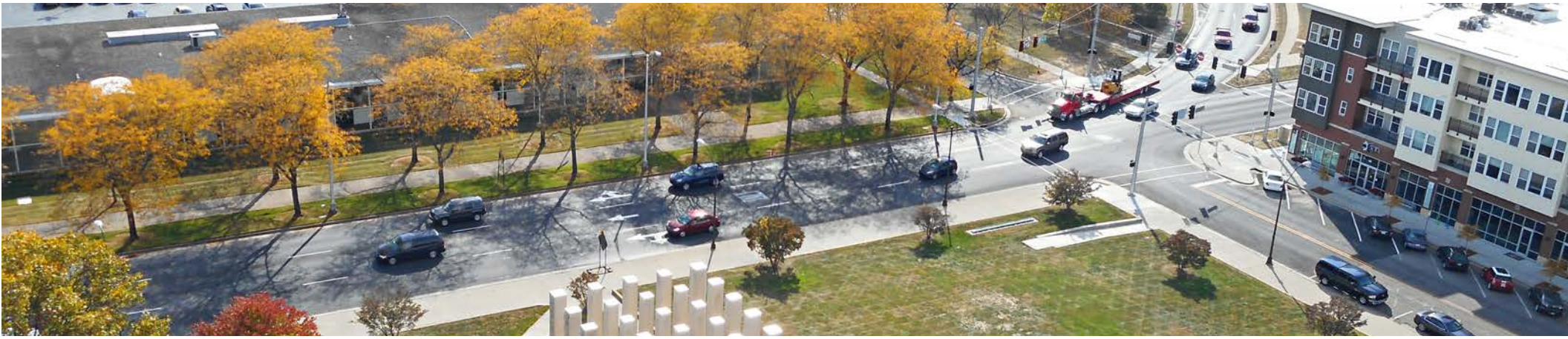

CAMPO 2040

LONG RANGE TRANSPORTATION PLAN

COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION

CAMPO

SEPTEMBER 2016

ACKNOWLEDGEMENTS

COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION

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Dennis Baute	Columbus Plan Commission (CAMPO Vice-chairman)
Bill Lentz	County Council
Rick Flohr	County Commissioner
Zack Ellison	Bartholomew County Plan Commission (CAMPO Chairman)
Tony McClellan	INDOT Seymour District (Proxy: Jim Ude)
Michelle Allen	FHWA (non-voting member)
Susan Orona	FTA (non-voting member)

TECHNICAL COMMITTEE

Jeff Bergman	City of Columbus-Bartholomew County Planning Director
Dave Hayward	Columbus City Engineer and Executive Director of Public Works
Danny Hollander	Bartholomew County Engineer
Mark Jones	Columbus Parks & Recreation Director
Jeff Lucas	Bartholomew County GIS Coordinator
Brian Payne	Columbus Regional Airport Director
Keith Reeves	Columbus City Utilities Director
Jon Rohde	Columbus Chief of Police
Cindy Setser	ColumBUS Transit Coordinator
Jim Ude	INDOT Seymour District Planner
Karen Wetherald	Bartholomew County School Corporation Transportation Director
Brian Jones	INDOT Office of Transit, Project Manager
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Michelle Allen	FHWA Planner/Environmental Specialist (non-voting)
Susan Orona	FTA Program Specialist (non-voting)

COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION (CONTINUED)

CITY OF COLUMBUS – BARTHOLOMEW COUNTY PLANNING DEPARTMENT

Jeff Bergman	Planning Director
Laura Thayer	MPO Director / Transportation Planner
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Dascal Bunch	Columbus City Council
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Jason Hester	Economic Development Board
Roger Lang	Columbus Plan Commission
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Danny Hollander	County Engineer
Laura Garrett	Healthy Communities
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Karen Wetherald	BCSC Transportation

Table of Contents

Figures and Tables

1 Introduction

Columbus Area Metropolitan Planning Organization

Federal and State Transportation Planning Requirements

Long Range Transportation Plan Process

INTRODUCTION

Transportation infrastructure not only plays an integral role in supporting regional economic activities, but it is also essential to improving the quality of life for local residents. The transportation system includes roads, transit, non-motorized facilities and inter-modal facilities.

An efficient transportation system saves time and money for individuals and businesses; promotes safety; serves a crucial role in the production and distribution of goods; and supports economic growth. In an effort to provide transportation improvements, the regional decision-makers face difficult challenges such as identification of system needs, prioritizing transportation investments, coordination among stakeholders, and funding.

The purpose of the Columbus Area Metropolitan Planning Organization's (CAMPO) Long Range Transportation Plan (LRTP) is to assess the existing transportation infrastructure in the Metropolitan Planning Area (MPA), and develop a strategy to maintain and enhance the regional transportation assets through the plan horizon year of 2040.

With inputs from CAMPO staff, regional stakeholders, and the general public; the plan identifies existing transportation needs, establishes a vision for the region's transportation system, and prioritizes investments to facilitate a safe, efficient, multi-modal, and sustainable transportation system. The LRTP also evaluates the demographic profile of the region, documents the existing multi-modal transportation system, anticipates the impact of future socio-economic growth and land use changes on transportation, and sets a plan to achieve the regional transportation goals and objectives. The 2040 CAMPO LRTP is an update to the 2037 LRTP, adopted in 2011. The five-year revision cycle ensures the MPO planning process reflects the ever-changing community conditions.

What is a Long Range Transportation Plan?

The long range plan serves as a means to forecast future transportation needs and identify a plan to meet these needs over a 25 year plan horizon. The plan prioritizes a list of cost feasible multi-modal transportation projects needed to mitigate potential future congestion issues, safety concerns, and connectivity limitations.

COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION

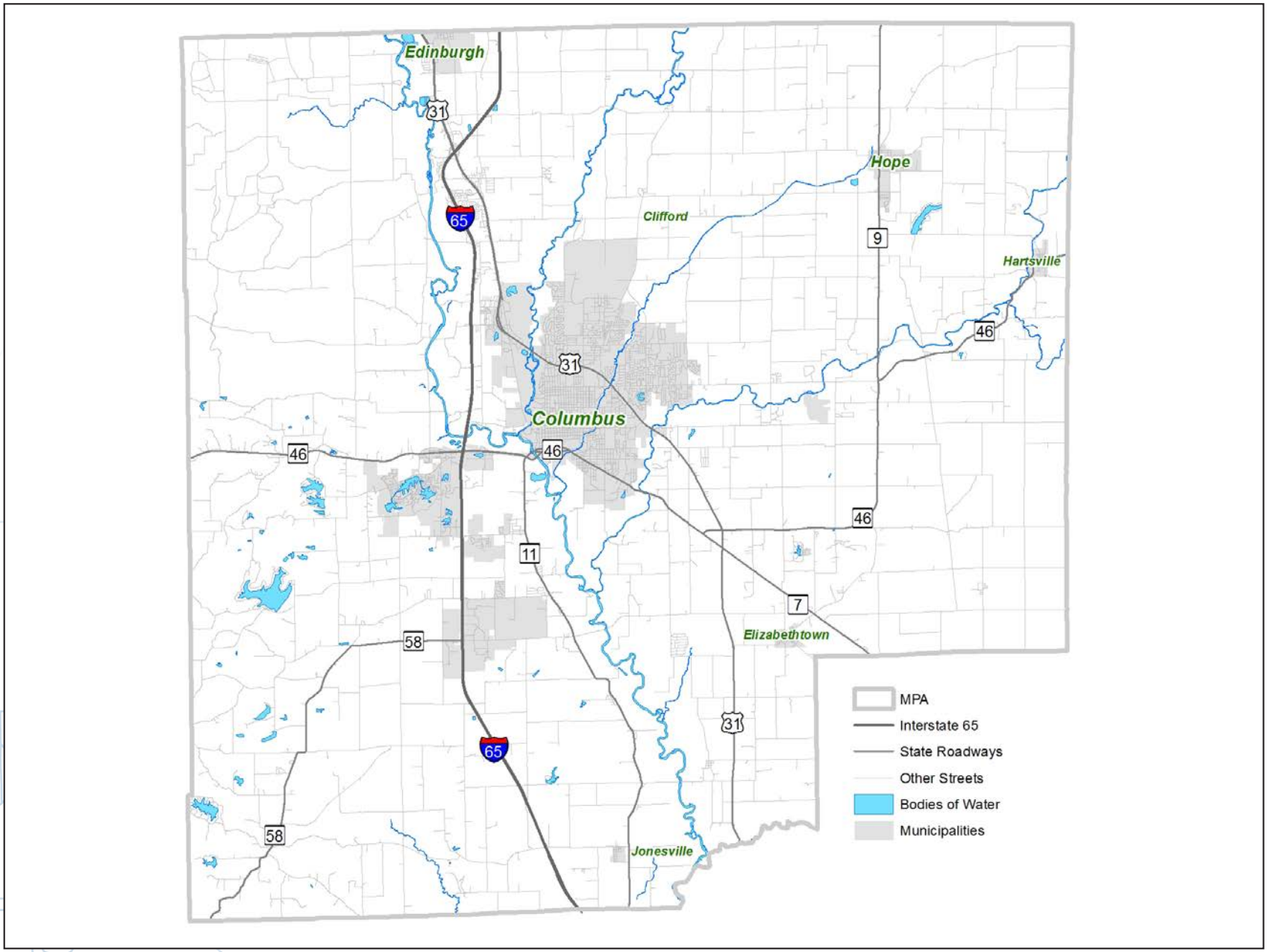
The framework for transportation planning in urbanized areas is governed by federal regulations. Federal law requires all urbanized areas with populations of 50,000 or more to establish a Metropolitan Planning Organization (MPO) with the responsibility of conducting a continuing, cooperative and comprehensive transportation planning process. CAMPO is the MPO for the City of Columbus and Bartholomew County, designated by the Governor of Indiana on February 27, 2004. The City of Columbus, the 20th largest city in the state of Indiana, is centrally located between Indianapolis, Louisville, and Cincinnati. It is the region's hub for employment, shopping, art and architecture, active living, and healthcare services in south central Indiana.

CAMPO is responsible for developing three main federally mandated transportation planning documents, including the LRTP, Transportation Improvement Program (TIP) and the Statement of Work (SOW). The TIP is a five-year program that describes the schedule of the committed federally funded and regional high-priority projects in the near-term of the LRTP. The SOW presents information on the transportation planning activities and the planning products developed by the MPO in the current and next fiscal year. CAMPO is further charged with the responsibility of planning activities, which promote an efficient and effective intermodal transportation system.

These planning considerations include, but are not limited to: transit, rail, highways, air quality, livable communities, and bicycle and pedestrian accommodations.

CAMPO is directed by a policy board and advised by a technical committee. The policy board is the decision-making body of the MPO, comprised of elected and appointed officials from the City of Columbus and Bartholomew County, as well as a representative from the Indiana Department of Transportation (INDOT). The CAMPO technical committee is the technical arm of the MPO, responsible for analyzing and reviewing transportation projects, commissioning reports, and making recommendations to the MPO Policy Board. A third component of CAMPO is the Citizen's Advisory Committee (CAC), which was established to promote public awareness of transportation plans and programs, and encourage public participation.

Figure 1: CAMPO Metropolitan Planning Area

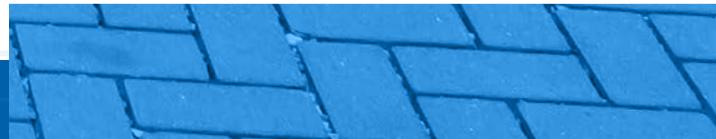


FEDERAL AND STATE TRANSPORTATION PLANNING REQUIREMENTS

On December 4, 2015, President Obama signed into law the Fixing America's Surface Transportation Act (FAST Act). It is the first law in the past ten years that provides long-term funding for surface transportation, and removes the uncertainty of future federal funding for state and local highway and transit projects. Overall, the FAST Act mostly maintains the program structures and funding shares between highways and transit established in the previous transportation authorization legislation, Moving Ahead for Progress in the 21st Century (MAP-21).

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act (SAFETEA-LU), the federal surface transportation bill preceding MAP-21, established eight factors that must be considered as part of the MPO planning process. The planning factors were carried forward in both MAP-21 and the FAST Act, and include:

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



The FAST Act adds two additional planning factors to be considered in the regional planning process:

- Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts on surface transportation; and
- Enhance travel and tourism.

The Indiana Department of Transportation's (INDOT) long range transportation plan, Indiana's 2013-2035 Future Transportation Needs Report- "Keeping Indiana Moving" is an evolving document that is updated on an as-needed basis. The plan provides a vision for the future development of the state transportation system and outlines a strategy for future investments in the state highway system, with the intent of providing the highest level of mobility and safety possible, and to meet the needs of economic development and quality of life into the next quarter century. INDOT vision statements encompass the following planning factors:

- *Transportation Safety:* Ensure that safety is considered and implemented, as appropriate, in all phases of transportation planning, design, construction, maintenance, and operations.
- *Economic Development:* Improve upon Indiana's transportation system to reduce the cost of moving people, goods, and freight; connect Indiana with regional, national, and international markets; provide communities with an edge in competing for jobs and business location; and connect people with economic opportunities.
- *Transportation Systems Effectiveness:* Develop an efficient and well-integrated multi-modal transportation system.
- *New Technology:* Provide leadership for the State of Indiana to develop and deploy advanced transportation technologies.
- *Demographic Changes and Quality of Life:* Develop a multi-modal transportation system that responds to demographic changes and contributes to an improved quality of life.
- *Transportation Finance:* Supports adequate and reliable funding for Indiana's transportation system from all sources: federal, state, local government, and the private sector.
- *Bicycle and Pedestrian Facilities:* Support non-motorized modes of travel as a means to increase system efficiency of the existing surface transportation network, reduce congestion, improve air quality, conserve fuel and promote tourism benefits.
- *Natural Environment and Energy:* Establish and maintain a transportation system in a manner to support the state's commitment to protect the environment.
- *Intergovernmental Coordination:* Actively solicit coordination and cooperation with other agencies, units of government and other stakeholders with the goal of developing a state transportation plan and program which will guide the selection of investments that offer the best value while providing support for Indiana's continued economic growth.

The vision, goals, objectives, and performance measures developed for the CAMPO LRTP are a result of considering the federal planning factors, INDOT's nine major guiding policy factors, various local planning studies, and input received from the public and the steering committee.

LONG RANGE TRANSPORTATION PLAN PROCESS

The CAMPO long range planning process identifies the long term vision of the region and provides the framework for future maintenance, operations, and construction or reconstruction of the transportation network through 2040. This federally-mandated plan requires 1) developing a technical model to project future travel demand, 2) identifying transportation needs, and 3) prioritizing transportation projects based on anticipated funding. The development of the CAMPO long range plan involved a public involvement process. To aid the plan development process, a steering committee was formed comprised of elected and appointed officials; representatives from ColumBUS transit and INDOT; and other community stakeholders. The City and County Engineers attended meetings in an advisory capacity.

This chapter discusses the process and reasoning for decision making throughout the LRTP's development. The outcomes of these decisions, in terms of identifying needs, analyzing scenarios, and selecting projects and programs, are discussed in subsequent chapters. Figure 2 presents the steps involved in the long range planning process.

The plan commenced with analysis of socio-economic conditions, review of existing plans and policies, and assessment of the existing infrastructure. The second step of the planning process involved developing goals and objectives. A SWOT (Strengths, Weaknesses, Opportunities & Threats) exercise was performed with the CAMPO LRTP steering committee members to highlight the local positive or negative factors impacting the regional transportation infrastructure. The goals and objectives were based on the SWOT analysis results (consistent with FAST Act priorities), INDOT transportation policy factors, local knowledge, and current local planning efforts. Subsequently, land-use and transportation scenarios were developed to support these goals and objectives. As part of the public involvement process, these goals and objectives and scenarios were presented to the public. Visual techniques such as display boards and illustrations were utilized during workshops and presentations to gather public input. To generate enthusiasm and attendee involvement during public open houses, "voting" exercises were conducted to prioritize the land-use and transportation scenarios. Based on public input and the steering committee recommendations, 13 scenarios were narrowed down to 9 land-use and transportation alternatives addressing transportation needs and assessing policy decisions.

The finalized scenarios were evaluated using a data-driven travel demand forecasting tool to support the performance-based approach adopted in the 2040 CAMPO long range plan. The model analysis uses a variety of performance measures to compare and prioritize transportation

projects supporting adequate mobility and accessibility by identifying network deficiencies and future transportation demand. The model results were presented to the public to gather their input on prioritizing the land-use and transportation alternatives. The steering committee along with CAMPO staff reviewed the different improvements and identified a final list of transportation needs for the cost feasible plan. Once the recommendations were developed, the transportation needs were prioritized based on financial feasibility and overall impact of the project on the multi-model transportation in the MPA.

In addition to supporting goals and objectives dedicated to preserving the existing system, many of the recommendations in this plan included projects focused on improving the current system, and providing new connections to the existing multimodal system.

Figure 2: CAMPO Metropolitan Planning Area

2 Regional Trends

Demographics

Employment Characteristics

Commute to Work Patterns

DEMOGRAPHICS

The Columbus region is a vibrant and diverse area experiencing rapid growth that is expected to continue for the foreseeable future. There exists a strong relationship between regional demographics, socio-economic factors, land use, and transportation infrastructure. The distribution of population in the region; household characteristics such as age, income, vehicle ownership; employment growth by sector; and commute-to-work patterns have a direct impact on the travel demand and dictate the future needs of the transportation system. This relationship between socio-economic characteristics and travel demand was used to develop a travel demand model for CAMPO, which has been used extensively in the long range planning process.

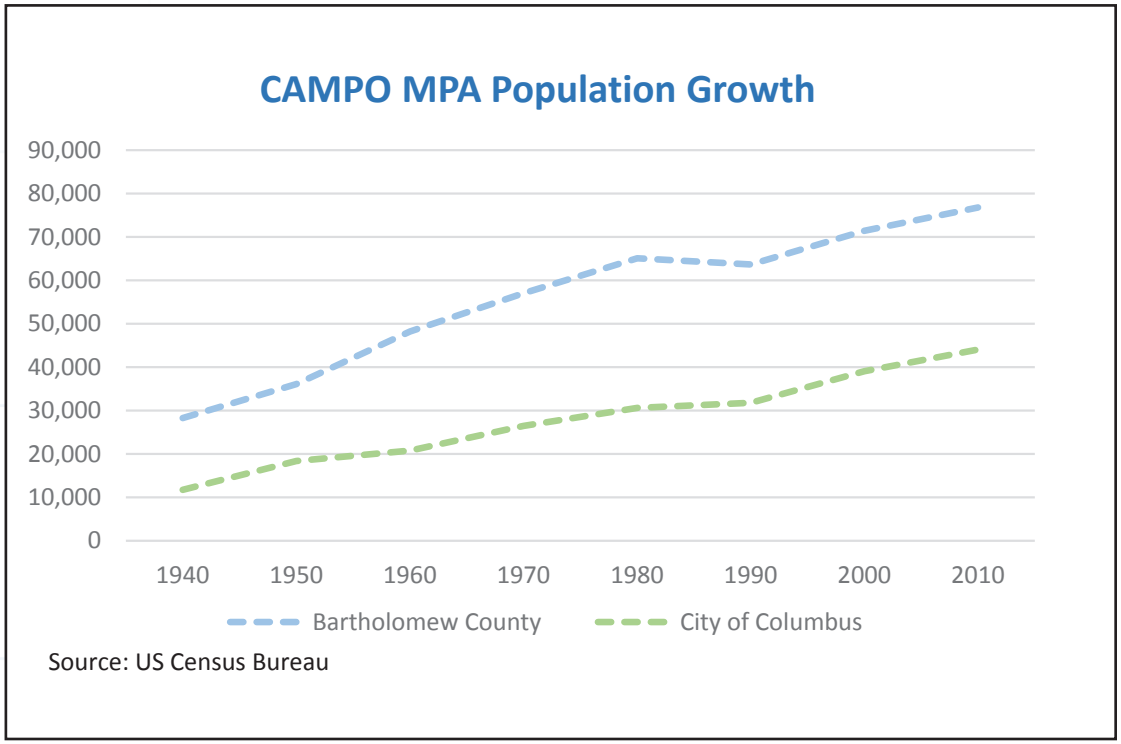
This chapter provides an overview of the regional socio-economic trends and land use information in the CAMPO planning area. Detailed tables supporting the analysis in this chapter are presented in Appendix B – CAMPO Demographics.

Population Characteristics

According to the 2010 Census, CAMPO MPA has a population of 76,794. About 98.5% percent of the population in the MPA reside in 29,857 households with an average household size of 2.5 persons. The remaining 1.5% percent of the population (1,147 people) in the planning area reside in group quarters, which include correctional facilities, senior housing, college dormitories, and nursing homes.

The population forecasts for the long range plan horizon year of 2040 was generated using multiple sources including the historic growth trend lines from census data, the Indiana Business Research Center (IBRC) county population projections, and Woods & Poole (W&P) county population projections. The population in the CAMPO MPA is estimated to grow by just over 18.8 % by the year 2040 to a total population of 91,384. This represents an annual growth of 0.55% through year 2040. Figure 3 shows the historical growth of population in Bartholomew County and City of Columbus over the past seven decades.

Figure 3: Historical Population Growth in the MPA



Source: US Census Bureau

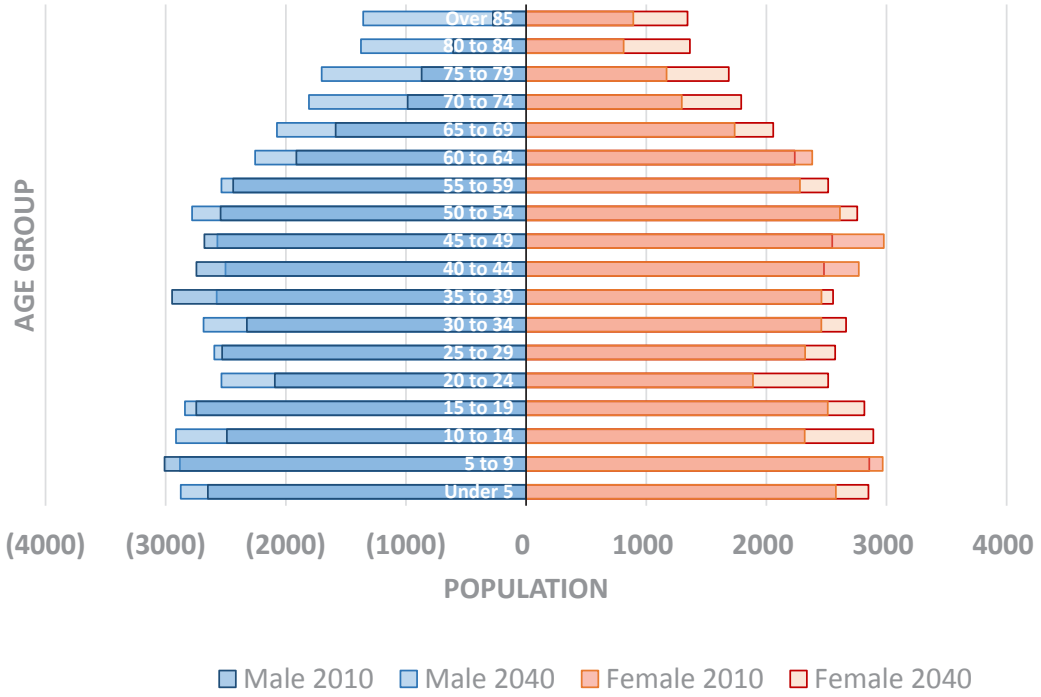
Age and Gender

The distribution of age in the region has significant impacts on housing needs and transportation planning. Older populations generally require different housing than younger populations, as well as more transit and medical facilities. Figure 4 presents the age and gender of the population in the MPA in the year 2010, and the forecasted distribution in the year 2040 based on Woods & Poole projections. Similar to other regions in the county, the elderly population is expected to rise significantly by 2040. The percent of persons age 65 and above in the MPA was about 13.5% in 2010, and is expected to increase to 19.4 % by 2040. The working population between ages 20 and 64 is forecasted to reduce by 4% by 2040. As the senior population in the community increases, the need for transit and other alternatives to single occupancy vehicles becomes essential to ensure sufficient access for the aging population.

Race and Ethnicity

The ethnic makeup of the population in the CAMPO MPA is predominantly white. Based on the 2010 census, the CAMPO region is less racially diverse than the average for the United States. The racial diversity is fairly consistent between 2000 and 2010, except for Asian population which has increased by 1.3% relative to other races. The largest racial group in 2010 was white, at 92.2%, followed by Asian and African American at 3.2% and 1.1%, respectively. Asian and the Other Race population percentages are predicted to double by 2040, while the African American population percentage is forecasted to triple in the same time period. The white population is expected to fall by 5.7% relative to other races by 2040.

Figure 4: Pyramid Age and Gender

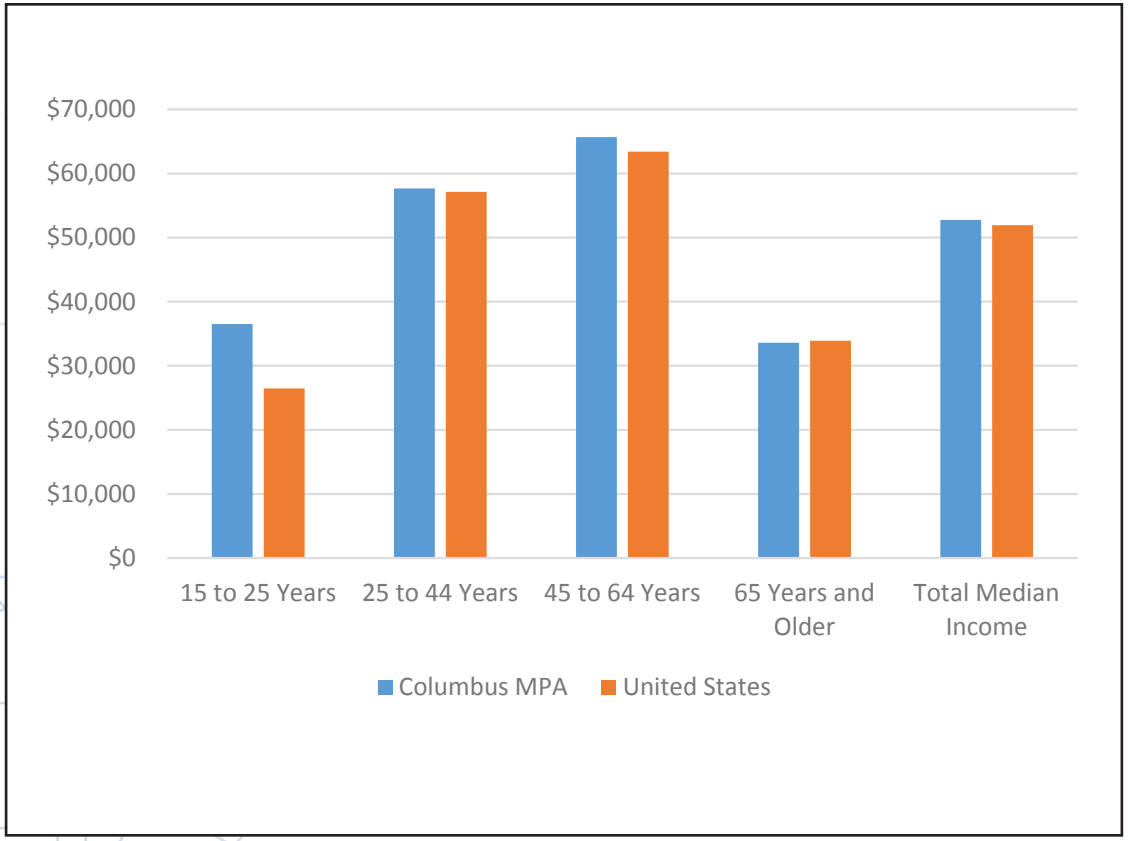


Sources: US Census Bureau, Woods & Poole

Households and Median Income

The location of households in the MPA and the household size are indicators of population distribution and density, which play an important role in regional transportation planning. According to US Census, the total households in the CAMPO MPA increased 6.8 % between 2000 and 2010. The two-person households grew by nearly 1,000 households, accounting for 50% of the total growth in households. The other household sizes (1 person, 3 person, and 4+ person households) generally grew in number but remained consistent in percent of total households. The average household size in the region remained consistent between 2000 and 2010 at 2.5 person per household, but is expected to increase to 2.62 by the year 2040.

