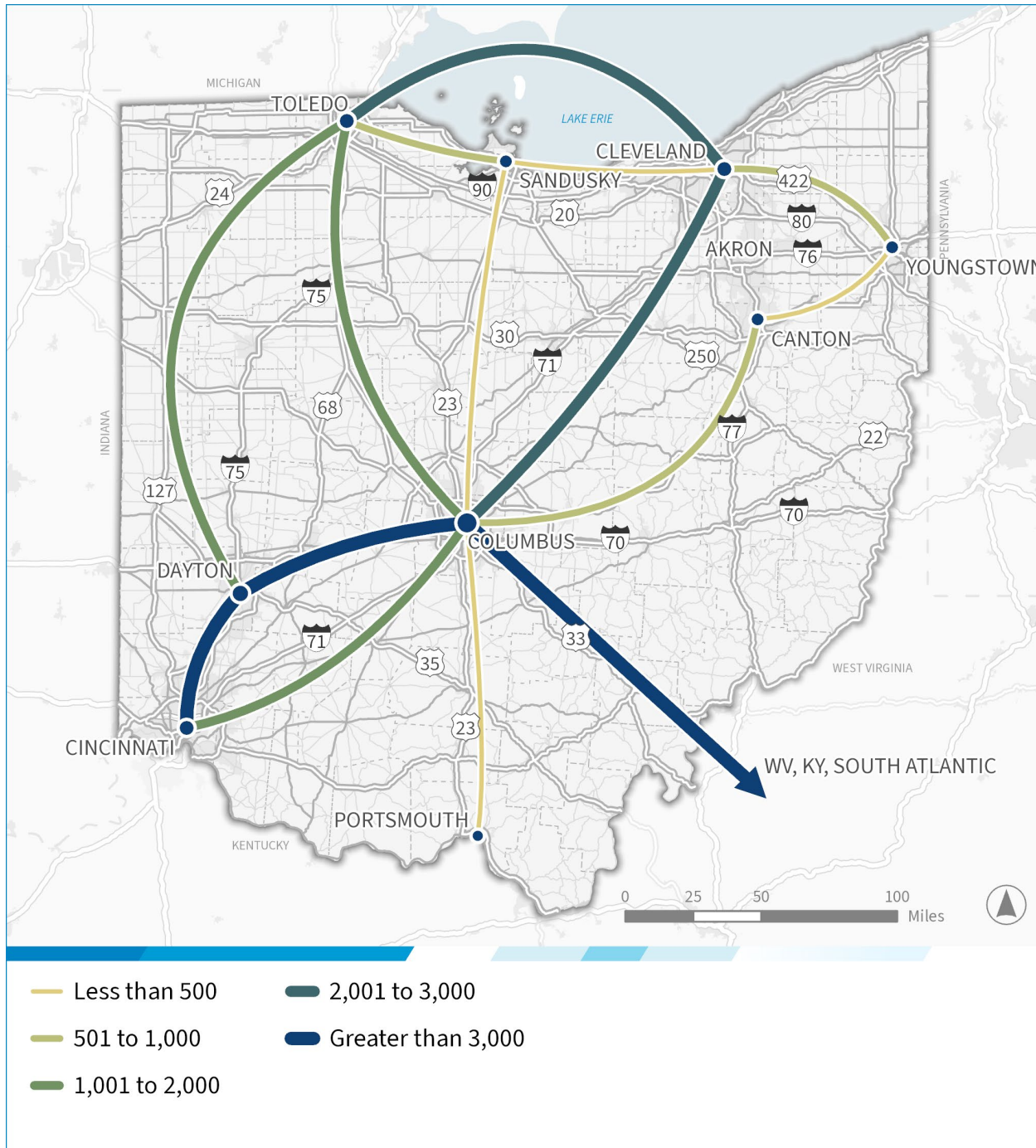
With a 15% truck share, the Cleveland-Columbus (I-71) corridor ranks third in the total value of interregional commodity flows and tonnage. Linking two of the top three markets in the state, the Cleveland area's position along the I-80/I-90 east-west corridor and still substantial industrial activity combined with the Columbus region's growing prominence in transportation and logistics systems contribute to the Cleveland-Columbus corridor's importance as a facilitator of trade between their regions.

Toledo-Cleveland (15% trucks) represents Ohio's fourth largest interregional freight flow market, by tonnage and value, ahead of Cincinnati-Columbus. Toledo's historically strong manufacturing economy combined with location at the crossroads of I-80/90 and I-75 and with nearby connections to the large Detroit and southern Ontario markets, makes it a prime freight hub. Toledo-Dayton has the highest percentage of trucks among the major interregional market flows at 28%, with the I-75 corridor between the two markets facilitating these movements.

While similarly positioned and substantial, the Cincinnati-Columbus market connection carries comparatively less freight, an 8% truck share, by trips, tons, or value. If this analysis included Cincinnati's Northern Kentucky suburbs, which include a significant freight and logistics economy, these freight flow values would be higher. Nevertheless, the Cincinnati-Columbus market has the second largest number of passenger car movements between regional markets, suggesting that other types of social, cultural, and professional affinities exist between these top three markets.



FIGURE 3.94—INTERREGIONAL DAILY TRUCK TONNAGE (2025)



Source: Freight Analysis Framework, Strategic Transportation and Development Analysis Team



The most heavily used, predominantly non-interstate corridor in Ohio, is between Toledo and Columbus, with travel largely reliant on US23 and alternative US and state highways for travel in and out of Central Ohio. The Toledo-Columbus connection has nearly triple the number of auto trips and double the number of truck trips as Toledo-Dayton, although the freight tonnage and value are lower in total. Truck movements are a 19% share of total vehicle movements between the two markets.

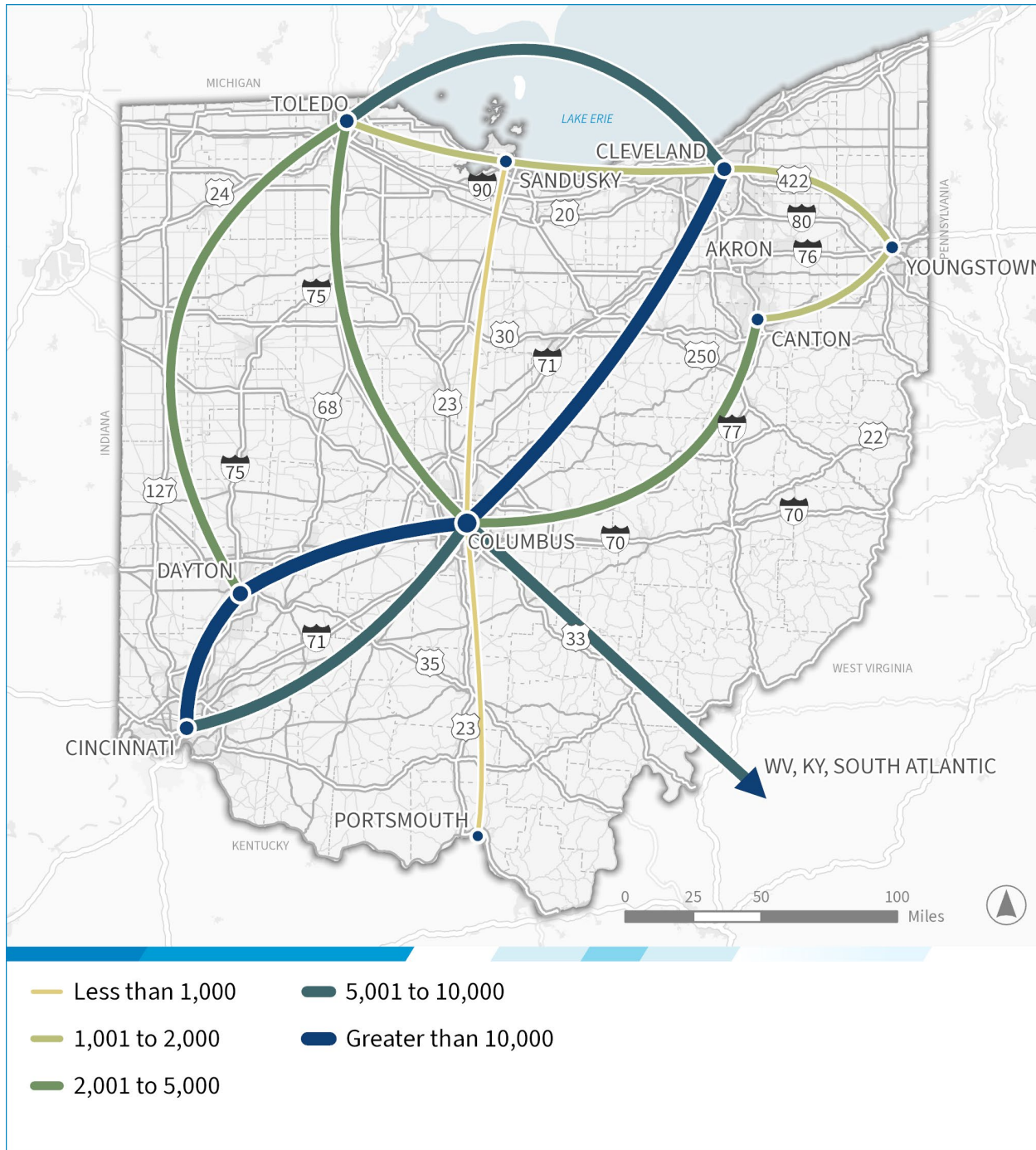
The Columbus-Canton connection is another example of a regional connection which is partially facilitated by I-71 but also heavily reliant on US30. Although Canton is about one-quarter the size of Toledo, passenger car flows and commodity shipment sizes and values between Columbus and Canton are roughly three-quarters the magnitude, indicating a strong connection. Truck trips comprise a 15% share of vehicle flows between the Columbus and Canton market areas.

The Columbus market has long served as a hub for smaller cities and rural communities throughout Central and Southeast Ohio. The interregional connections portrayed on these flow maps between Columbus and Portsmouth (US23) in Southern Ohio and between Columbus and out-of-state markets in West Virginia, Kentucky, and the South Atlantic region of the US (US33) are indicators of the demand on rural highways in Southeast Ohio. While the market-to-market flows between Columbus and Portsmouth are relatively small, the connections between Central Ohio and markets in states south of the Ohio River are strong.

As portrayed on these flow maps, connections between businesses in the Columbus region and out-of-state markets to the south represent the largest commodity flow movements by tonnage. These movements would be the fourth largest in terms of value if ranked alongside the key interregional markets within Ohio. This demand impacts Ohio communities along these corridors, such as Chillicothe (US23) and Athens (US33), and provides the most direct connection between Central Ohio and I-64/I-77 for travel to the Carolinas and nearer markets such as Charleston and Huntington, WV.



FIGURE 3.95—INTERREGIONAL DAILY FREIGHT VALUE (\$1,000'S) (2025)



Source: Freight Analysis Framework, Strategic Transportation and Development Analysis Team



Interregional Corridor Analysis

In order to identify potential performance risks that could hinder future market-to-market commerce, trade, and economic growth, an analysis was conducted to evaluate the role of key interregional corridors within Ohio’s economy and their potential challenges. By examining the connections between 33 economic markets—including Ohio’s metropolitan hubs, smaller urban areas, and key out-of-state markets (see **Figure 3.97**)—this analysis highlights the connections crucial for the efficient movement of people and goods across Ohio and beyond. The findings are framed through indicators of economic value and performance risk.

The analytical framework used in this study (**Figure 3.97**) assesses the connections between these markets using five key indicators of economic value and three key factors of performance risk. Detailed methodology and data outcomes are provided in **Appendix G, Study Methodology**.

Economic Value Indicators

To compare corridors based on indicators of economic value by scenario and horizon year and to examine the change from the base year of 2025 to each horizon year, five indicators were used:

1. **Average Daily Market-to-Market Auto Volume:** Reflects passenger vehicle movement, indicative of labor market connectivity and service-based interactions.
2. **Average Daily Market-to-Market Truck Volume:** Highlights freight activity critical to industrial and retail supply chains.
3. **Average Daily Interregional Truck Volume:** Measures freight movement between Ohio’s seven JobsOhio regions, emphasizing broader economic linkages.
4. **Job Density Adjacent to Corridors:** Illustrates proximity of JobsOhio target industries to transportation routes, showing reliance on efficient corridors.
5. **Worker Density Within Five Miles of Corridors:** Reflects workforce availability near key transportation links.

FIGURE 3.96—INTERREGIONAL CORRIDOR ANALYSIS FRAMEWORK

| | | Economic Value | | |
|------------------|------|----------------|-----|-----|
| | | High | Mid | Low |
| Performance Risk | High | | | |
| | Mid | | | |
| | Low | | | |

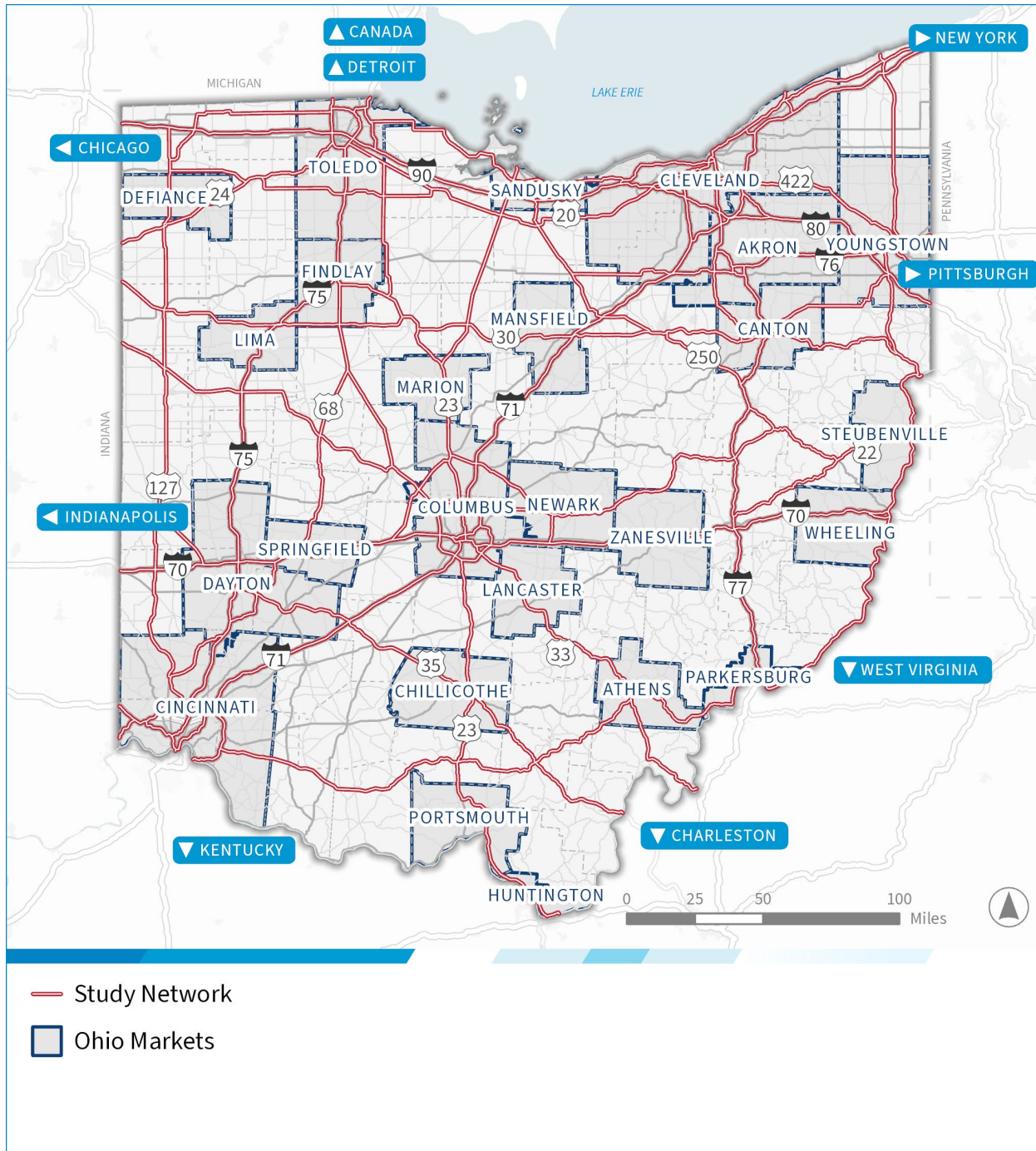
Performance Risk

Performance risk monetizes congestion and safety issues along each corridor using the following factors:

1. **Congestion Costs:** Annualized costs from travel time delays in congested segments where peak-period volume exceeds 95% of capacity.
2. **Safety Index:** Annualized safety costs based on crash types and outcomes, weighted by severity.
3. **Access Control Levels:** Extent to which corridor access points are regulated, influencing throughput and safety.



FIGURE 3.97—STUDY NETWORK, OHIO MARKET CONNECTIONS



Interregional Corridor Analysis Findings

All corridors analyzed facilitate the interregional movement of people and goods. Key roadways connecting Ohio’s metropolitan areas and primary markets (Cleveland, Columbus, Cincinnati, Toledo, Dayton) to secondary markets are essential for maintaining economic strengths and fostering new industries. These corridors support supply chains, commuting, and access to services.

Economic Value

Nearly all top-value corridors are interstate highways, facilitating significant vehicle volumes and high-value goods movement. These corridors provide direct, high-capacity links to industry clusters, workforce hubs, and priority development sites.

Additionally, these corridors are critical for enabling access to major employment hubs and economic centers, connecting labor pools with industrial sites, and facilitating the seamless distribution of goods. The Cleveland-Columbus corridor (I-71) exemplifies this dynamic, acting as a backbone for freight logistics while supporting major metropolitan job markets. Similarly, the Cincinnati-Dayton corridor (I-75) links two of the most economically active areas in the state, enabling businesses to operate efficiently across multiple markets.

Secondary markets, such as those connected by US23 and US33, also demonstrate substantial economic value by supporting critical industries, including manufacturing and agriculture. These routes provide vital connections for smaller urban areas to larger economic centers, amplifying regional trade and ensuring supply chain resilience. For example, the Sandusky-Columbus corridor facilitates access to recreational and industrial zones, reflecting its dual role in supporting commerce and tourism.

The top 12 high economic value corridors based on the current average economic value using the identified indicators are presented in **Table 3.34**.

TABLE 3.34—HIGH ECONOMIC VALUE CORRIDORS

| Corridor | Study Network | Average Economic Value Rank |
|-------------------------------|------------------------------------|-----------------------------|
| Columbus-Kentucky | I-71, US23 | 8.0 |
| Cincinnati-Indiana/Fort Wayne | SR4, US127, I-75, US33 | 8.4 |
| Columbus-Cleveland | I-71 | 10.4 |
| Cleveland-West Virginia | I-77 | 12.2 |
| Columbus-Toledo | US23, US33, SR31, US68, SR15, I-75 | 13.0 |
| Sandusky-Columbus | US23, SR4, I-71, US250 | 13.0 |
| Columbus-Indiana/Chicago | US33, I-75, I-90 | 13.2 |
| Cleveland-Toledo | I-80/I-90 | 15.2 |
| Toledo-Dayton | I-75 | 15.4 |
| Columbus-Dayton | I-70 | 15.6 |
| Columbus-Cincinnati | I-71 | 15.6 |
| Toledo-Indiana/Indianapolis | I-75, I-70 | 16.2 |

Interstate corridors provide direct and high-capacity connections to existing industry clusters, skilled workforces, and priority development sites across Ohio.



Performance Risk

Ohio's transportation network faces diverse performance risks that affect the efficiency and reliability of interregional corridors. While rural interstate corridors generally have sufficient capacity to handle growing demand, urban corridors and non-interstate routes are increasingly strained by congestion, safety concerns, and infrastructure limitations. Urban interstates, such as I-70 and I-71 in Columbus, experience significant delays during peak periods due to high commuter and freight volumes, resulting in inefficiencies for businesses and travelers alike. These bottlenecks impede regional mobility and increase operational costs for freight carriers reliant on timely deliveries.

Non-interstate routes present distinct challenges due to their limited or nonexistent access control. Corridors such as US23 and US68 are particularly vulnerable to congestion and safety risks as development along these routes continues to expand. Frequent access points, such as driveways and at-grade intersections, exacerbate delays and heighten the risk of collisions, especially in rapidly growing areas like Delaware County. These conditions often result in slower travel speeds and higher crash rates, undermining the efficiency of these corridors for interregional movement of people and goods. A summary of the major corridors with access control and development risk is presented in **Table 3.36**.

Safety remains a critical concern across the network. High crash frequencies are concentrated near urban interchanges and on rural highways that mix high-speed traffic with local access points. For example, the I-75 corridor between Cincinnati and Dayton exhibits elevated safety costs due to a combination of heavy volumes, high speeds, and frequent merging and diverging traffic patterns. Similarly, rural highways like US33 near Logan face significant safety challenges, where a lack of access control and site-specific issues such as topography contribute to increased crash rates and severity. The roadways with the highest equivalent property damage only (EPDO) are generally along interstates, particularly in and around the major cities as presented in **Figure 3.98**.

Further complicating the performance risks are the projected growth in VMT and the intensification of freight movements across the state. Truck volumes, in particular, are expected to increase by nearly 50% by 2055, placing additional strain on corridors already nearing capacity. **Figure 3.99** illustrates the current cost of delay, total time lost in peak period congestion, and safety, based on the safety index which assigns costs to crash outcomes, consistent with the EPDO approach. **Table 3.35** presents the top 12 high performance risk corridors based on an average monetized safety and congestion value along the corridor length.

Between primary markets, Ohio's interstate corridors are performing well today and are not expected to face significant congestion risks in the future.

US highways and state highways with partial or no-access control in growing areas face multiple risks to the interregional movement of people and goods, which could limit economic growth opportunities.