Figure 5: Median Income by Age of Householders



Household income has a direct impact on the regional travel demand and is an important indicator for the needs of alternate transportation options. Lower income households are more likely to be dependent on public transit as a primary mode of transportation. Alternatively, higher income households generate twice as many daily vehicle trips compared to low income households. The median household income in the planning area is $52,742, comparable to the median household income in the United States at $51,914. The median income is lowest for the 15-25 age bracket, with income rising for the ages 25-44 and 44-64 age brackets due to the level of education and additional years of work experience.

Education, Poverty and Disability

As part of the planning process, identifying targeted populations, such as the low-income population or the population with disabilities, is important to evaluate alternate transportation options in order to meet the mobility needs of these users that traditional transportation planning has underserved. In the year 2010, 35.9% of the region's population was low income (annual household income was less than $35,000), 9% were identified to be under the poverty line, 35.9% qualify for disability status, and 13.5% are senior population over the age of 65, making it imperative to address any potential transportation inequities in the regional transportation policy.

Based on 2010 US Census, 31 % of the population 25 years and older in the City of Columbus, have a bachelor's degree or higher. About 90% of the population (25 years and older) are high school graduates, indicating a well-educated population in Columbus compared to the national average.

Regional Population & Households Characteristics

- The population in the CAMPO MPA is estimated to grow by just over 18.8 % between year 201 and 2040 to a total population of 91,384.
- The percent of persons age 65 and above in the MPA is forecasted to increase 6% between 2010 and 2040, while the working population (ages 20- 64) , is expected to decrease by 4%.
- Based on 2010 Census data, the largest racial group in the CAMPO MPA was white, at 92.2%, followed by Asian and African American at 3.2% and 1.1%, respectively. Asian and the Other Race population percentages are predicted to double by 2040, while white population is expected to fall by 5.7%.
- By 2040, 36 % of the total households in the CAMPO MPA are 2-person household, followed by 1-person households at 24% and 4+ person household at 23%.
- The median household income in the planning area is $52,742, comparable to the median household income in the United States at $51,914.
- In the year 2010, 35.9% of the region's population was low income (annual household income was less than $35,000), 9% were identified to be under the poverty line, 35.9% qualify for disability status, and 13.5% are senior population over the age of 65.
- 94% of commuters using a single-person vehicle to commute to work. Approximately 2% reported walking to work and less than 1% use public transportation.

EMPLOYMENT CHARACTERISTICS

In 1970, over 50% of all jobs in the City of Columbus were in manufacturing. This percentage decreased to 43% by 1980, and stabilized at 33% percent through the year 2000. According to the Columbus Economic Development Board, currently more than 35%of the employment in the City of Columbus is in manufacturing, compared to 9% in the United States as a whole. With more than three times the national average, the manufacturing sector will continue to play a prominent role in transportation planning in the Columbus region. The largest employers in the CAMPO MPA are:

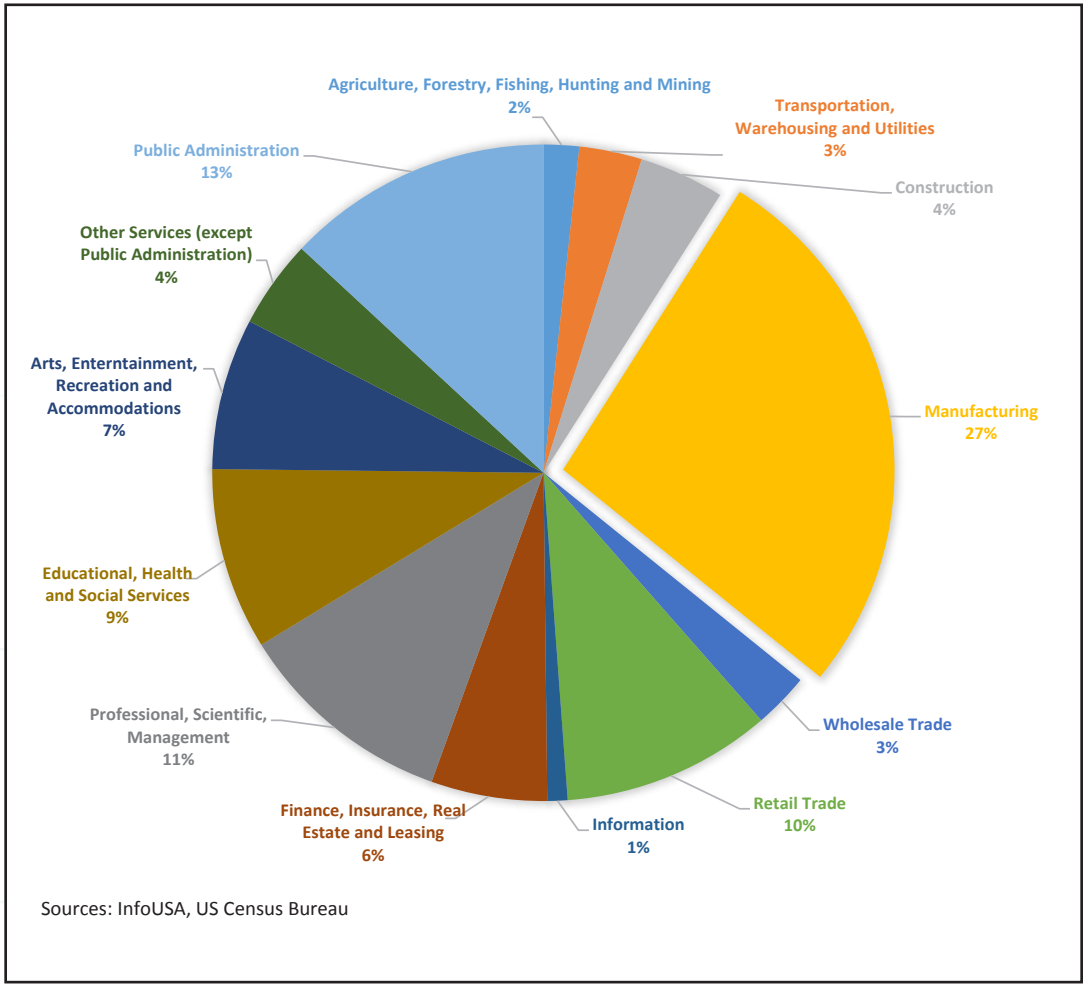
- Cummins Inc. - 4,100 employees
- Columbus Regional Hospital - 1,800 employees
- NTN Driveshaft Inc. - 1,300 employees
- Dorel Cosco Home and Office Products - 1,000 employees
- Toyota Industrial Equipment Manufacturing Inc. - 724 employees
- Faurecia - 700 employees
- Walmart Supercenter - 520 employees
- City of Columbus - 500 employees
- Impact Forge Group Inc. - 400 employees
- PMG Indiana Corp. - 400 employees

Figure 6 presents the 2010 employment sector breakdown for the CAMPO MPA.

Manufacturing is the largest industry in the region, followed by healthcare and retail.

Based on Woods & Poole employment projections, the employment is expected to increase by 33% between 2010 and 2040. The growth in employment is driven primarily by growth in manufacturing (23.69%), followed by service jobs including educational, health and social services employment (19.35%).

Figure 6: 2010 Employment by Sector in the CAMPO MPA



Sources: InfoUSA, US Census Bureau

COMMUTE TO WORK PATTERNS

It is important to understand the regional commuting patterns as part of the regional planning process. Figure 7 presents the commuter patterns for Bartholomew County. About 32% of the Bartholomew County workers commute from outside the county, mainly from Jackson, Jennings and Johnson Counties. Approximately 15% of people residing in Bartholomew County commute to other counties for work. These patterns are evident due to the high availability of manufacturing and healthcare jobs in the region, and the influence of I-65 on commute times.

In addition to commuter patterns, mode of travel to work and vehicle ownership are important factors to understand the regional travel needs and to assess the availability of alternatives to automobiles in the MPA. About 5% of households in the CAMPO MPA do not own vehicles, compared 7 % in the State of Indiana. The majority of the households in the region are two-vehicle households (40%), followed by one-vehicle households at 28%.

Consistent with travel patterns in the region, most people experience a relatively short commute to work. Over 62% of the Bartholomew County workers reported a commute time of less than 20 minutes with about 5.1 % of the workers experiencing a commute time of over an hour. Bartholomew County is predominantly automobile-oriented, with 94% of commuters using a single-person vehicle to commute to work. Approximately 2% reported walking to work and less than 1% use public transportation.

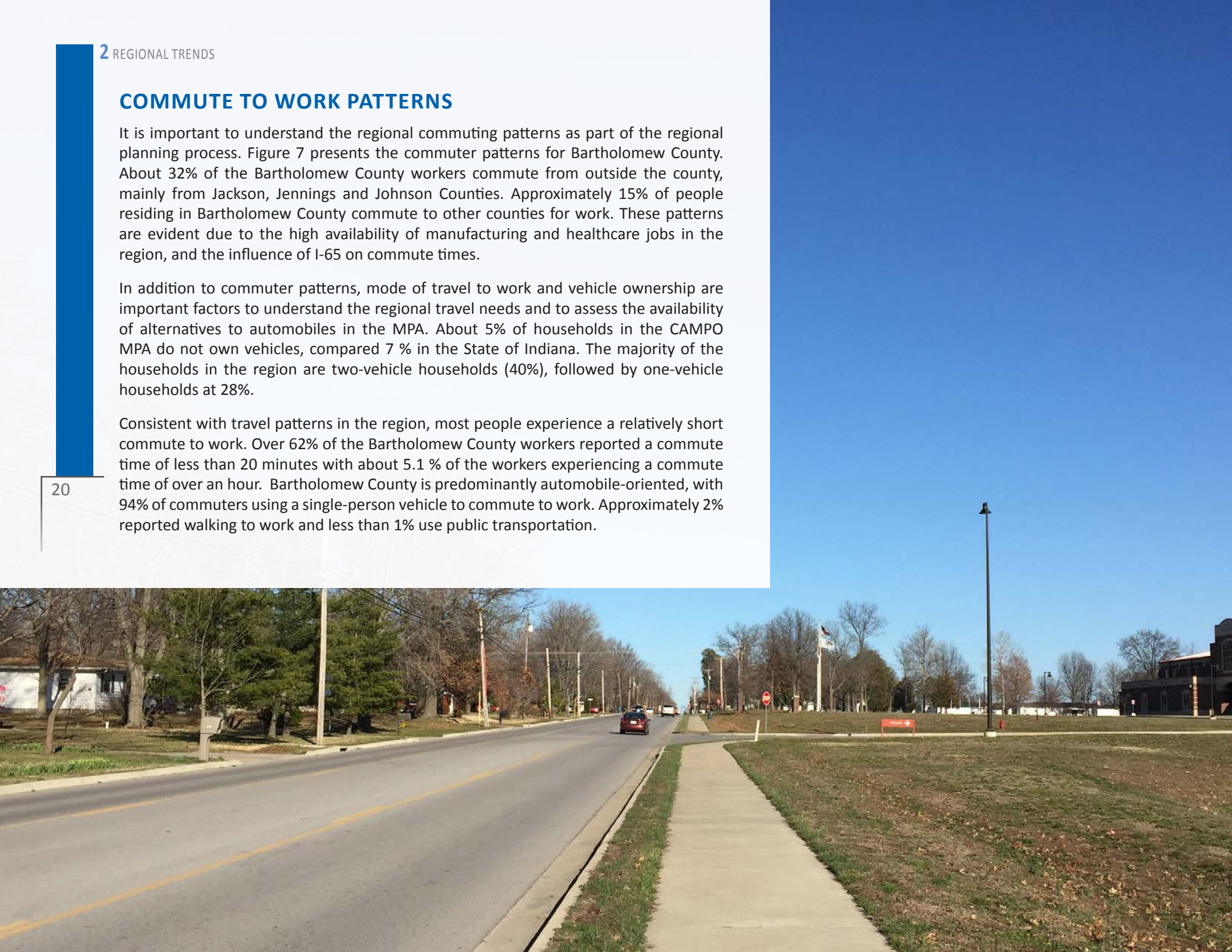
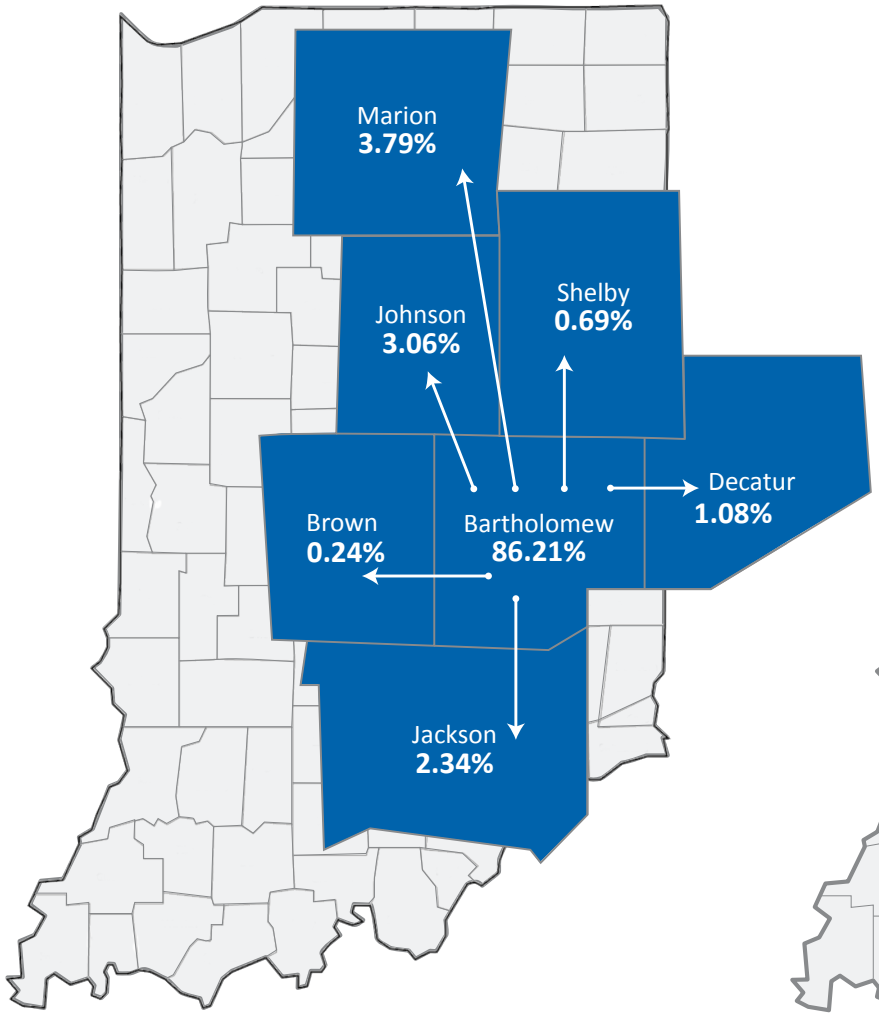
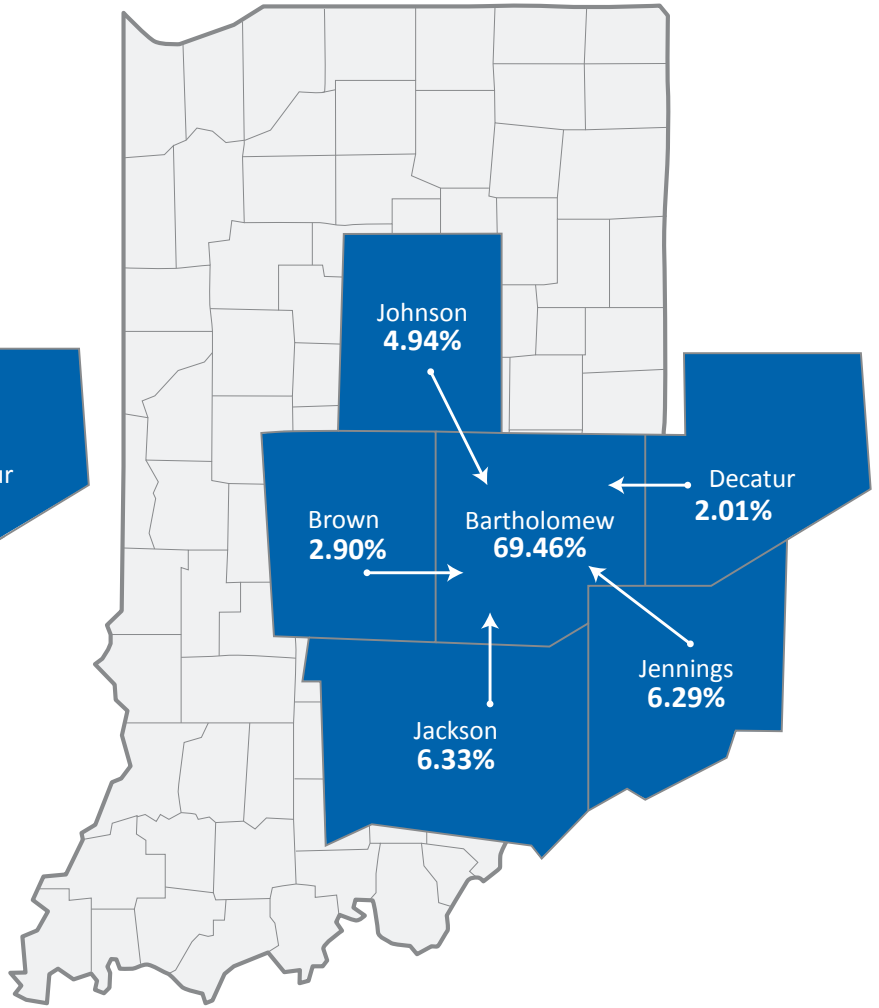


Figure 7: Commuter Patterns for Bartholomew County

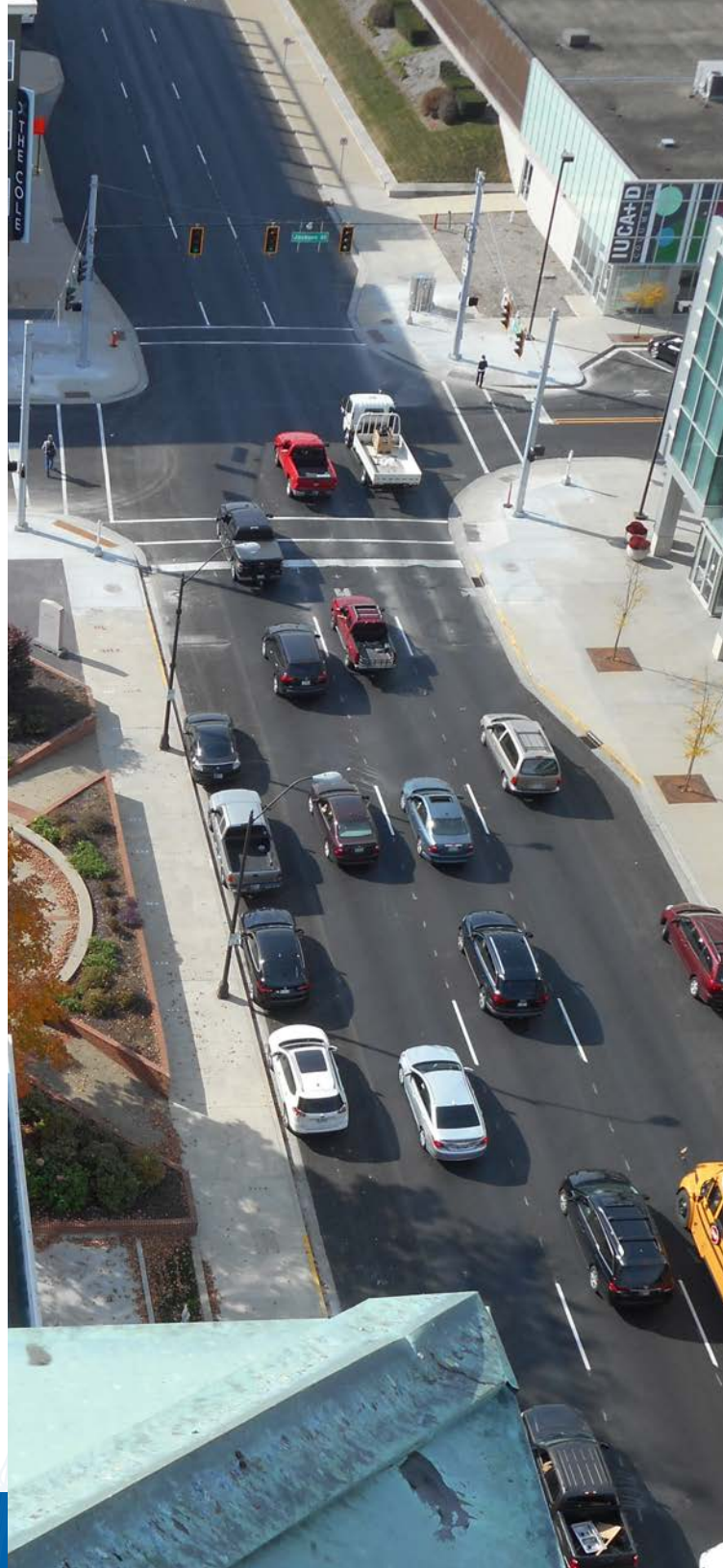


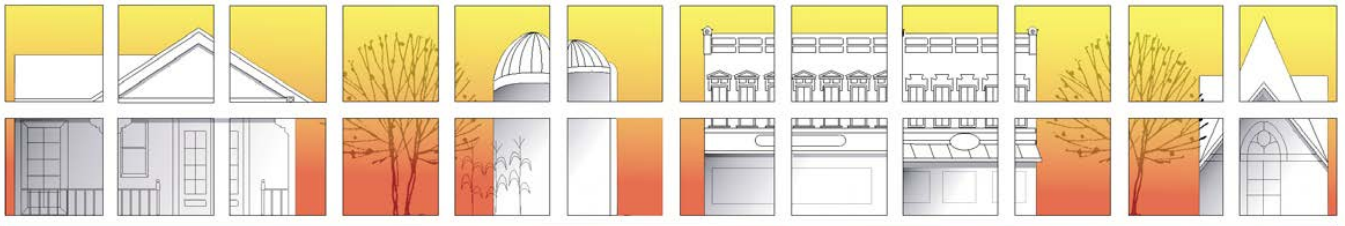
COMMUTE PATTERNS BY COUNTY OF WORK



COMMUTE PATTERNS BY COUNTY OF RESIDENCE

3 Land Use and Environmental Considerations





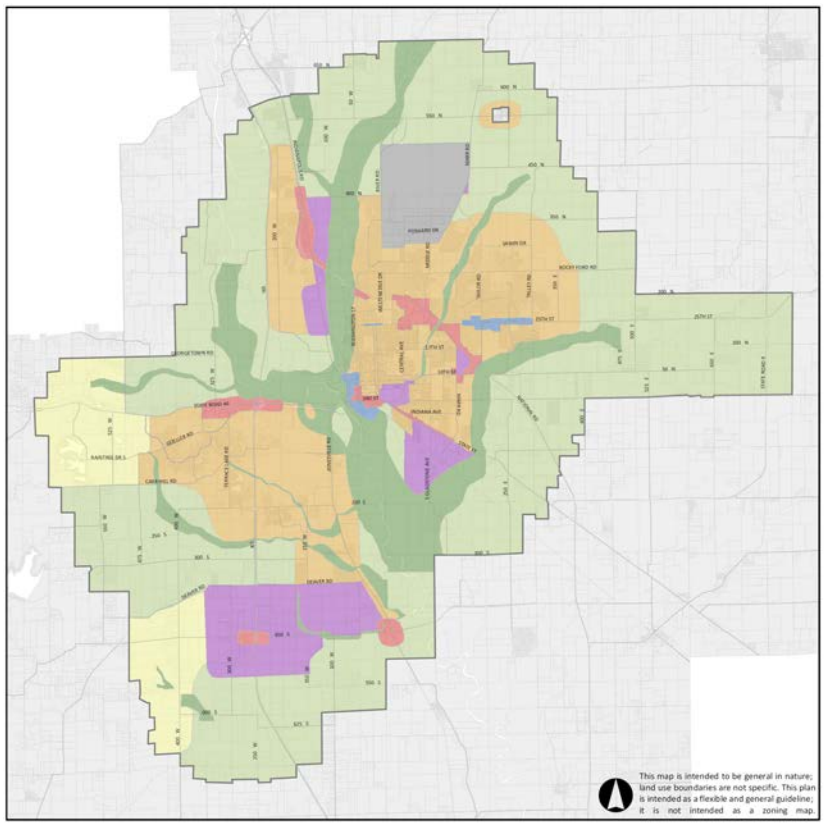
LAND USE

There is a strong and fundamental relationship between land use planning and transportation planning. While transportation planning decisions affect land use development, land use conditions also have an impact on travel demand. In other words, development generates new trips, and the new trips generate the need for additional transportation infrastructure, which in turn increases accessibility and attracts further development.

The transportation infrastructure, mobility needs and accessibility features differ by land use type. Manufacturing and industrial land uses require direct connections to interstates via wide roadways to support truck traffic. Residential and institutional land uses, such as schools, require calm traffic and quality bicycle and pedestrian facilities. Retail land uses need convenient accessibility and connections to residential land uses. Land use patterns are commonly impacted by factors such as population and economic growth, planning and zoning policies, housing cost, transit service, individual needs, and geographic or topographic conditions. Land use planning in the CAMPO MPA is primarily the responsibility of the City of Columbus and Bartholomew County. Each jurisdiction's comprehensive plan addresses local land use and transportation issues and establishes a basis for future development, making them crucial inputs into the CAMPO long range planning process.

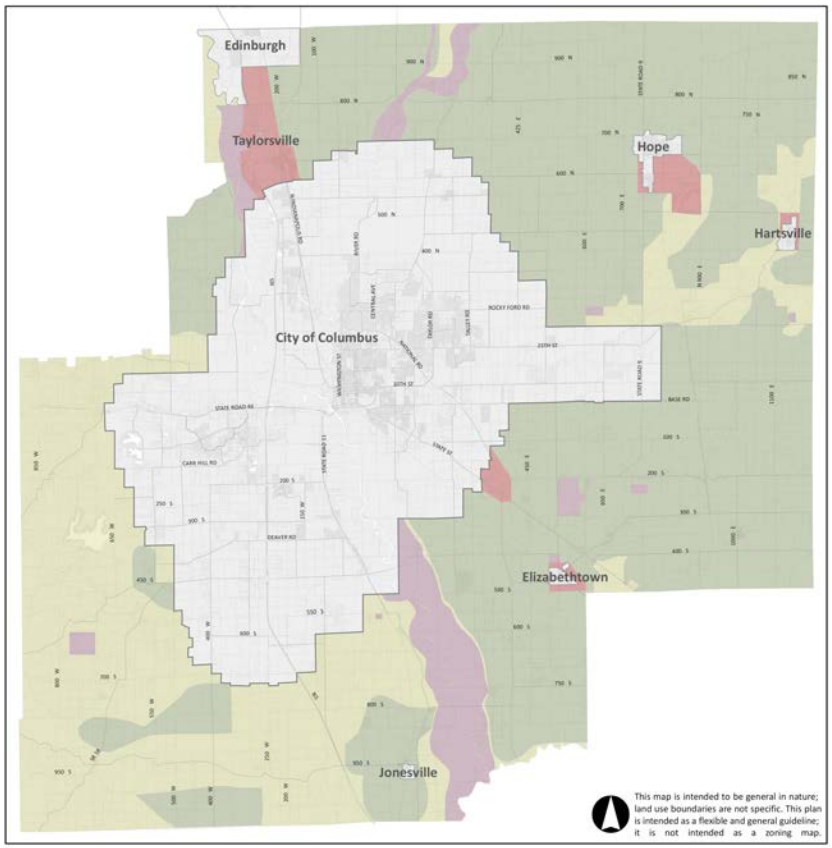
The City of Columbus Comprehensive Plan, which applies to the City of Columbus and its extraterritorial jurisdiction currently includes seven separate elements adopted over a period of several years beginning in 1999 with the Goals and Policies. Together with the Land Use Plan Element and the Thoroughfare Plan Element, this forms the basic components of the Comprehensive Plan As the comprehensive plan has evolved, more detailed elements have been added for specific geographic areas and topics, such as the Downtown Strategic Development Plan, the Bicycle and Pedestrian Plan, and Central Avenue Corridor Plan. The Comprehensive Plan's various elements provide community goals, policies, and projects related to transportation for the City of Columbus. The current Bartholomew County Comprehensive Plan includes three basic components: the Goals and Policies Element (adopted in 1999), the Land Use Plan Element (adopted in 2003), and the Thoroughfare Plan (adopted in 1993). It also includes the Northern Gateway Plan Element, a detailed policy statement for the area around the US 31 and I-65 interchange. The Comprehensive Plan's various elements provide goals, policies, and projects related to transportation for Bartholomew County. Both plans have been updated routinely and involve significant public input processes. Figure 8 on page 24 and Figure 9 on page 24 present the future land use maps for the City of Columbus and Bartholomew County, respectively.

Figure 8: City of Columbus Future Land Use Map



Source: City of Columbus Comprehensive Plan

Figure 9: Bartholomew Future Land Use Map



Source: Bartholomew County Comprehensive Plan

The City of Columbus also prepared the "Downtown Columbus Strategic Development Plan", focused on directing appropriate development towards downtown, removing barriers to future downtown development initiatives, shaping downtown into an engaging streetscape experience, and broadening downtown's roles as a housing market and neighborhood service center. The Columbus Strategic Growth Study was initiated out of a desire to pro-actively prepare for and direct future outward industrial, commercial, and residential development. The study was completed by the City of Columbus – Bartholomew County Planning Department in February of 2016. This study is also intended to be used as a companion to the Columbus Infill Site Profiles. Land availability is limited within the existing corporate boundaries and infill development poses challenges, particularly for sizable industrial operations and residential development. The Strategic Growth Study identifies areas within Columbus' two-mile planning jurisdiction, as well as undeveloped incorporated areas at the perimeter of the Columbus city limits, that have development potential due to a combination of factors, such as access to infrastructure and city services. The study highlights development constraints that the City can address in order to enable thoughtful, strategic growth. The Strategic Growth Study is intended to be used as a tool to discourage sprawl and lead growth towards areas where infrastructure is available or can be made available. The study includes summary maps for residential, commercial, and industrial development and identifies several areas that have a potential for development but may have infrastructure or transportation related constraints. Figure 10 on page 26 and Figure 11 on page 27 present the commercial and industrial site profiles summary identified in the Strategic Growth Study.

The City of Columbus comprehensive plan and the Strategic Growth Study supports the development of "infill" sites, as opposed to "greenfield" sites which could contribute to urban sprawl. The Infill Site Profiles were developed by the City of Columbus – Bartholomew County Planning Department in June of 2012 (and have been periodically updated) to assist in the consistent identification of infill sites in the community in response to ongoing inquiries from developers and a diversity of community groups. The potential infill development sites profiled in the document were identified by the Planning Department as meeting each of the following criteria:

- The property is undeveloped, vacant, or clearly underused.
- The property is either within the City limits or encompassed by the City.
- The property is not part of a project that is actively being developed as part of the outward growth of the City.
- The property is large enough to support a commercial use or development or multiple dwelling units.
- The property's most likely future use is commercial or residential.

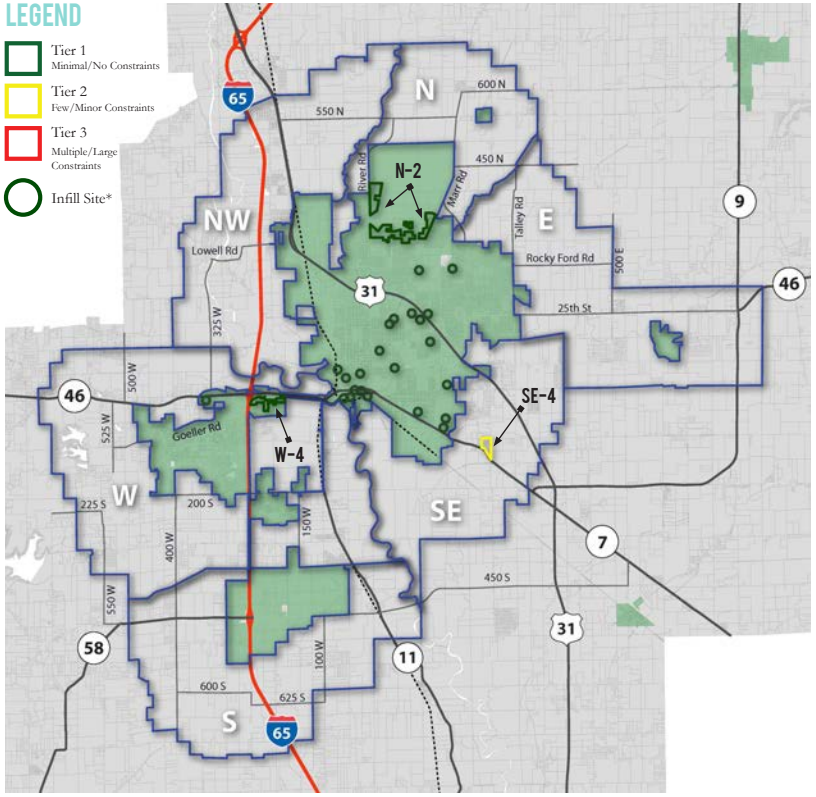
The pattern of development in the CAMPO MPA is significantly influenced by the regional topography. The portion of Bartholomew County to the east of Columbus is relatively flat and consists of agricultural lands. This area has been designated in the Bartholomew County comprehensive plan as the agricultural reserve, with the goal of maintaining this area primarily for farming. The southwest portion of the county consists of rolling hills which are not as conducive to crop production. This topography has resulted in substantial residential development west of the east fork of the White River ranging from the planned development at Tipton Lakes to the subdivision of larger lots by individuals. The topology here and the availability of sewage services will lead to continued development in the southwest portion of the county.

The City of Columbus has been strongly influenced by the rivers and creeks running through and adjacent to the urban core, as well as their associated floodplains. While the rivers and creeks add character to the City of Columbus, they limit the urban growth by creating natural barriers. These barriers have resulted in the growth of the city to the northeast as well as west of the east fork of the White River in the Tipton lakes and County Road 200 South area.

Figure 10: Commercial Site Profile

COMMERCIAL *Site Profile Summary*

PART 2.4



SITE	ACREAGE	PRIMARY CONSTRAINT(S)	FOR MORE INFORMATION
N-2*	230	None	Page 71
SE-4	34	Water Service Provider • Sewer Availability	Page 57
W-4	77	None	Page 65
INFILL SITES	135	None	Infill Site Profiles

* The land use recommendation for this site is commercial or industrial. Therefore, it is also shown in the Industrial Site Profile Summary.

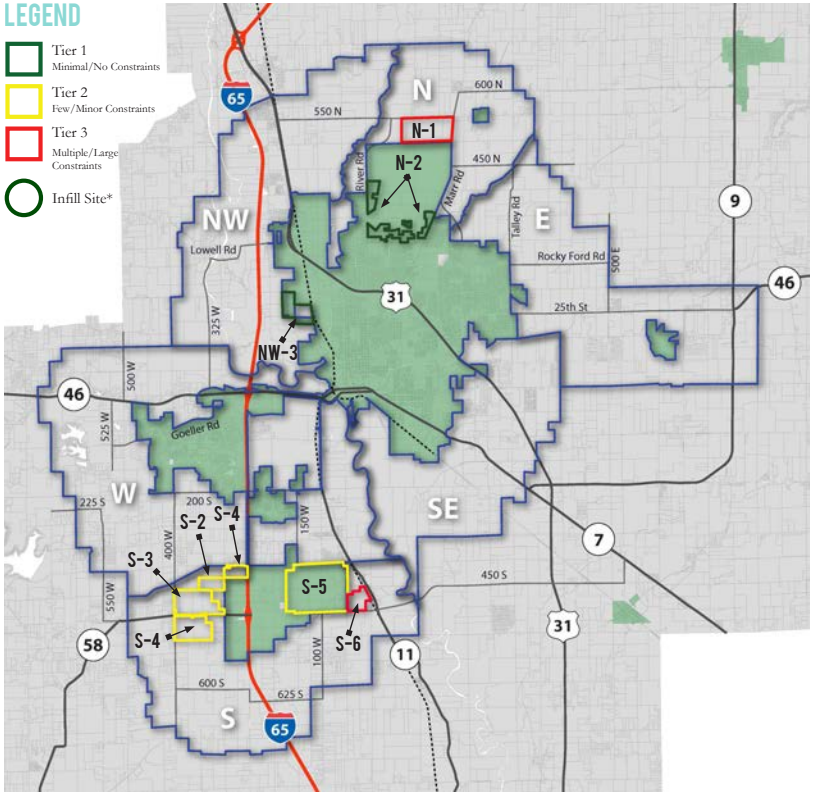
* For more information about vacant commercial sites within the Columbus city limits, see the Infill Site Profiles. Please note that land use recommendations for individual sites frequently included both residential and commercial land uses. Therefore several of the infill sites also appear in the Residential Site Profile Summary.

16

Figure 11: Industrial Site Profile

INDUSTRIAL *Site Profile Summary*

PART 2.5



SITE	ACREAGE	PRIMARY CONSTRAINT(S)	FOR MORE INFORMATION
N-1	330	Water Service Provider • Sewer Availability	Page 71
N-2*	230	None	Page 71
NW-3	166	None	Page 68
S-4	91	Sewer Availability • Road Conditions	Page 60
S-2	80	Sewer Availability • Road Conditions	Page 60
S-3	266	Sewer Availability • Road Conditions	Page 60
S-4	232	Water and Sewer Availability	Page 61
S-5	785	Water and Sewer Availability • Road Conditions	Page 61
S-6	105	Water and Sewer Availability • Fire Protection Road Conditions	Page 61
INFILL SITES	0	N/A	N/A

* The land use recommendation for this site is commercial or industrial. Therefore, it is also shown in the Commercial Site Profile Summary.

ENVIRONMENTAL CONSIDERATIONS

Preserving and enhancing the natural environment should be one of the primary regional goals when considering transportation investments. As part of the long-range planning process, it is crucial to identify the impact of transportation projects on environmental resources; ideally by making planning decisions that preserve and enhance these natural systems. Additionally, all transportation projects that include federal funding are subject to federal environmental regulations. These regulations include provisions for the protection of wetlands, floodplains, endangered species, historic structures and any other significant environmental effects, as well as the project's effect on air quality.

Figure 12 on page 29 and Figure 13 on page 30 present the wetland features and floodplain/ managed lands in CAMPO MPA, respectively. In addition to natural resources, cultural and historic resources should also be considered, and steps should be taken to minimize damage, destruction, or removal of these features. Figure 14 on page 31 presents locations of structures and sites that are on the National Register of Historic Places.

The 1990 Federal Clean Air Act Amendments (CAAA) require MPOs within air quality "non-attainment" or "maintenance" areas to perform air quality conformity determinations prior to approving major transportation investments in their long range plans. A conformity determination demonstrates that the transportation program and projects are consistent with the State Implementation Plan (SIP) for attaining National Ambient Air Quality Standards (NAAQS). Bartholomew County currently meets federal air quality standards and the region is in "attainment" for each of the six airborne pollutants; carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), and sulfur dioxide (SO_2).

Figure 12: Wetland Features in CAMPO MPA

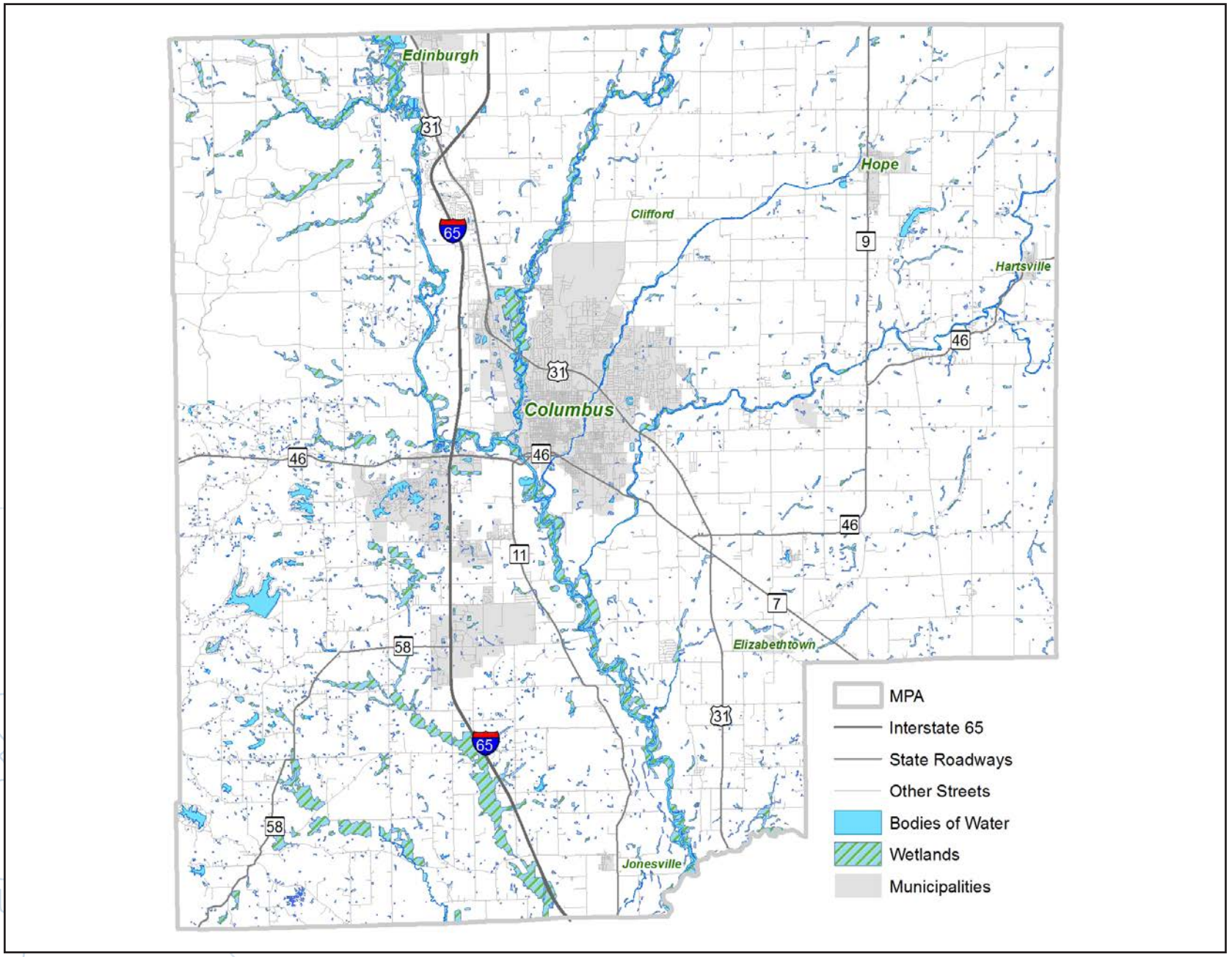


Figure 13: Floodplains and Managed Lands in CAMPO MPA

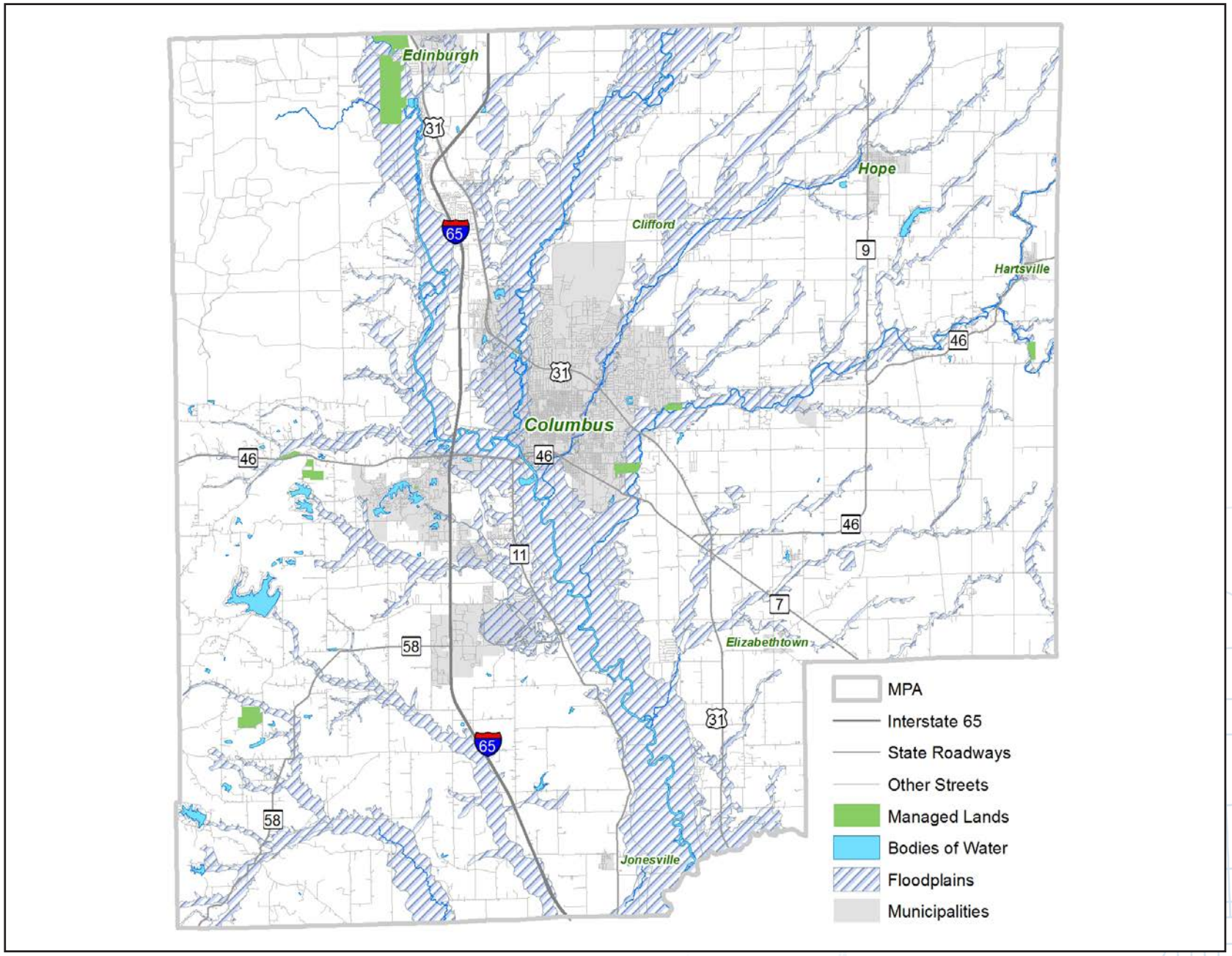
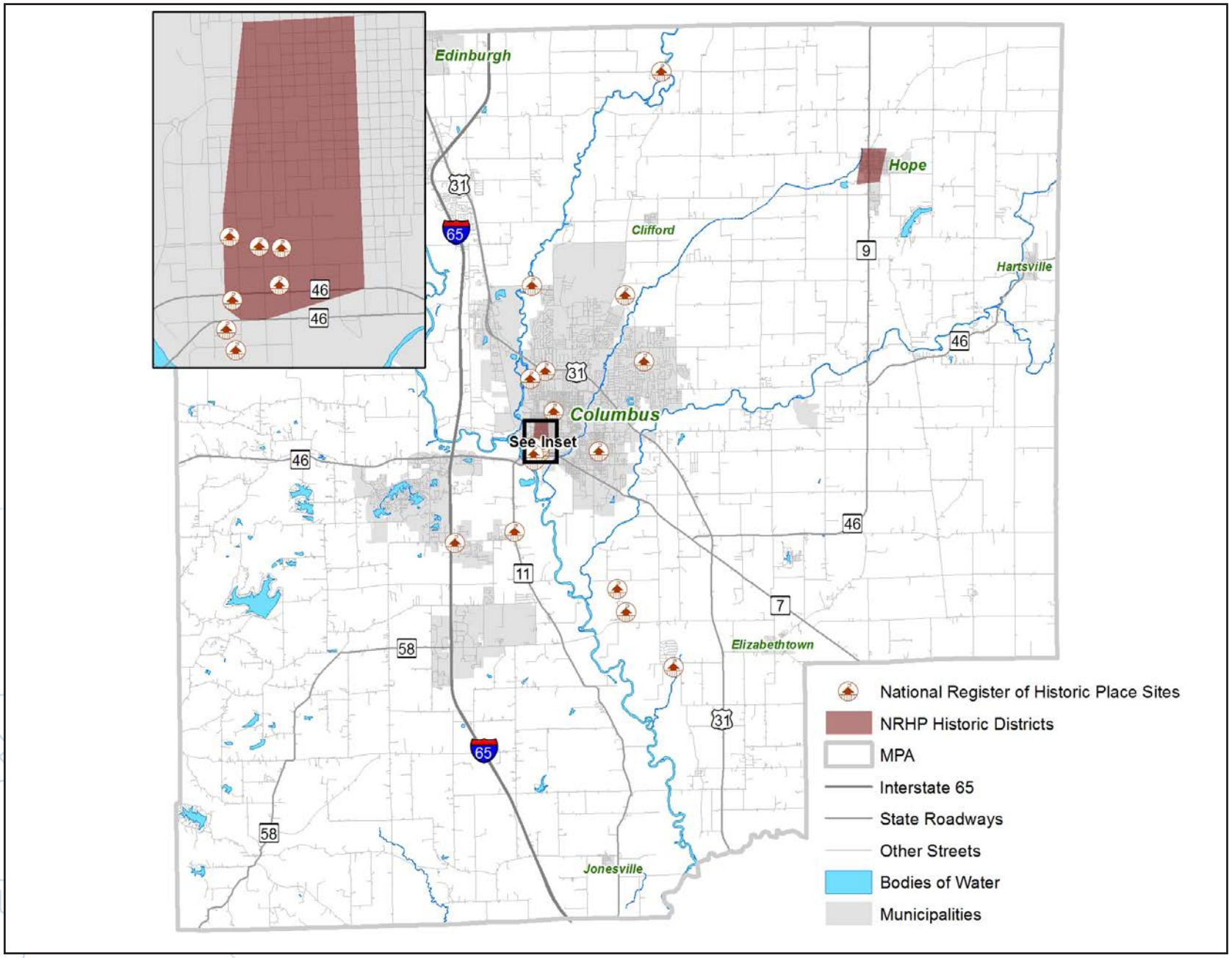


Figure 14: National Register of Historic Places Sites in CAMPO MPA



4 Transportation Infrastructure

Roadway Infrastructure

Freight Infrastructure

Public Transportation

Non-Motorized Transportation

Fostering and investing in a safe and efficient multi-modal transportation system is crucial to improve economic conditions in an increasingly competitive economy, and at the same time enhance accessibility and quality of life for residents. Unsafe, unreliable and inefficient transportation systems can have a significant economic cost, such as reduced or missed economic opportunities and a lower quality of life. A well-maintained transportation network encouraging active transportation options is important for developing healthy neighborhoods, emergency services, increased freight movement and recreational opportunities.

Columbus is located about 40 miles south of Indianapolis along I-65, which puts the community in an advantageous position with easy access to regional and national transportation infrastructure. An hour to the north, Interstate 65 connects to major roadways of I-74, I-69, and I-70, providing north-south as well as east-west national connections. One hour south of Columbus, I-65 connects to I-64 and I-71. This chapter on the long-range transportation plan details the infrastructure, land use and multi-modal options in the CAMPO MPA. The following sections describe the existing transportation network in the region as well as traffic/ridership conditions.