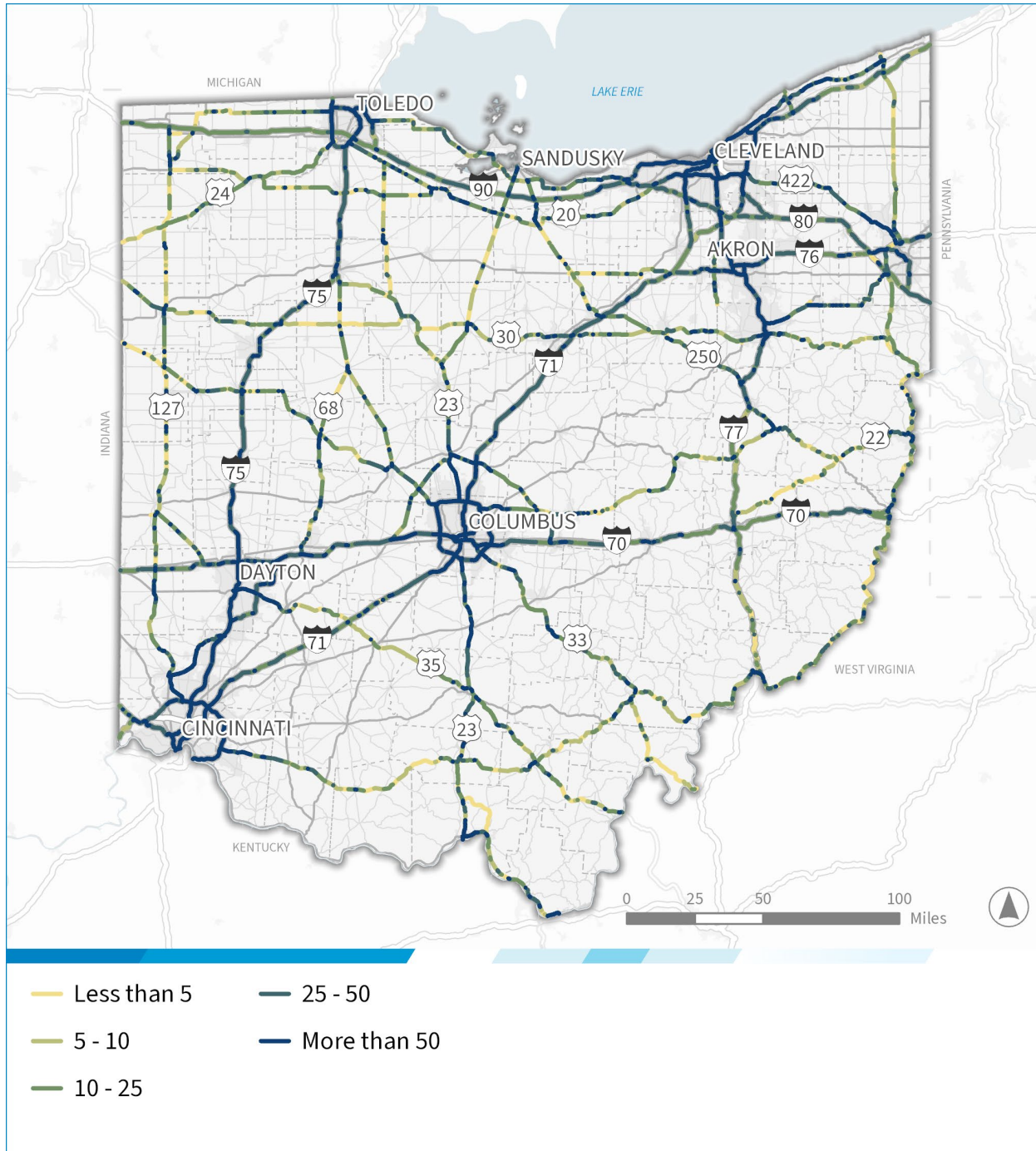


TABLE 3.35—HIGH MONETIZED SAFETY AND CONGESTION RISK CORRIDORS

| Corridor | Study Network | Average Performance Risk Rank |
|------------------------------|------------------------|-------------------------------|
| Columbus-Kentucky | I-71, US23 | 2.0 |
| Cincinnati-Dayton | I-75, SR4 | 5.5 |
| Cincinnati-Indiana/Ft. Wayne | I-75, SR4, US127, US33 | 6.0 |
| Columbus-Toledo | US23, US68, SR31, I-75 | 6.0 |
| Columbus-Sandusky | US23, SR4, I-71, US250 | 9.0 |
| Columbus-Cleveland | I-71 | 10.0 |
| Cleveland-Charleston | I-77 | 11.0 |
| Columbus-Dayton | I-70 | 12.0 |
| Columbus-Chicago | I-71 | 14.5 |
| Columbus-Cincinnati | I-71 | 16.5 |
| Indianapolis-Dayton | I-70 | 17.0 |
| Columbus-Charleston | US23, US35, US33 | 19.5 |



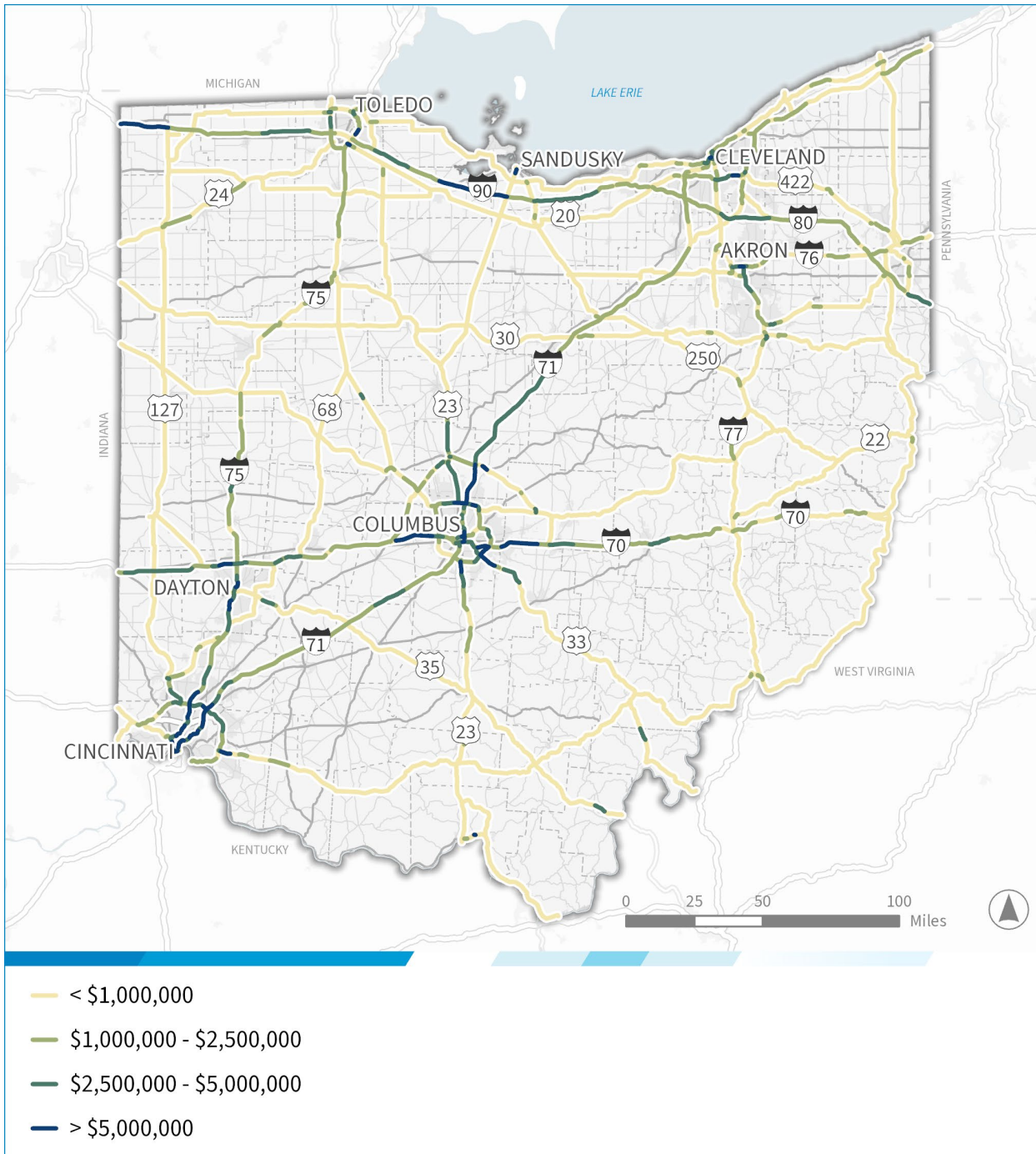
FIGURE 3.98—EXISTING EQUIVALENT PROPERTY DAMAGE ONLY (EPDO) CRASHES PER MILE



Source: ODOT, TIMS



FIGURE 3.99—STATEWIDE CORRIDOR MONETIZED SAFETY AND CONGESTION



Source: ODOT TIMS, Strategic Transportation and Development Analysis Team

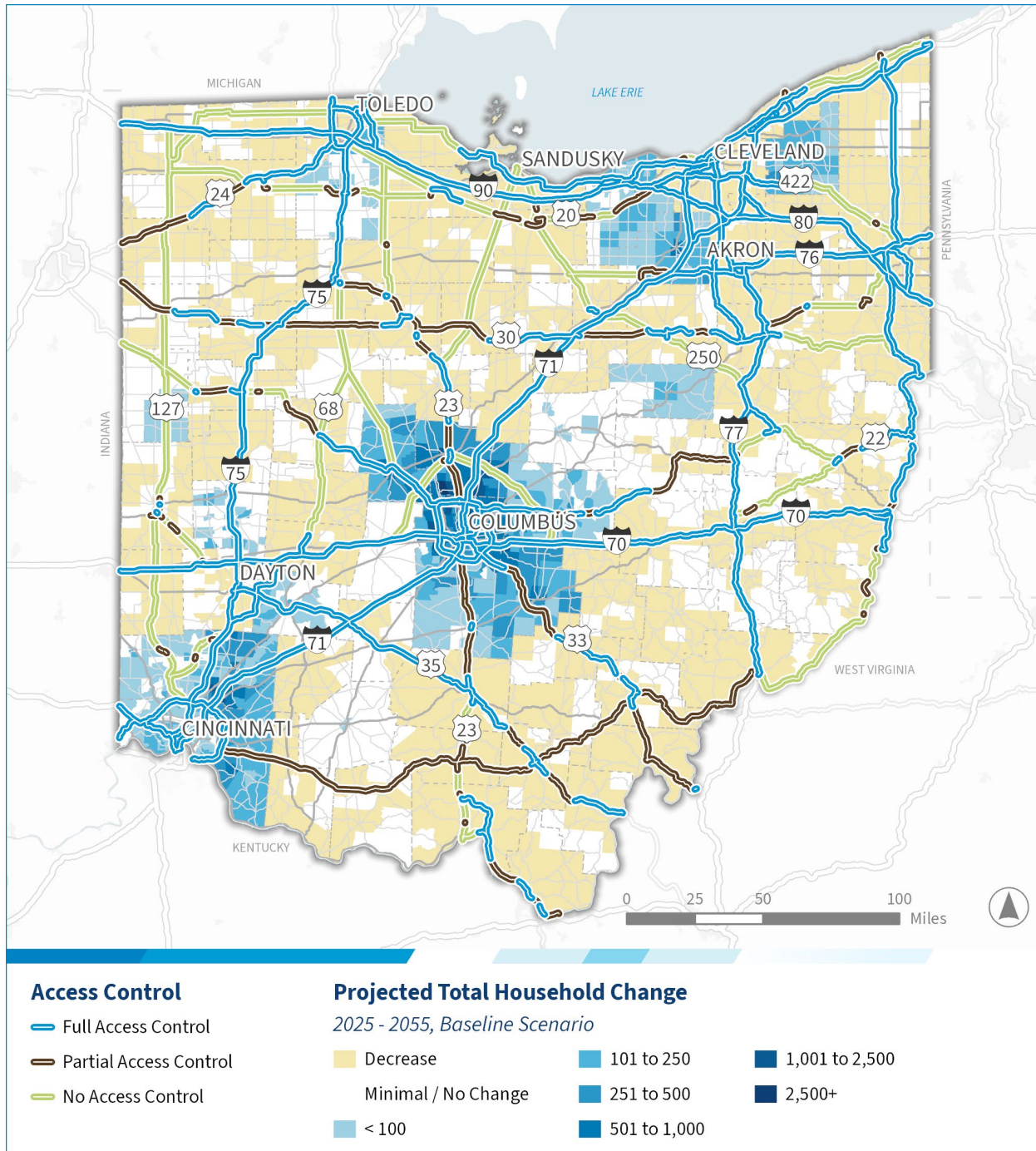


TABLE 3.36—ACCESS CONTROL AND DEVELOPMENT RISK CORRIDORS

| Corridor | Study Network | Access Control and Development Risks |
|-------------------------------|----------------------|--|
| Toledo-Columbus | US 23, US36, SR31 | US23 in Wood County and throughout Delaware County, as well as US36, faces projected growth through 2055 with partial or no access control. The intensity of forecasted growth in Delaware County is a particular concern given existing severe congestion along the corridor. SR31 in Union County is part of an alternative path between Toledo and Columbus and is no access control with projected continued development through 2055. |
| Columbus-Kentucky | US 23 | US 23 in Franklin and Pickaway counties has partial access control, existing pockets of severe congestion, and is forecasted to continue to experience development. While growth is not projected in Ross County, the corridor is primarily no access control, and growth in traffic volume is forecasted. |
| Columbus-West Virginia | US 33 | Most of US33 in Fairfield County is partial access control in an area with ongoing and forecast development through 2055. Other segments of US33 are fully access controlled and not experiencing congestion, while the segment in northern Fairfield County experiences severe congestion. |
| Cincinnati-Dayton | SR4, SR73 | This is a primary alternative path to I-75 and is a no access control corridor connecting multiple activity centers which are forecasted to see continued development through 2055. |
| Cleveland-Youngstown | US422 | US422 is an alternative path to the Ohio Turnpike and has no access control within most of Geauga County, which is forecasted to continue to see moderate growth through 2055. |
| Cleveland-Toledo | US20 | US20 is an alternative path to I-90 and the Ohio Turnpike and has no access control within most of Lorain County, which is forecasted to continue to see moderate growth through 2055. |



FIGURE 3.100—EXISTING ACCESS CONTROL AND FORECASTED HOUSEHOLD GROWTH



Source: ODOT TIMS, Ohio Statewide Model



Focus Corridors

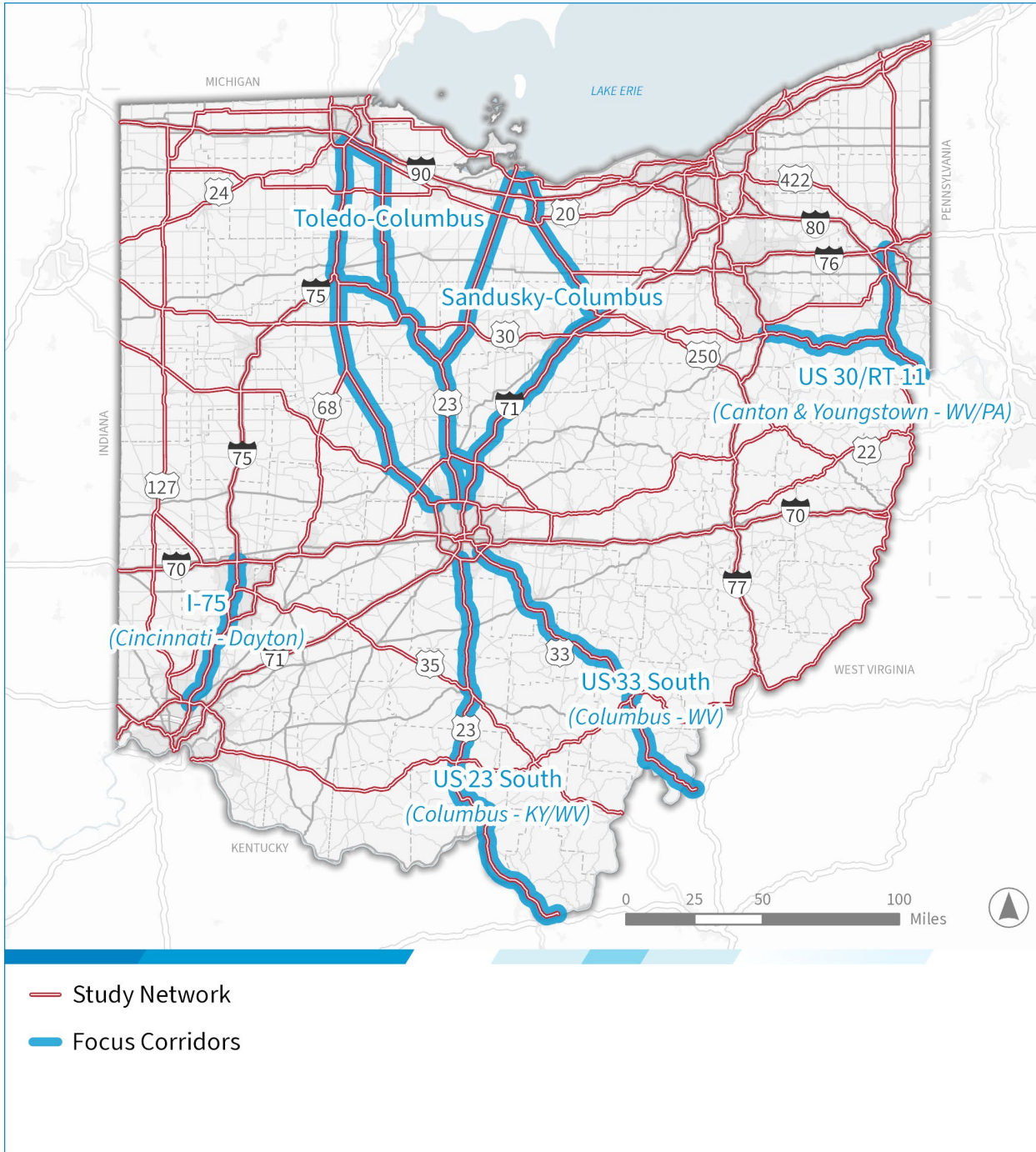
Based on findings, stakeholder input, and legislative requirements, six focus corridors were identified for further evaluation. These corridors exhibit high economic value, performance risks, and growth potential, as outlined in **Table 3.37** and **Figure 3.101**. Detailed improvement strategies are provided in **Appendices A-F**.

TABLE 3.37—FOCUS CORRIDORS

| Corridor | Study Network | Value | Risk | Growth | Access Control | Rationale |
|--|--|-------------|-------------|-------------|----------------|---|
| Toledo-Columbus | I-75, US23, SR15, US68, SR31, US33, US36 | High | High | Mid | Mix | This is a high-value and high-risk corridor with moderate growth and mixed access control, including high growth/no control in Central Ohio, linking primary markets. |
| Sandusky-Columbus | SR4, US23, US250, I-71 | High | High | Mid | Mix | This is a high-value and high-risk corridor with moderate growth and mixed access control, with high growth/no control in Central Ohio and no control along most of SR4 and US250, linking secondary and primary markets. |
| US23 South: Columbus-KY/WV | US23, SR823, US52 | High | High | Mid | Low | This is a high-value and high-risk corridor with moderate growth and low access control linking a primary market to multiple interstate markets. |
| US33 South: Columbus-WV | US33 | Mid | Mid | Mid | Mix | This is a moderate-value, risk, and growth corridor with mixed access control, with high growth and partial control in Central Ohio) linking a primary market to tourism destinations and an interstate market. |
| I-75: Cincinnati-Dayton | I-75 | High | High | High | High | This is a high-value, high-risk, and high-growth corridor connecting two primary markets. The corridor supports multiple interregional connections and the economic vitality of two primary markets. |
| US30/ SR11: Canton/Youngstown-WV/PA | US30, SR11 | Low | Low | Low | Mix | This is a low-value, moderate-risk, and low-growth corridor with mixed access control. Both paths, US30 and SR11, are critical market connections and support economic development goals in eastern Ohio. |



FIGURE 3.101— STUDY NETWORK AND FOCUS CORRIDORS



Focus Corridor Context and Needs Summary

As described in the Regional Networks section, the existing conditions and stress test analysis set context and identified congestion risks within each region and on each Study network facility. For the focus corridors, the review of context and understanding of risks was more comprehensive. The assessment of each corridor focused on:

- Historical trend, current, and projected future corridor travel demand, land use, and development patterns
- Current corridor operating conditions, including roadway characteristics and operations, the interaction among multiple transportation modes, and locations of congestion, safety, and access concerns
- ODOT projects in construction, under development, or proposed within the corridor
- Overlaps and gaps between the areas of concern noted above and existing ODOT projects as a means to identify actionable recommendations for transportation system projects to support statewide economic growth

Key findings for each focus corridor related to corridor context and corridor issues and needs are presented on the following pages. More details of these findings are presented in **Chapters 1, 2, and 3** of each Focus Corridor Needs Assessment (**Appendices A-F**).



Toledo-Columbus (I-75, US23, SR15, US68, SR31, US36, and US33) Corridor Summary

Corridor Context

The Toledo-Columbus corridor encompasses three main routes along segments of I-75, US23, SR15, US68, SR31, US36, and US33. These pathways connect Northwest Ohio and Toledo with Central Ohio, including the rapidly growing communities in Delaware and Columbus. The corridor serves as a critical link between Central Ohio, Northwest Ohio, Detroit and the US-Canada border crossings, including the Detroit River crossings and the new Gordie Howe International Bridge, expected to open in fall 2025.

Population growth is projected to continue southward along I-75, particularly in Toledo suburbs like Perrysburg. Bowling Green, located along I-75, boasts a diverse economy supported by Bowling Green State University, county government employment, and a growing commuter base to Toledo. Further south, Findlay benefits from a stable economy and its strategic position at the junction of US68. In Central Ohio, Delaware and the northern Columbus suburbs are anticipated to see ongoing growth, increasing travel demand on US23. Marysville and Union County are also experiencing steady population and employment growth, driven by the Honda manufacturing plant and affordable housing demand from outward-moving Columbus residents.

Congestion

Key segments of the corridor already experience congestion where traffic volumes exceed capacity. These areas include the I-475 and US20 interchange, downtown Kenton, US33 from Post Road in Dublin to I-270, US36 approaching US23 in Delaware, and US23 between I-270 and Delaware. Additional segments are nearing capacity, particularly within Central Ohio and in smaller towns like Carey and Fostoria, as well as I-71 from I-270 to Gemini Place. Future congestion risks include US20 near I-475 in Toledo, SR31 in downtown Kenton, US33 near I-270, US23 from I-270 to US36 in Delaware, and I-71 from I-270 to US36.

Access

Growth on both ends of the corridor, coupled with development in town centers, is exacerbating access challenges. Notable access issues include US68 from Findlay to Kenton and SR31 from Kenton to Marysville, which are both two-lane roadways with no access control. US23, spanning from Toledo to I-270 in Columbus, lacks access control between Toledo and Upper Sandusky, has partial to full access control from Upper Sandusky to Delaware, and partial to no access control from Delaware to I-270. US36, an east-west corridor connecting US23 in Delaware to I-71 near Sunbury, serves as an alternative to I-270. It features a two-lane urban roadway in Delaware and a four-lane divided highway east of Delaware, with partial and no access control.