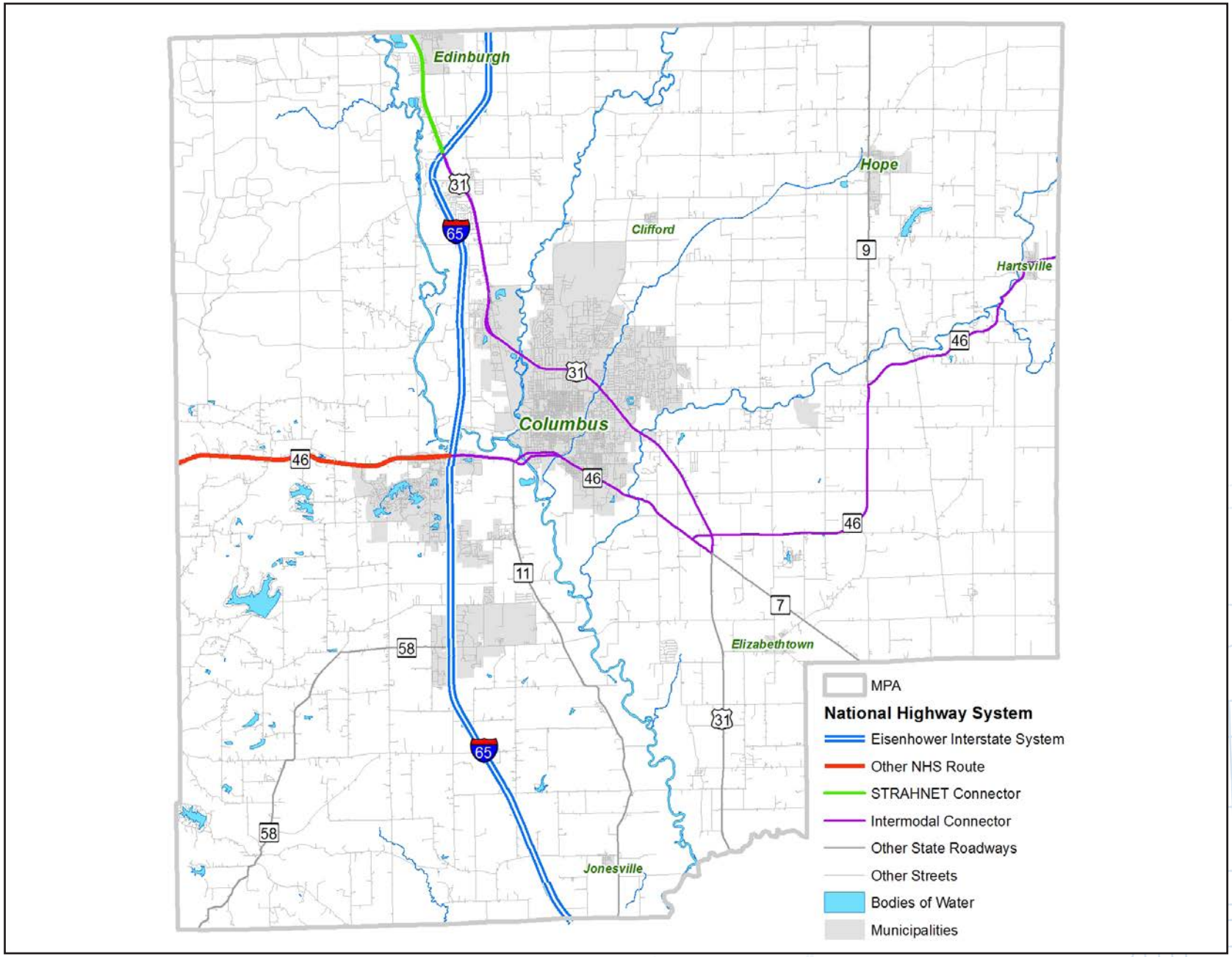
ROADWAY INFRASTRUCTURE

The MPA is served by a roadway network consisting of everything from local roadways to major state and interstate highway routes, including roadways which are part of the National Highway System (NHS). The NHS includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The NHS was developed by the United States Department of Transportation (USDOT) in cooperation with the states, local officials, and metropolitan planning organizations (MPOs). As shown in Figure 15 on page 34, I-65, US 31, SR 46, SR 9, and SR 7 in Columbus are designated as part of the NHS.

US 31 and SR 46 also function as major north-south and east-west principal arterials in the region, with additional state routes and county roads providing east-west connectivity. These corridors are supplemented by a large network of two-lane rural highways and urban grids. The spacing and placement of the urban grid in Columbus provides a high degree of connectivity and capacity, enabling all residences and businesses to be within a short driving distance to a collector or arterial.

While the northeast portion of Columbus is characterized by a connected, high-capacity and low-congestion roadway system, the southwest part of the City lacks the same degree of connectivity. The east fork of the White River/Flatrock River and their floodplains create a natural barrier separating the residential areas of Tipton Lakes and the CR 200 South area from the rest of the City. SR 46 is the primary route connecting southwest residential and commercial areas to the rest of Columbus. CR 325 West and Lowell Rd. provide access to the north part of the City; however, they are not designed to accommodate large volumes of traffic. The railroad crossing on SR 46, west of Jonesville Rd. /SR 11 adds to the traffic congestion and delay on the main corridor, with no easily accessible alternative travelling east-west. Continued growth in this area is expected to add to the congestion and delay (at the rail crossing) along SR 46, inhibiting access to area hospitals, schools and employment centers east of the tracks.

Figure 15: National Highway System Facilities



FHWA Functional Classification and Access Management

FHWA recommends grouping the roadway network into a hierarchical functional classification system based on the characteristics of the roadway, as well as the service the roadway is intended to provide. The transportation system is classified into freeways/interstates, arterials, collectors, and local roadways. Figure 16 shows the relationship between land access and mobility for the different roadway categories. For example, I-65 represents the highest degree of mobility and very limited access to land uses, promoting long distance travel with minimum disruption to traffic. On the other hand, local streets support short-distance, low-speed traffic representing the lowest degree of mobility but highest degree of access to land uses. The process for assigning a functional classification to a roadway is relatively standardized and consistent across the nation, and is the responsibility of INDOT in cooperation with local agencies, the MPO and FHWA. Federal highway recommends seven basic functional classifications, six of which are present in the CAMPO MPA. Table 1 below gives a brief definition of the functional classifications, and how many miles of each classification are present in the MPA.

Figure 16: Functional Classification Mobility/Access

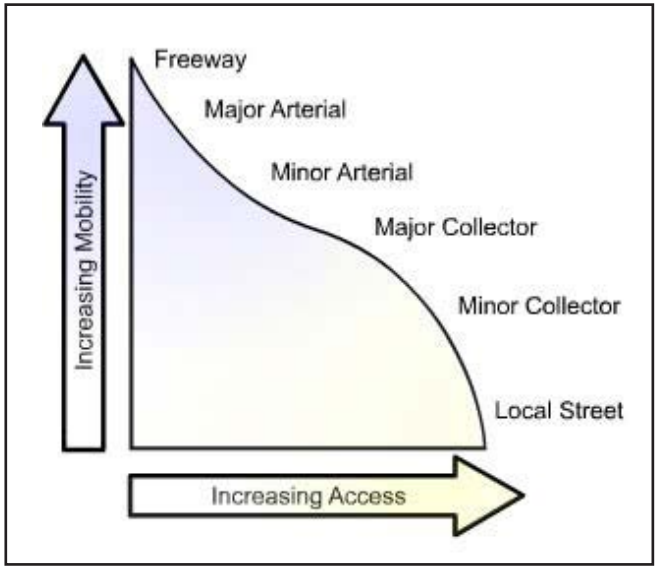
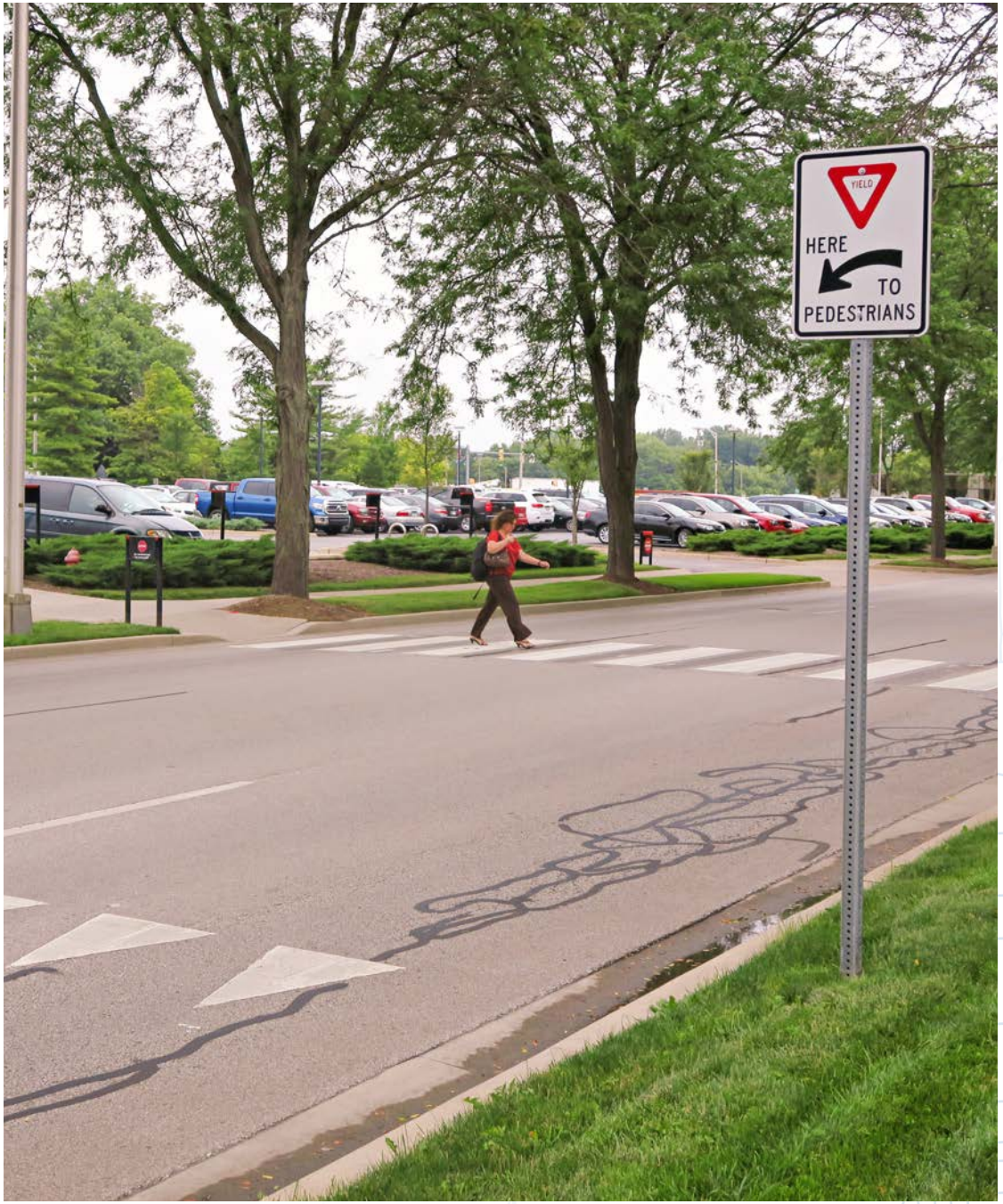


Table 1: Functional Classification Breakdown in CAMPO MPA

FUNCTIONAL CLASSIFICATION	MILES	% OF TOTAL	SERVICES PROVIDED
Interstate	45	3.2%	Full access control, high speed travel
Other Freeways & Expressways	0	0%	Similar to Interstate, full access control, high speed travel
Principal Arterials	41	2.9%	High speeds and long, uninterrupted travel
Minor Arterials	63	4.5%	Slower speeds than a principal arterial, often provide connections between principal arterials
Major Collectors	108	7.8%	Collects traffic from local roads, distributes to arterials
Minor Collectors	154	11.1%	Collects traffic from local roads, distributes to arterials
Local Road or Street	979	70.5%	Provides access to land, little or no through traffic

Maintaining proper connections between the roadways is important for efficient flow of traffic in the regional transportation system. Ideally, driveways should connect to local roads and collectors and not to arterial roadways. Land access should be provided across low-speed, low-volume roads rather than high-speed corridors. The higher the functional classification, the fewer the number of access points that should be allowed. Proper access management can help improve the flow of traffic, increase safety, and reduce the number of conflict points for all roadway users.

The City of Columbus and Bartholomew County use the FHWA functional classification terminology to develop thoroughfare plans to identify the function of each roadway as part of the transportation system in CAMPO MPA. The Thoroughfare Plan was synchronized with the FHWA functional classification to the highest degree possible. Several factors are considered when establishing functional classification. These factors include traffic volumes, trip lengths, and type of use (short or long distance travel). Figure 17 on page 38 illustrates the distribution of functional classification categories in the MPA.



Vehicular Traffic

The traffic volume on the transportation system varies based on the functional classification of the roadway. For example, I-65 moves a large amount of traffic compared to collector or local streets. The Average Daily Traffic (ADT) in the CAMPO MPA is continually collected from various sources including Indiana Department of Transportation (INDOT) and count programs sponsored by City of Columbus and Bartholomew County. Figure 18 on page 39 presents the ADT for interstate, arterials, and collectors in the MPA.

The heaviest traveled roadway in CAMPO MPA is Interstate 65 with an ADT of 40,000 – 50,000 in Bartholomew County. In the local system, the highest traffic volumes are observed along SR 46, between I-65 and SR 11 with an ADT of approximately 30,000, followed by the two bridges on SR 46 that cross the White River (approximately 24,000 ADT each). These roadways carry heavy commuter traffic between I-65, the newer residential areas west of the White River, and central Columbus. There is also a significant amount of retail along SR 46 between I-65 and SR 11, which contributes to higher traffic volumes outside of typical commuting hours. The next busiest surface streets are US 31 west of the White River (22,000 – 26,000), US 31 on the east side of Columbus (21,000 – 26,000 ADT) and Central Avenue (17,000 – 20,000 ADT).

The usage of the roadway network in the region is commonly measured using Vehicles Miles of Travel (VMT). VMT is defined as the distance traveled by all vehicles in a given area over a specific period of time. Historically, the daily VMT in the Columbus area has increased about 50% between 1994 and 2014. The historical increase in VMT can be attributed to several factors, including increasing household incomes, low-density fringe development and more fuel-efficient private vehicles. The majority of the population in the CAMPO MPA uses a personal vehicle as their primary mode of transportation. The impact of rising VMT in the region includes an increase in traffic congestion, additional safety concerns, and the need for additional investment in infrastructure as well as increased operation and maintenance needs for existing infrastructure.

Figure 17: Functional Classification Designations in the CAMPO MPA

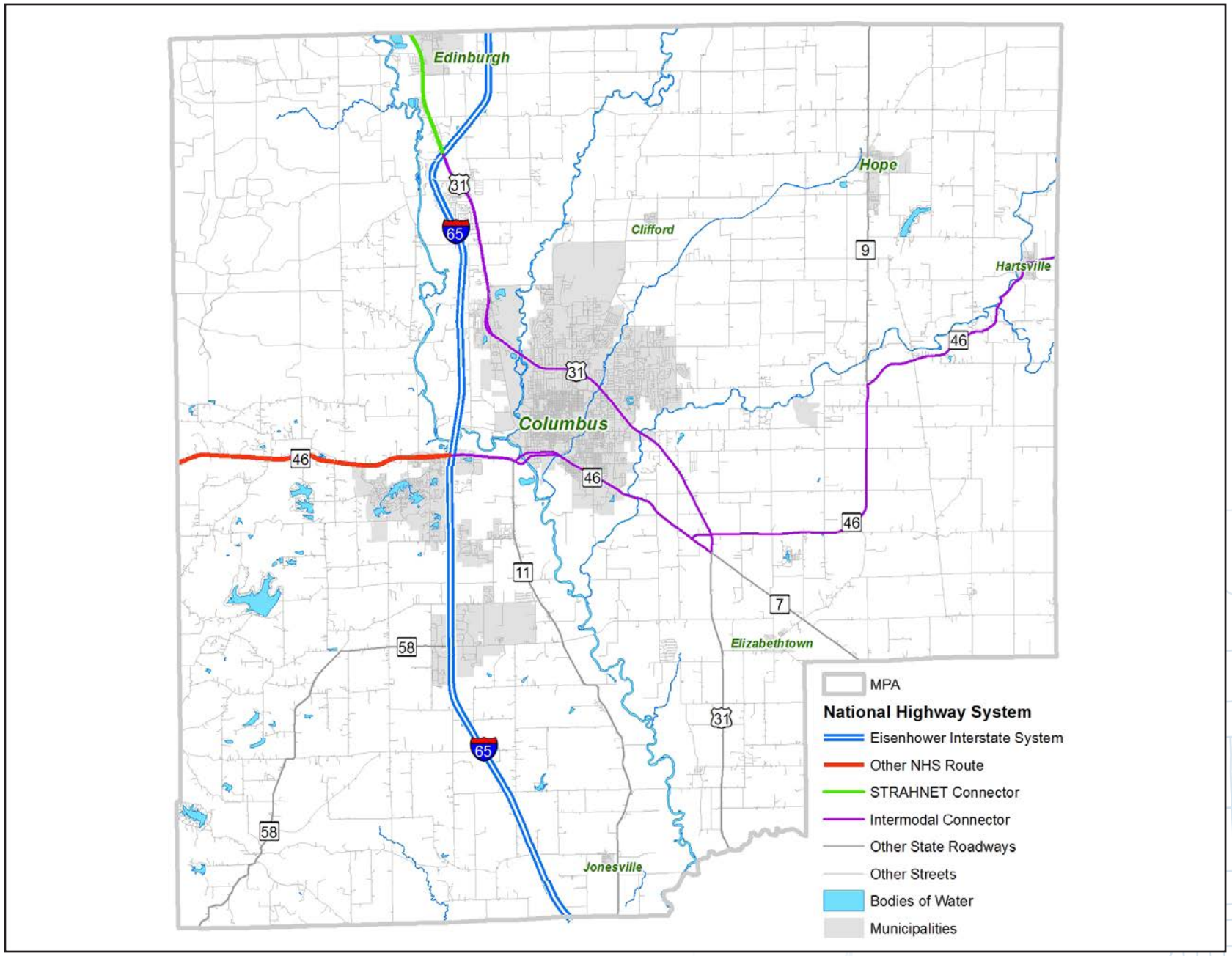
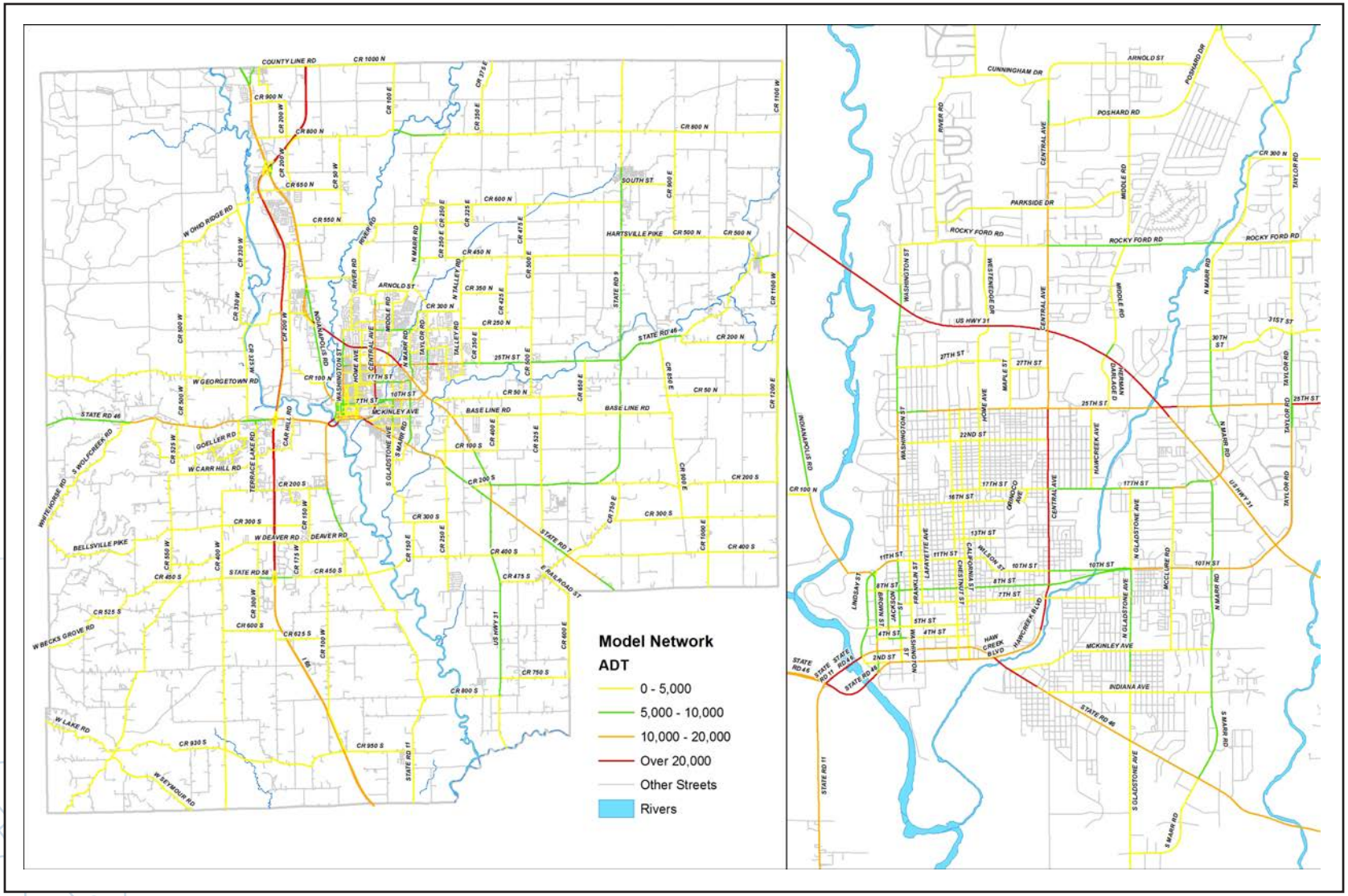


Figure 18: 2010 Modeled Average Daily Traffic (ADT)



FREIGHT INFRASTRUCTURE

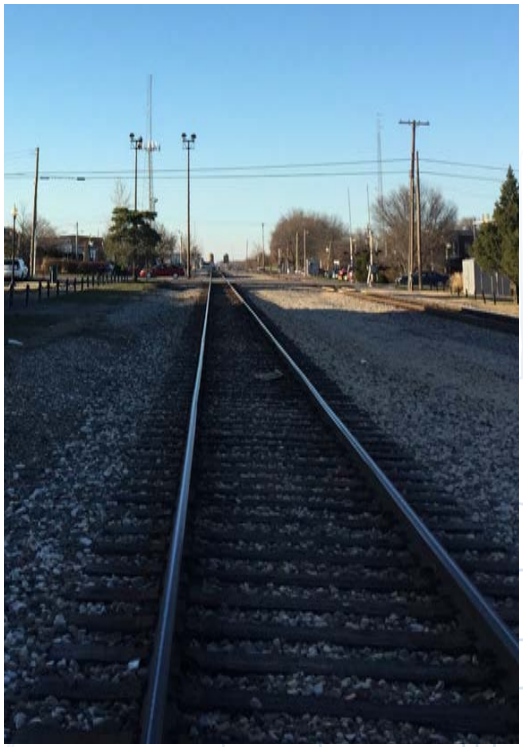
The freight network is an important piece of the overall transportation infrastructure, especially as the freight transportation and logistics fields are projected to grow quickly over the coming years. Access to I-65, railroads and the Columbus Municipal Airport are vital for the Columbus area to compete with other regional centers in terms of economic development. The freight transportation and logistics field depend on connections to global supply chains and the total distribution costs of the goods. A small change to the cost of distribution can have a significant effect on the location of the mode of transportation used by business (e.g., distribution centers, manufacturing plants). The CAMPO MPA is suitably located with respect to freight at the connection of several facilities on the NHS and rail lines.

Commercial Trucks

The CAMPO MPA is home to various industries and manufacturing firms that ship and receive freight at regional and national levels via commercial trucks. Strong growth in the region's freight and distribution industry means there will be continued growth in truck traffic in the region. With national freight movement expected to increase significantly over the next 25 years, system preservation and improvement are a major concern. Major truck exits to Columbus include Exit 64 at Walesboro Industrial Park, Exit 68 to downtown Columbus, and Exit 76 at Taylorsville. Figure 19 on page 41 provides the average daily truck traffic (ADTT) in the MPA.

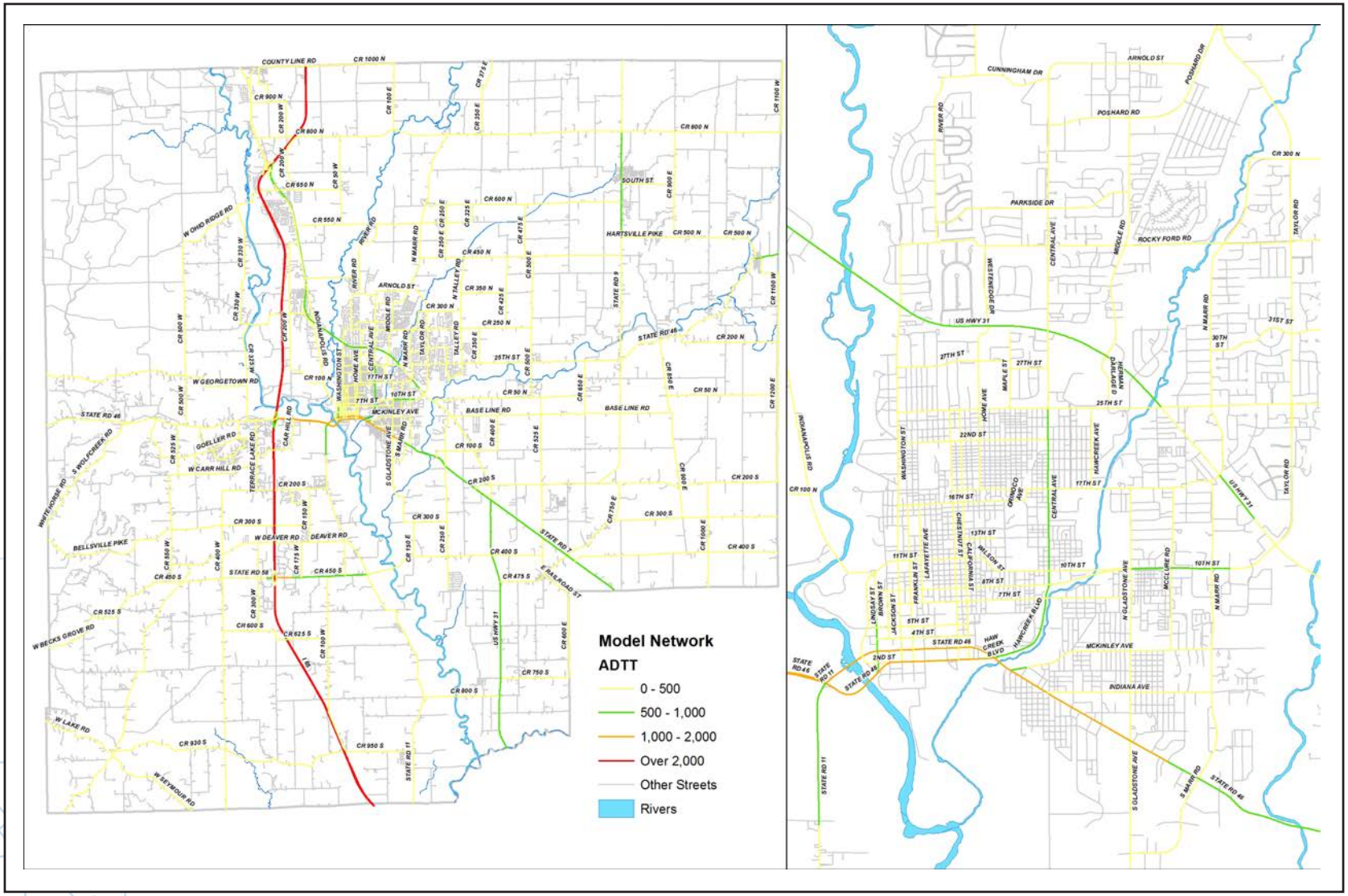
Freight Rail

The freight rail in the Columbus area is operated by Louisville and Indiana Railroad Company (L&I). The L&I is a short line railroad operating approximately 106 miles of the rail line that runs north-south between Indianapolis and Louisville. The L&I connects to two Class I railroads, the Norfolk Southern in Louisville and CSX in Indianapolis. As of 2011, L&I moves 2-6 trains a day, with a maximum 5,100-foot train length. The majority of L&I's tracks exceed FRA Class 2 track standards which allow for a maximum speed of 25 miles per hour for freight trains. Within the CAMPO MPA, significant areas of activity for the L&I include the industrial area north of the Outlet Mall in Taylorsville, the rail yard to the west of the Commerce Drive, the South Mapleton Industrial Park and Camp Atterbury.