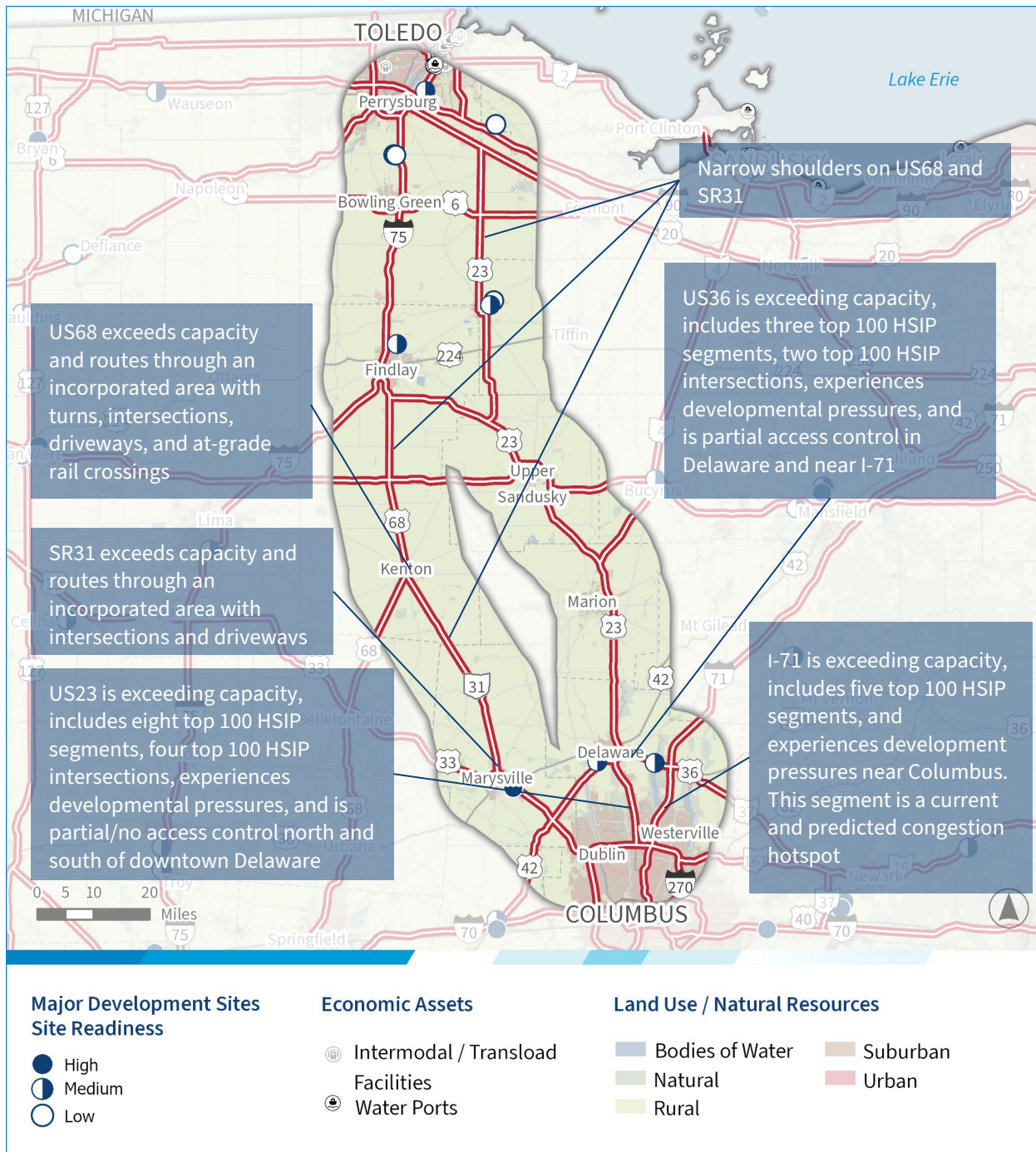
Safety

The Toledo-Columbus corridor accounts for 20% of the top 100 HSIP priority segments due to over 400 at-grade intersections and nearly 2,000 private driveways. Safety hotspots include I-75 between Perrysburg and Bowling Green, and between Bowling Green and Findlay; US23 north of Delaware and between Delaware and I-270; I-71 south of US36 and at the US36/I-71 interchange; SR68 south of SR15; SR31 north of Marysville; and US33 east of US42. The highest concentration of HSIP intersections is found on US23 between Orange Road and Powell Road.

Figure 3.102 summarizes key issues and opportunities along the corridor.



FIGURE 3.102—TOLEDO-COLUMBUS FOCUS CORRIDOR



Sandusky-Columbus (SR4, US23, US250, US36, I-71) Corridor Summary

Corridor Context

The Sandusky-Columbus corridor spans two primary routes along segments of SR4, US23, US250, US36, and I-71. These routes connect Sandusky and the resort areas along Lake Erie with Delaware County and Columbus communities. Sandusky's economy relies heavily on tourism and manufacturing, with Cedar Point amusement park and the Lake Erie resorts serving as major regional attractions. While Sandusky has experienced declines in population and employment, growth has occurred south of the Ohio Turnpike along SR4 and US250. The Port of Sandusky and its proximity to the Turnpike offer opportunities for logistics-related businesses. In contrast, rural areas between Sandusky and Marion are projected to continue experiencing population decline. Areas near Ashland and Mansfield have seen modest growth west of I-71, with their strategic location at the nexus of I-71, US42, US30, and US250 creating opportunities for freight-intensive and logistics-related businesses. Meanwhile, Delaware and the northern suburbs of Columbus are expected to maintain strong growth, driving increased travel demand along the corridor. Delaware County's economy is forecast to diversify and expand its employment base.

Congestion

Current congestion challenges along the corridor include SR4 through downtown Bucyrus, US36 approaching US23 in Delaware, and US23 between I-270 and Delaware. Additional segments nearing capacity include those in Columbus, Delaware, Sandusky, and smaller communities such as Attica, Milan, Bucyrus, Ashland, and Norwalk, as well as I-71 from I-270 to Gemini Place in Columbus. Looking forward, the most significant congestion risks are expected on US23 and I-71 between US36 and I-270.

Access

Approximately half of the mileage along the corridor lacks access control, encompassing sections of US250, SR4, US23, and US36. These areas feature numerous driveways, contributing to congestion and safety concerns. SR4 is predominantly a two-lane roadway with no access control. US23, a four-lane divided roadway, has varying degrees of access control, ranging from full to partial between Marion and Delaware, and partial to none from Delaware to I-270. US250 is a two-lane roadway with no access control, while US36 transitions from a two-lane roadway in Delaware to a four-lane divided highway east of Delaware, with partial to no access control.

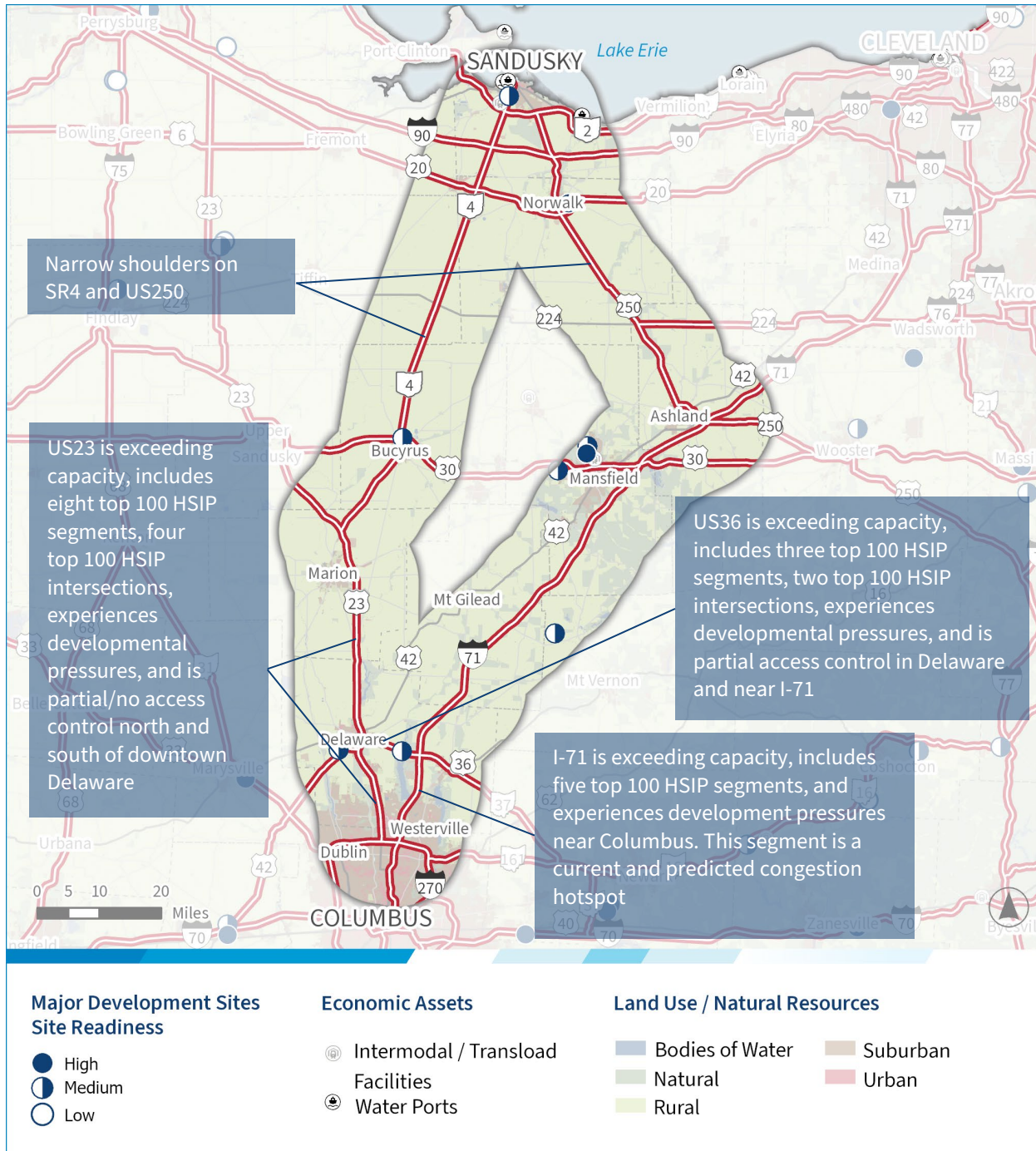
Safety

The Sandusky-Columbus corridor accounts for over 20% of the state's top 100 HSIP priority segments, particularly along I-71. Key safety hotspots include I-71 south of Ashland, including the US36/I-71 interchange, US23 north of Delaware where access becomes uncontrolled, and US23 between Delaware and I-270, where driveway access is prevalent. The corridor includes 35 HSIP priority segments and eight HSIP priority intersections among the top 100 locations statewide. The highest concentration of top 100 HSIP intersections is located on US23 between Orange Road and Powell Road.

Figure 3.103 summarizes key issues and opportunities along the corridor.



FIGURE 3.103—SANDUSKY-COLUMBUS FOCUS CORRIDOR



Columbus-West Virginia/Kentucky (US23, SR823, US52) Corridor Summary

Corridor Context

The Columbus-West Virginia/Kentucky corridor includes US23, US52, and SR823, the Portsmouth Bypass, connecting Central Ohio with Southeast Ohio, Portsmouth, the Ohio River, West Virginia, and Kentucky. Grove City and the southeastern segments of the I-270 corridor around Columbus have seen strong population growth driven by the workforce's search for affordable housing. Rickenbacker International Airport, accessible via US23, has fueled significant growth in logistics-related businesses and is a major employment and truck trip generator. Affordable housing demand for Columbus commuters is expected to continue spurring development and population increases along the US23 corridor south toward Circleville. While population declines are projected in Ross County and areas further south, development and manufacturing opportunities exist north of Chillicothe, complemented by the redevelopment of Piketon's nuclear energy plant and the operations of 10 Ohio River ports south of Portsmouth along US52. Despite decades of population and employment decline, Portsmouth is seeing development increases along the SR823 bypass. Additionally, former industrial sites in Portsmouth with access to US23, US52, the Ohio River, and Huntington, WV, offer promising opportunities for freight-intensive redevelopment.

Congestion

Current congestion risks along the corridor are concentrated on US23 from I-270 to London-Groveport Road in Franklin County and on segments through South Bloomfield and Waverly. Additional segments nearing capacity include US23 from London-Groveport Road to South Bloomfield and downtown Circleville to SR361; US52 from SR243 to SR18; and SR276 to the SR7 interchange near the Ohio River. Looking ahead, the highest congestion risks are predicted on US23 from I-270 to London-Groveport Road, as well as through South Bloomfield and Circleville.

Access

Access control varies significantly along the corridor's 123 miles, with full, partial, and no access control present on US23 and US52. Full access control is primarily found on SR823, US52, and at the interchange with US33 in Chillicothe. Partial access control is common in Franklin, Pickaway, Ross, Pike, and Scioto counties, while no access control is prevalent in towns and villages such as Waverly and South Bloomfield. South Bloomfield and Piketon are characterized by dense commercial driveway spacing, while residential and commercial driveways cluster south of Chillicothe to Waverly's municipal boundary, connecting directly to US23.

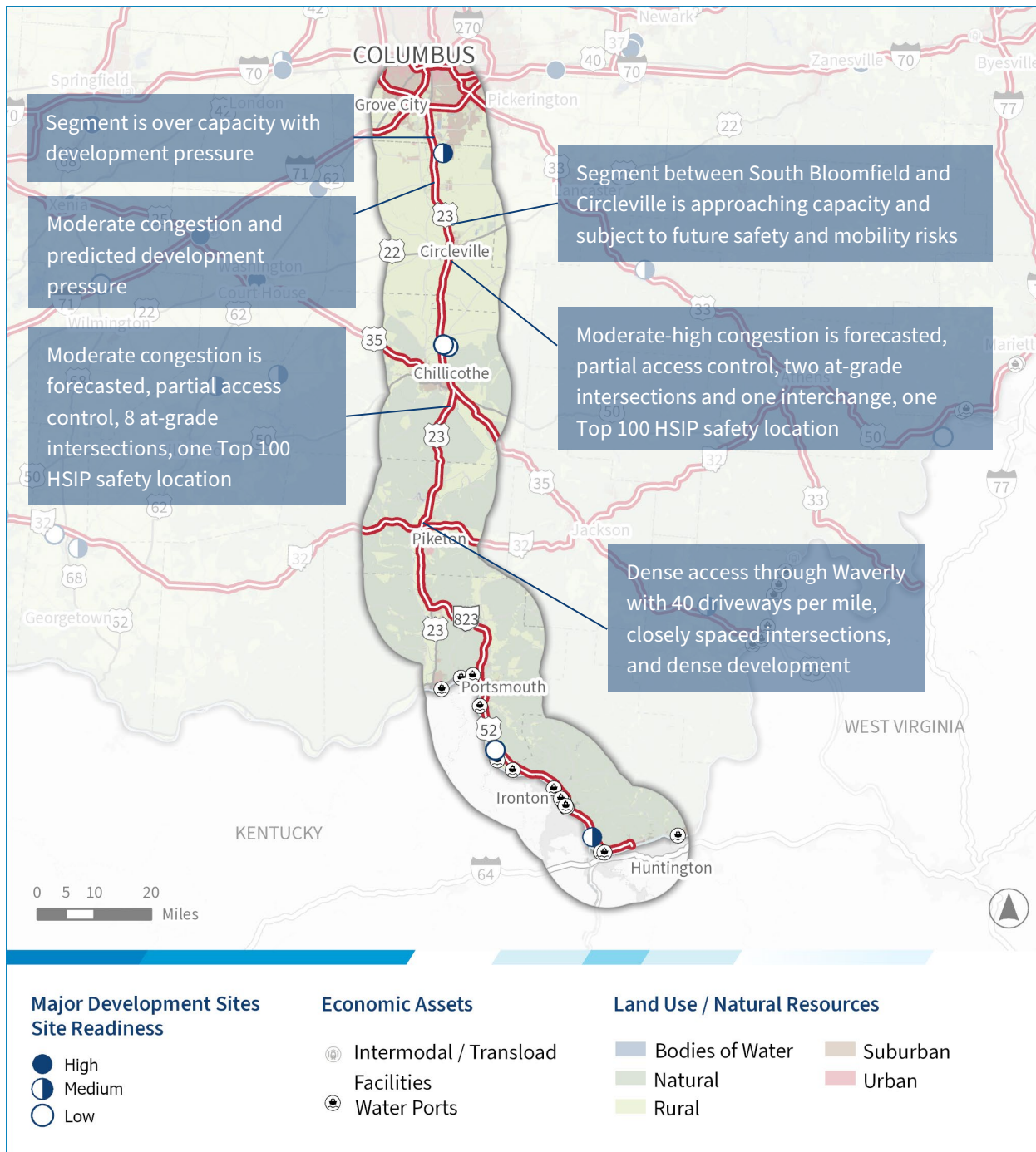
Safety

The corridor includes 12 priority segments and seven priority intersections in the HSIP top 100 locations. Key safety hotspots are located at US23 and Rathmell Road, US23 from the Court Street connector to Dupont/Pittsburgh Road near Circleville, US23 through Waverly, US52 from Lane Street to Deerfield Avenue near Ironton, and US52 from CR120 to Charley Creek Road in Burlington.

Figure 3.104 summarizes key issues and opportunities along the corridor.



FIGURE 3.104—COLUMBUS-WEST VIRGINIA/KENTUCKY FOCUS CORRIDOR



Columbus-West Virginia (US33) Corridor Summary

Corridor Context

The Columbus-West Virginia corridor, comprising US33, connects Central Ohio with Southeast Ohio, the Ohio River, and West Virginia. This corridor links Columbus and its southeastern suburbs, including Groveport and Canal Winchester, and follows the southern edge of Pickerington. The northern segment of US33 is a four-lane highway with partial access control, routing around the western edge of Lancaster and serving a series of small communities and rural areas in Fairfield County. Economic growth in Columbus and the southeastern suburbs of Franklin County has been robust and is expected to continue. Over the last 20 years, Groveport, Canal Winchester, and Pickerington have experienced strong population and employment growth, driven by residents seeking affordable housing as far south as Lancaster.

Rickenbacker International Airport, accessible via US33, is a significant employer and generator of truck traffic, supported by adjacent logistics-related businesses. Athens has seen modest population growth over the last two to three decades, anchored by Ohio University's presence and its impact on the local economy. Additionally, US33 is a critical tourism gateway to Wayne National Forest, Hocking Hills State Park, and other regional recreational destinations. In contrast, Ohio River communities along the corridor have faced long-term population and employment declines.

Congestion

Congestion along the corridor is concentrated at its northern end, particularly on US33 from the I-270 interchange to SR317 near Groveport, a key route to Rickenbacker International Airport. This stretch is nearing capacity, as are segments extending from SR317 through Groveport and Canal Winchester to the US33 Business Route in Fairfield County. These areas are expected to experience increasing congestion as regional growth continues.

Access

Access control along the 106-mile corridor is a mix of partial and full control. The corridor includes 26 interchanges, 45 at-grade intersections, and 14 private driveways. Between Lancaster and Athens, inconsistent access control reduces travel efficiency and safety. The highest density of access points, including driveways and intersections, is found in the 9-mile segment between the Tarklin Road interchange in Fairfield County and the SR180 interchange in Hocking County. South of Athens, corridor segments to the unincorporated community of Darwin and from SR733 to the Ohio River are two-lane undivided facilities, further limiting mobility and safety.

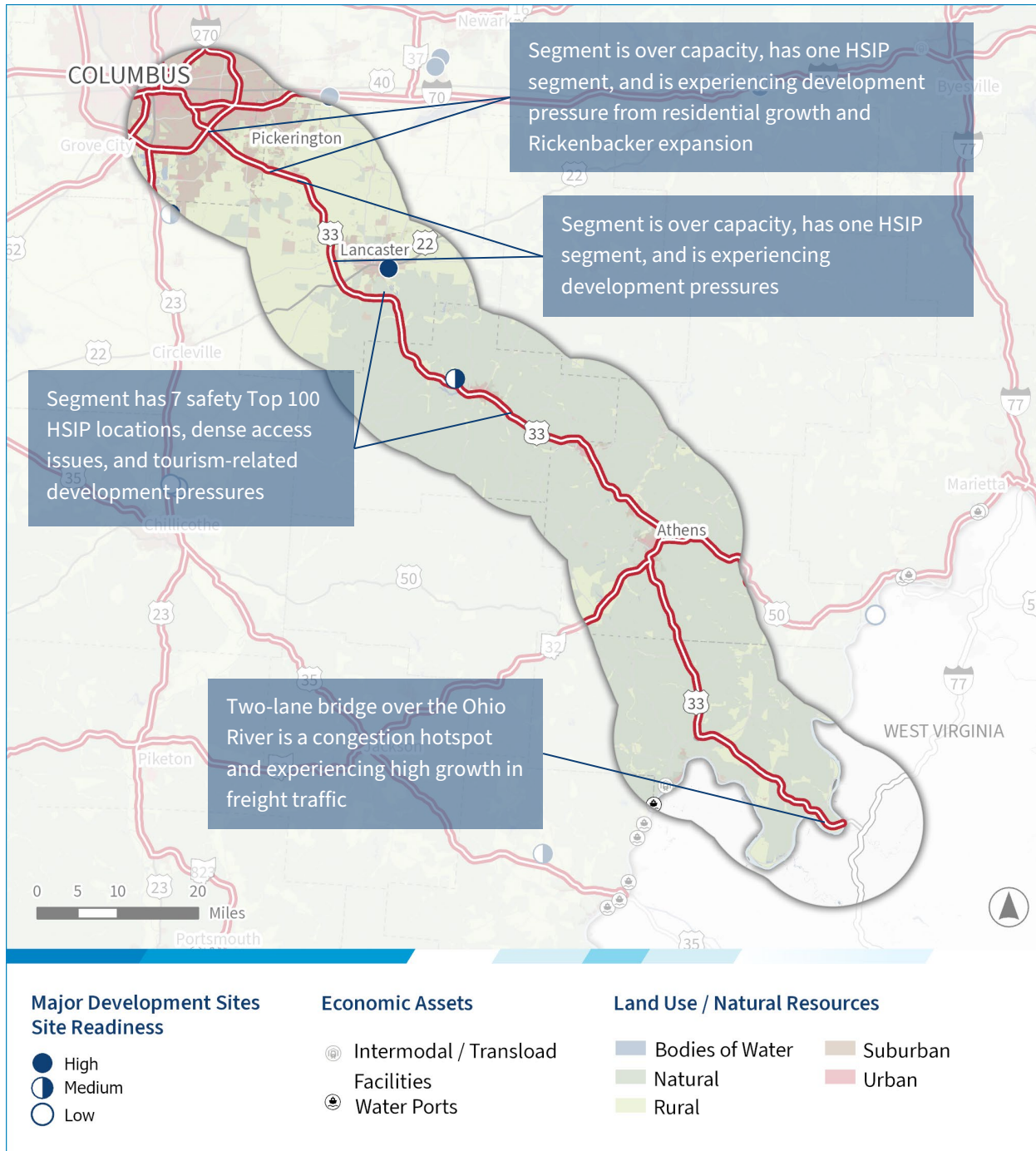
Safety

The corridor includes 29 HSIP locations, comprising 26 segments and three intersections, spanning from I-270 to the West Virginia state line. Of these, 17 are among Ohio's Top 100 HSIP locations, including 16 segments and one intersection. High-crash locations include the I-270 interchange south on US33 to the Hamilton Road (SR317) interchange, Diley Road south to the village of Carroll, and Sharp Road in Sugar Grove south to the SR664 interchange in Logan.

Figure 3.105 summarizes key issues and opportunities along the corridor.



FIGURE 3.105—COLUMBUS-WEST VIRGINIA FOCUS CORRIDOR



Dayton-Cincinnati (I-75) Corridor Summary

Corridor Context

The Dayton-Cincinnati corridor follows I-75, connecting Dayton to Cincinnati from I-70 near Dayton International Airport to I-275, Cincinnati's outerbelt. The corridor spans 45 miles of urban interstate and is divided into two distinct segments: the northern 23 miles from I-70 to SR73, which is a six-lane section, and the southern 22 miles from SR73 to I-275, which is an eight-lane section. The northern end of the corridor is located near two airports and a concentration of logistics-related businesses. Dayton International Airport, accessed via I-70, is a major passenger and air freight hub, complemented by the Union Global Logistics Airpark at Dayton International Airport, a high-readiness SiteOhio site. Wright-Patterson Air Force Base, a major military installation focused on logistics, is located east of the corridor and accessible via I-675.

The corridor passes through several fast-growing suburbs, including Vandalia and Huber Heights near the northern end. Downtown Dayton has undergone moderate urban redevelopment, which is expected to continue. The I-75/I-675 interchange south of downtown Dayton supports large manufacturing employers, commercial developments, and offices in Moraine. Residential development and population growth between Dayton and Cincinnati have driven longer commuter travel along I-75. The I-75/I-275 interchange in Cincinnati is surrounded by major commercial and industrial land uses that leverage the area's freeway access. The corridor serves major manufacturing employers, including GE Aviation, and nearby cities like Mason house large companies such as Procter & Gamble, Luxottica, and Cintas. Downtown Cincinnati and the Port of Cincinnati-Northern Kentucky, now the largest inland port in the United States, are home to significant employers and logistics-related businesses.

Congestion

Congestion is concentrated along several segments of I-75. Key areas include segments immediately north and south of downtown Dayton, from I-275 to Cincinnati-Dayton Road, and from Miamisburg-Centerville Road in Dayton to Wyse Road in Vandalia. Future congestion risks are expected to intensify near the I-275 interchange and from SR73 north through downtown Dayton.

Access

The corridor's interchange spacing is inadequate in the Dayton area. The average spacing between Dryden Road and Wagner Ford Road is just 0.73 miles. Of the 27 interchanges along the corridor, all but one feature signalized intersections; the exception is the northbound entrance ramp from Stewart Street. This dense interchange configuration contributes to operational inefficiencies and safety challenges.

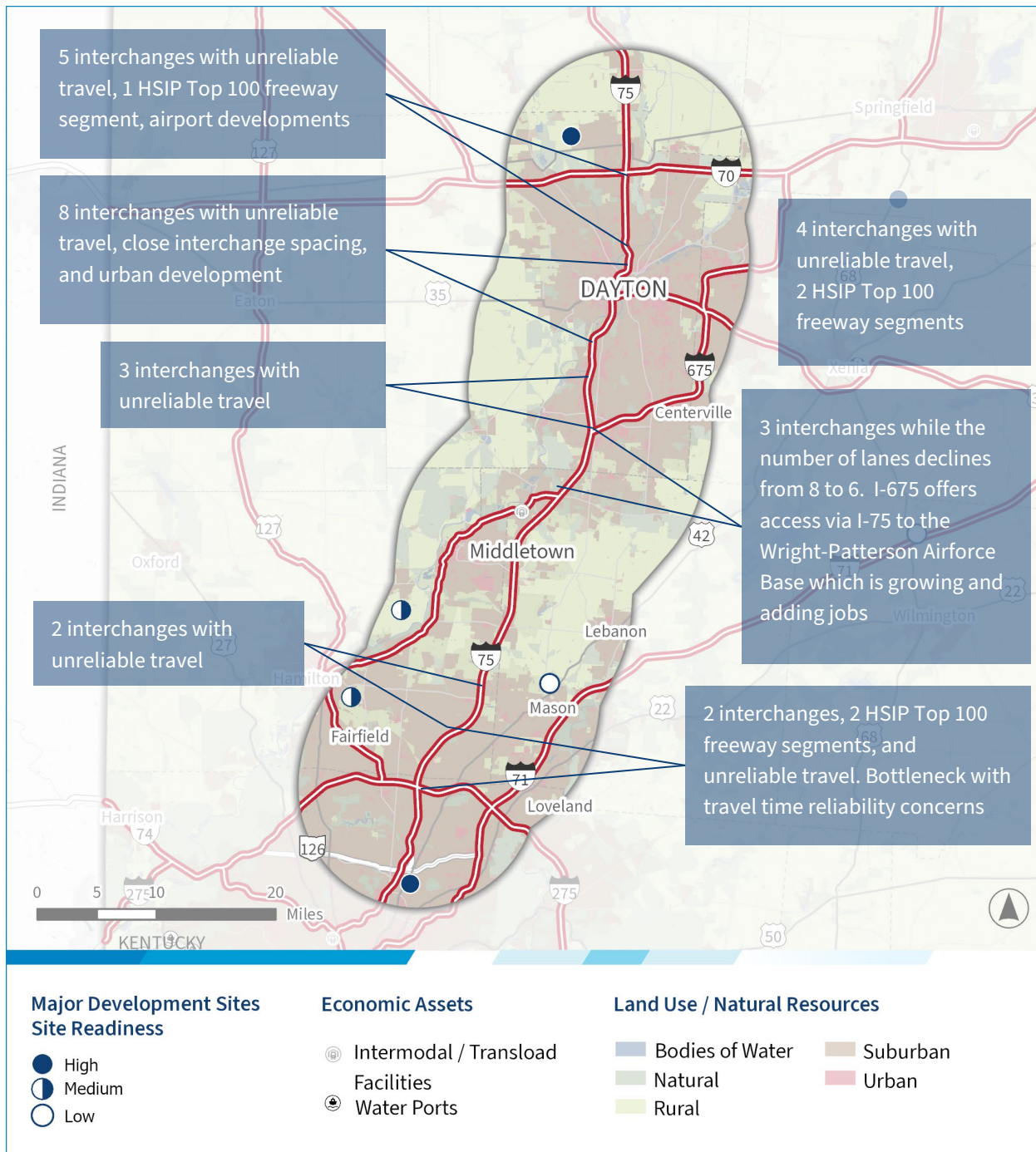
Safety

The corridor includes 12 priority segments and nine priority intersections identified in the HSIP's top 100 locations. Safety hotspots are concentrated along I-75, particularly from Stanley Avenue to Dryden Road, from SR73 to SR123, and from Union Center Boulevard to Crescentville Road. The most significant safety concerns are near system interchanges and in downtown Dayton, where close interchange spacing creates weaving movements that, when combined with congestion, exacerbate safety risks.

Figure 3.106 summarizes key issues and opportunities along the corridor.



FIGURE 3.106—DAYTON-CINCINNATI FOCUS CORRIDOR



Canton-Youngstown-WV/PA (US30/SR11) Corridor Summary

Corridor Context

The Canton-Youngstown corridor follows US30 and SR11, connecting Northeast Ohio with West Virginia and the Pittsburgh metropolitan area in Pennsylvania. Canton and Youngstown have experienced declines in population and employment within their urban cores, but these have been offset by growth in neighboring suburbs. Canton's growth has been concentrated to the north, while Youngstown has seen expansion in its southwestern suburbs. Regional employment patterns have shifted, with job losses in higher-paying manufacturing sectors being replaced by lower-paying positions in healthcare and service industries.

Four JobsOhio development sites are located near the west end of the corridor in the Canton and Massillon areas along I-77 and US30. Rural development opportunities exist along US30 in East Canton, particularly for warehousing and logistics businesses. Austintown Township, on the west side of Youngstown, has experienced strong population and employment growth over the past 20 years, a trend that is expected to continue. There are opportunities to better connect Boardman along US224 to SR11 and I-680, facilitating residential and employment growth in the southern areas of Youngstown. The I-680 and I-76 corridors, located just east of the main corridor, offer additional potential for logistics and warehousing industries. Opportunities also exist along US30 and SR11 to support the growing energy sector and enhance access to Pittsburgh. While communities along the Ohio River have faced long-term declines in population and employment, there is potential to strengthen Ohio River port operations and promote logistics and distribution businesses with improved connections to Pittsburgh and western Pennsylvania.

Congestion

Currently, no segments of US30 or SR11 within the corridor experience congestion. However, traffic volumes are nearing roadway capacity on four segments of US30: Trump Avenue to SR44 in East Canton, Liberty Street to the Stark-Columbiana County line in Minerva, 1st Street to Haessly Road in Hanoverton, and Logtown Road to Stookesberry Road through Lisbon and Jordanville. No future congestion risks are predicted for this corridor.

Access

US30 from East Canton to SR11 lacks access control and is predominantly a two-lane roadway, with some sections widening to three lanes through villages or as climbing lanes for trucks. In contrast, SR11 from Youngstown to the West Virginia border is a four-lane, fully access-controlled highway with 10 interchanges along its route. Major interchanges on SR11 are located at I-80, US224, SR170, and SR7, providing critical network connectivity.

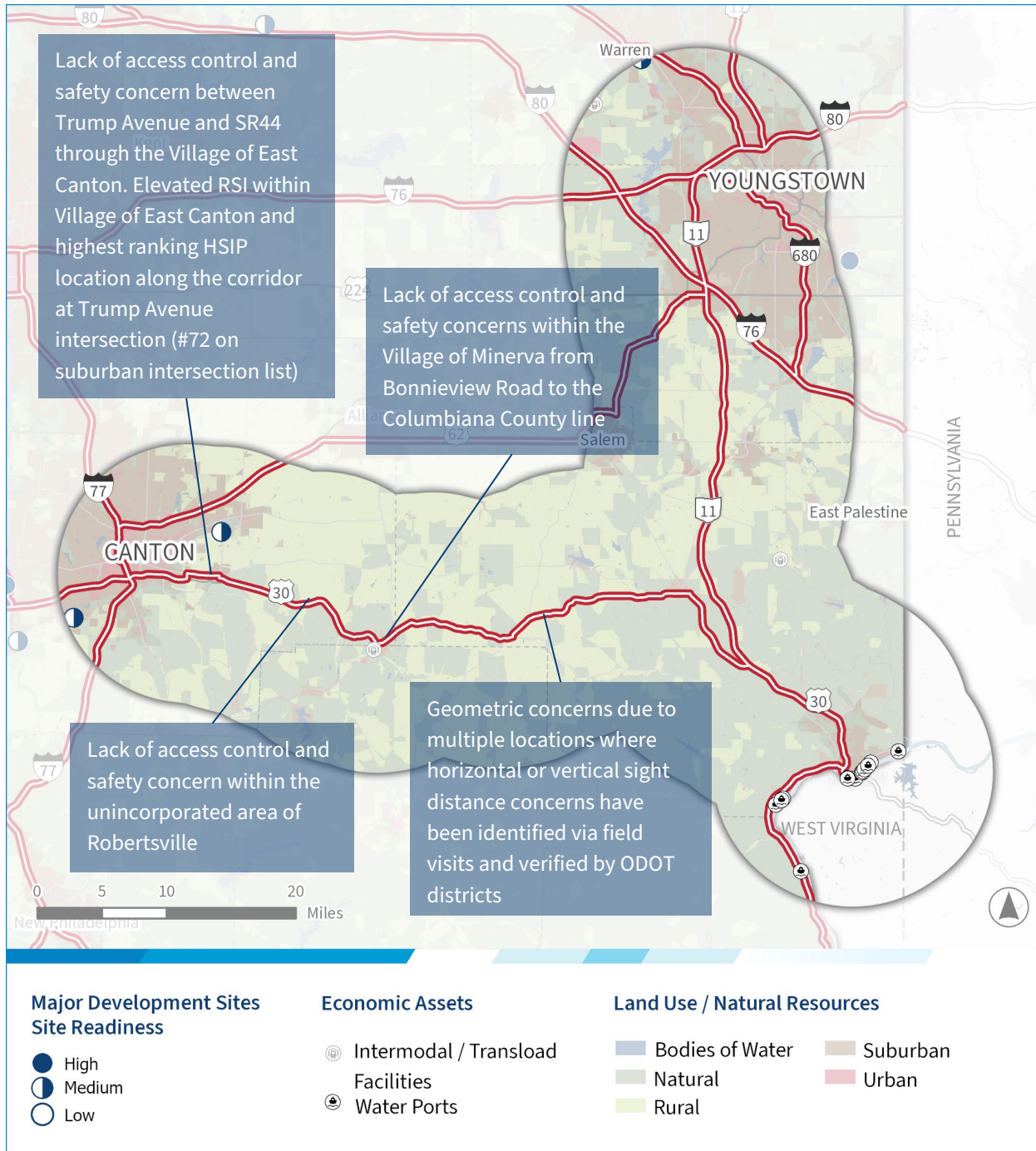
Safety

Crashes occur more frequently along US30 between East Canton and Minerva. The highest concentrations of crashes are found near the Trump Avenue intersection, along South Center Street in East Canton, and within the eastern limits of Minerva. Three segments and two intersections on US30 are included in the HSIP list. On SR11, crashes are most frequent in the northern urbanized section between the I-80 and US224 interchanges near Youngstown. The US224 interchange is the corridor's most frequent crash location. Although SR11 includes eight segments on the HSIP list, none are within Ohio's top 100 high-crash locations.

Figure 3.107 summarizes key issues and opportunities along the corridor.



FIGURE 3.107—CANTON/YOUNGSTOWN-WEST VIRGINIA/PENNSYLVANIA FOCUS CORRIDOR



Strategic
**Transportation
& Development**

Analysis

Chapter 4: Needs and Findings



Department of
Transportation

4. Needs and Findings

OVERVIEW

This chapter compares congestion risks and other risks on the Study network with ODOT's current and proposed projects to determine critical transportation investment needs to support statewide economic growth.

KEY FINDINGS

The analyses presented in **Chapter 2** and **Chapter 3** of this report highlight cross-cutting findings with significant implications for Ohio's statewide transportation infrastructure and economic positioning that are then compared to ODOT programs and projects to identify needs and gaps presented in this chapter:

- **Existing ODOT processes and programs are advancing projects to manage congestion risks.**

ODOT is actively developing highway projects to expand capacity and improve operations that will manage congestion risks at 51 of the 72 hotspots. ODOT's capabilities are augmented by regional and local agencies that manage their own planning efforts and often rely on ODOT for data, technical assistance, planning support, and funding for project delivery. ODOT and its regional and local partners continue to strengthen existing processes and programs to plan proactively, coordinate funding to enhance project investments, and make data-driven decisions that link transportation needs and development activity more effectively.

- **Ohio's interregional trade corridors are vital to the state's economic growth, but select corridors are facing congestion risks.**

Most of Ohio's interstate corridors operate well today and are forecasted to continue to operate well into the future. Locations with multiple and widespread congestion risks that could impact efficient person and goods movement are primarily located in the Central Ohio and Southwest Ohio regions, with additional segments on primary commuting and truck corridors in the urbanized areas of Cleveland, Akron, and Dayton. Beyond immediate congestion risks, interregional corridors in fast-growing areas, such as US36 and SR37 in Delaware and Licking counties; SR31 in Union County; US23 in Delaware, Franklin, and Pickaway counties; SR32 in Clermont County; and US33 in Fairfield County face challenges due to partial or nonexistent access control. Driveways and at-grade intersections degrade safe and reliable travel on these highways today, while new development and associated direct access points could further degrade traffic safety, flow, and functionality.

- **Site development creates opportunities and risks.**

Priority development sites are anticipated to create jobs and draw investment to specific parts of the state. However, these sites are sometimes located in areas where additional trips generated by site development could add to congestion risk on the system. Among 78 priority development sites described in **Chapter 2**, 25 sites have limited direct connections to interstates or four-lane facilities, 43 sites are located near areas of the Study network that are projected to experience congestion risks through 2055, and 16 sites have both limited connectivity and proximity to congestion risk. These findings demonstrate the importance of managing planning and project design processes that ensure, when these sites are built out, they both have the necessary access to make the sites productive and that the traffic impacts of their buildout can be absorbed by transportation investments.



- **Shifts in Ohio’s workforce will impact demand for transportation.**

Changes in Ohio’s workforce, ranging from a decline in the prime working-age population to an increase in employees working later into their lives, impact transportation demand and require new workforce access strategies. With increasing travel distances and more workers facing mobility challenges, alternative transportation options to driving alone will become increasingly important. However, workforce access via a 40-minute fixed-route transit trip is limited outside of large and mid-sized metro areas, particularly across county lines. Since over 40% of Ohio workers work in different counties than where they reside, some workers may not be able to access jobs. Without adjustments, this could constrain the state’s ability to support economic growth and workforce participation.

- **Growth in truck volumes will impact system preservation, efficiency, and operations.**

Between 2020 and 2055, statewide commercial vehicle VMT is projected to increase by 44%. This will cause greater wear and tear on pavement and bridges and require more intensive and frequent preservation work. Increasing truck volumes also generate the need for more truck parking. Limited truck parking along major freight corridors can lead to drivers parking in undesignated or unsafe locations. Time spent looking for parking also decreases the distance that a truck can travel since federal regulations limit hours of operation per day. Given that reliable truck driver delivery times are critical to freight-intensive industries, the pressure from higher truck volumes could impose costs on Ohio businesses and the state’s and national economies.

- **The intersection of development pressures and transportation needs vary significantly across Ohio.**

Ohio’s development trends and associated transportation needs vary widely. Columbus and Cincinnati are expanding into suburban areas, which is driving demand for new highway access. Other cities such as Cleveland and Akron, with less growth, are focusing on preserving and modernizing infrastructure to maintain economic stability. Some rural areas close to major urban areas are growing; other rural areas are focusing on specific sectors such as natural resources, agriculture, or outdoor recreation; while other rural areas are seeing population decline. Some parts of the state actively encourage growth and economic development; others seek to preserve their existing industries and character.

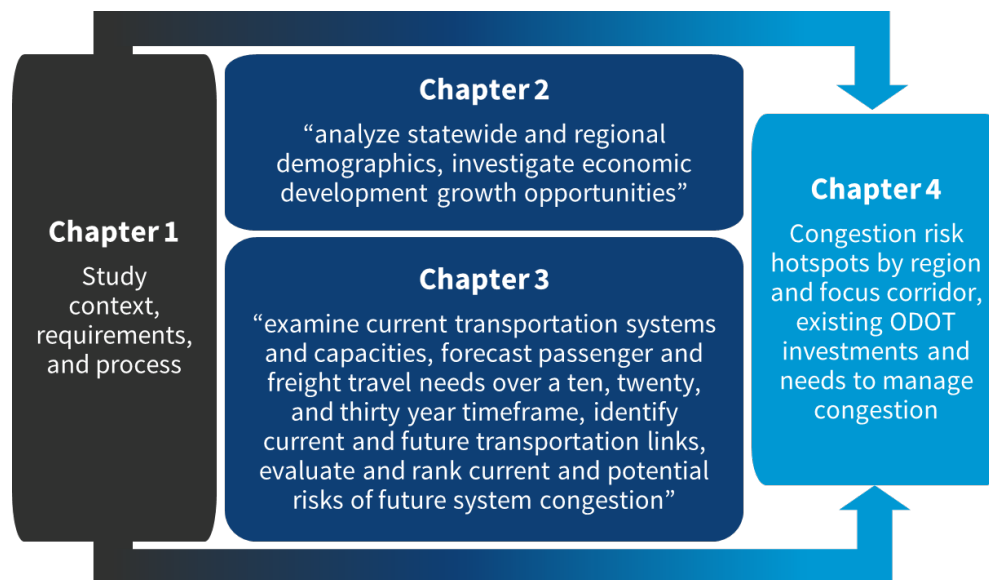
Whether they are growing rapidly, staying steady, or forecasted to lose population, all communities benefit from transportation projects to improve safety, access, and quality of life. This could mean projects to manage traffic in high-growth communities or stimulate activity and new development in low-growth communities. However, many local governments may lack the technical expertise or resources needed to deliver larger, more complex projects. ODOT continues to coordinate with regional planning organizations and local governments to help align transportation strategies and investments with community visions and development plans.



STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS NEEDS ASSESSMENT

This chapter summarizes needs associated with current and future congestion on the Study network and other transportation needs that could potentially limit economic growth opportunities in Ohio. This chapter builds from the overall context for the Study established in **Chapter 1**; the review of statewide and regional demographic, economic, workforce, and development trends documented in **Chapter 2**; and the details of existing and future travel demand and system congestion at the intraregional and interregional scale and on focus corridors in **Chapter 3**. This documentation of current and future trends across Ohio’s transportation system and economy sets the platform for identifying needs in this chapter, as shown in **Figure 4.1**, and ultimately the presentation of actionable recommendations in **Chapter 5**.

FIGURE 4.1—PATHWAY TO THE STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS NEEDS ASSESSMENT



This chapter presents needs across two layers representing a different set of considerations around where the Study network is experiencing risks today and/or in the future that may hinder economic growth. These two layers include:

- **Regional Hotspot Needs**—Study network congestion risks through 2055 compared with current and proposed ODOT projects within the context of each of the seven JobsOhio regions
- **Focus Corridor Needs**—Congestion risks and other corridor-specific risks through 2055 compared with current and proposed projects along six focus corridors where transportation system performance may constrain interregional mobility for people and goods

REGIONAL HOTSPOT NEEDS

The Study’s existing conditions and stress test presented in **Chapter 3** identified a total of 72 congestion risk hotspots, also known as grouped hotspots, across the Study network. These hotspots are areas facing significant current or future congestion risks through 2055, as illustrated in **Figure 4.2**. These risks stem from challenges such as peak period congestion, site development impacts, workforce accessibility, truck bottlenecks, and access management. These risks threaten intraregional mobility and jeopardize future statewide economic growth, particularly along routes that enable access to priority development sites, workforce access to jobs, and goods movement within regions to and from manufacturers, suppliers, and consumers.

Hotspots were evaluated based on two metrics: **timing**, when congestion risks emerge—today or in 2035 or beyond, as shown in **Figure 4.3**, and **intensity**, the complexity and severity of congestion risks, as shown in **Figure 4.4**.

- **Timing:** Of the 72 hotspots, 48 exist today, while 24 are projected to materialize by 2035 or later, driven by population growth and development trends which impact daily traffic volumes.
- **Intensity:** Hotspots vary in complexity, with some affected by multiple congestion risks, e.g., workforce access and bottlenecks, suggesting they are more critical to address because they impact more daily passenger and commercial vehicle trips.

Table 4.1 shows the number of hotspots within each region along with breakdowns by timing and intensity.