L&I announced a partnership with CSX Transportation, Inc. in 2011. In exchange for allowing CSX the rights to use the L&I rail line, CSX is going to invest in new rail ties and in multiple bridges along the L&I line. These improvements will result in the line being able to carry cars with a maximum allowable weight of 286,000 lbs. compared to the current 263,000 lbs. limit. The max speed is expected to increase from 25 mph to 49 mph track speed. The additional freight rail traffic is anticipated to exacerbate the traffic delay experienced at the railroad crossing on SR 46, further abating the east-west connectivity in the City of Columbus.

Figure 19: 2010 Modeled Truck Average Daily Traffic (ADT)



PUBLIC TRANSPORTATION

Public transportation is crucial to providing personal mobility and an inexpensive option for traveling for residents in the CAMPO MPA. Buses accommodate more people than personal vehicles and can potentially help reduce the VMT, thereby positively impacting the amount of funds required for maintenance and improvement of transportation infrastructure. Public transportation also provides access opportunities to residents without access to a personal vehicle and persons with disabilities.

Bus Transit

ColumBUS Transit provides transit services throughout the City of Columbus. The system includes both fixed-route and demand response services. The service provides mobility to residents who cannot drive or choose not to drive, including 5.1% of the MPA's residents who do not own a personal vehicle. ColumBUS operates five fixed-route bus lines as shown in Figure 20 on page 43. These lines have one-hour headways and all depart from the Mill Race Transit Center at five minutes after the hour as a timed-transfer point. Four of the five bus routes have a second timed-transfer point at the Target Store in the Columbus Shopping Center.

Table 2: ColumBUS Fleet Inventory

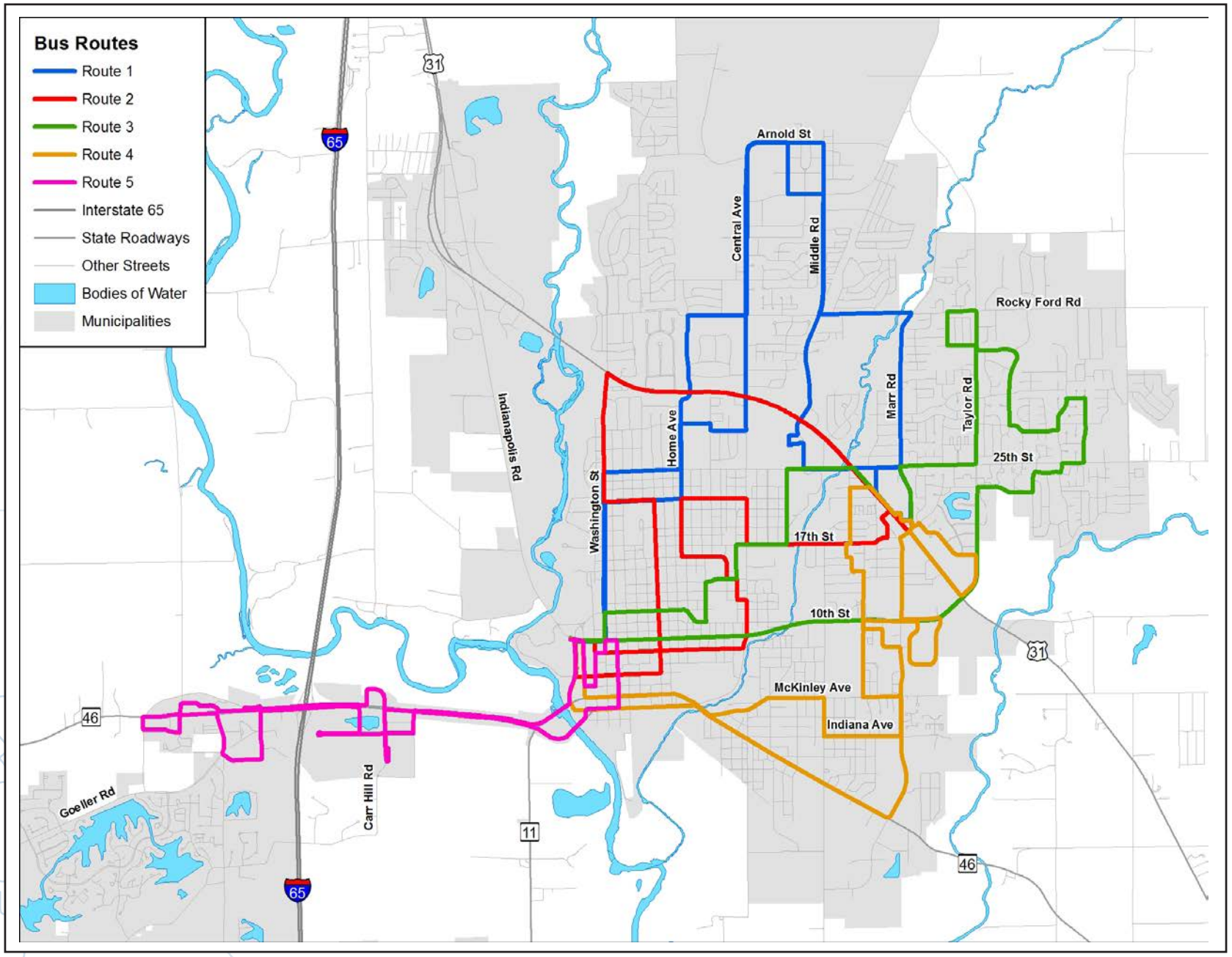
NUMBER OF VEHICLES	YEAR PURCHASED	VEHICLE MANUFACTURER	ADA ACCESSIBLE	VEHICLE CAPACITY	ENGINE TYPE
1	2000	Dodge	Yes	12 + 2wc	Gas
1	2006	Ford	Yes	12 + 2wc	Diesel
5	2007	Gillig	Yes	22 + 2wc	Diesel
3	2007	Turtletop	Yes	12 + 2wc	Gas
1	2008	ChevUplander	Yes	3 + 1wc	Gas

In addition to the fixed-route bus lines, ColumBUS operates paratransit ("curb-to-curb") service within Columbus city limits which is branded as "Call-a-Bus". This service is provided to persons who, because of disability, age or injury are unable to use the ColumBUS fixed-route buses. Both the fixed-route and paratransit services are provided Monday – Friday, 6:00am – 8:00pm and Saturday, 6:00am – 6:00pm. While signs are posted throughout each of the five fixed routes, the bus will stop for riders at any intersection on the route, providing it is safe for the driver to make a stop.

Through the transit agency's "Rack & Roll" program, bicycle racks have been added to all of the buses on the fixed-route lines to address the first-mile/last-mile issue encountered by transit riders. All buses are wheelchair accessible. Table 2 shows the fleet inventory for the ColumBUS transit. The transit agency currently has budgeted to replace two Gillig buses per year between 2016 and 2018 to replace the aging fleet. The preference of ColumBUS would be to have these new buses equipped with GPS technology to allow for real-time bus tracking for both the agency as well as passengers.

ColumBUS routinely evaluates small changes to the existing bus routes to provide better service within the city limits, as well as reevaluate stop locations with regards to the safety and convenience of transit riders. The transit agency is also in the planning stages of adding a sixth bus route to Walesboro and the Woodside Industrial Park.

Figure 20: Existing ColumBUS Routes



Passenger Facilities

Completed in 2011, the Mill Race Transit Center is the largest passenger facility on the ColumBUS system. It was built at a cost of just under $900,000 of federal funds from the American Recovery and Reinvestment Act (ARRA) and includes five covered bus bays, as well as a small indoor area where passengers can buy passes. The Mill Race Transit Center is the centerpiece of the bus system, as all five buses arrive and depart from the center every hour, creating a timed transfer point between routes.

In addition to the Mill Race Transit Center, there is another timed transfer point at the Target store in the Columbus Center shopping center. Four of the five bus routes stop at this location on the half hour to foster transfers between routes on the east side of the city. While Target provides an adequate stop for the bus routes, it is not a permanent bus facility and provides no amenities for riders. A permanent location either centrally located or on the northeast side of the city should be pursued to allow for more flexibility with route timing and bus flows.

Transit Fares & Ridership

Call-a-Bus service is $0.50 per one-way trip and is scheduled over the phone. Fixed-route service costs $0.25 per one-way ride, payable upon boarding the buses. If riders wish to make a transfer to another bus route, they must pay an additional $0.25. Fixed-route passes can be purchased for $5.00 that are good for 25 rides, and can be purchased from the Mill Race Transit Center.

Children up to the age of 18 are eligible to ride the bus for free with the 'Easy Rider Pass', which is free at the transit center. Additionally, half price fare ($0.10) is available for senior citizens (age 60 and older), disabled individuals who qualify, and Medicare cardholders. These passes can also be obtained from the transit center.

Ridership has been fairly consistent in the ColumBUS system over recent years (as shown in Table 3); however, the addition of the fifth fixed route in 2015 to the west side of the City of Columbus has the potential to increase transit ridership due to the large increase in the service area it provides. The full impacts of the fifth route have not been determined yet as the route has only begun service within the last year. Table 3 shows ridership from 2011 through 2015, which is the latest dataset available from the Indiana Annual Public Transit Report.

Table 3: ColumBUS Transit Annual Ridership

YEAR	ANNUAL RIDERSHIP
2011	230,720
2012	202,577
2013	195,746
2014	218,472
2015	254,534

Passenger Rail

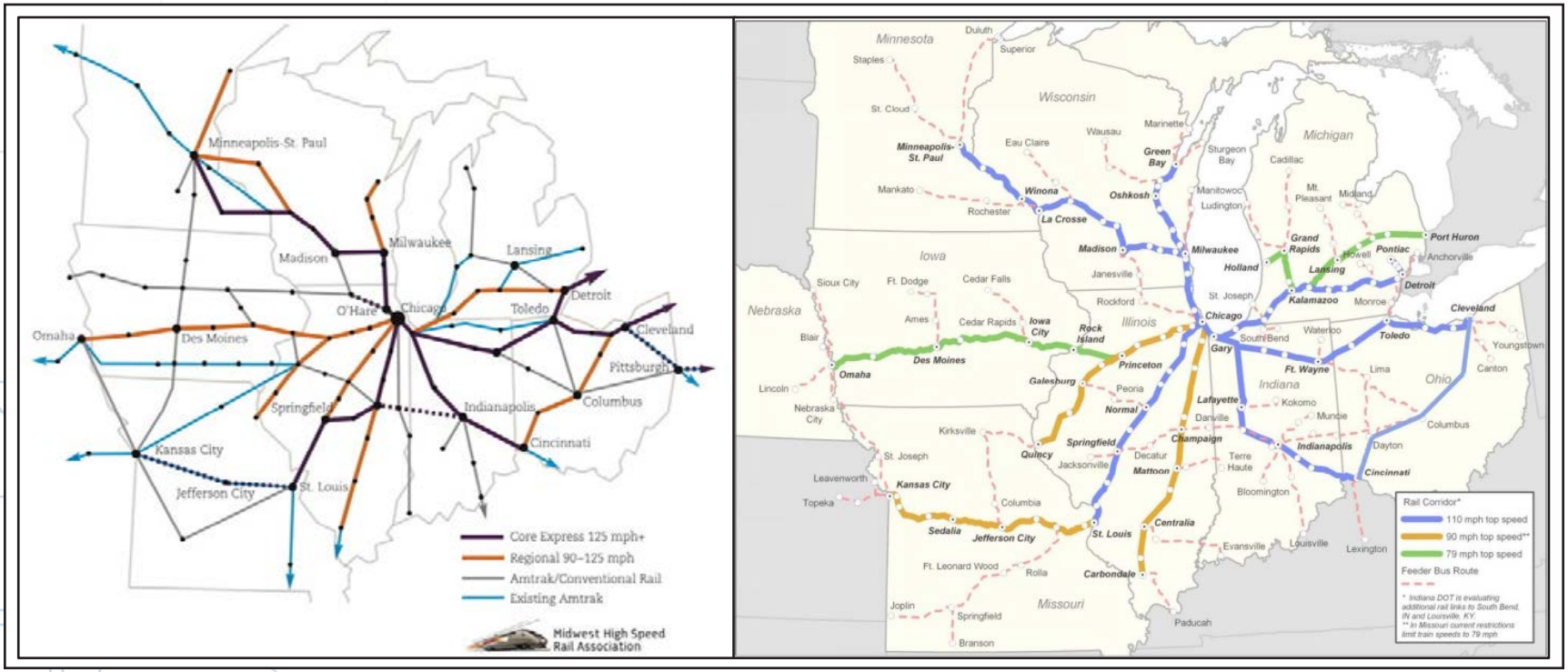
Since the discontinuation of the Kentucky Cardinal Service in 2003, there has not been any passenger rail service in the CAMPO MPA.

However, the Midwest High Speed Rail Association is laying out a vision that could connect Columbus to a robust network of rail projects throughout the Midwest. In addition to the Midwest High Speed Rail Association, the Midwestern Regional Rail Initiative has produced a similar plan to connect the Midwest with rail projects focused on a hub in Chicago. The Midwestern Regional Rail Initiative is a collaborative of nine Midwestern State Departments of Transportation. Their plan would upgrade 3,000 miles of existing rail right-of-way to 110-mph service, the fastest allowed by the Federal Railroad Administration (FRA) without total grade separation. While Columbus is not expected to be directly connected to the rail network, it is anticipated to be connected to the network in Indianapolis via a bus feeder route. Both Midwest rail plans are provided in Figure 21.

Intercity Bus

There is currently no intercity bus service in the MPA, however Columbus' location on Interstate 65 provides an opportunity for future service on routes traveling between Indianapolis and Louisville.

Figure 21: Midwest Passenger Rail Plans



NON-MOTORIZED TRANSPORTATION

Bicycling and walking are integral components of a balanced, sustainable and efficient multi-modal transportation system. Regional sidewalks and designated bicycle lanes increase mobility and access to jobs and recreational opportunities. Whether for short trips to nearby destinations or for longer, recreational trips to regional parks and open spaces throughout the region, non-motorized transportation can play an important role in several areas:

- Reducing vehicle miles traveled,
- Minimizing wear and tear on vital transportation infrastructure,
- Increasing physical activity,
- Lowering individual's transportation costs,
- Supporting local economic vitality, and
- Improving quality of life.

As the MPA continues to grow, incorporating non-motorized transportation into future roadway projects will ensure that people of all ages and abilities have the opportunity to travel about their community, regardless of their mode of choice. FHWA has stated that it is federal transportation policy to promote the increased use and safety of bicycling and walking as transportation modes. All on-street facilities must be included in the fiscally constrained short-term Transportation Improvement Plan (TIP). If an off-street trail is expected to be funded through programs requiring FHWA or FTA approval, it should also be included in the TIP.

The Columbus People Trail System

The City of Columbus has constructed 21 miles of multi-use paths, or "People Trails" to date. This effort began in 1985, and has been very successful at obtaining private/corporate donations and state/federal grants for trail expansion, greatly reducing the need for local funds for the system.

The City has conducted a number of surveys throughout recent decades that show there is overwhelming support from the public to continue to expand and improve the People Trail system. Additionally, the People Trails provide the benefits of multi-modal infrastructure to public health, to business-owners who encourage employees to commute via alternate modes of transportation, to retailers located along their facilities, and to the region from additional tourism and recreational opportunities. Attributing to the success of People Trail Project within the City of Columbus, it should be expanded beyond city limits to connect Columbus with some of the outlying municipalities and population centers throughout the MPA. Abandoned railway rights-of-way and utility corridors can provide relatively inexpensive and direct connections between communities within the MPA.

While the existing on-street bicycle network within the MPA is modest and somewhat disconnected, when coupled with People Trails (which are mainly off-street facilities) a more robust bicycle network is formed.

In 2010, the City of Columbus completed a Bicycle and Pedestrian Plan that lays out a vision for future bicycle improvements throughout the city. This plan also identifies key locations where connections to an MPA-wide bicycle system could be connected to the city's system. Figure 23 on page 49 shows the plan that resulted from the Bicycle and Pedestrian Plan document.

Figure 22: People Trail System

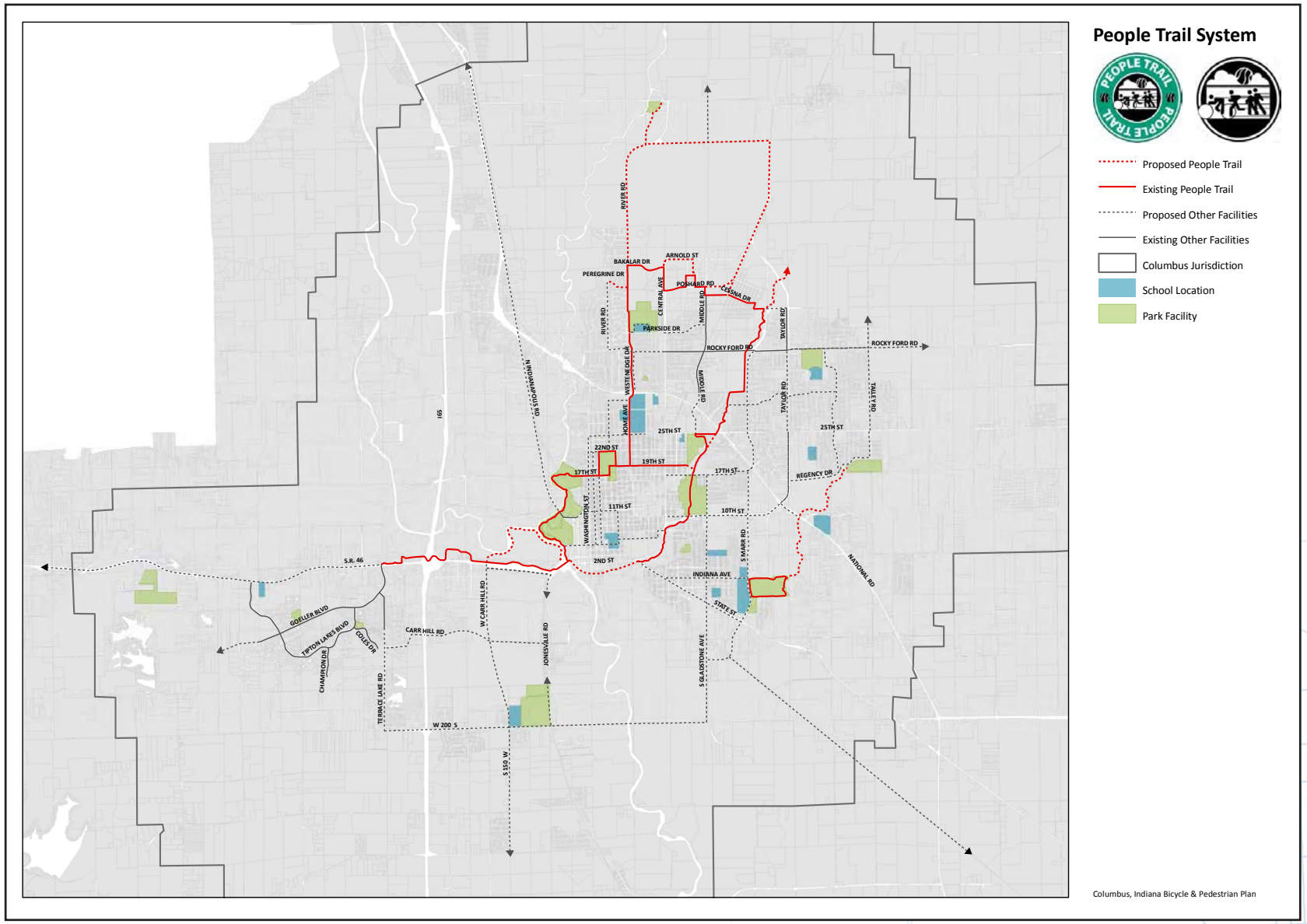
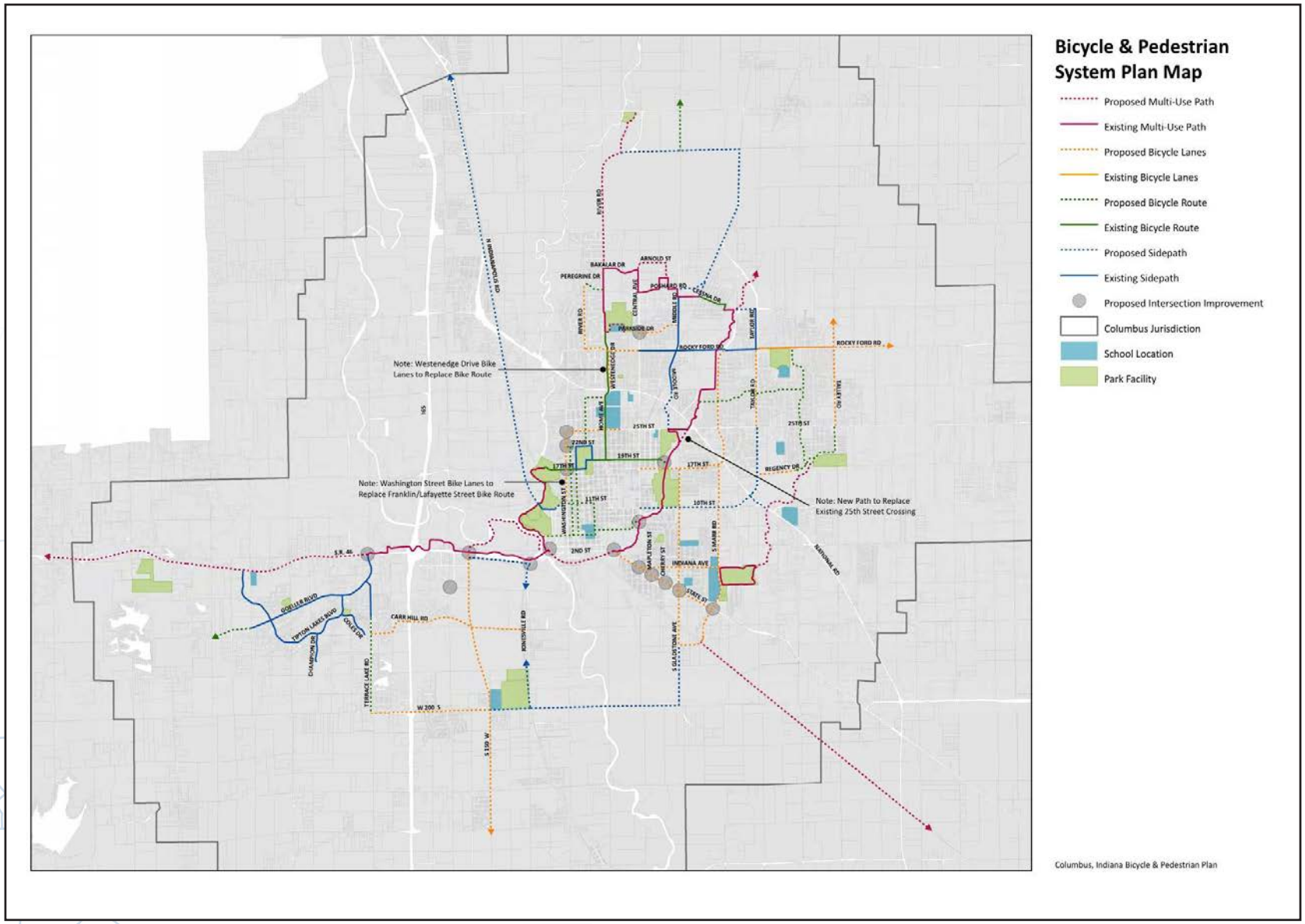


Figure 23: Bicycle and Pedestrian System Plan



As one would expect, the majority of the pedestrian network is within the historic centers of the City of Columbus and the other municipalities within the MPA. However, as areas were developed in the mid to late 20th Century, sidewalks were not viewed as a priority and were constructed more and more infrequently. Currently, the City of Columbus requires that sidewalks are constructed with housing developments, and is working toward constructing sidewalks along collector and arterial roadways. Unfortunately, as can plainly be seen in the sidewalk coverage map presented in Figure 24 on page 51, there are numerous gaps in the sidewalk coverage between the historic city center and the new subdivisions on the periphery of the urbanized area. CAMPO continues to prioritize addressing these gaps in the sidewalk network in order to make walking a safe and viable mode of transportation throughout the MPA.

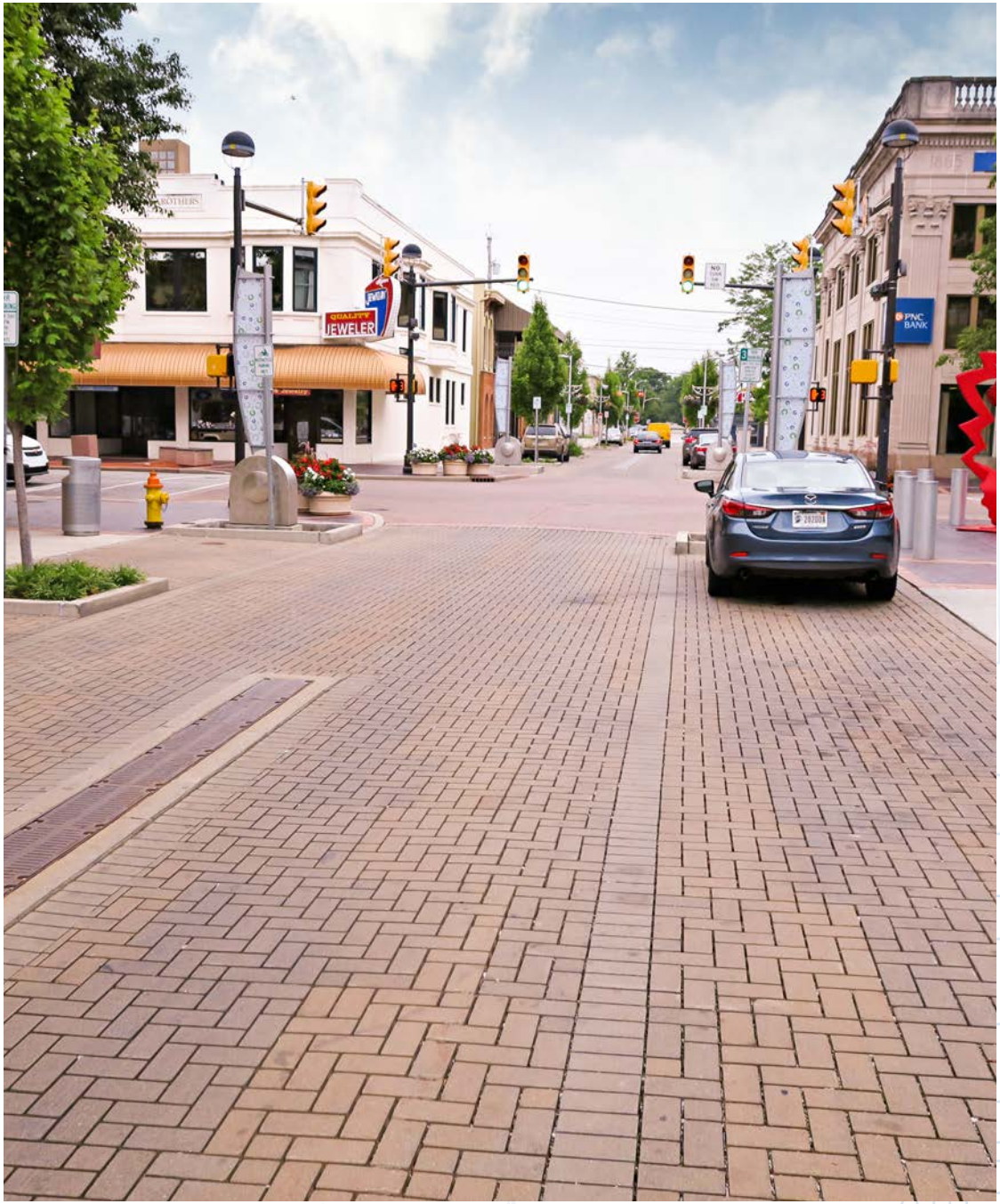
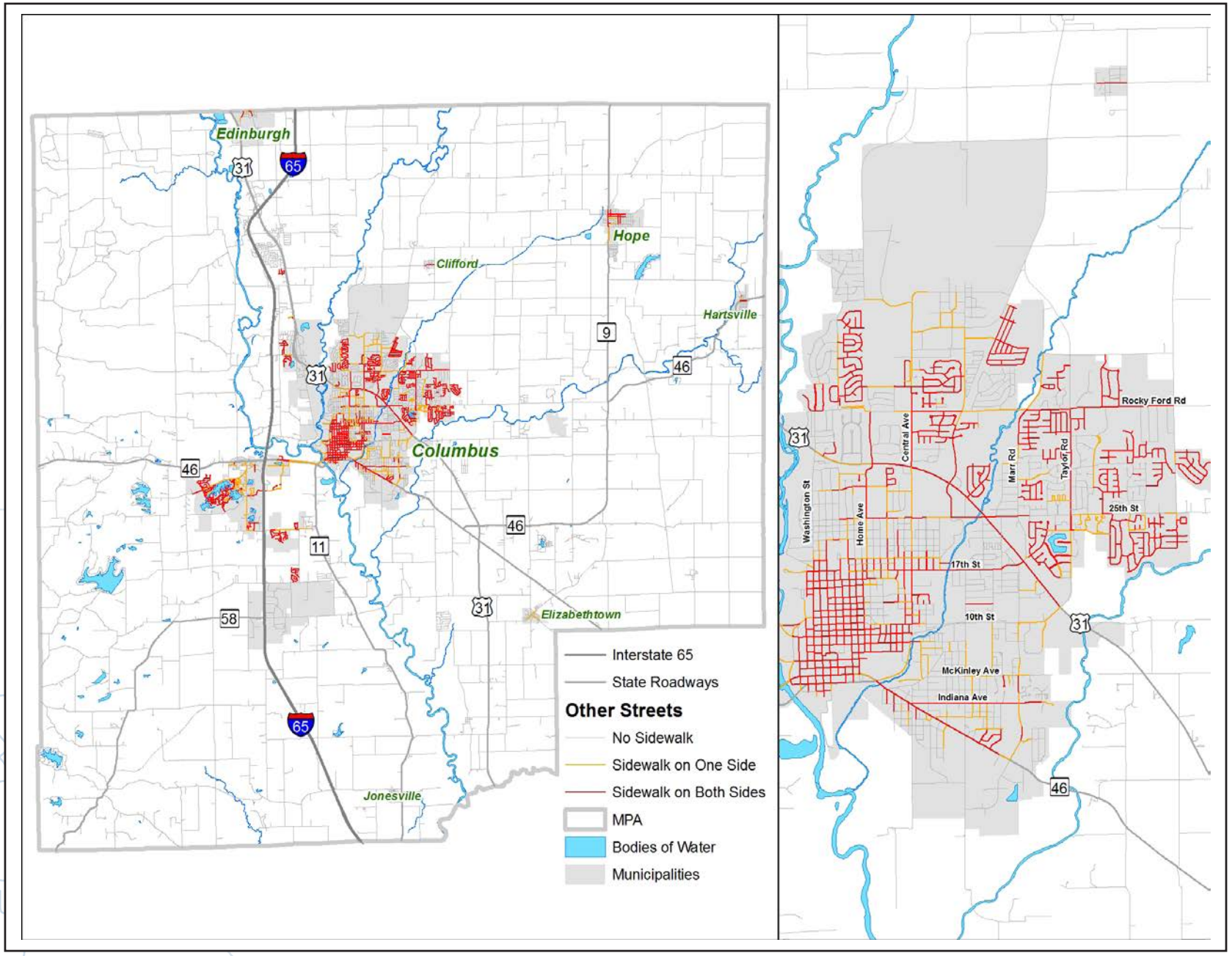


Figure 24: Sidewalk Coverage in City of Columbus



5 Safety in the MPA

Time and Day Factors

Collision Types

Driver Conditions and Attributes

Bicycle and Pedestrian Crashes

Corridor and Intersection Analysis

Reducing crashes and increasing transportation safety is a priority at the local, state, and national level. Regional multi-modal safety is an important part of the long range planning process, with several safety-related objectives identified for the regional transportation system. The first step towards mitigating traffic crashes is to analyze the existing traffic crash patterns and understand the underlying factors that contribute to traffic crash incidents. This chapter of the long range plan details the analysis of traffic crash patterns in The CAMPO MPA. In addition to the area-wide trends, information on collision types, driver conditions, bike/pedestrian crashes, as well as corridor and intersection crashes are also presented. Additional tables and figures supporting the analysis in this chapter are presented in Appendix C – "CAMPO Crash Analysis". The crash analysis was based on traffic crashes in Bartholomew County between 2011 and 2015.

Figure 25 on page 54 and Figure 26 on page 55 illustrate the location of fatal and incapacitating crashes in the Columbus MPA over the five-year period between 2011 and 2015. A majority of the fatal crashes occurred outside the urbanized area, in rural parts of Bartholomew County. Apart from I-65, a large portion of the incapacitating crashes were on major corridors in the MPA including US 31, SR 46, 25th Street, and CR 450 S. This is expected due to high volume on these corridors (ADT), compared to local roads in Columbus.

CAMPO CRASH STATISTICS

- There were 10,019 crashes involving vehicles between 2011 and 2015. Injury crashes accounted for 26 percent of these crashes (2,613), while fatal crashes (45) accounted for less than 1 percent of these overall crashes.
- About 14 present of the injury crashes were incapacitating crashes. Incapacitating crashes are crashes involving evident injury including lumps on head, abrasions, bruises and minor lacerations or claims of injuries that are not evident.
- Crashes involving pedestrians and bicyclist accounted for 1.8 percent of the total crashes in the CAMPO MPA.
- There was an average of 1.7 fatal injuries per 100 million Vehicles Miles Travelled (VMT) in CAMPO compared to 1.1 fatal injuries per 100 million VMT in the state of Indiana.
- Crash frequency was the highest for age groups between 25- 35, which accounted for about 27 percent of total crashes.
- While the "backing crashes" and "same direction sideswipe" crashes decreased between 2011 and 2015, "turning crashes" and "ran of road" crashes increased noticeably during the same period.

Figure 25: 2011-2015 Fatal Crashes in Columbus MPO

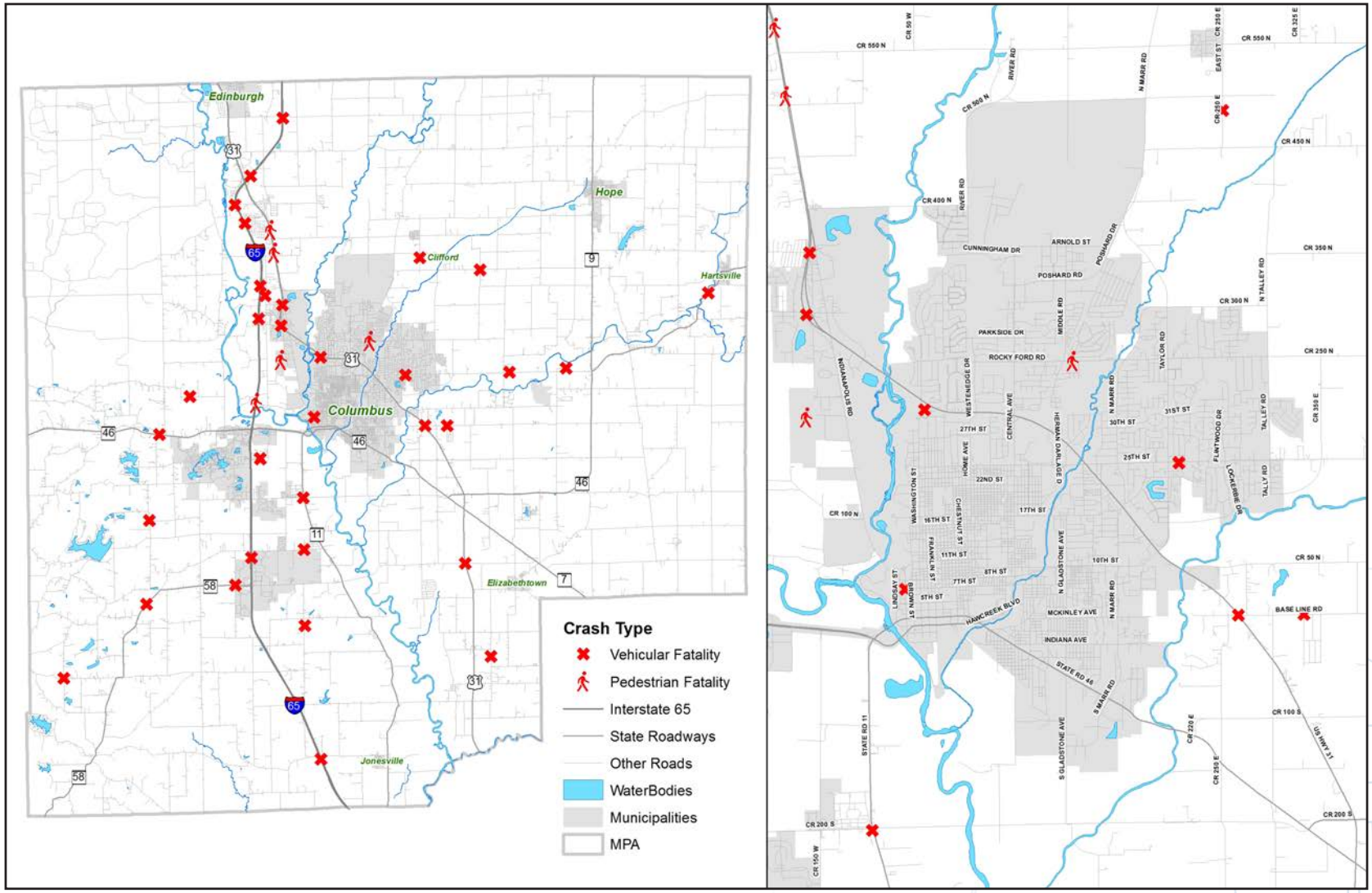
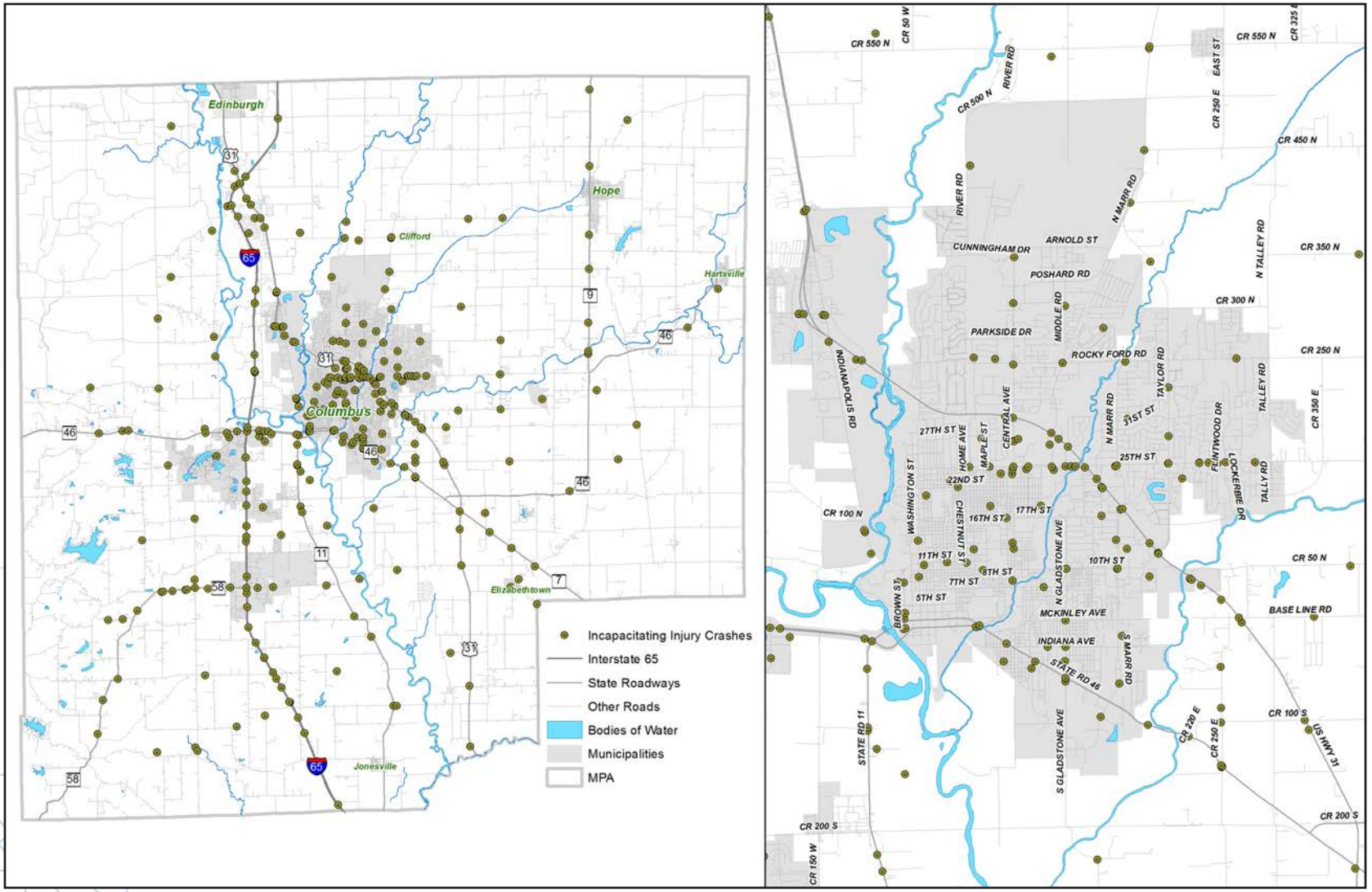


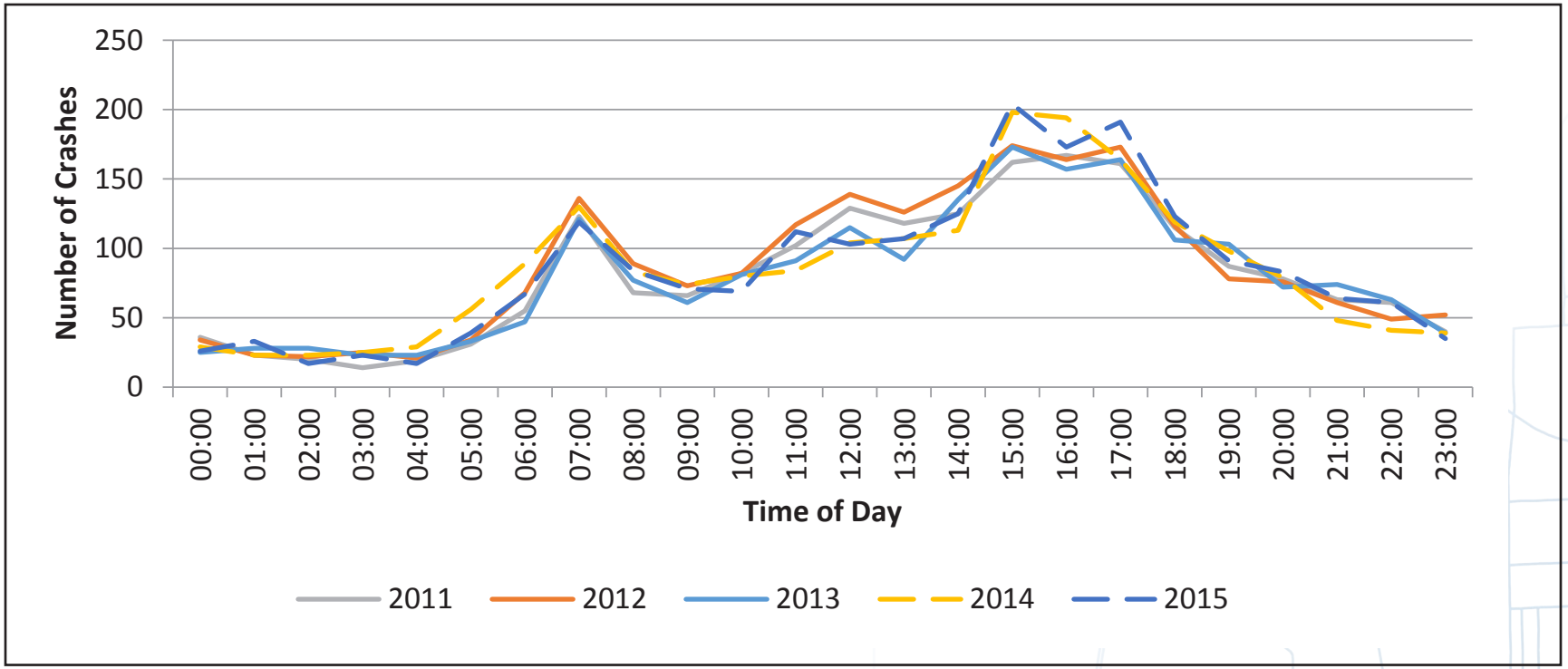
Figure 26: 2011-2015 Incapacitating Injury Crashes



TIME AND DAY FACTORS

Over the five-year analysis period, the number of crashes were highest during AM peak period (7AM – 9AM) and PM peak period (3 PM – 6 PM), with the highest number of crashes between 3 – 4 PM. Crash frequencies by time of day has remained constant during the AM peak and noticeably increased during PM peak in 2014 and 2015. Figure 27 presents the crash trends in the region by time of day. The crashes were highest on Friday and remained relatively low on the weekends. The crash frequency remained constant on other days of the week.

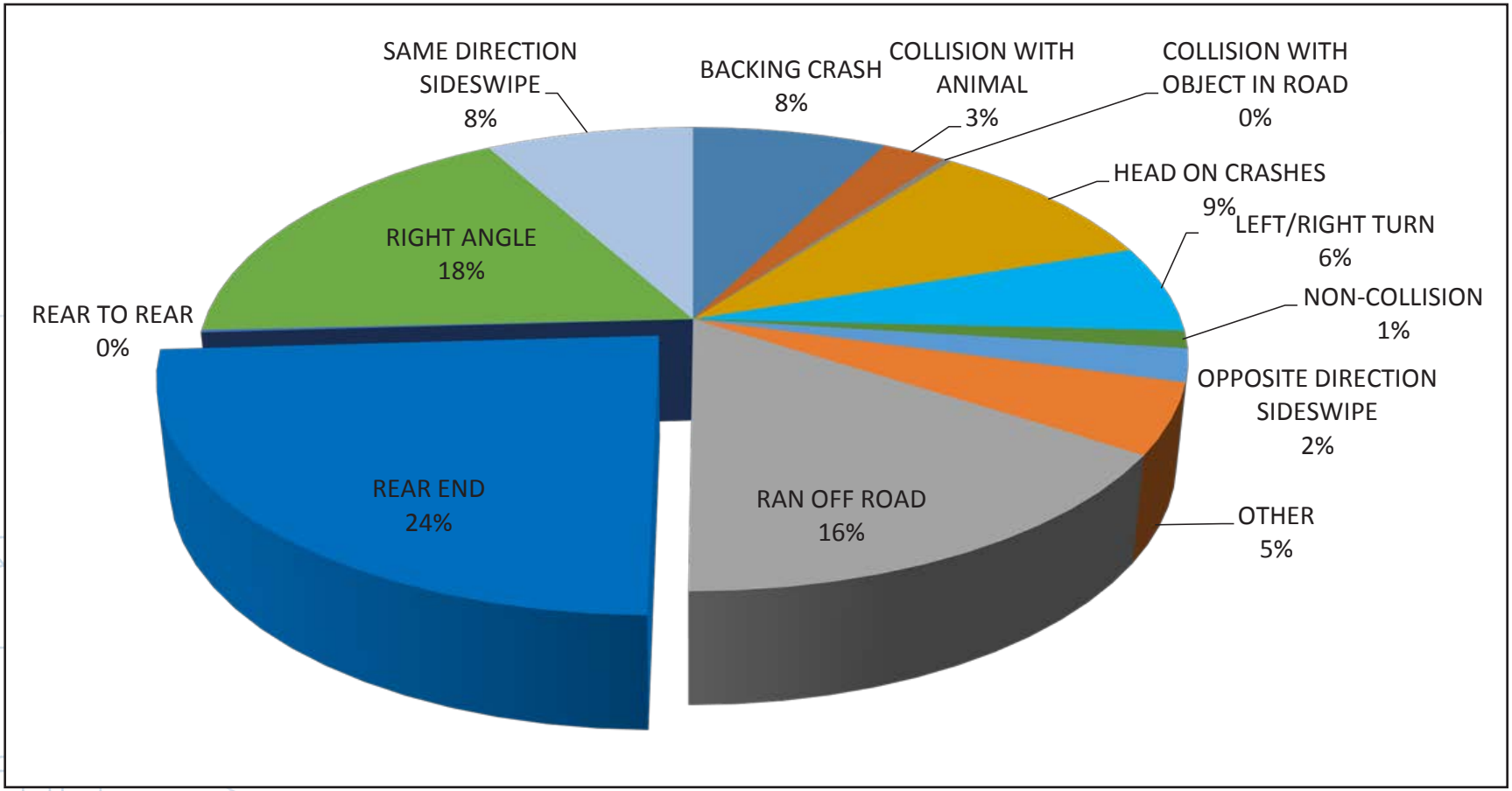
Figure 27: Regional Traffic Crashes by Time of Day



COLLISION TYPES

Figure 28 present the total crashes in Columbus MPA by major collision types. Rear-end crashes are the most common collision type contributing to more than a quarter (29 percent) of the total crashes. Right angle, along with turning, crashes are the second most prevalent collision type in the Columbus MPA at 23 percent of total crashes. The rear end, right angle, and turning crashes commonly occur at intersections and along congested corridors.

Figure 28: Crashes by Collision Type

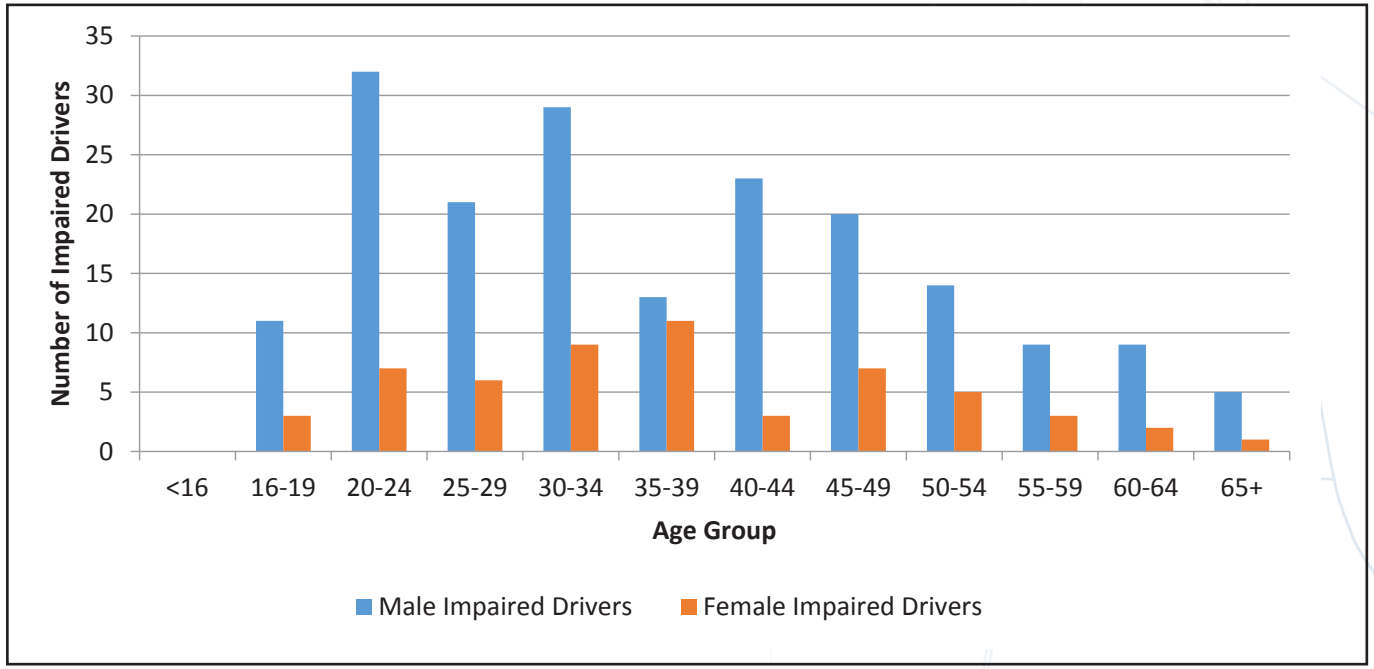


DRIVER CONDITIONS AND ATTRIBUTES

The condition of the driver is often an important factor contributing to a crash. Alcohol/drug impaired and distracted driving related crashed account for 9.3 percent of total crashes in the Columbus MPA. Distracted driver crashes include fatigued, illness/medicated, prescription drugs, asleep, inattentiveness, etc.

- Impaired driving accounted for 2.4 percent of total crashes in MPA, while distracted driving accounted for 6.9 percent.
- The impaired driving crashes remained constant over the five-year analysis period, peaking in 2012 and 2014.
- 2.3 percent of the impaired and distracted driving crashes resulted in fatalities, while 46.3 percent resulted in injuries.
- Over all, number of male drivers involved in crashes was considerably higher than the number of female drivers.

Figure 29: 2011-2015 Incapacitated Driver Crashes by Gender and Age Group



BICYCLE AND PEDESTRIAN CRASHES

Promoting livable communities that support multi-modal transportation choices is a priority in Columbus. Bicycle and pedestrian safety is a critical factor to encourage biking, walking and to develop a quality multi-modal system in the region. Figure 30 on page 60 and Figure 31 on page 61 present the location of bicycle and pedestrian crashes in the region as well as the severity type. A majority of the bicycle and pedestrian crashes in the urbanized area occurred along major corridors in the region. While high speed travel is desired along these roadways, vehicular traffic must be balanced with safe conditions for non-motorized travel. It is not only important to develop systems in areas where walking and biking are already prevalent, it is equally important to foster an atmosphere in other parts of the city that allow users to feel safer, which, in turn, increases walking and biking. The 2040 CAMPO long range plan recognizes and prioritizes the need for non-motorized infrastructure in the community, including sidewalk and bicycle facilities.