TABLE 4.1—STATEWIDE SUMMARY OF HOTSPOT TIMING / INTENSITY

| Region | Total Count | Timing 2025 | Timing 2035+ | Intensity 1 Risk | Intensity 2 Risks | Intensity 3+ Risks |
|------------------|-------------|-------------|--------------|------------------|-------------------|--------------------|
| Northwest | 6 | 4 | 2 | 2 | 4 | 0 |
| Northeast | 16 | 8 | 8 | 9 | 6 | 1 |
| East* | 0 | 0 | 0 | 0 | 0 | 0 |
| Southeast | 3 | 2 | 1 | 1 | 1 | 1 |
| Central | 27 | 20 | 7 | 7 | 8 | 12 |
| West** | 5 | 3 | 2 | 1 | 2 | 2 |
| Southwest** | 15 | 11 | 4 | 3 | 3 | 9 |
| Statewide | 72 | 48 | 24 | 23 | 24 | 25 |

*Note: East Ohio does not include any hotspots based on the definition of congestion risk within this Study. Congestion does exist in East Ohio, as documented in the East Ohio summary in Chapter 3, as do other risks as identified as part of the Canton/Youngstown-West Virginia/Pennsylvania focus corridor needs assessment.

**Note: West Ohio and Southwest Ohio share a hotspot (W5 and SW1, refer to Chapter 3). This hotspot is counted in West Ohio in this table.



FIGURE 4.2—GROUPED HOTSPOTS

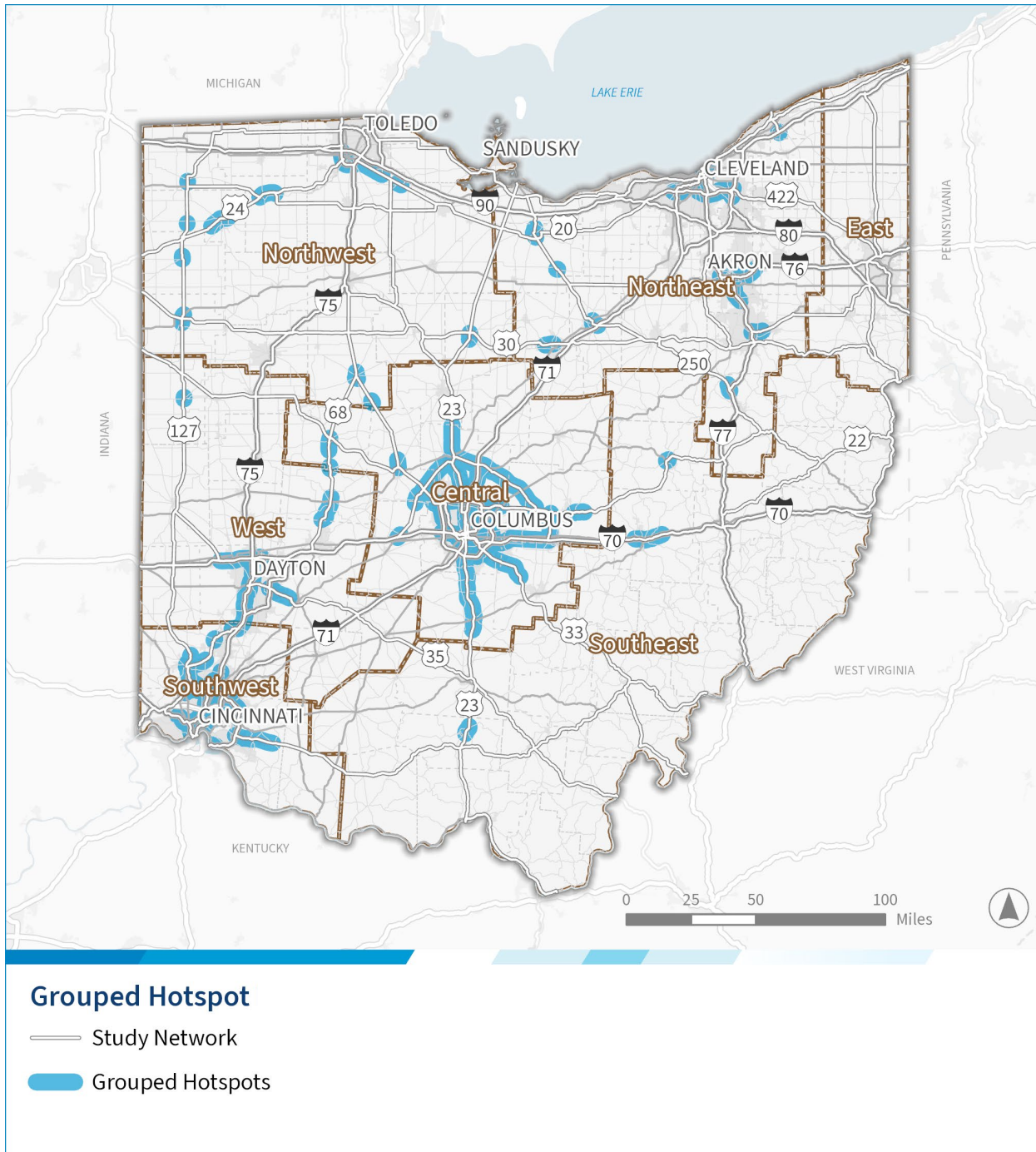


FIGURE 4.3—HOTSPOT TIMING

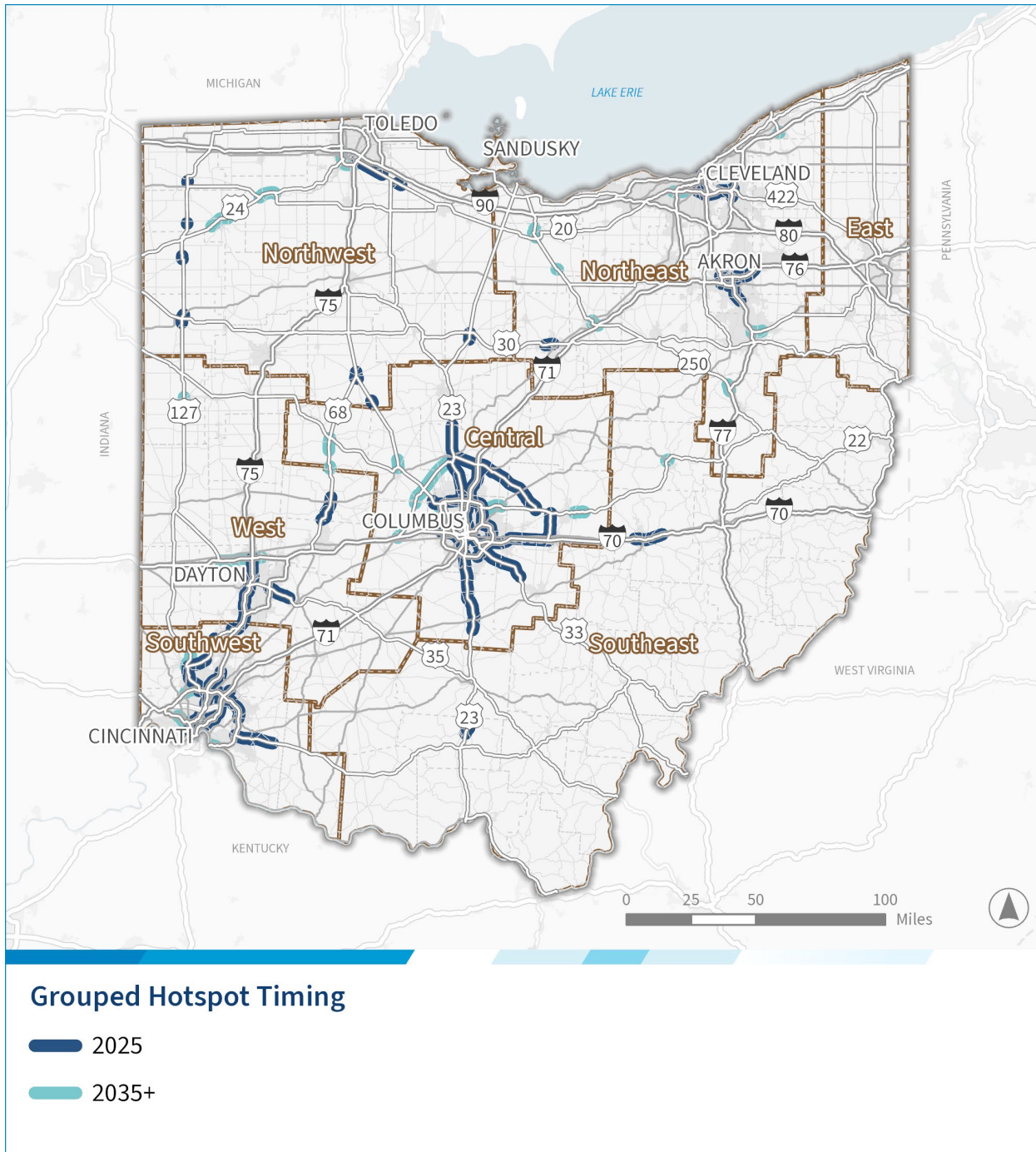
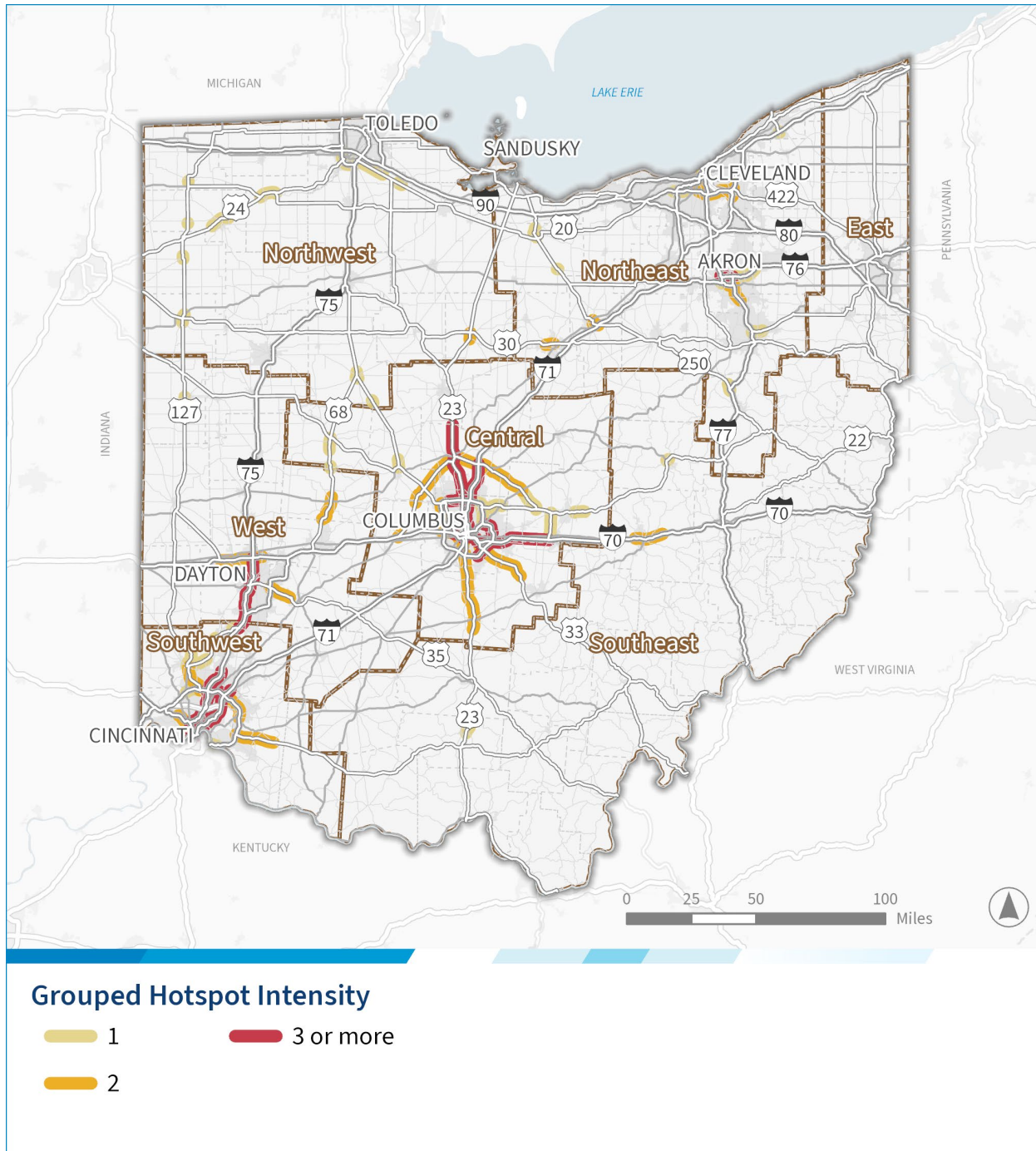


FIGURE 4.4—HOTSPOT INTENSITY



The key highlights from **Figure 4.2** through **Figure 4.4** include:

- **Regional Concentrations:** The Northeast, Central, and Southwest regions account for 58 of the 72 hotspots, demonstrating a significant concentration of congestion risks. The majority of these hotspots have a timing of 2025, highlighting immediate challenges. Central and Southwest regions show the highest intensity, with many hotspots affected by three or more congestion risks. In contrast, most Northeast hotspots are lower intensity, involving only one risk.
- **Lower-intensity Regions:** The Northwest, Southeast, and West regions each have six or fewer hotspots, primarily lower-intensity, a single risk, and evenly distributed between timing categories. The East region has no identified hotspots, reflecting minimal immediate congestion risks.
- **Network Distribution:** More than half of the hotspots, 37 of 72, are located on interstates, with nearly all in metropolitan areas, except I-70 in Zanesville. The remaining hotspots are distributed across 22 US highways and 13 state routes emphasizing their diverse impacts on intraregional mobility and goods movement.
- **System Efficiency:** Despite the challenges posed by the hotspots, they represent only 12% of the mileage of the expansive 4,200-mile Study network and 3% of the ODOT and Turnpike Commission system. The majority of the network functions efficiently and is expected to maintain this performance through 2055, even under various population growth scenarios.

Managed and Gap Hotspot Assessment

Each of the 72 hotspots were reviewed to determine if they were being managed through recent, existing, and proposed ODOT projects, feasibility studies, and planning activities current as of January 2025. The review assumes that the risk factors for congestion are at least partially managed if and only if ODOT projects that add capacity or improve corridor throughput and operations are present. The regional review is based on project status in ODOT's project management system (access [Ellis](#) for more information), input from ODOT staff including Districts, and the assessment of congestion risk within each grouped hotspot. The review organized findings into two buckets:

- **Managed hotspots**—If a hotspot has an ODOT project expected to add capacity or improve operations then it is defined as a managed hotspot. **A total of 51 of the 72 hotspots (72%) are expected to be managed by current ODOT investments.**
- **Gap hotspots**—If there are no current or proposed ODOT projects expected to add capacity or improve operations then the hotspot is defined as a gap. **A total of 21 of the 72 hotspots (28%) are not currently being managed by ODOT investments.**

Figure 4.5 presents the definition of managed hotspots and gap hotspots. Note that there are a variety of project status within managed hotspots including projects that are actively in construction, projects that are in development (preliminary or final engineering, environmental analysis, and/or right-of-way acquisition), or within current planning or feasibility studies. This status is documented in **Appendix J** for every project with the potential to manage congestion risks identified at each managed hotspot.

Table 4.2 summarizes ODOT investment status relative to the hotspots (including the timing and intensity). **Figure 4.6** provides a map of the results of the overlap assessment, highlighting the locations of managed hotspots and gap hotspots.



FIGURE 4.5—HOTSPOT OVERLAPS AND GAPS

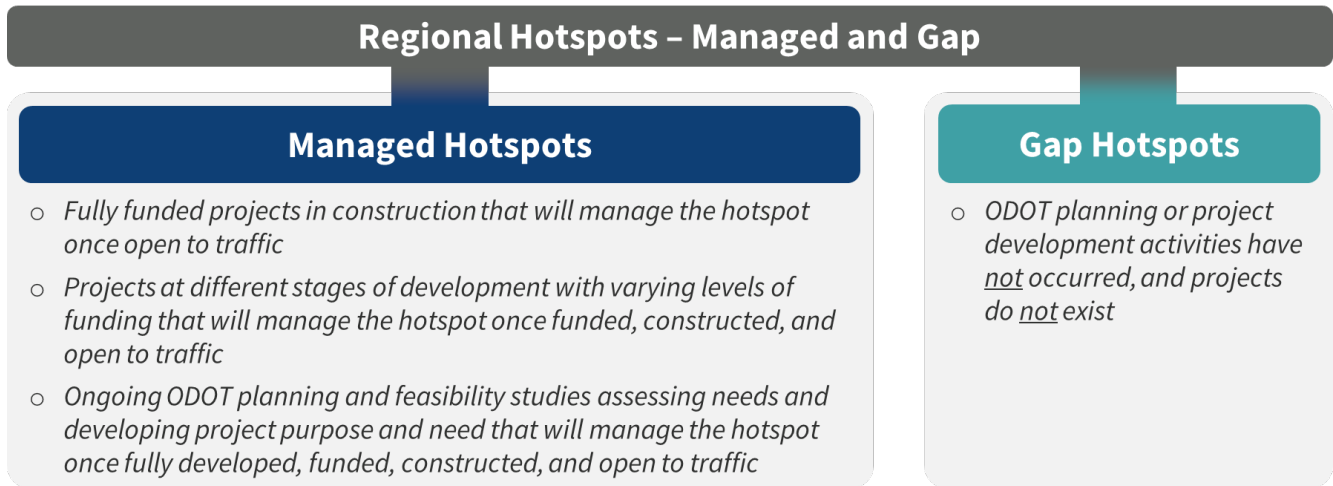


TABLE 4.2—ODOT INVESTMENT STATUS AT CONGESTION RISK HOTSPOTS

| ODOT Investment Status | Total | Risk Timing | | Risk Intensity | | |
|------------------------|-----------|-------------|-----------|----------------|-----------|-----------|
| | | Today | 2035+ | 1 Risk | 2 Risks | 3+ Risks |
| Managed Hotspots | 51 | 41 | 10 | 11 | 17 | 23 |
| Gap Hotspots | 21 | 7 | 14 | 12 | 7 | 2 |
| All Hotspots | 72 | 48 | 24 | 23 | 24 | 25 |

As noted previously, a total of 51 of the 72 hotspots, 72%, are being managed by current ODOT investments. For hotspots with a timing of 2025 or an intensity of two or more congestion risks, most qualify as managed hotspots:

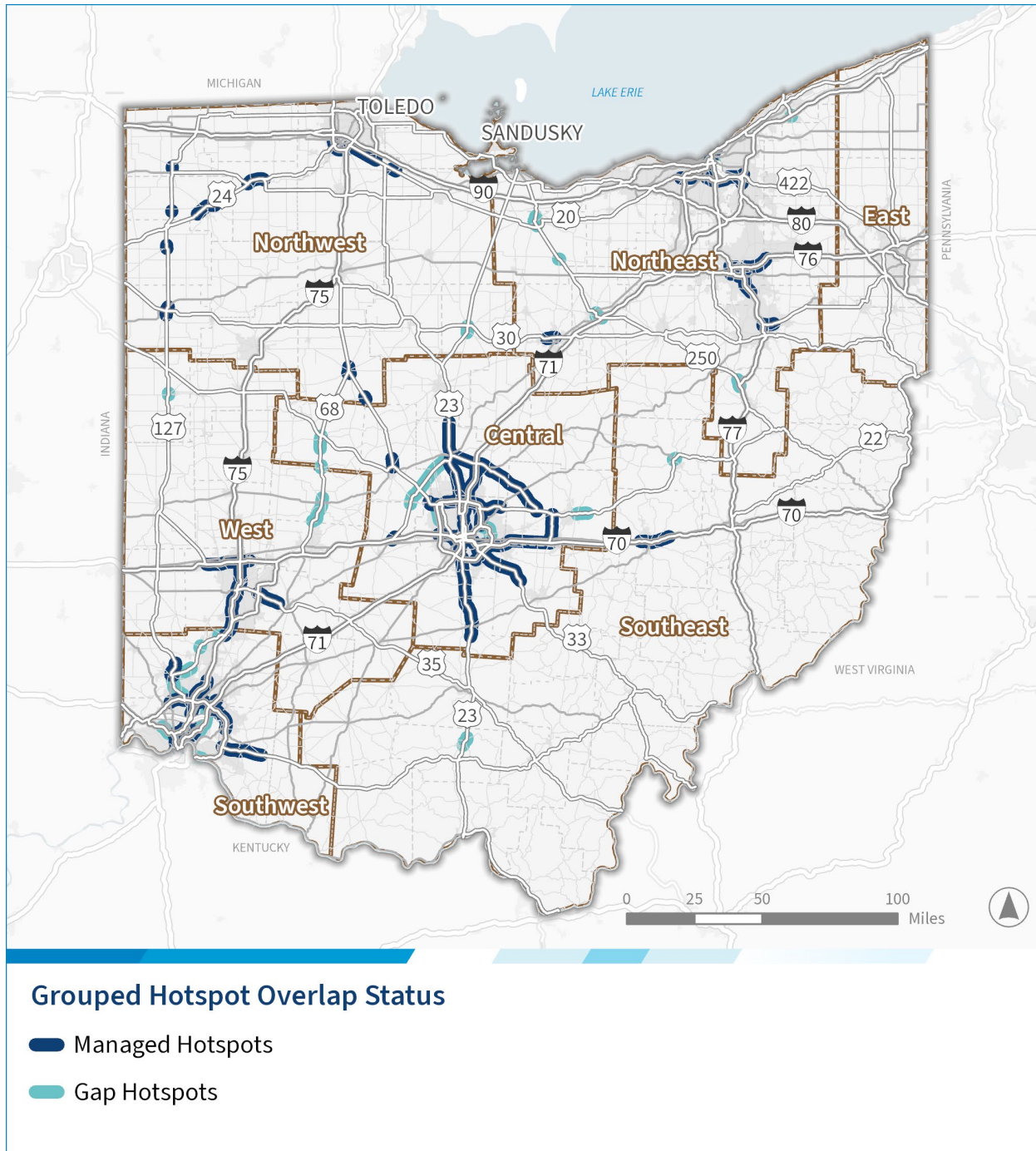
- 41 of 48 hotspots that exist today are being managed by ODOT investments
- 23 of 25 hotspots with three or more risks are being managed by ODOT investments

These findings mean that most Study network segments with multiple congestion risks that are anticipated to be more severe in the future are already being managed at least in part by ODOT planning and project development activities.

For the 21 gap hotspots, seven hotspots exist today and only two feature three or more congestion risks. As noted in **Chapter 5**, these 21 gap hotspots are the focus of actionable recommendations, particularly for the seven gap hotspots that exist today.



FIGURE 4.6—MANAGED AND GAP HOTSPOTS



Investments addressing congestion risks within the managed hotspots are developed through cooperative transportation planning and analysis managed through ODOT and its regional and local partners. For the purposes of this Study, projects were only considered if they have already entered ODOTs [project development process](#), meaning the project has been allocated funding for project activity and assigned a project ID (PID). Projects within MPO and RTPO long-range transportation plans that have not entered the project development process were not included in this review. Highlights from MPO and RTPO long-range transportation plans and live links to those plans are included in **Chapter 3**.

This assessment carefully considers ongoing ODOT investments improving roadway capacity or operations along the Study network. The focus is on projects anticipated to manage congestion risks based on a review of current project scopes. These roadway capacity or operations projects anticipated to manage congestion risks are grouped into two buckets based on project status:

- **In Construction**—The project is fully funded and construction is underway or soon to begin (based on project funding and schedule information as of January 2025).
- **In Development**—The project is preparing to enter or already within ODOTs project development process through an ongoing planning or feasibility study, and/or preliminary engineering, environmental analysis, final engineering, and right-of-way acquisition to prepare for fully funding project delivery.

This review concluded that ODOT is working on 120 unique projects to manage risks at 51 of the 72 hotspots, according to January 2025 project data. ODOT projects managing congestion risks at hotspots are presented in **Table 4.3**. These investments total \$13.59 billion based on current project cost estimates (as of January 2025). ODOT has yet to secure \$6.17 billion to complete final design and construction for 64 of these projects based on current project cost estimates and funding availability.

TABLE 4.3—ODOT INVESTMENTS TO MANAGE HOTSPOTS

| Projects | In Construction | In Development | Total |
|------------------------|-------------------|-------------------|--------------------|
| Statewide Count | 21 | 99 | 120 |
| Funded (\$M) | \$4,309.50* | \$3,117.50 | \$7,427.00 |
| Unfunded (\$M) | \$ - * | \$6,171.70 | \$6,171.70 |
| TOTAL (\$M) | \$4,309.50 | \$9,289.20 | \$13,598.70 |

*Current uncertainty related to additional Brent Spence Bridge needs.

A total of 21 of those projects are actively in construction, totaling \$4,309.50 million in statewide investment.

This includes the Brent Spence Bridge Corridor design-build project, including the companion bridge from just south of Dixie Highway interchange in Kentucky north to Linn Street in Ohio.

The 99 projects characterized as in-development total \$3,117.50 million in funded investments and \$6,171.70 million in unfunded investments. Projects identified as in development means the project is active in ODOT project development process, with planning, design, environmental review, and/or right-of-way underway.



Managed Hotspots

The 51 managed hotspots are organized into two groups based on the status of ODOT projects:

- **Projects in Progress**—Hotspots where projects are recently completed, actively in construction, or currently within ODOT project development process.
- **Studies in Progress**—Hotspots where ODOT planning or feasibility studies are underway to assess needs and develop recommendations.

Table 4.4 summarizes the managed hotspots by locations with projects in progress or locations with studies in progress. **Appendix J** provides a description of how congestion risks are managed by existing ODOT projects within each hotspot (by region) and identifies each project based on their PID (which enables lookups through ODOT’s [Ellis](#) project management tool for more project information including funding details and schedule). As indicated in **Table 4.3**, these 51 managed hotspots include 120 existing ODOT projects totaling \$13,598.70 million in investment.

TABLE 4.4—REGIONAL SUMMARY OF MANAGED HOTSPOTS

| Region | Total Managed Hotspot Count | Hotspots with Projects in Progress | Hotspots with Studies in Progress |
|------------------|-----------------------------|------------------------------------|-----------------------------------|
| Northwest | 5 | 5 | 0 |
| Northeast | 10 | 9 | 1 |
| East* | 0 | 0 | 0 |
| Southeast | 1 | 1 | 0 |
| Central | 22 | 18 | 4 |
| West** | 3 | 3 | 0 |
| Southwest** | 10 | 10 | 0 |
| Statewide | 51 | 46 | 5 |

*Note: East Ohio does not include any hotspots based on the definition of congestion risk within this Study. Congestion does exist in East Ohio, as documented in the East Ohio summary in **Chapter 3**, as do other risks as identified as part of the Canton/Youngstown-West Virginia/Pennsylvania focus corridor needs assessment.

**Note: West Ohio and Southwest Ohio share a hotspot (W5 and SW1). This hotspot, which is a managed hotspot with projects in progress, is counted in West Ohio in this table.



Gap Hotspots

The remaining 21 hotspots do not yet have projects associated with them to manage existing and future congestion risks. Table 4.5 summarizes the gap hotspots by region by risk timing and risk intensity. Seven of the 21 gap hotspots exist today and eight of the 21 hotspots feature 2 or more congestion risks. The majority of the gap hotspots are within the Northeast, Central, and Southwest Ohio regions, accounting for 16 of 21 gap hotspots.

TABLE 4.5—REGIONAL SUMMARY OF GAP HOTSPOTS

| Region | Total Gap Hotspot Count | Risk Timing | | Risk Intensity | | |
|------------------|-------------------------|-------------|-----------|----------------|----------|----------|
| | | 2025 | 2035+ | 1 Risk | 2 Risks | 3+ Risks |
| Northwest | 1 | 1 | 0 | 0 | 1 | 0 |
| Northeast | 6 | 0 | 6 | 5 | 1 | 0 |
| East* | 0 | 0 | 0 | 0 | 0 | 0 |
| Southeast | 2 | 1 | 1 | 2 | 0 | 0 |
| Central | 5 | 1 | 4 | 3 | 2 | 0 |
| West | 2 | 1 | 1 | 1 | 1 | 0 |
| Southwest | 5 | 3 | 2 | 2 | 2 | 1 |
| Statewide | 21 | 7 | 14 | 13 | 7 | 1 |

*Note: East Ohio does not include any hotspots based on the definition of congestion risk within this Study. Congestion does exist in East Ohio, as documented in the East Ohio summary in Chapter 3, as do other risks as identified as part of the Canton/Youngstown-West Virginia/Pennsylvania focus corridor needs assessment.

These hotspots are summarized in Table 4.6 and sorted by timing and intensity with those having a timing of 2025 highlighted in blue. These seven are the most immediate concern for ODOT to address through future planning activities. More details on recommendations to manage congestion risks in these locations are provided in Chapter 5 and Appendix J.



TABLE 4.6—GAP LOCATIONS AND HOTSPOT TIMING AND INTENSITY

| ID | Location Description | Timing | Intensity | Hotspot and Gap Description |
|------|---|--------|-----------|---|
| SW6 | I-71 (SR562 to I-275) | 2025 | 3 | This segment of I-71 shows existing severe peak period congestion and multiple congestion risks starting in 2035. There are no ODOT projects along this section of I-71. |
| SW14 | SR4 (I-275 to SR129) | 2025 | 2 | SR4 shows existing severe peak period congestion north of I-275 and multiple congestion risks starting in 2035. There is an intersection improvement project within this hotspot area. However, there are no other projects underway to manage risks associated with a high-volume corridor with minimal access control in a developed area. |
| W4 | US68 (Champaign/ Urbana) | 2025 | 2 | US68 shows existing peak period congestion within Urbana and congestion risks expand in 2055 along the entire corridor throughout the county. There are no ODOT projects underway along this section of US68. |
| SW15 | SR4/SR73 (Hamilton-Middletown-I-75) | 2025 | 2 | SR4 from Hamilton to Franklin Township and SR73 connecting to I-75 has multiple existing and future congestion risks forecasted on different segments in 2025 and 2055. There are minor intersection projects underway within this hotspot area; however, these are not anticipated to manage widespread congestion in this hotspot area. |
| NW3 | SR4 (Bucyrus) * | 2025 | 2 | There are existing and future congestion risks due to signalized intersections, frequent driveways, and at grade rail crossings. There are no existing ODOT projects to manage these risks. |
| C3 | I-270 East (SR317 to SR16) | 2025 | 2 | There is only one congestion risk at this location. Solutions may be identified through the Silicon Heartland Initiative coordination and may warrant additional study or operational changes. There are no existing ODOT projects to manage the risk. |
| SE2 | US23 (Waverly) * | 2025 | 1 | There is existing and future congestion forecasted due to signalized intersections, frequent driveways, and at grade rail crossings. There are no ODOT projects are underway to manage these risks. Note, the Columbus-Kentucky/West Virginia focus corridor needs assessment (Appendix E) also identifies safety and access management needs in Waverly. |
| NE3 | I-90/I-490 (I-77 to I-71 to W 44th St.) | 2035+ | 1 | There is existing and future congestion forecasted due partially to the close spacing of the I-77 and I-71 interchanges in Cleveland. There are no ODOT projects are underway to manage these risks. |
| NE11 | SR44 (Painesville/I-90) | 2035+ | 1 | There are congestion risks primarily associated with development around the SR44/I-90 interchange. There are no ODOT projects underway to manage these risks. |



| ID | Location Description | Timing | Intensity | Hotspot and Gap Description |
|------|---|--------|-----------|--|
| NE12 | US250 (Ashland) | 2035+ | 2 | There is congestion due to signalized intersections and driveways along US250 west of the I-71 interchange. There are no ODOT projects are underway to manage these risks. |
| NE13 | US250 (Fitchville) * | 2035+ | 1 | There is existing and future congestion forecasted due to stop-controlled and signalized intersections and turning movements. There are no ODOT projects underway to manage these risks. |
| NE14 | US250 (Norwalk) * | 2035+ | 1 | There is congestion due to signalized intersections, turning movements, and frequent driveways. There are no ODOT projects underway to manage these risks. |
| NE15 | US250 (Strasburg) * | 2035+ | 1 | There is congestion due to signalized intersections, frequent driveways, and the US250/I-77 interchange geometry. There are no ODOT projects underway to manage these risks. |
| W2 | US127 (Celina) * | 2035+ | 1 | There is congestion due to signalized intersections and driveways within Celina. There are no ODOT projects underway to manage these risks. |
| C5 | I-270 Northwest (Hilliard to Dublin/US33) | 2035+ | 1 | It is uncertain if the ramp improvement project at US33 will manage the two congestion risks forecasted in 2035 or later. There are no additional ODOT projects underway to address risks. |
| C14 | SR16 (eastside of Newark) | 2035+ | 1 | Intersection delays and congestion on SR16 at Dayton Road and Marne Road are forecasted in 2035 or later. There are no ODOT projects underway to address risks. |
| C26 | US68 (Bellefontaine, West Liberty) * | 2035+ | 1 | There is existing and future congestion in Bellefontaine and West Liberty due to signalized intersections and frequent driveways. There are no existing ODOT projects to manage multiple congestion risks. |
| C24 | US42 (US23 to US33, Plain City) | 2035+ | 2 | There is a fully funded rehabilitation and shoulder widening project underway in this area, but it is not anticipated to manage congestion risks. There are no other ODOT projects underway to manage the risks. |
| SW4 | I-275 Southeast (US52 interchanges) | 2035+ | 1 | There is limited congestion risk after 2035 on I-275 north of the Ohio River and at the US52 interchange and there are no ODOT projects underway to manage risks. |
| SW8 | I-74 (N. Bend Rd to Montana Ave.) | 2035+ | 1 | There is limited congestion risk appearing after 2035 on I-74 west of the I-75 interchange and there are no ODOT projects underway to manage risks. |
| SE5 | US36 (Coshocton) * | 2035+ | 2 | There is congestion due to signalized intersections and driveways. There are no ODOT projects are underway to manage these risks. |

Note*—Eight of the 21 gap hotspots are located in rural towns where the Study network facilities experience delays due to signalized intersections, driveways and turns, and in some cases at-grade rail crossings.



FOCUS CORRIDOR NEEDS

The Study's existing conditions and stress test summarized in **Chapter 3** presented data, analysis, and stakeholder insight that elevated six focus corridors as network routes potentially facing current and future risks that could impede interregional mobility for people and goods and limit economic growth. These six corridors were comprehensively reviewed through an assessment of existing conditions, status of ongoing and proposed projects, and a needs assessment to determine significant performance challenges that could limit economic growth. The findings of this comprehensive review for the six corridors are presented in **Appendices A-F**.

The needs assessment findings for the focus corridors leverage the same information on congestion risk while also highlighting existing and emerging issues associated with safety, operations, geometry, access control, and development that could impact corridor performance and hamper economic development opportunities.

Corridor Needs and Priority Areas

Focus corridor hotspots and needs were compared with ODOT projects. Note that the analysis of hotspots and needs compared to projects occurred at a more granular level for focus corridors than it did for the regions. This included identifying performance challenges beyond just congestion risk, including safety, operations, geometrics, access management, and development. This more granular approach broke down the regional hotspots in the prior section into smaller segments to reflect more nuanced needs. The findings from this granular approach by corridor are presented in detail within **Appendices A-F**.

Toledo-Columbus

The US23 corridor north of Columbus has experienced significant development pressures over the last decade which have negatively impacted the efficiency of the connection between Toledo and Columbus. These hotspots, in addition to other regional hotspots and additional safety and operational issues along the corridor's multiple paths (including partial or no access control in high development areas), may constrain the corridor's ability to facilitate both interregional and intraregional travel demand and negatively impact economic growth opportunities.

The following is the priority need within the corridor included in **Chapter 5** through actionable recommendations. Other focus corridor needs are presented in **Appendix A**.

- **US23 in Delaware and Franklin counties:** The US23 corridor north of Columbus has experienced significant development pressures over the last decade, decreasing the speed and reliability of the connection between Toledo and Columbus. This segment is over capacity, experiences severe congestion in the peak period, among other congestion risks, today and through 2055 and features eight of Ohio's top 100 crash severity segments and four of Ohio's top 100 crash severity intersections. ODOT's US23 North corridor improvements between Waldo and I-270, developed in tandem with this Study, would eliminate nearly all of the 39 traffic lights along the corridor, bringing the total number of signals to seven or fewer. The US23 improvements would also widen lanes, add several interchanges, and construct overpasses to reduce travel time and improve safety. This segment is also a priority need within the Sandusky-Columbus focus corridor.



Sandusky-Columbus

The US23 corridor north of Columbus has experienced significant development pressures over the last decade which have negatively impacted the efficiency of the connection between Sandusky and Columbus. These hotspots and other safety and geometric issues, particularly on two-lane segments and within towns and villages along the SR4 corridor between Sandusky and Waldo and the US250 corridor between Norwalk and Ashland, lead to reductions in speeds and safety issues when facilitating local access and commerce. These issues may constrain the corridor's ability to facilitate interregional and intraregional travel demand and negatively impact economic growth opportunities.

The following is the priority need within the corridor included in **Chapter 5** through actionable recommendations. Other focus corridor needs are presented in **Appendix B**.

- **SR4 and US250:** Although not a congestion risk, the rural two-lane sections of SR4 and US250 have very narrow shoulder widths and adjacent ditch sections leading to safety issues. In addition, when these corridors pass through developed areas like Bucyrus, Attica, Norwalk, Fitchville, and Ashland, there are signalized intersections, frequent driveways, and turning movements leading to delays, particularly during peak seasonal travel periods. SR4 in Bucyrus and US250 in Norwalk, Fitchville, and Ashland are also gap hotspots based on the regional hotspot analysis. There are no current ODOT projects to manage congestion risks and other safety and traffic management risks along SR4 and US250.

Columbus-Kentucky/West Virginia (US23, US52)

US23 from I-270 in Franklin County through South Bloomfield and Circleville is an area of high development pressure, which presents the primary performance challenge for the US23 corridor. This is driven by strong population growth in Grove City and along the I-270 corridor as commuters move further south from Columbus, as well as strong development pressure from Rickenbacker International Airport's adjacent logistics-related businesses, which will continue to stimulate freight traffic growth along US23. There are other corridor congestion risks in areas like Waverly and isolated safety and traffic operations issues along US52 between Portsmouth and Huntington, WV.

The following is the priority need within the corridor included in **Chapter 5** through actionable recommendations. Other focus corridor needs are presented in **Appendix E**.

- **US23 in Franklin and Pickaway counties:** There are multiple ODOT projects, the I-270/US23 interchange improvement (PID 92616) and a new interchange at SR762 (PID 115425), which will help managed congestion risks in the northern segment of this need area, primarily from I-270 through SR252 north of South Bloomfield. This segment of the corridor continues to facilitate increased traffic volumes, particularly trucks, given nearby development in Grove City and around Rickenbacker International Airport, and has partial access control. South of SR752, US23 changes to a four-lane undivided section without left turn lanes at the intersections in South Bloomfield. This section from SR762 to SR752 and the sections further south through Circleville down to Dupont Road are partial access facilities with ten at-grade intersections, driveway access points, and an interchange with US22. Currently, no projects are proposed in this section; however, the recent Pickaway County Thoroughfare Plan provides a starting point for managing congestion risk and access management.



Columbus-West Virginia (US33)

ODOT has steadily committed significant resources to address the corridor's current and future needs. In addition to the nearly \$100 million of funded projects, ODOT has recently funded construction projects that will upgrade the remaining two-lane sections to four-lane divided highway sections. Once these projects are complete, the entire corridor from I-270 to the Ohio River bridge will be a four-lane divided expressway with some freeway sections.

The following is the priority need within the corridor included in **Chapter 5** through actionable recommendations. Other focus corridor needs are presented in **Appendix E**.

- **US33 from I-270 to the Lancaster Bypass (US33 Business):** The focus corridor needs identified a critical need for ODOT to finalize design, fully fund, and construct current in development projects in Franklin County to manage existing and future severe congestion anticipated to intensify and expand given ongoing growth at Rickenbacker International Airport and tourism traffic using US33 to access Hocking Hills from Central Ohio. US33 projects in Franklin County include: the widening of US33 from two to three lanes in each direction from SR105 (Refugee Road) to Diley Road (PID 121811), construction of a new interchange on US33 at Bixby Road (PID 121814), and upgrades to the US33/I-270 interchange (PID 121812).

Cincinnati-Dayton (I-75)

Since upgrading the Dayton segment of I-75 to three continuous lanes and the consolidation of ramps from 2008 to 2017, ODOT has continued monitoring freeway segments identified through Ohio's highway safety improvement program. Beginning in 2015, safety enhancements such as improved pavement friction, updated signage, new pavement markings, and signal upgrades have been implemented at key locations to improve traffic flow. In addition, ODOT has incorporated geometric, capacity, and operational improvements into major rehabilitation projects as funding became available. From SR73 to Cincinnati-Dayton Road, the corridor is projected to operate efficiently through 2055. Current and anticipated future development, including industrial and warehousing near interchanges for the remainder of the corridor to I-275, will continue to exacerbate congestion risks in this corridor.

The following is the priority need within the corridor included in **Chapter 5** through actionable recommendations. Other focus corridor needs are presented in **Appendix C**.

- **I-75 from I-275 to Cincinnati-Dayton Road and I-75 from I-675 to I-70:** I-75 faces existing and future congestion, reliability, safety, and operational risks that are anticipated to continue to intensify and expand as development continues to occur adjacent the corridor and truck traffic continues to grow. There are two ODOT projects that will manage portions of the congestion risks within this priority area including the ongoing study of improvements at the I-75/I-275 interchange (PID 120804) and the widening of I-75 from north of SR73 to I-675 (PID 113579). The remainder of this priority area does not have existing ODOT projects to manage the remaining congestion risks.



Canton/Youngstown-West Virginia/Pennsylvania (US30, SR11)

Based on the analysis of these corridors, transportation system performance is not considered a factor constraining economic growth and opportunity. Although minor geometric and safety concerns exist, current and future congestion risks are low. There are no substantial barriers within Ohio to trade between Canton and West Virginia and Pennsylvania or from Youngstown to Pennsylvania within Ohio. The analysis acknowledges that improvement to these corridors, particularly US30, as a means to attract economic development to the region involves other significant risks, depending on the industry, given the lack of ready sites, utility infrastructure, and a local and skilled workforce.

The following are the most critical need areas and are considered in **Chapter 5** through actionable recommendations.

- **US30 in Minerva, Stark County, and throughout Columbiana County:** This segment includes access control concerns in Minerva and geometric concerns at four locations, including limited horizontal and vertical sight distance, in Columbiana County.



Strategic
**Transportation
& Development**

Analysis

**Chapter 5:
Actionable
Recommendations**



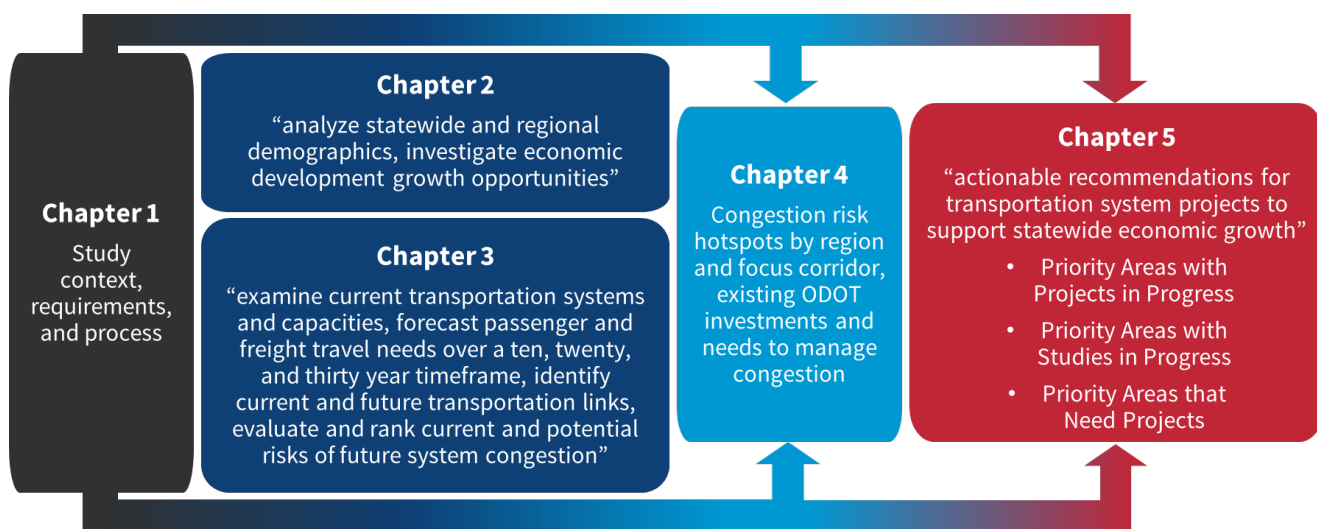
Department of
Transportation

5. Actionable Recommendations

OVERVIEW OF RECOMMENDATIONS

House Bill 23 (H.B. 23) directs the ODOT to, “make actionable recommendations for transportation system projects to support statewide economic growth.” The key findings informing actionable recommendations are presented in **Chapter 2**, **Chapter 3**, and **Chapter 4** (as depicted in **Figure 5.1**) as well as corridor needs assessments for the six focus corridors documented in **Appendices A–F**.