Figure 30: 2011-2015 Pedestrian-Involved Crashes by Severity

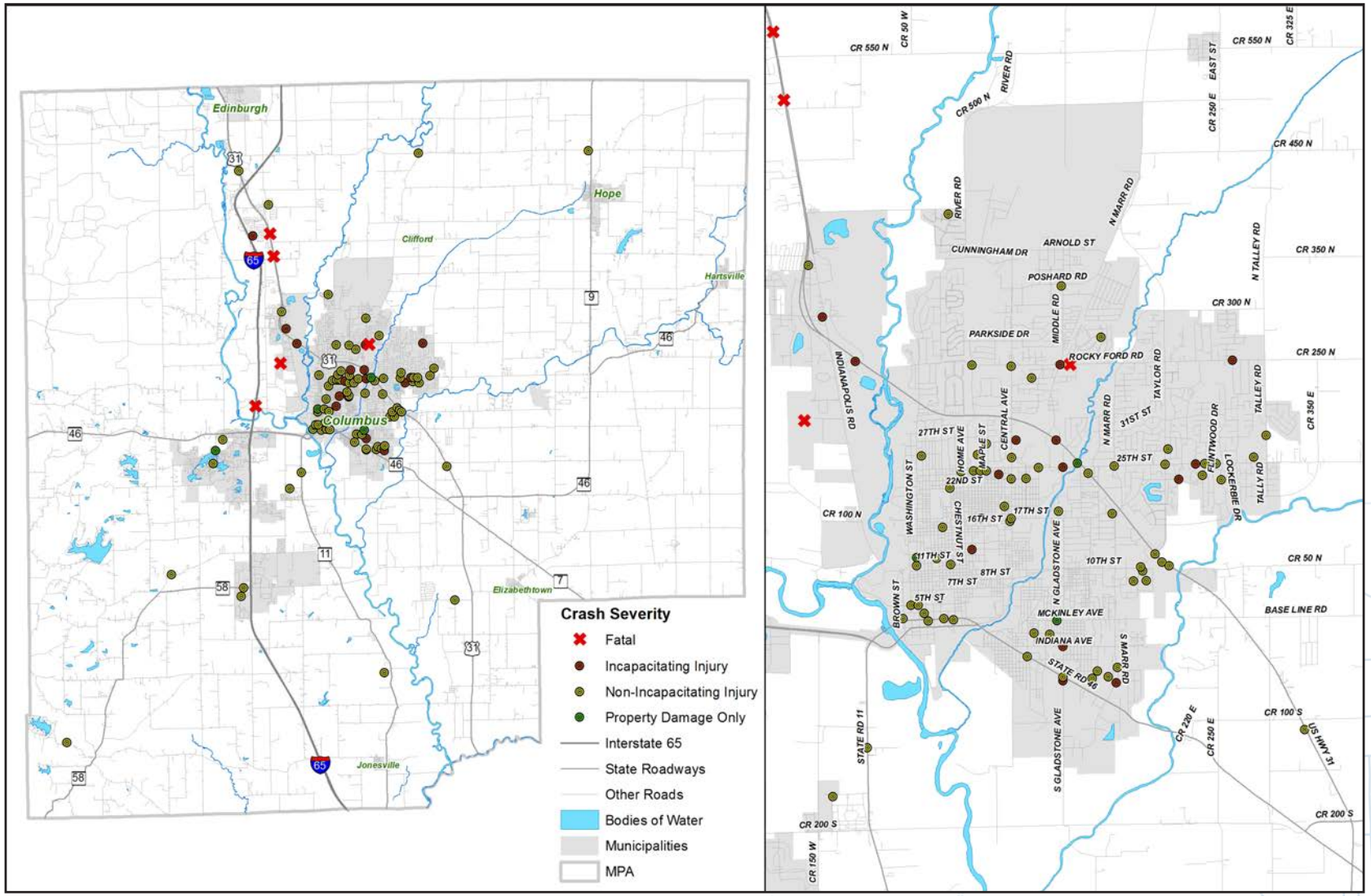
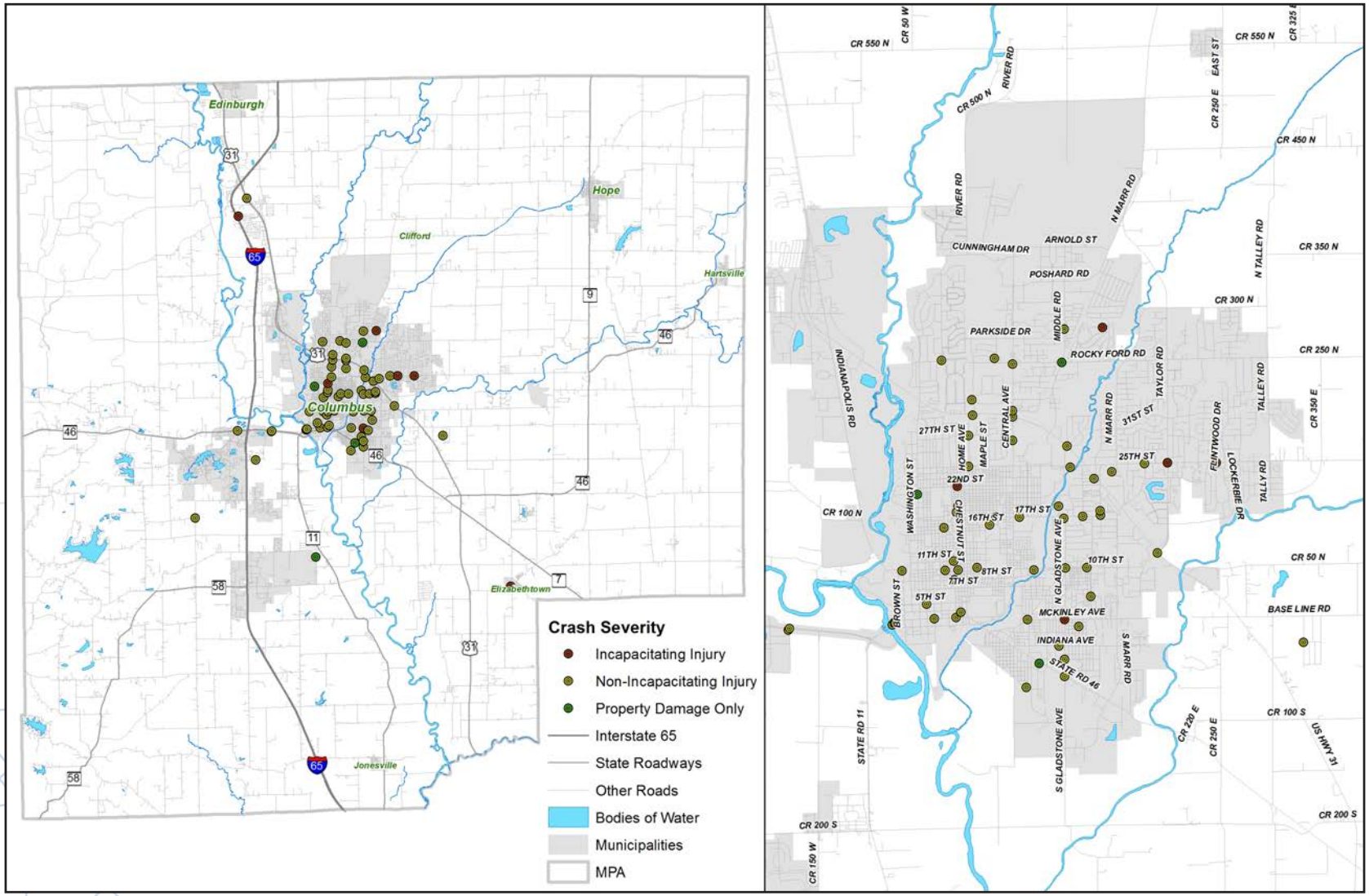


Figure 31: 2011-2015 Bicycle Crashes by Severity



CORRIDOR AND INTERSECTION ANALYSIS

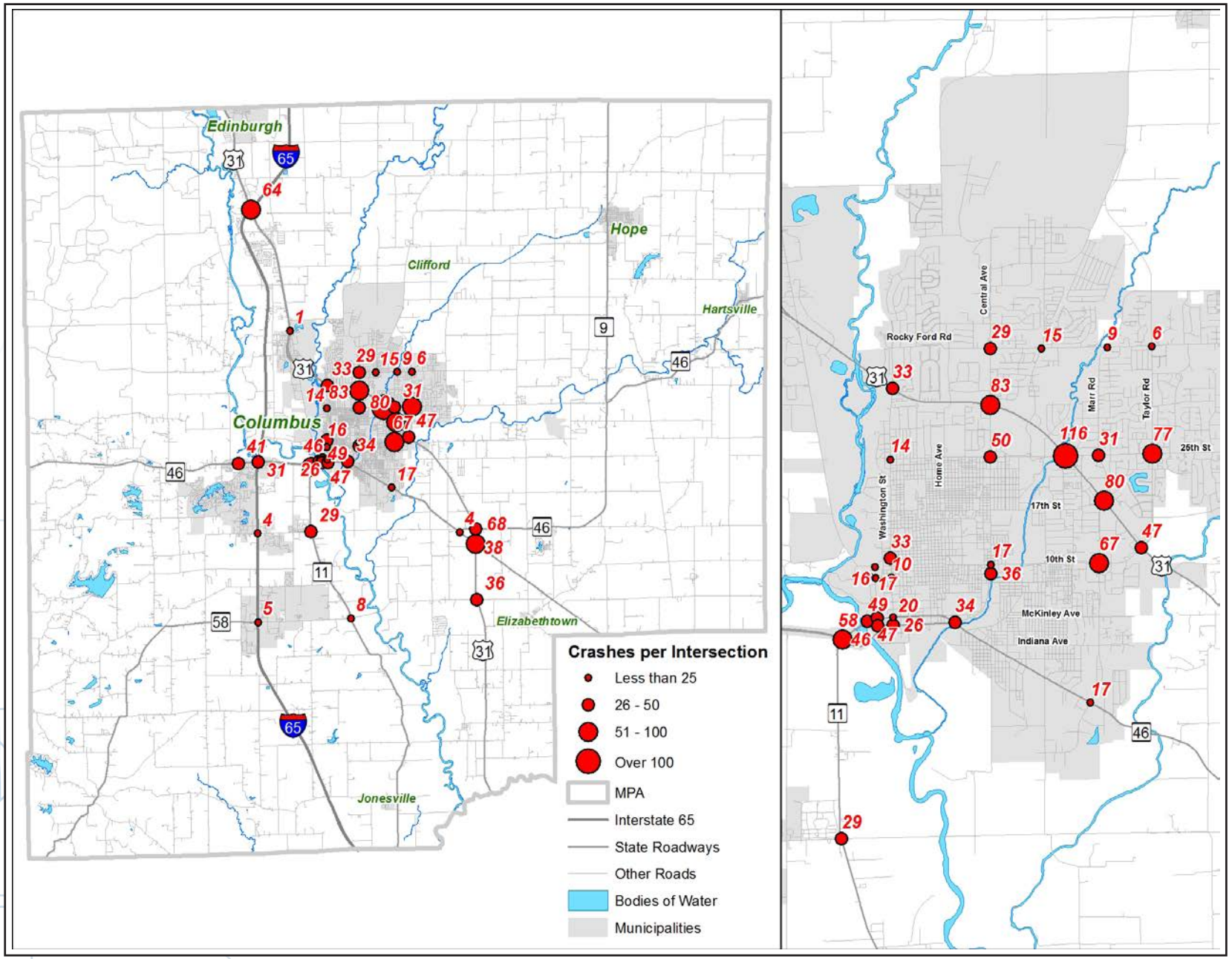
This section of the report presents analyses on the crash patterns along major corridors and intersections in the CAMPO MPA. About 35 percent of traffic crashes occur along major corridors and intersections with high average daily traffic volumes (ADT). Table 4 presents the mid-block crash data for the major corridors in the region. SR 46, US 31, 25th St., SR 11, and Central Ave. are the highest crash frequency corridors in the region.

Figure 32 on page 63 presents the major crash intersection locations in the MPA. Intersection of 25th Street and US 31 recorded the highest number of crashes over the five year period. Other high crash frequency intersections included US 31 and Central Ave., US 31 and Marr Rd. and 25th and Taylor Road.

Table 4: Mid-Block Crash Data for the Major Corridors

CORRIDORS	CRASHES	INJURIES		
		FATALITIES	INCAPACITATING	NON-INCAPACITATING
SR 46	885	4	35	252
I-65	857	13	72	172
US 31	738	5	38	189
25th St.	254	1	12	72
SR 11 /Jonesville Rd.	206	1	17	61
Central Ave.	182	0	6	70
SR 7	117	0	3	45
SR 58	111	1	8	24
Marr Rd.	100	0	4	34
CR 200	76	2	3	11

Figure 32: 2011-2015 Major Intersection Crashes



6 Goals, Objectives & Performance Measures

Goal 1: Support Economic Vitality

Goal 2: Increase Accessibility and Improve Quality of Life

Goal 3: Encourage Transportation Choices/Multi-Modal Connectivity

Goal 4: Improve Safety and Efficiency

Goal 5: Prioritize Existing System Preservation and Maintenance

Goal 6: Foster Coordination throughout the MPA

The development of goals and objectives for the transportation system in the CAMPO region helps align specific transportation projects with the overarching aims of the region. The goals and objectives provide guidance in the planning process and help determine the direction of the planning efforts. Goals are defined as the large, all-encompassing values that the region is working toward supporting using the transportation system as a tool. Objectives are specific methods of achieving those overarching goals that provide more tangible steps that CAMPO can take in support of the goals.

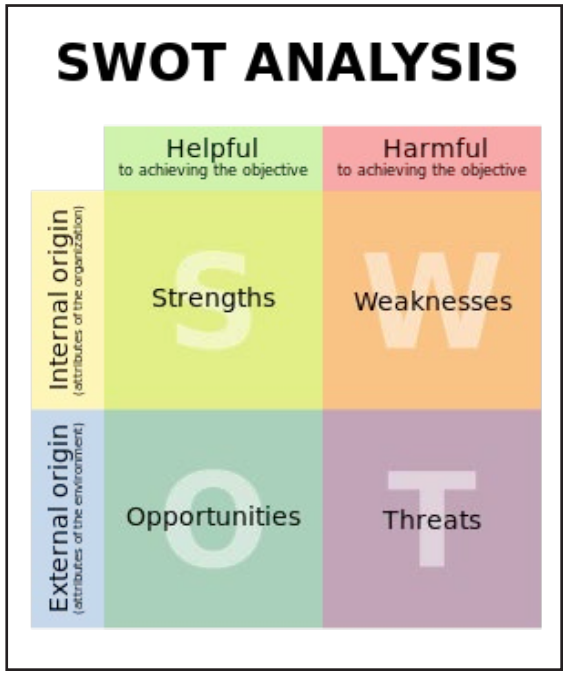
MAP-21 introduced and FAST Act continues the focus of performance-based planning for statewide and metropolitan transportation planning. This approach to planning applies to the development, application and monitoring of performance data to guide transportation funding and improvements. Performance measures are measures of effectiveness that determine the success or failure of specific implemented transportation projects.

A well-rounded public outreach effort is an important element of the long range planning process.

The goals and objectives for CAMPO were developed based on regional FAST Act priorities, INDOT transportation policy factors, local knowledge, current local planning efforts, extensive stakeholder engagement and input received during public meetings. A SWOT (Strengths, Weaknesses, Opportunities and Threats) exercise was performed with the CAMPO LRTP steering committee members to help highlight the positive or negative factors impacting the existing and future transportation infrastructure in the region. The four elements explored as part of the SWOT analysis include:

- **Strengths:**
  Characteristics of the CAMPO region that give it an advantage over other, similarly sized regions in the country.
- **Weaknesses:**
  Characteristics of the CAMPO region that put it at a disadvantage relative to other similarly sized regions in the country.
- **Opportunities:**
  Either elements of the CAMPO region which can be exploited to be an advantage for the region, or elements that are currently underutilized within the region.
- **Threats:**
  Elements of the transportation system or growth trends that could potentially cause problems for the CAMPO region over the next 25 years.

Figure 33: SWOT Analysis



This analysis was the foundation upon which the goals and objectives for transportation in the region were developed. The following sections describe the six goals identified as part of the CAMPO long range planning process. Each goal is linked to transportation objectives and strategies to help CAMPO work towards measuring and achieving select performance targets. The steering committee member comments gathered as part of the SWOT analysis are presented in Appendix D – CAMPO Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis.

GOAL 1:
SUPPORT ECONOMIC VITALITY

The regional transportation system is a valuable asset contributing to the economic vitality in Columbus and Bartholomew County. CAMPO should make transportation decisions that support this contribution and enhance its benefits. Promoting projects that support business, increase the movement of goods, and allow the population to get to and from work easily is critical to a thriving region. Of particular importance locally are (1) the need to expand transportation options connecting potential employees with employers and (2) the use of targeted infrastructure improvements to remove barriers to safe, orderly growth and development and expand the supply of developable land.

The steering committee identified the congestion along state routes and at at-grade rail crossing as an obstacle to economic growth in the MPA. Improving transit service and providing access to employment centers and metro areas was recognized to positively impact employment growth in Columbus. Additionally, the creation of redundant east-west routes across the White River and other waterways was identified as a priority to ensure access between the City and I-65 during flood events to limit the amount of revenue lost to detouring around high water. Supporting economic vitality is consistent with a FAST Act national goal to “Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency”.

OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
1.1 Assess the efficiency and safety of freight movement and identify and implement any needed improvements	• Columbus & Bartholomew County Freight Plan completed.	**1.1A** Complete a regional freight plan for the MPA consistent with state and national strategies
1.2 Reduce the impact of freight on other modes of travel		**1.2A** Identify intersections impacted most by freight movements (truck and rail traffic) **1.2B** Coordinate non-motorized facility planning with truck route planning to support safety and efficiency for all travel modes and eliminate conflicts where possible
1.3 Support transit and bicycle/ pedestrian improvements that increase access to local and regional employment centers	• Number of jobs within ¼ mile of a transit line and/or dedicated bicycle facility • High density residential areas lacking transit service and/or dedicated bicycle facilities	**1.3A** Evaluate the existing transit lines and bicycle facilities to ensure they are adequately serving employment centers **1.3B** Assess the viability of new transit lines and/or bicycle facilities that improve connections to employment centers **1.3C** Identify business and industry partners to support provision of transit and additional bicycle facilities **1.3D** Encourage INDOT to apply context sensitive design principles and accommodate pedestrians on and crossing its highways in urban and suburban locations
1.4 Encourage transportation projects that maintain or enhance the economic vitality of Columbus and Bartholomew County	• System congestion and delay • Enhanced county-wide connectivity	**1.4A** Provide additional east-west connectivity **1.4B** Support transportation improvements that serve to expand the supply of developable land (consistent with the Columbus and Bartholomew County Comprehensive Plans). **1.4C** Support projects that improve intersection efficiency and reduce congestions, particularly near industrial centers **1.4D** Use the Columbus Strategic Growth Study to coordinate transportation infrastructure improvements with other infrastructure and services in support of community growth planning and to maximize the economic impact of those improvements
1.5 Improve connectivity across railroads, streams, and other barriers to growth	• Congestion and delay at railroad and river crossings	**1.5A** Pursue funding to grade separate railroad crossings on major roadways **1.5B** Pursue transportation projects promoting east-west connectivity **1.5C** Maintain and improve flood-free routes that connect the portions of the area as a whole and the City of Columbus in particular that are separated during a flood event **1.5D** Encourage INDOT to apply context sensitive design principles and accommodate pedestrians on and crossing its highways in urban and suburban locations

GOAL 2:
INCREASE ACCESSIBILITY AND IMPROVE QUALITY OF LIFE

All transportation projects that support other goals should be balanced with those that increase accessibility and quality of life for all citizens in Columbus and Bartholomew County, including maintaining an environmentally sustainable system that does not affect the area's natural assets and supports easy access to healthcare. A balanced, multi-modal transportation system will help improve the health and appeal of Columbus and Bartholomew County. The City of Columbus in particular has emphasized bicycle and pedestrian travel and made significant investments in both in support of expanding recreational amenities, expanding transportation options, reducing congestion, and improving public health. Future transportation improvements should support the continued evolution of bicycle and pedestrian travel in both Columbus and Bartholomew County.

Transportation infrastructure needs to be designed to address the different urban, suburban, and rural contexts in the Columbus and Bartholomew County area. Beyond that infrastructure design needs to be responsive to specific needs, such as those of suburban residential neighborhoods, the perpetuation of Columbus' architecturally significant structures and overall tradition of quality design, and the modern farming operations found throughout the rural portions of the county.

The steering committee and the public expressed the desire for mixed-used development in the City of Columbus, reinforced by providing affordable housing in Columbus. Increasing transportation options, especially to serve persons with mobility limitations, is identified as a priority in the long range planning process and was seconded by steering committee comments. There was a strong desire to expand transit and non-motorized transportation options beyond the city limits to create stronger connections to the outlying communities in Bartholomew County. As with several existing infrastructure projects, the desire for architecturally significant and context-sensitive design on future transportation enhancements was identified by both the steering committee and the public.

Increasing accessibility and improving quality of life in the region supports the following national planning goals:

- Increasing accessibility and mobility of people and freight
- Promote efficient system management and operation

OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
2.1 Encourage continued "infill" development in areas with existing infrastructure and mixed-use development	• Average population density in the urbanized area	**2.1A** Provide education to the public and local decision makers the benefits of infill and mixed-use development **2.1B** Use transportation funds to upgrade existing infrastructure where needed to support of infill development **2.1C** Encourage contextually-appropriate transportation infrastructure that supports all modes of transportation and in particular accommodates comfortable, safe bicycle and pedestrian travel in potentially mixed-use areas
2.2 Improve system reliability and reduce congestion	• Average delay per vehicle at select intersections • Travel time during AM and PM peak hours	**2.2A** Identify crucial routes and intersections that serve commuter traffic, school traffic, and/or are critical for bicycle and pedestrian connections **2.2B** Provide alternate routes to major attractions in the MPA **2.2C** Improve traffic signal coordination throughout the area
2.3 Increase the supply of affordable housing with multi-modal access to employment centers	• Number of affordable units within ¼ mile of a transit line or dedicated bicycle facility	**2.3A** Prioritize projects that improve multi-modal access, especially for low-income populations **2.3B** Evaluate the relationship between transit lines and bicycle facilities and existing affordable housing to see if adjustments to the routes should be implemented
2.4 Improve transportation network connectivity in CAMPO MPA	• Connectivity Index score	**2.4A** Create a "Connectivity Index" based on intersections per square mile or some other metric. **2.4B** Avoid dead-end roads **2.4C** Improve east-west connections **2.4D** Address multi-modal regional mobility issues (intercity bus)
2.5 Encourage transportation infrastructure that both supports and contributes to the architecturally significant buildings and overall high level of design in Columbus	• Congestion and delay at railroad and river crossings	**2.5A** explore options for significant transportation projects to include architectural and engineering designs that continue the Columbus design tradition. **2.5B** Utilize Context Sensitive Design for transportation projects and make appropriate accommodations for existing architectural buildings, other design assets and their context and accessibility **2.5C** Support public involvement and utilize context sensitive design were transportation projects have the potential to impact neighborhoods
2.6 Encourage the recognition of streets as public spaces that work in concert with the adjacent properties to establish a character for neighborhoods, business areas, the Columbus downtown, and the community as a whole.		**2.6A** Establish public engagement processes and community driven visioning exercises including web-based tools to establish each community's long-term vision for its identity. **2.6B** Emphasize streetscape design elements to make streets vibrant places in the community, as well as foster active transportation. **2.6C** Develop multi-modal plans to facilitate those connections between residential areas and activity centers.

GOAL 3:
ENCOURAGE TRANSPORTATION CHOICES/ MULTI-MODAL CONNECTIVITY

Reversing the trend of automobile reliance has been, and will continue to be, a priority at both the national and regional level. The Columbus People Trails have provided a new level of non-motorized connectivity, and the opening of the Mill Race Transit Center has made access to all five bus routes convenient and pleasant. A transportation system that provides alternatives to an automobile will open up employment, education, recreational and entertainment options to populations that have historically been unconnected. It also increases the safety of all modes of the transportation system, reduces maintenance and operational costs, and preserves the natural environment. It is a priority of Columbus and Bartholomew County to enhance and expand the transportation offerings for all segments of the population, including both those with and without the economic means to have transportation choices.

While some areas of the City of Columbus have high quality non-motorized transportation options and access to transit, there are parts of the City and the remainder of Bartholomew County that do not have those same amenities. The steering committee identified key destinations for transit service outside of the city limits, areas that are in need of sidewalk improvements, and ways to better integrate land use and transportation decision-making. Utilizing selected industry partners to help fund and support alternative mode improvements was seen as an important method in reducing automobile dependence.

This CAMPO goal encompasses the national planning goals to:

- Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns, and
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
3.1 Provide transportation choices to mobility-limited persons, low-income households and senior citizens	• Percent of senior population and low income neighborhoods served by transit	**3.1A** Identify and ensure transit service to environmental justice areas **3.1B** Encourage the expansion of local taxi services
3.2 Expand ColumBUS service to increase transit access	• Percentage of population and employment within ¼ mile of a transit line • Transit ridership • Miles of fixed-route service • Reduction in VMT per capita	**3.2A** Regularly re-evaluate bus routes to ensure they are adequately serving destinations within the City **3.2B** Identify funding to extend existing bus lines or add new lines **3.2C** Expand transit services to key locations outside the city limits, prioritizing those that make more employment opportunities, services, or amenities available to local residents and/or facilitate broader regional connections **3.2D** Identify business and industry partners to support provision of transit
3.3 Promote transportation projects that support multi-modal access, particularly between centers of public activity	• Number of activity centers within ¼ mile of a transit line or dedicated bicycle facility • Number of dedicated bicycle facilities intersecting with transit routes.	**3.3A** Support continued implementation of Columbus' complete streets policy (the Columbus Thoroughfare Plan) **3.3B** Include bicycle, pedestrian and transit infrastructure with the development of new civic projects **3.3C** Update the bicycle and pedestrian plan
3.4 Strengthen the relationship between land use development and the transportation system	• Number of walkable mixed-use areas in the community • Maintain or improve roadway Level of Service (LOS) • Residential density within ¼ mile of transit routes, dedicated bicycle facilities, and collector and arterial streets in comparison with the community average density	**3.4A** Create a methodology for evaluating development proposal's relationship with the transportation system **3.4B** Encourage neighborhood scale businesses and the provisions of goods and services within walking distance of residential neighborhoods
3.5 Increase sidewalk and pedestrian coverage, especially in residential areas	• Mileage of new or added sidewalks in residential areas • Number of multi-modal connections to open spaces, schools, shopping centers, and other services and amenities	**3.5A** Expand bicycle and pedestrian infrastructure consistent with the Columbus Bicycle & Pedestrian Plan **3.5B** Support the development of a Bartholomew County Bicycle & Pedestrian Plan **3.5C** Encourage INDOT to apply context sensitive design principles and accommodate pedestrians on and crossing its highways in urban and suburban locations

GOAL 4:
IMPROVE SAFETY AND EFFICIENCY

Reducing crashes that result in severe and fatal injuries is a priority at the local, state and national level. It is important to bring together engineering, law enforcement, education and emergency response representatives to develop a safety program that utilizes the benefits of each.

By targeting spot locations that have a history of traffic crashes, implementing system-wide improvements that have been proven to increase safety, and considering pedestrians and cyclists in safety planning, great strides can be made in improving the CAMPO area's transportation safety. Of particular importance is careful consideration of potential conflicts between the various transportation modes found in the area, including rail, freight, other motorized vehicles, bicycles, and pedestrians. This regional goal satisfies the national goal of increasing the safety of the transportation system for motorized and non-motorized users.