FIGURE 5.1—STRATEGIC TRANSPORTATION AND DEVELOPMENT ANALYSIS PROCESS AND REPORT ORGANIZATION



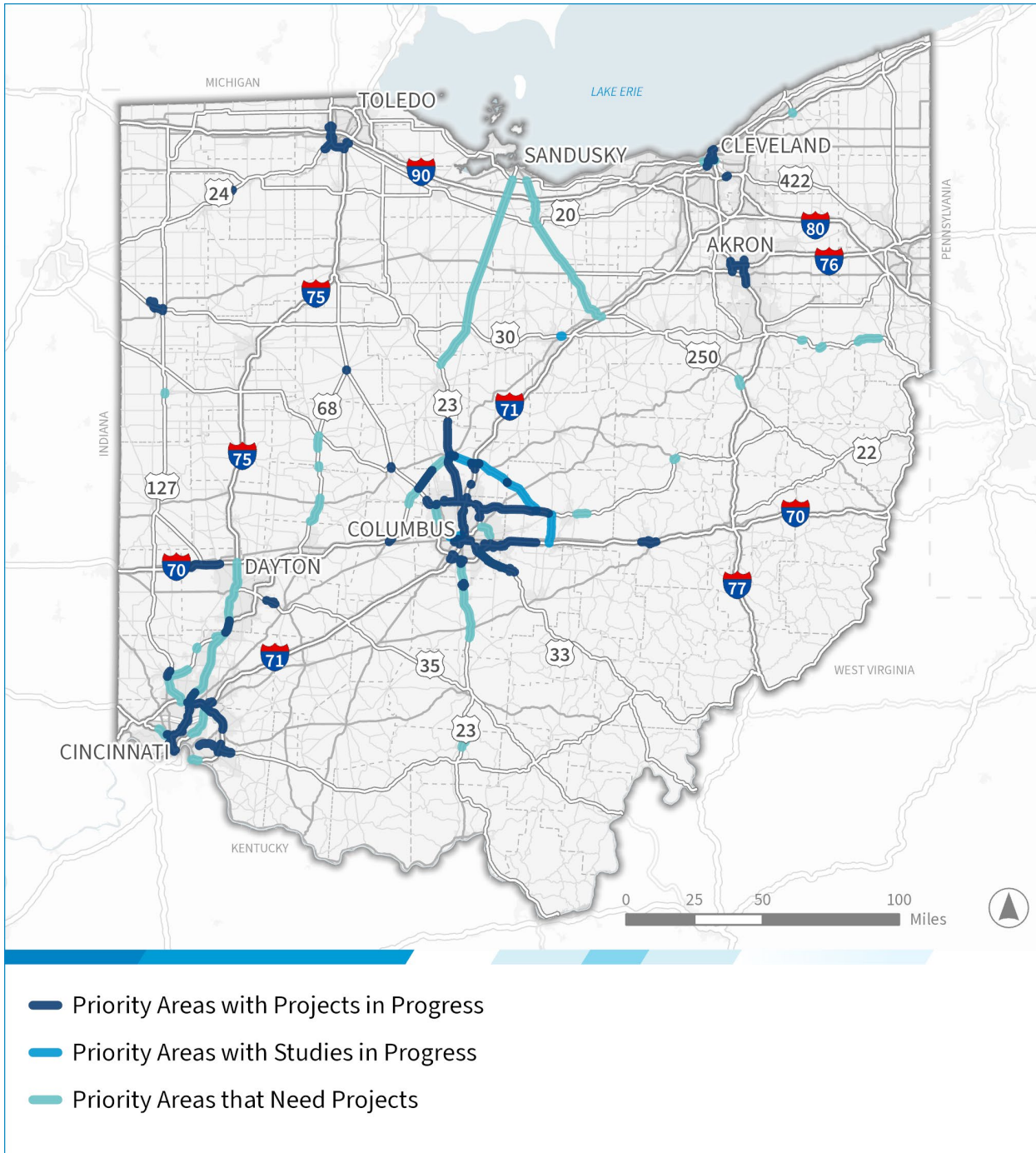
As noted in **Figure 5.1**, recommendations fall within three categories based on the findings of the regional hotspot needs and focus corridor needs presented in **Chapter 4**:

- **Priority Areas with Projects in Progress**—There are 120 unique ODOT projects in construction or in development to manage risks at 51 of the 72 hotspots according to January 2025 project data. Two of the six priority areas identified in the focus corridor need assessments (US23 from Waldo to I-270 and US33 from I-270 to Fairfield County) are also included as priority areas with projects in progress.
- **Priority Areas with Studies in Progress**—Five of the 51 managed hotspots are actively being evaluated through ODOT led planning and feasibility studies. The outcomes of these studies will position ODOT to initiate project development on recommendations to manage corridor congestion risks and other needs.
- **Priority Areas that Need Projects**—The 21 gap hotspots identified in Chapter 4 plus the other four priority areas identified in the focus corridor needs assessments without current ODOT projects are included as priority areas that need projects.

Figure 5.2 presents a statewide summary map highlighting the locations and limits of these three categories.



FIGURE 5.2—STUDY RECOMMENDATIONS



PRIORITY AREAS WITH PROJECTS IN PROGRESS

ODOT projects in construction (fully funded for construction with project delivery ongoing) and in development (active work within ODOTs project development process) were reviewed individually across the 51 managed hotspots. This review concluded that ODOT is working on 120 unique projects to manage risks at 46 of the 72 hotspots, according to January 2025 project data. **As presented in Table 4.3, these investments total \$13.59 billion based on current project cost estimates (as of January 2025).** ODOT has yet to secure \$6.17 billion to complete final design and construction for 64 of these projects based on current project cost estimates. These locations are considered priority areas with projects in progress. The other five hotspots have ODOT studies in progress, as discussed in the next section.

Table 5.1 presents the count of projects in progress managing congestion risks at hotspots based on status (in construction or in development) and funding (fully funded or unfunded). Projects noted as unfunded may be partially funded or completely unfunded. Identification of each individual project by region and by status is provided in **Appendix J**. Some critical facts regarding the projects in progress include:

- **76 of the 120 projects** are within Central and Southwest Ohio. Note, for large and complex projects, this assessment reviews each individual phase (see project and phase details in **Appendix J**).
- **21 projects** are actively in construction, with the remaining **99 projects** active within ODOT’s project development process.
- **56 of the 120 projects** are fully funded. This includes all 21 of the projects in construction and an additional 35 projects currently in development. The remaining 64 projects have varied unfunded amounts, averaging \$98 million per project. Note this average is skewed high due to the seven project segments associated with the US23 Corridor Improvement project which totals over \$1,970.8 million based on current cost estimates.

TABLE 5.1—REGIONAL SUMMARY OF PRIORITY AREAS WITH PROJECTS IN PROGRESS

| Region | Hotspots with Projects in Progress | Projects in Progress | | | | |
|------------------|------------------------------------|------------------------|-----------------|----------------|-----------|-----------|
| | | Project or Phase Total | Status | | Funding | |
| | | | In Construction | In Development | Funded | Unfunded |
| Northwest | 5 | 10 | 3 | 7 | 7 | 3 |
| Northeast | 9 | 19 | 2 | 17 | 5 | 14 |
| East | 0 | 0 | - | - | - | - |
| Southeast | 1 | 1 | 1 | 0 | 1 | 0 |
| Central | 18 | 54 | 7 | 47 | 22 | 32 |
| West* | 3 | 4 | 1 | 3 | 2 | 2 |
| Southwest* | 10 | 32 | 7 | 25 | 19 | 13 |
| Statewide | 46 | 120 | 21 | 99 | 56 | 64 |

*Note: West Ohio and Southwest Ohio share a hotspot (W5 and SW1) and a project (the I-75 widening from Pennyroyal Road to I-675). The project in progress record is included in West Ohio within this table.



Recommendation: ODOT will continue to advance these 120 projects anticipated to manage congestion risks across 46 hotspots. For the 21 projects in construction, ODOT will deliver the projects cost effectively. For the other 99 projects in development, including the 64 projects that are unfunded, ODOT will seek funding to advance the project efficiently through the project development process and proceed with construction.

Three of the focus corridor needs assessments, Toledo-Columbus, Sandusky-Columbus, and Columbus-West Virginia, identified priority areas where there are ODOT projects anticipated to manage various risks that limit the safe and efficient interregional movement of people and goods. The projects in these corridors are in the **Table 5.1** totals and include 14 projects totaling over \$2,091.9 million in investment, with \$2,040.0 million currently unfunded.

Toledo-Columbus Focus Corridor

The priority recommendation is to improve US23 between Waldo and I-270 (see Figure 5.3), which also manages some risks on the Sandusky-Columbus focus corridor. ODOT's US23 North corridor improvements, developed in tandem with this Study, would reduce the 39 traffic lights along the corridor to seven or fewer. The US23 improvements include widening lanes, adding several interchanges, and building overpasses to reduce travel time and improve safety. ODOT will advance priority segments and interchanges into preliminary design and move others into early phases of the project development process.

ODOT was also asked to analyze the benefits and feasibility of completing non-stop freeway access from Toledo to Columbus. ODOT evaluated and compared the benefits and feasibility of the previously announced US23 Connect road construction recommendations with alternative expressway connections between US23 and I-71 in Marion and Delaware counties, as well as potentially making US23 completely freeway between I-75 and I-270. The findings conclude that the US23 North corridor improvement plan recommended by ODOT in June 2024 is the most beneficial, cost effective, and feasible recommendation to address congestion and safety risks in the corridor. Therefore, this Study does not recommend construction of an alternative freeway due to the cost as well as minimal travel time reductions from such an alternative freeway.

Columbus-West Virginia Focus Corridor

The priority recommendation is to finalize ongoing project development and seek construction funding for existing ODOT projects in Franklin and Fairfield counties. ODOT has steadily committed significant resources to address the current and future operational and safety needs of the US33 corridor. US33 projects in Franklin County include: the widening of US33 from two to three lanes in each direction from SR105 (Refugee Road) to Diley Road (PID 121811), construction of a new interchange on US33 at Bixby Road (PID 121814), and upgrades to the US33/I-270 interchange (PID 121812). Completing these projects would manage the most pressing needs, positioning the corridor to better serve truck traffic growth generated by Rickenbacker International Airport and nearby industries and tourism traffic accessing recreation opportunities in Hocking Hills.



FIGURE 5.3—RECOMMENDATION: TOLEDO-COLUMBUS AND SANDUSKY-COLUMBUS FOCUS CORRIDORS

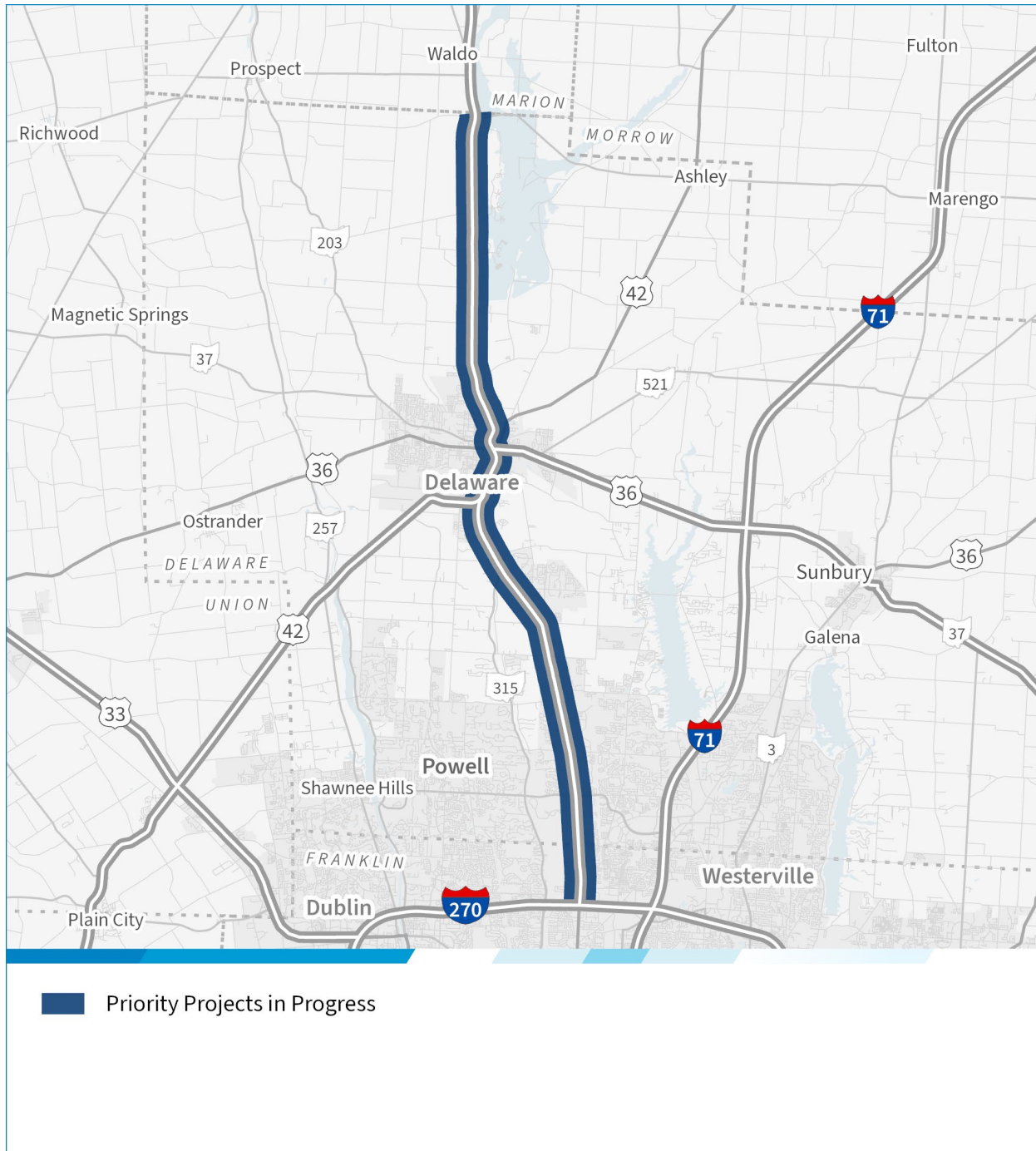


FIGURE 5.4—RECOMMENDATION: COLUMBUS-WEST VIRGINIA (US33) FOCUS CORRIDOR



PRIORITY AREAS WITH STUDIES IN PROGRESS

Five of the 51 managed hotspots are currently being evaluated by ODOT and ODOT planning partners through planning or feasibility studies. These hotspot locations and study descriptions are presented in **Table 5.2**. Three of these studies are funded through the Silicon Heartland regional project funding announced in [July 2023](#). This funding supports ODOT development and delivery of Silicon Heartland transportation improvements that will help ensure that the roadway network in Franklin, Delaware, and Licking counties has the capacity to address the growing transportation demands of this rapidly growing area.

TABLE 5.2—SUMMARY OF PRIORITY AREAS WITH STUDIES IN PROGRESS

| Priority Area | Hotspots | Study Description |
|---|----------|--|
| US30 (Mansfield) | NE15 | A recently completed rehabilitation project on US30 from SR309 to SR13 is anticipated to manage risks within part of this hotspot. ODOT recently initiated a planning study to evaluate the US30/US42 interchange on the east end of this hotspot. |
| I-670 (I-71 North to SR315 to I-70 West) | C6 | ODOT is conducting a transportation system management and operations study on the I-670 corridor in 2025. |
| SR37 (US36/SR3 in Sunbury to Johnstown/US62) | C17, C18 | SR37 needs are being evaluated as part of the US36/SR37 Corridor Study within the Silicon Heartland regional project funding. |
| SR37 (US62 to SR161) | C17, C18 | SR37 needs are being evaluated as part of the US36/SR37 Corridor Study within the Silicon Heartland regional project funding. |
| SR37 (SR161 to I-70 East) | C19 | SR37 needs are being evaluated within the SR161/I-70 Connection Study as part of the Silicon Heartland regional project funding. |

Recommendation: ODOT will complete these five studies and position recommendations for funding to enter the project development process and ultimately seek funding for construction.



PRIORITY AREAS THAT NEED PROJECTS

As described in **Chapter 4** and presented in **Table 4.6**, 21 of the 72 hotspots do not yet have projects associated with them to manage existing and future congestion risks. These priority areas include seven locations where the congestion risks exist today, representing priorities for ODOT to work with partners on initiating planning and feasibility studies and advance study recommendations into project development. Also, eight of these 21 hotspots are located in small cities and town centers where the Study network experiences delays due to signalized intersections, driveways and turns, and in some cases at-grade rail crossings. ODOT will work with local partners to identify low-cost solutions and existing funding sources to manage these locations quickly and efficiently.

In addition, four of the six focus corridor priority areas also need projects to manage various risks that limit the safe and efficient interregional movement of people and goods, including:

- Sandusky–Columbus (SR4 and US250)
- Cincinnati–Dayton (I-75)
- Columbus–Kentucky/West Virginia (US23, US52)
- Canton/Youngstown–West Virginia/Pennsylvania (US30, SR11)

Recommendation: *In priority areas where projects are needed, ODOT will initiate project development activities or new planning and feasibility studies with regional partners to resolve congestion risk hotspots or other corridor needs.*

Sandusky-Columbus Focus Corridor

The priority recommendation is to investigate potential improvements to SR4 and US250 (see Figure 5.5). Two-lane rural US and state highways create safety and congestion challenges. SR4 and US250 are the two primary routes connecting the Sandusky region to Central Ohio (and regions further south). The roadways support commute trips, commercial vehicle trips, and seasonal tourism traffic while also functioning as a main street passing through small cities, towns, and villages. For SR4 and US250, ODOT will initiate a feasibility analysis to develop projects that will address capacity and operational constraints through existing city and town centers, primarily Bucyrus and Norwalk, and widen narrow shoulders and add turn lanes in rural areas.



Columbus-Kentucky/West Virginia (US23,US52) Focus Corridor

The priority recommendation is to initiate a feasibility analysis and initial project development activities that will position ODOT to increase capacity and manage access on US23 from I-270 to south of Circleville (see Figure 5.6). As noted in **Chapter 4**, two existing ODOT projects are anticipated to manage congestion risks at the I-270 interchange and around the intersection of US23 and SR762. ODOT will partner with local governments, regional planning organizations, and economic development organizations to build consensus for projects that manage access such as consolidating driveways and service roads and manage congestion risks by improving intersections and traffic signal operations and adding lanes. These improvements will help preserve the corridor's ability to support interregional mobility while also providing safe access to new residential and industrial development.

Cincinnati-Dayton (I-75) Focus Corridor

The priority recommendations are to continue project development associated with the ongoing I-75/I-275 interchange study and to conduct a corridor-wide feasibility analysis to define phasing of project development and construction (see Figure 5.7). The I-75/I-275 interchange study recommendations, once fully funded and constructed, should manage congestion risks at the most significant bottleneck in the corridor. As also noted in **Chapter 4**, the existing I-75 widening project from Pennyroyal Road to I-675 will extend the four-lane in each-direction cross-section from I-275 to I-675, helping to facilitate continued growth population and economic growth between Cincinnati and Dayton and manage increasing truck traffic in this section of the corridor. For the remainder of the corridor, ODOT will work with local governments, regional planning organizations, and economic development organizations to build consensus for future corridor projects. Future projects on I-75, particularly within Montgomery County and Dayton, will position ODOT to address ramp spacing, safety concerns, and current and emerging bottlenecks in alignment with major rehabilitation needs.

Canton/Youngstown-West Virginia/Pennsylvania (US30,SR11) Focus Corridor

The priority recommendation for US30 is to address safety and geometric issues in Stark and Columbiana counties. Key strategies include improving intersections, consolidating driveways, and mitigating safety challenges such as limited sight distances around curves.

Based on the analysis of current and projected conditions, pursuing new alternative expressway alignments for US30 between Canton and SR11 is not recommended. This conclusion considers the low congestion risks, high costs for project development and construction, and feasibility constraints associated with such alignments. However, ODOT will continue to monitor US30 and SR11 for development pressures from the Canton/Youngstown areas to West Virginia and Pennsylvania to identify and address emerging issues.



FIGURE 5.5—RECOMMENDATION: SANDUSKY-COLUMBUS FOCUS CORRIDOR



FIGURE 5.6—RECOMMENDATION: COLUMBUS-KENTUCKY/WEST VIRGINIA (US23, US52) FOCUS CORRIDOR

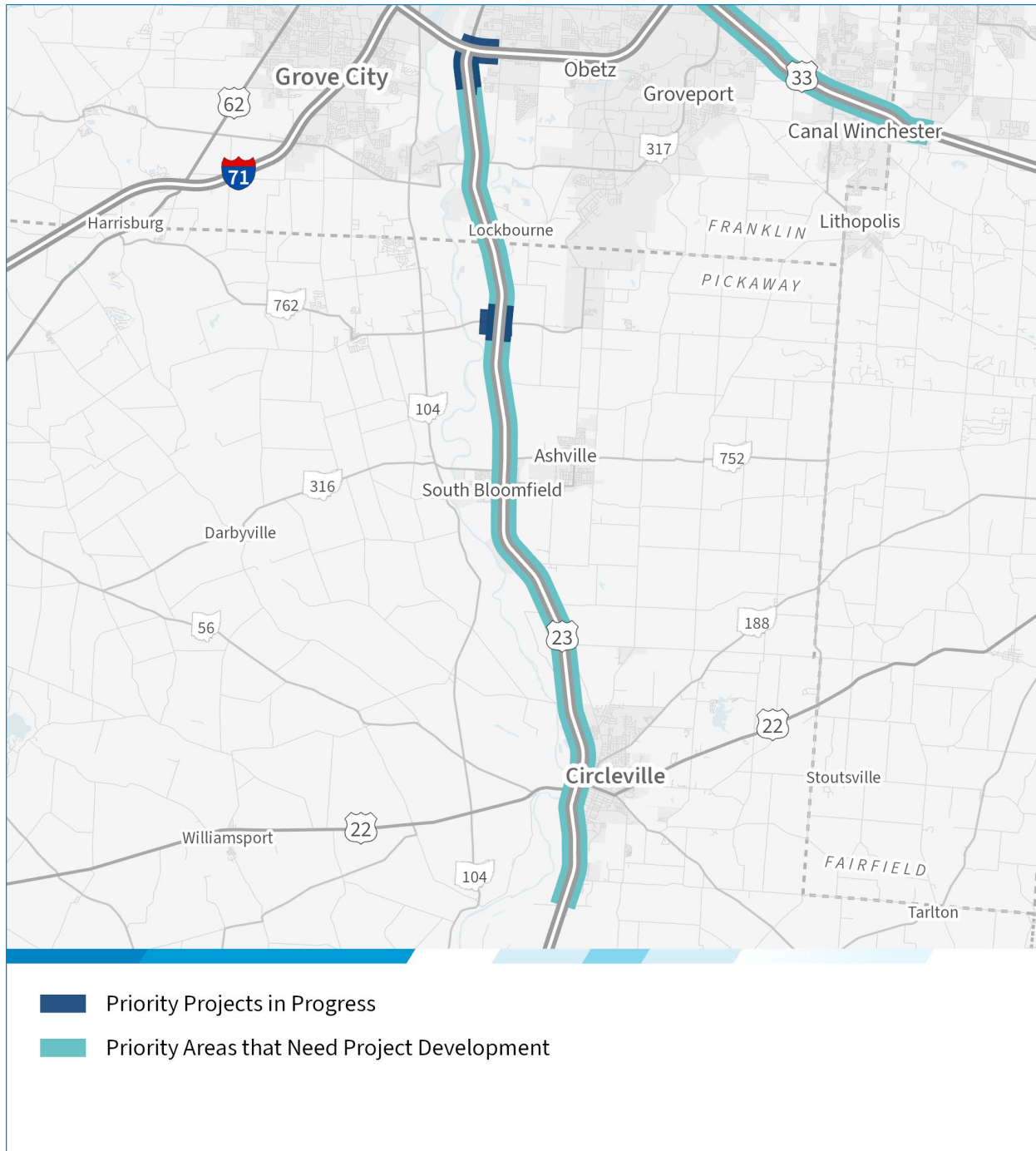


FIGURE 5.7—RECOMMENDATION: CINCINNATI-DAYTON (I-75) FOCUS CORRIDOR

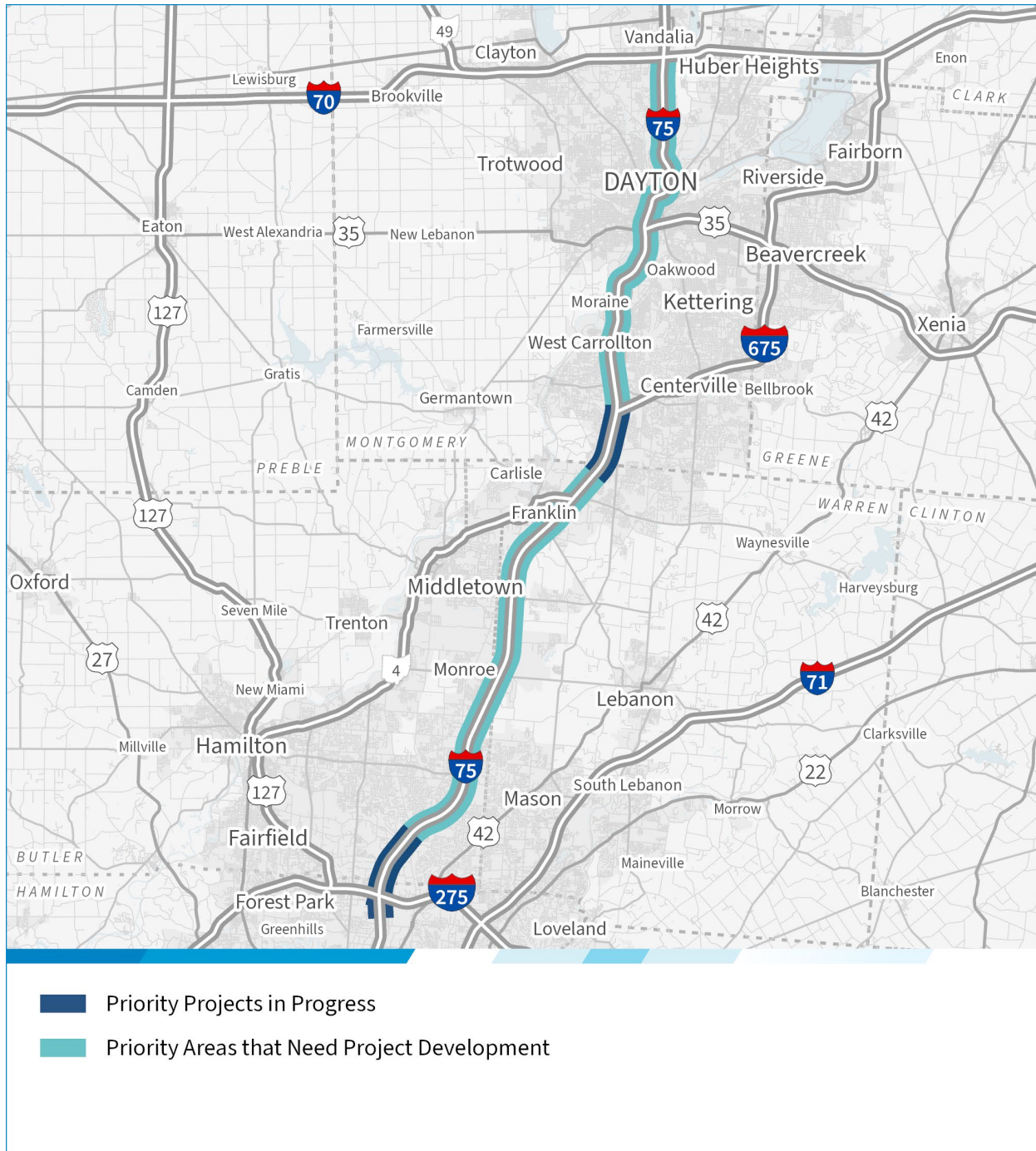
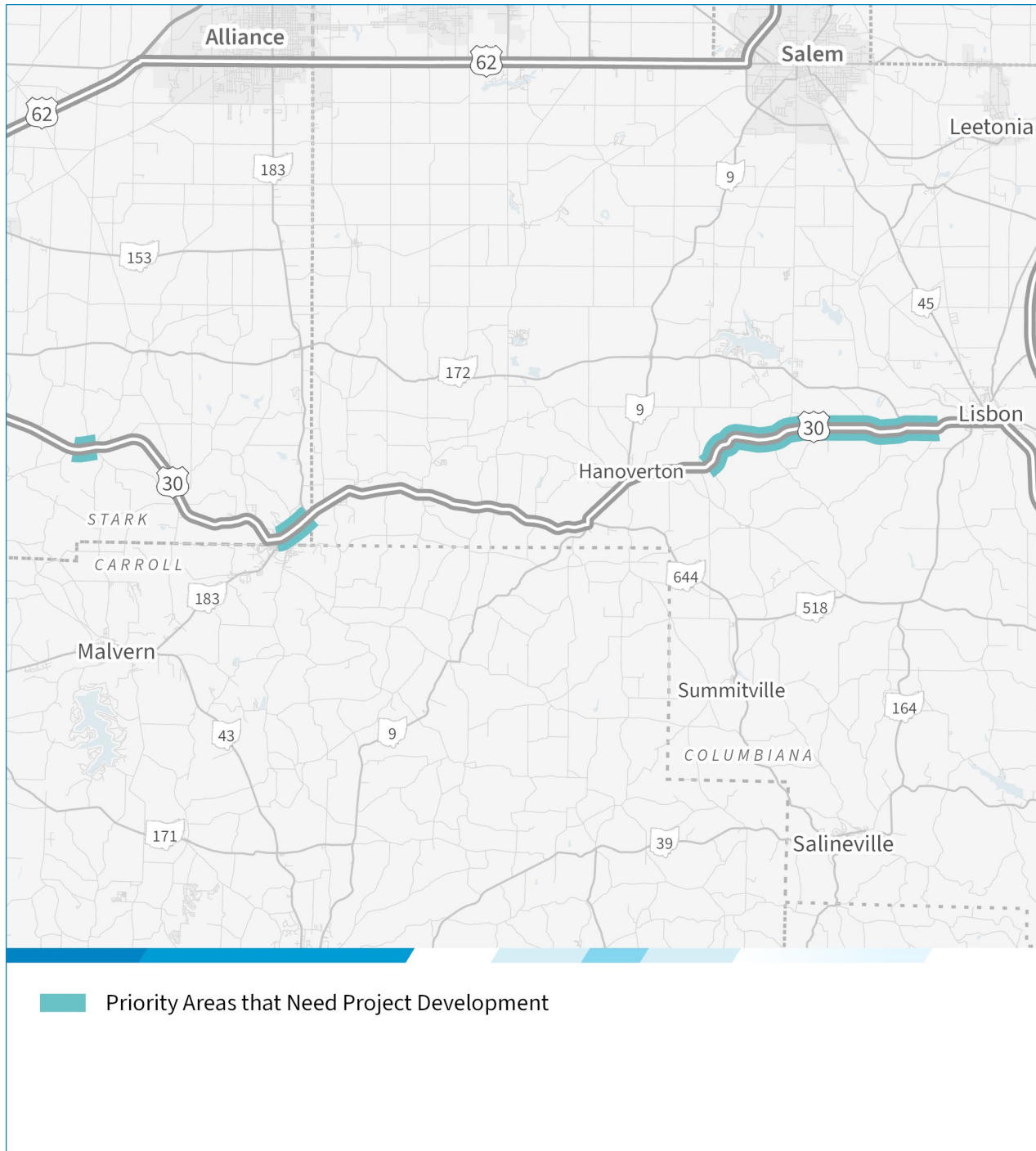


FIGURE 5.8—RECOMMENDATION: CANTON/YOUNGSTOWN-WEST VIRGINIA/PENNSYLVANIA (US30/SR11) FOCUS CORRIDOR



NEXT STEPS

The demographic, economic, workforce, development, and transportation analyses presented in **Chapter 2** and **Chapter 3** highlight several findings presented in **Chapter 4** with significant implications for Ohio's statewide transportation infrastructure and economic positioning. These analyses also provide a finite understanding of specific project needs that will manage congestion risks on the Study network today and through 2055 while also supporting the safe and efficient movement of people and goods along six focus corridors facing barriers to interregional mobility.

ODOT will incorporate the research, processes, tools, and data developed through the Study into standard business practices to ensure that economic development remains an ongoing element of ODOT's planning and project development activities. By leveraging this information and growing partnerships with state, regional, and local governments, economic development considerations can expand within ODOT's planning and project development processes. Key activities could include integrating the economic, site, workforce, and development analysis developed through the Study into:

- Ongoing ODOT multimodal planning processes such as [Access Ohio 2050](#), Ohio's long-range transportation plan, and [Transport Ohio](#), the state freight plan (both of which are being updated in 2025).
- Ongoing ODOT programming processes such as the [Transportation Review Advisory Council \(TRAC\)](#), which selects large capital projects for funding approval, and others.



Strategic
**Transportation
& Development**

Analysis

Glossary and Acronyms



Department of
Transportation

Glossary and Acronyms

GLOSSARY

Access Control—The systematic process of managing the number, location, and design of direct access points to the public road system. The goal is to maintain traffic flow while providing adequate access to adjacent land.

Congestion Risk—A risk of unintended slower, stopped, or stop-and-go traffic on a regularly occurring (recurring) or non-recurring basis. Recurring congestion is caused by excess vehicles on a portion of roadway at a particular time. Non-recurring congestion is primarily due to unique events that reduce roadway capacity, such as incidents, special events, or severe weather. Four types of future congestion risks were analyzed:

- **Peak period**—Potential locations of severe congestion during the peak AM or PM Period that disrupts the flow of people and goods.
- **Site development/buildout**—Potential locations of severe congestion associated with site buildout and site trip generation.
- **Workforce Access**—Potential Locations where congestion leads to decreased workforce or jobs within 40 minutes (measured as total workforce impacted).
- **Truck bottleneck**—Potential locations with severe congestion, poor reliability, and high truck volumes.

Focus Corridors—The Study network routes potentially facing current and future risks that could impede interregional mobility for people and goods and limit economic growth. ODOT comprehensively reviewed six focus corridors through an assessment of existing conditions, status of ongoing and proposed projects, and a needs assessment to determine significant performance challenges that could limit economic growth.

Hotspot and Grouped Hotspot—Locations with current or future congestion risks. Various views of congestion risk on the highway network were used to identify hotspots during the existing conditions and stress test analysis. Individual locations on the Study network (originally identified by ODOT traffic count segments) were combined into grouped hotspots based on logical endpoints such as interchanges and intersections.

HSIP Priority Locations—Ranking of locations with crash patterns and safety concerns identified through ODOT's Highway Safety Improvement Program (HSIP).

Interregional Networks—Roadways facilitating high-speed and reliable travel for all vehicles and include capacity and infrastructure to support commercial vehicles.

JobsOhio Regions—Seven regions or economic development partners: Central, East, Northeast, Northwest, Southwest, Southeast, and West. The regions work together through JobsOhio to serve existing and prospective future businesses in Ohio.

- **Central Ohio (One Columbus)**—An 11-county region anchored by the state capital and a number of worldwide brand headquarters, research hubs, and academic institutions supporting ongoing significant population and job



growth. Counties include Delaware, Fairfield, Franklin, Knox, Licking, Logan, Madison, Marion, Morrow, and Pickaway.

- **East Ohio (Lake to River)**—A four-county region centered around the economies of Mahoning Valley, including Youngstown and Warren and their connections to Lake Erie and Southeast Ohio. Counties include Columbiana, Mahoning, Stark, Trumbull, and Tuscarawas.
- **Northeast (Team NEO)**—A 14-county region centered around economic opportunity and revitalization in Cleveland, Akron, Canton, and Sandusky and neighboring suburban and rural communities. Counties include Ashland, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Portage, Richland, Summit, and Wayne.
- **Northwest (Regional Growth Partnership)**—A 17-county region including Toledo as the economic driver, and smaller cities like Lima, Findlay, and Van Wert along with rural, agricultural communities. Counties include Allen, Crawford, Defiance, Fulton, Hancock, Hardin, Henry, Lucas, Ottawa, Paulding, Putnam, Sandusky, Seneca, Van Wert, Williams, Wood, and Wyandot.
- **Southwest (REDI Cincinnati)**—A five-county region anchored by Cincinnati. REDI also includes 10 additional counties in Indiana and North Kentucky. Counties include Brown, Butler, Clermont, Hamilton, and Warren.
- **Southeast (OhioSE)**—A 25-county region that is predominantly rural with economic strengths in natural resources, food processing, and tourism, along with key ports along the Ohio River. Counties include Adams, Athens, Belmont, Carroll, Coshocton, Gallia, Guernsey, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Lawrence, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Pike, Ross, Scioto, Vinton, and Washington.
- **West (Dayton Development Coalition)**—A 12-county region in western Ohio, including the Dayton region and its historical military and aviation economies, the Springfield region, and other smaller cities and rural, agricultural communities. Counties include Auglaize, Champaign, Clark, Clinton, Darke, Fayette, Greene, Mercer, Miami, Montgomery, Preble, and Shelby.

Location Quotient—The concentration of an industry in a region compared with a larger geographic unit.

Long Range Transportation Plan (LRTP)—A federally required plan that identifies transportation needs and outlines strategies and projects to address them over the next 20 to 30 years. LRTP are updated every four to five years and serve as a strategic blueprint. Financial components demonstrate how the recommended transportation plan can be implemented, identify the public and private resources expected to be available to carry out the plan, and recommend any additional financing strategies for needed projects and programs. LRTP reflects the application of programmatic transportation goals to project prioritization.

Multimodal Transportation System—The state's highways, rail corridors, airports, transit systems, and marine ports.

Needs Assessment—For the focus corridors, an assessment of detailed corridor-specific “hotspot” analysis, findings from the statewide congestion risk analysis, and insights from the corridor scans and District input related to spot location congestion risks, safety, geometric, operational, and development-related risks that could limit or constrain existing and/or future interregional passenger and freight-related mobility.



Project Overlap Analysis—A comparison of the needs assessment findings with existing ODOT projects (in construction, in development, in study, etc.) to identify if there are gaps along the corridor in managing congestion risks.

Regional Networks—Roadways facilitating connections within markets that provide safe and reliable access to job centers for workers and access to logistics and distribution networks for industries, warehousing, and retailers.

Relative Severity Index (RSI)—Measures the severity of crashes based on a dollar value assigned to each crash type.

Scenarios—Three statewide population growth scenarios were developed by the Ohio Department of Development (ODOD) in spring 2023 to support the Study. The three scenarios include population projections every five years from 2025 through 2055 at the county scale.

- **Baseline Scenario**—Reflects current trends, including continued growth in Central and Southwest Ohio, but also a continuation of declining economies and out-migration in Northeast and Southeast Ohio.
- **Medium Growth Scenario**—Enhances growth trends where they exist today and lessens or stabilizes areas that have been declining.
- **High Growth Scenario**—The most optimistic growth scenario, featuring accelerated growth in currently growing parts of the state and more pronounced turnarounds and stability in areas that have been declining.

Strategic Transportation and Development Analysis—A unique and groundbreaking product to identify how Ohio's transportation contributes to or hinders the State's economic competitiveness and investigates how Ohio's transportation system can support current and future statewide economic growth.

Study Engagement—From October 2023 through March 2024, ODOT engaged over 500 transportation and economic development stakeholders across Ohio, including elected officials, business owners, and regional and local governments and organizations. Engagement occurred through 40 unique stakeholder interviews, ten regional listening sessions, and one statewide webinar and survey.

Study Network—A subset of highway facilities where most economic activity occurs in Ohio. It serves as the focal point for this analysis, which includes examining existing and future conditions, assessing economic growth opportunities, and developing actionable recommendations. This system carries the highest passenger and freight volumes and provides excellent connectivity between different modes of transportation and various regions within the state. These roadways represent the most critical highway assets supporting statewide economic growth.

Transportation Improvement Plan (TIP)—A plan that specifies the transportation projects scheduled for implementation within the next four years.

Traffic Operations Assessment Systems Tool (TOAST)—A scanning tool which scores and ranks corridors based on multiple data sets and metrics to help transportation professionals make data-driven decisions and determine operationally sensitive corridors throughout the state.

Transportation System Opportunities to Support Economic Development—Research and insight gathered through stakeholder engagement identified five primary opportunities where transportation supports economic development.



- **Business & Logistics Efficiency**—Make Ohio more attractive for businesses. Transportation investments help sustain and expand target industries, reduce business costs, and provide safe and reliable mobility and access to trading partners and services. Focuses on total daily truck delay.
- **Market Connections**—Improve connections within and between Ohio and other states and nations. Transportation investments facilitate more reliable connections for trade, supply chains, long-distance business, and personal travel.
- **Quality Places**—Create communities that help Ohio retain and attract residents, visitors, and employers. Transportation investments can help facilitate healthy, sustainable, and vibrant communities that attract and retain workers, visitors, and employers. Focuses on access management and projected development.
- **Site Development**—Stimulate site development and capital investment. Transportation investments enable safe and reliable access to existing and future site development opportunities for workers, customers, and suppliers.
- **Workforce Access**—Increase access to and for the workforce. Transportation investments increase the number and diversity of workers with access to existing and future employers and enable workers to access more employment opportunities.



ACRONYMS

AA DT—Annual Average Daily Traffic

ACS—American Community Survey

ALICE—Asset Limited, Income Constrained, Employed

AMATS—Akron Metropolitan Area Transportation Study

BEA—Bureau of Economic Analysis

BHJTS—Brooke Hancock Jefferson Transportation Study

BLS—Bureau of Labor Statistics

CCSTCC—Clark County Springfield Transportation Coordinating Committee

CEDS—Comprehensive Economic Development Strategies

CNT—Center for Neighborhood Technology

CORPO—Central Ohio Regional Planning Organization

CPI-U—Consumer Price Index for All Urban Consumers

CREP—Conservation Reserve Enhancement Program

CVG—Greater Cincinnati Airport

CWA—Clean Water Act

CZMA—Coastal Zone Management Act

DPS—Darke Preble Shelby RTPO

EDA—U.S. Economic Development Administration

EDD—Economic Development District

EPDO—Equivalent Property Damage Only

ERPC—Erie Regional Planning Commission

ESA—Endangered Species Act

US DOT ETC—US DOT Equitable Transportation Community Explorer

FAF—Freight Analysis Framework

FHWA—Federal Highway Administration



FWCA—Fish and Wildlife Coordination Act

GDP—Gross Domestic Product

GOWT—Governor's Office of Workforce Transformation

H.B.—House Bill

H&T Index—Housing and Transportation Index

HSIP—Highway Safety Improvement Program

IT—Information Technology

ITS—Intelligent Transportation Systems

J&C—Jobs & Commerce

JEDD—Joint Economic Development District

KYOVA—Kentucky Ohio West Virginia Interstate Planning Commission

LACRPC—Lima-Allen County Regional Planning Commission

LCATS—Licking County Area Transportation Study

LEHD—Longitudinal Employer-Household Dynamics

LODES—Longitudinal Origin Destination Employment Statistics

LOQ—Location Quotient

LOS—Level of Service

LRTP—Long-Range Transportation Plan

LUC—Logan-Union-Champlain Regional Planning Commission

MORPC—Mid-Ohio Regional Planning Commission

MPO—Metropolitan Planning Organization

MSA—Metropolitan Statistical Areas

MTP—Metropolitan Transportation Plan

MVPO—Maumee Valley Planning Organization

MVRPC—Miami Valley Regional Planning Commission

NAICS—North American Industrial Classification System

NEPA—National Environmental Policy Act



NHFN—National Highway Freight Network

NHS—National Highway System

NOACA—Northeast Ohio Areawide Coordinating Agency

NTRC—National Transportation Research Center

NTSI—North-South Transportation Initiative

ODA—Ohio Department of Agriculture

OD—Origin Destination

ODOD—Ohio Department of Development

ODOT—Ohio Department of Transportation

OEPA—Ohio Environmental Protection Agency

OKI—Ohio-Kentucky-Indiana Regional Council of Governments

OMEGA—Ohio Mid-Eastern Governments Association

ORC—Ohio Revised Code

ORNL—Oak Ridge National Laboratory

OSWM—Ohio Statewide Model

OVRDC—Ohio Valley Regional Development Commission

P3s—Public-private partnership

PID—Project Initiation Document

PDP—Project Development Process

QCEW—Quarterly Census of Employment and Wages

RCRPC—Richland County Regional Planning Commission

RSI—Relative Severity Index

RTPO—Regional Transportation Planning Organizations

SCATS—Stark County Area Transportation Study

SFS—Strategic Freight System

SHAMM—State Highway Access Management Manual

STRAHNET—Strategic Highway Network



- STS**—Strategic Transportation System
- TAZ**—Traffic Analysis Zone
- TIP**—Transportation Improvement Program
- TIS**—Traffic Impact Study
- TMACOG**—Toledo Metropolitan Area Council of Governments
- TMMS**—Traffic Monitoring Management System
- TOAST**—Traffic Operation Assessment Systems Tool
- TRAC**—Transportation Review Advisory Council
- TSMO**—Transportation System Management and Operations
- USDA**—U.S. Department of Agriculture
- USDOT**—U.S. Department of Transportation
- UTM**—Uncrewed Traffic Management
- V/C**—Volume to Capacity Ratio
- VHT**—Vehicle Hours Traveled
- VMT**—Vehicle Miles Traveled
- WORPO**—West Central Ohio Rural Planning Organization