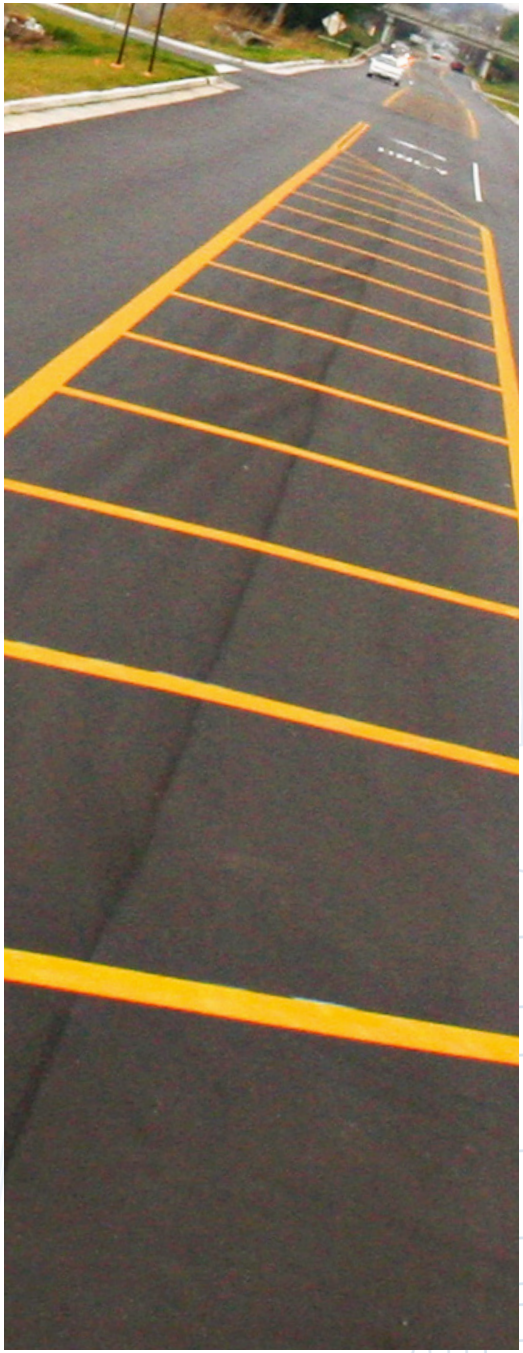
The steering committee and public input placed a heavy emphasis on safety improvements in the MPA, particularly addressing conflicts between automobiles and alternative modes of transportation. Complete streets, awareness campaigns, and filling gaps in the non-motorized transportation system were all identified as priorities. System efficiency improvements, such as signal coordination and additional east-west connections, were also stressed as significant concerns in addressing deficiencies in the existing transportation network.

OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
4.1 Reduce the number of both total and fatal/severe injury crashes in the region	• Crashes within the MPA • Fatal and severe injury crashes within the MPA	**4.1A** Maximize funding for safety enhancements **4.1B** Analyze crash trends and address safety issues in the MPA **4.1C** Develop a traffic safety education program with health and education advocates
4.2 Improve safety on pedestrian and bicycle facilities	• Pedestrian and bicycle crashes within the MPA • Bartholomew County Bicycle Plan adopted	**4.2A** Expand the sidewalk network **4.2B** Provide high-visibility pedestrian crossings at major intersections **4.2C** Enhance the sidewalk network, concentrating on areas that are in poor condition or where there are gaps in the system **4.2D** Support the establishment of a Bartholomew County Bicycle Plan **4.2E** Support drug and alcohol prevention and treatment programs to help improve the overall safety of the driving and walking public
4.3 Improve safety related to rail crossings	• Number crashes at at-grade rail crossings	**4.3A** Provide grade-separated rail crossings where feasible **4.3B** Provide adequate signing and signal control at all at-grade rail crossings
4.4 Improve safety within the vicinity of schools	• Number of crashes during arrival and dismissal periods within the vicinity of schools	**4.4A** Provide extensive sidewalk facilities between schools and residential areas **4.4B** Provide multiple entrance and exit options to reduce congestion **4.4C** Support the implementation of the implementation of the Bartholomew Consolidated school Corporation Safe Routes to School Plan
4.5 Promote transportation projects that enhance safety for all modes of travel	• Number of crashes by mode of travel	**4.5A** Support the update of the Bartholomew County Thoroughfare Plan and the inclusion of appropriate complete streets concepts **4.5B** Provide best practice designed intersections between modes (roundabouts and other non-standard intersection designs, complete streets, etc.) **4.5C** Support public awareness campaigns to educate the driving public on sharing transportation facilities
4.6 Improve signal coordination and maintenance to increase efficiency and safety	• Average vehicle delay on the classified roadway system	**4.6A** Perform signal timing projects on all major corridors and update that timing regularly **4.6B** Upgrade signal equipment as needed to integrate new technology to control signal timing and adaptability **4.6C** Enhance pedestrian safety with signalization, signage and pavement markings, i.e. Pedestrian HAWK signals
4.7 Improve emergency preparedness and emergency response in the MPA	• Average emergency response times	**4.7A** Implement vehicle pre-emption for emergency response vehicles **4.7B** Provide alternate routes for at-grade rail and river crossings **4.7C** Provide quality regional and local connections to health care providers.

GOAL 5:
PRIORITIZE EXISTING SYSTEM PRESERVATION AND MAINTENANCE

As the region's transportation system continues to age, maintenance and preservation become increasingly important, and increasingly difficult. It is important to balance the needs of expanding the system with the requirements of maintaining the system. While bridge structures and pavement conditions are vital, considerations should also be made to preserve satisfactory sidewalk conditions and public transportation bus fleets.

The conditions of the existing transportation network were of concern to the steering committee as much as potential expansion projects. Maintaining the current multi-modal transportation network at an acceptable condition going forward will take up the majority of transportation funding going forward to the plan's horizon year. County roads outside of the City of Columbus, as well as sidewalks within the City, were both identified by the steering committee as significant issues that needed to be addressed in the near future. This CAMPO long range plan goal is in line with the national planning factor emphasizing the preservation of the existing transportation system and promoting efficient system management and operation.

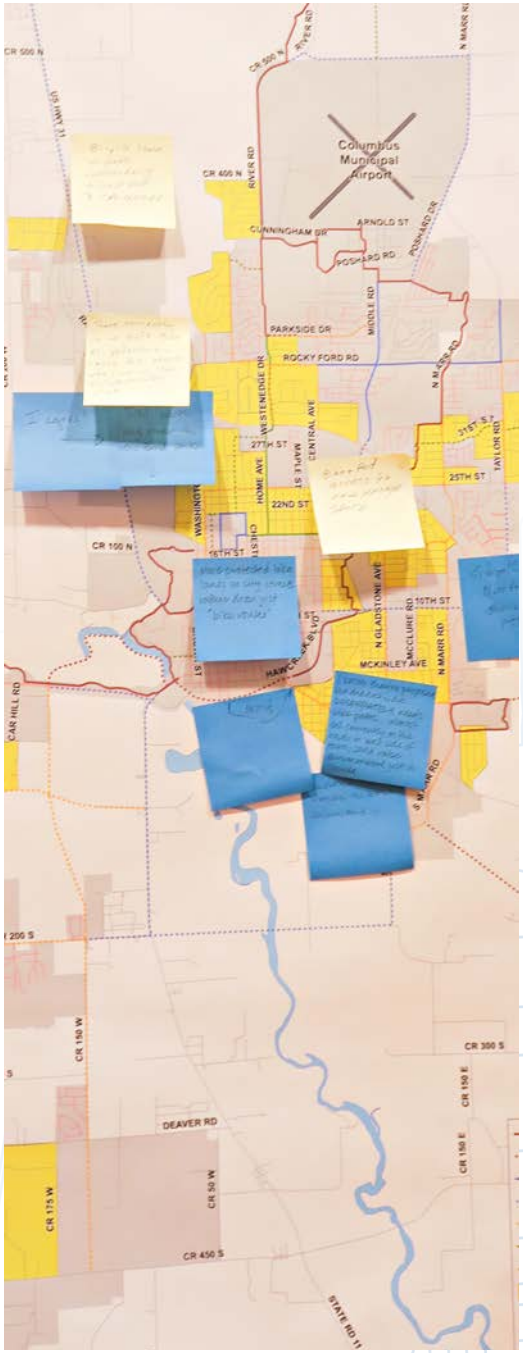


OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
5.1 Reduce the number of structurally deficient bridges	• Structurally deficient bridges in the MPA	**5.1A** Maximize funding for bridge replacements **5.1B** Prioritize bridge programs
5.2 Maintain satisfactory pavement conditions	• Miles of roadway with an acceptable International Roughness Index (IRI) / Pavement Condition Index (PCI) rating	**5.2A** Perform a pavement condition inventory **5.2B** Develop a prioritized list of maintenance projects in the MPA **5.2C** Enhance condition of roads on the perimeter of the City of Columbus to serve existing and future development
5.3 Maintain satisfactory sidewalk conditions	• Miles of sidewalk with an acceptable rating	**5.3A** Update the sidewalk inventory to include the entire MPA and condition scoring **5.3B** Utilize federal funding (SRTS, etc.) as often as possible for sidewalk upgrades **5.3C** Enhance the sidewalk network, concentrating on areas that are in poor condition or where there are gaps in the system
5.4 Maintain a satisfactory bus fleet	• Number of buses in use beyond their FTA-recognized usable life	**5.4A** Maintain a fiscally-constrained capital replacement program to replace vehicles at appropriate intervals
5.5 Preserve existing environmental assets and support environmentally sustainable transportation system enhancement	• Number of major road closures due to flooding	**5.5A** Promote environmental and historical assets as an item of consideration for all planning and design efforts **5.5B** Incorporate storm water improvements within each transportation improvement project **5.5C** Design transportation projects, especially bridges to reduce flood impacts to the local community **5.5D** Maintain and improve flood-free routes that connect the portions of the area as a whole and the City of Columbus in particular that are separated during a flood event
5.6 Use latest technologies and state-of-the-art practices to improve the system capacity and reliability	• Number of projects using latest technologies (Intelligent Transportation Systems) to improve system capacity and efficiency	**5.6A** Implement Automatic Passenger Counters (APCs), Automatic Vehicle Locators (AVLs) and updated fare collection on ColumBUS routes to increase the usability of the bus system **5.6B** Update signal equipment to improve the efficiency of traffic signals **5.6C** Evaluate alternative intersection configurations and travel demand management practices to avoid or delay major capacity upgrades **5.6D** Identify and address congestion and safety concerns in the vicinity of local schools

GOAL 6:
FOSTER COORDINATION THROUGHOUT THE MPA

While the City of Columbus contains the majority of the population and employment within the MPA, it is important to ensure that Bartholomew County and INDOT, as well as local business and industry partners, are engaged in all facets of transportation planning and stakeholder engagement. Transportation and mobility issues do not stop at any city's corporate boundary; they are interrelated throughout the entire region.

Extensive coordination was a priority put forth by the steering committee to improve planning and funding efficiencies among the various agencies in the region. Suggestions for recurring meetings between CAMPO, the City, Bartholomew County, INDOT and regional corporate entities were provided to better identify funding opportunities for transportation projects. Regular public involvement and awareness campaigns were also identified as priorities going forward to implement multi-modal enhancements throughout the MPA.



OBJECTIVE	PERFORMANCE MEASURE	STRATEGIES
6.1 Increase coordination between key stakeholders to maximize the strengths of the region	• Number of planning meetings involving local businesses and industry partners	**6.1A** Institute periodic meetings with local businesses and industry partners to promote opportunities to improve the transportation network **6.1B** Engage agency partners on a consistent basis in order to maximize opportunities for the region, especially related to identifying funding opportunities for transportation **6.1C** Prioritize resource allocation for transportation infrastructure
6.2 Educate and inform the general public on transportation and land use planning	• Number of public meetings	**6.2A** Support local, state, and national public awareness campaigns
6.3 Provide transportation options consistent with the plans of local governments and the public		**6.3A** CAMPO, as part of the City of Columbus - Bartholomew County Planning Department will serve as a repository for all planning studies and will facilitate a coordinated implementation approach
6.4 Encourage strong community engagement in the planning process	• Number of public meetings	**6.4A** Periodically review and update the CAMPO Public Involvement Plan identifying best practices for engaging the public

7 Future Transportation Needs - 2040

Roadway Infrastructure Needs

Non-Motorized Needs

Transit Service Needs

Future Land Use Forecasts

Model Scenario Development

Land Use (Residential Growth) Scenarios

Scenario Evaluation

The fundamental relationship between land use planning and transportation planning is undeniable. While transportation planning decisions affect land use development, land use conditions shape the future infrastructure. In order to identify future transportation needs, future travel patterns are forecasted, programmed transportation infrastructure improvements are identified, and the adequacy of the transportation infrastructure is evaluated to determine if any significant deficiencies exist. The transportation improvement projects and policy changes are then identified to reduce or eliminate identified deficiencies and improve the overall performance of the network. The CAMPO long-range plan takes a scenario-based approach to identify the programs and policies necessary to address the transportation needs of the Columbus MPA.

The plan adopts a multi-modal approach, identifying needs for all travel modes to make strategic investments to the transportation system. This chapter analyzes various components of the transportation system, their capacity, serviceability, and current and projected use and summarizes the region's future transportation requirements.

ROADWAY INFRASTRUCTURE NEEDS

Personal automobiles are the primary mode of transportation in the MPA and this trend is expected to continue through the horizon year of this plan. Columbus has a good mix of north-south as well as east-west arterials, and a grid system in the core of the city, providing a high degree of connectivity and capacity. While most of Columbus is well connected, residential and commercial areas west of the East Fork of the White River are disconnected by railroads and natural barriers. SR 46 is the main corridor connecting the west part of the city to downtown Columbus with no other viable east-west alternatives.

While much of the new development in Columbus has been on the west side (along CR 200 South and in Tipton Lakes), most of the schools, hospital, employment centers and governmental facilities are east of the river. The planned increase in rail freight traffic from 2 trains per day to 17 trains per day, and train lengths up to 7,500 feet is expected to considerably impact the delay/ congestion along SR 46. Some sections of SR 46 are expected to approach unacceptable levels of service by the year 2040. North-south movements from the CR 200 South residential areas are also limited to Jonesville Road, Carr Hill Road, and Terrace Lake Road. This use of Jonesville Road by newer residential developments further burdens SR 46 and the already poor connectivity to the industrial area in Walesboro. With continued growth on the west side of Columbus during the long-range planning period, it is important to enhance the east-west connections to support future transportation needs, with an emphasis on improving the overall performance of SR 46. County roads on the perimeter of the City should be evaluated for potential capacity and safety concerns due to continued growth and development in the fringe of Columbus. Improvements to these roadways include capacity enhancements and implementation of complete streets to enable safe access to all users.

While emphasizing the roadway connectivity in the region is a priority, this long-range plan needs to also address the maintenance and rehabilitation of the existing transportation system and promote multi-modal travel. Without regular maintenance of the existing roadways, the addition of any new roadway would only provide localized improvement rather than improving the overall transportation system.

The plan also seeks to improve safety along the Columbus MPAs roadway system for all modes. In the chapter "Safety in the MPA", the historic crashes in the region over the past five years were analyzed to identify potential mitigation measures at high crash frequency locations. The safety concerns can be addressed at individual locations, or they can be addressed regionally through policy changes such as roundabouts and road diets/ complete streets.

It will also continue to be important to monitor traffic movements on major routes, particularly on roadways with at-grade railroad crossings in order to maintain and improve the efficiency of the transportation system

NON-MOTORIZED NEEDS

Bicycle and pedestrian facilities are essential to developing an active and livable community as well as increasing mobility and access. Columbus currently has a well-developed sidewalk, trail and bicycle network. This network includes a variety of multi-modal facility types including multi-use paths, sidewalks, on-street bike facilities and high-visibility crosswalks. In 2010, the City of Columbus completed a Bicycle and Pedestrian Plan that lays out a vision for future bicycle improvements throughout the city. The plan aims at expanding the transportation options available in the community, increasing opportunities for bicyclists and pedestrians to safely and efficiently commute, improving the community's health and wellness, establishing regional bicycle connections, and providing environmentally-friendly, sustainable transportation options in the region, among other goals.

As part of the implementation of the Bicycle and Pedestrian Plan, The City evaluated sidewalk conditions in several neighborhoods, concluding that sidewalks in most areas are in need of maintenance and repair. Newer areas, such as the Tipton Lakes area, have the highest ratings for sidewalks. However, the historic central portion of Columbus, with considerable pedestrian traffic, has many sidewalks that are in poor condition. While it is important to add to the existing network to cover the numerous gaps in the sidewalk coverage between the historic city center and the new subdivisions on the periphery of the urbanized area, it is crucial to maintain the existing sidewalks and bike facilities. Additionally, public comments emphasized the need for sidewalk and bicycle infrastructure improvements at several locations in the CAMPO MPA, especially on the east side of Columbus. Other challenges for bicycle and pedestrian travelers include gaps between sidewalks and the multi-use path system (the "People Trails"), and incomplete bicycle infrastructure. These deficits represent a lack of transportation options for some, safety issues for those who have to walk along streets with no sidewalks, and problems for bus riders walking to their stops. While the Columbus Bicycle and Pedestrian Plan proposes several bike/pedestrian facilities during the plan period, educational and promotional activities should be considered to encourage full and safe use of these facilities.

TRANSIT SERVICE NEEDS

Providing a balanced transportation system is a crucial part of the solution to regional mobility, economy and environmental justice challenges. Public transit service is the primary mode of transportation for those who do not have access to, or the ability to use, a personal vehicle including the elderly, persons with disabilities, as well as those who cannot own and operate a personal vehicle. It is therefore important to consider transit in the development of recommended plans, programs and policies. ColumBUS currently operates five fixed routes as well as demand response service. The transit services are currently operated within the corporate limits of the City of Columbus.

The fifth route was added in the spring of 2015 to provide access to the west side of Columbus, and currently averages 4,000 riders per quarter. Public comments highlighted the need for transit service to various high-density residential areas, employment centers, schools, recreational hubs and shopping centers. The hours of service and an hour-long headway for the buses were also among concerns raised by the public. The Mill Race Transit Center is the hub of the transit system, with all five buses arriving and departing from the center every hour. In addition to the Mill Race Transit Center, there is another timed transfer point at the Target store in the Columbus Center shopping center. The location of Mill Race Transit Center separated from the core of downtown and on the west side of the railroad tracks prevents buses from running anything other than hour-long headways, and does not provide an opportunity for express routes. Adding an additional hub that is centrally located would greatly benefit the transit system by allowing for reduced headways and potential express routes.

In addition to transit service being requested at various locations in the City of Columbus, several residents noted that rural transit is a significant unmet need in the MPA, especially for elderly people and persons with disabilities. Improving the accessibility of bus stops and the surrounding pedestrian infrastructure is a key strategy for enabling people to use the transit service. It is important to focus on transit agencies' accessibility improvements as well as extending accessibility beyond the actual stop to the pathways that connect to the stop. Transit service would also benefit from partnerships with developers, neighborhood groups, and local industries to continually invest in transit infrastructure.

FUTURE LAND USE FORECASTS

Future land use forecasts are crucial to estimating the future travel demands and identifying the needs of the transportation system through the plan period. The 2040 land use information is used as an input into the travel demand model to recognize any deficiencies in the local roadway infrastructure. A description of the CAMPO travel demand model is provided in Appendix F. In order to forecast the future land use information, the Columbus MPA was divided into traffic analysis zones (TAZs) to factor in the spatial component of the land use data. The model base year (2010) land use information was derived from the 2010 U.S Decennial Census, Columbus and Bartholomew County comprehensive plans, and information obtained from CAMPO staff. This land use information was subsequently forecasted to the plan horizon year of 2040. The socioeconomic forecast process was based on a top-down approach, where county-wide control totals are obtained and then disaggregated to TAZs. The forecasts were further adjusted for local conditions based on comments from CAMPO staff and the steering committee.

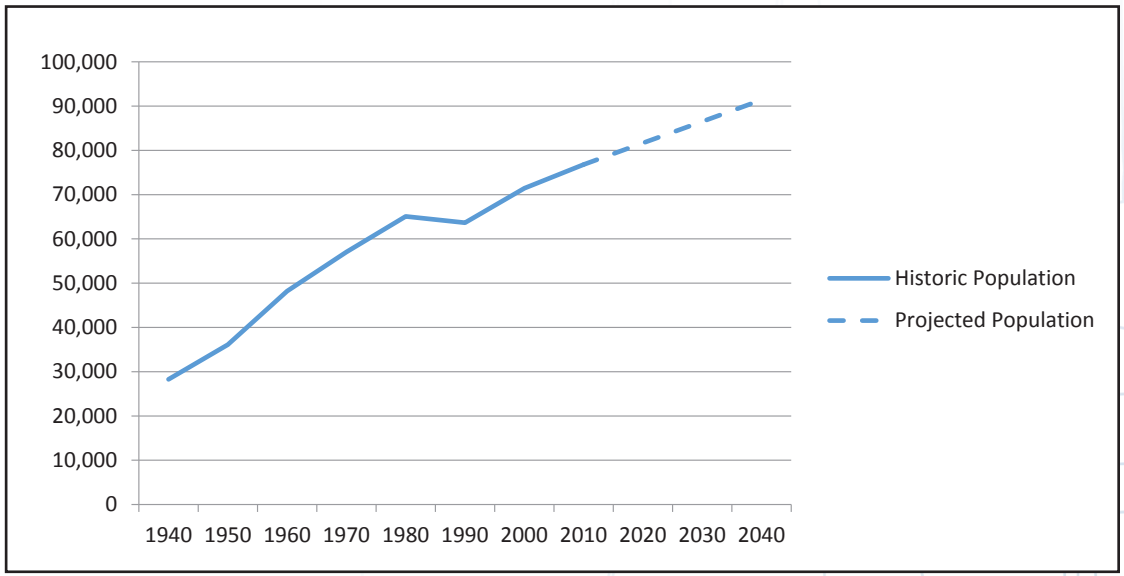
Population Projections

The 2040 population control totals for Bartholomew County were developed based on averaging forecasts from the following sources:

- Historic growth trend lines;
- Indiana Business Research Center (IBRC) county population projections; and
- Proprietary county population projections from Woods & Poole (W&P).

Historic population totals for Bartholomew County are summarized in Figure 34 along with the population forecasts incorporated into the travel model. As shown, future population growth trends are expected to be more tempered as compared to past trends based on historic rates of growth.

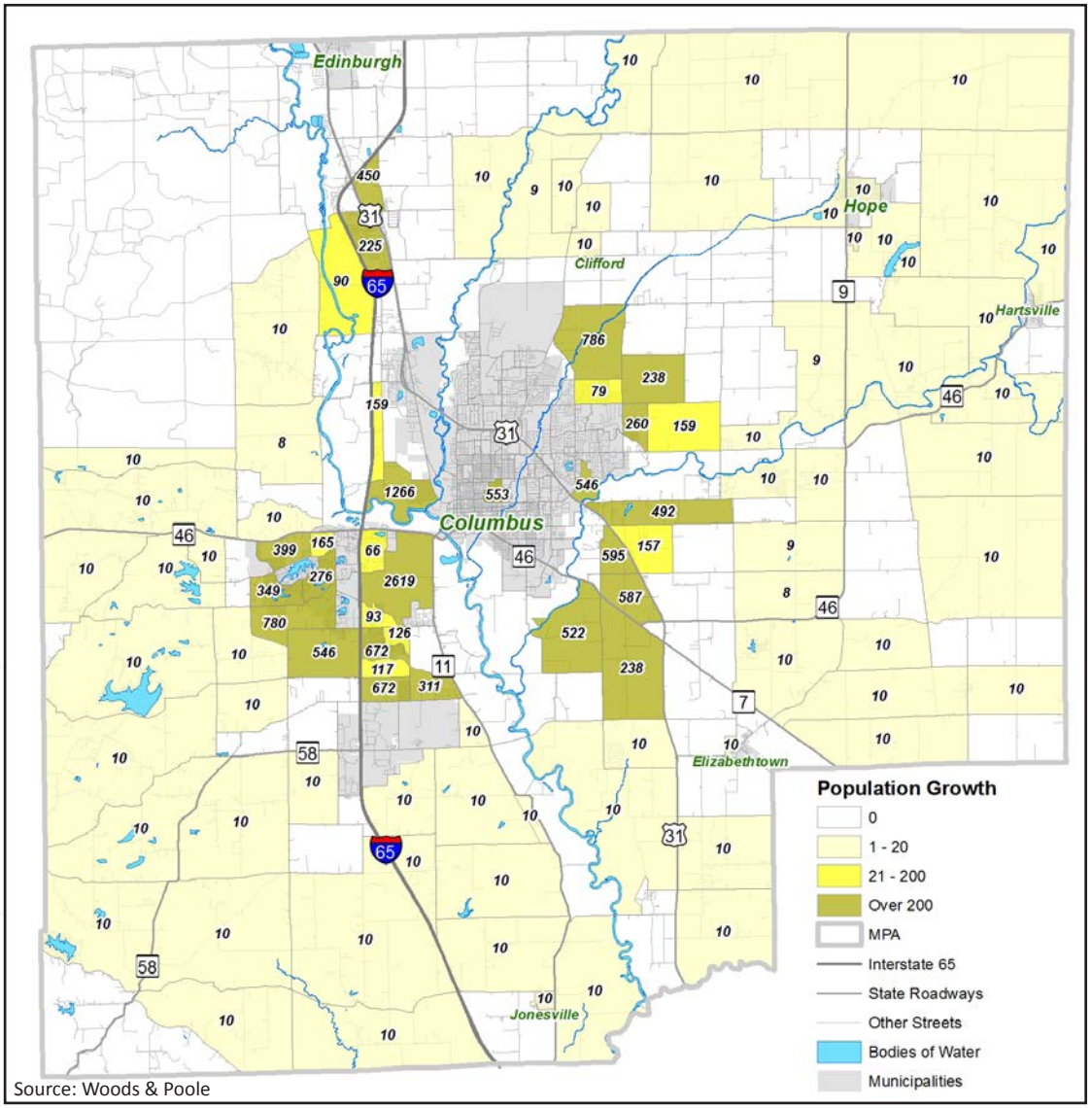
Figure 34: Historic and Projected Population Growth for Bartholomew County



Once the county control totals were established, the population growth in Bartholomew County was allocated to the traffic analysis zone (TAZ) layer using the City of Columbus Strategic Growth Study, the Northern Gateway Land Use Plan and input from the CAMPO staff on areas already approved for development. The Strategic Growth Study identified 18 sites as likely residential growth areas and organized them into three tiers based on site and environmental development constraints.

Based on current urban residential densities identified in the 2010 Base Year TAZ layer, the 2040 residential population growth totals were allocated to these sites based on their acreage identified in the Strategic Growth Study. Tier 2 sites were assumed to develop at half the density of Tier 1 sites, and Tier 3 sites were assumed to accept half the density of Tier 2 sites. These varying densities were used to reflect the fact that Tier 2 and 3 sites would likely develop at a slower rate than Tier 1 due to their various environmental and utility constraints. The urban population growth distribution is provided in Figure 35.

Figure 35: 2010-2040 Urban Population Growth Distribution



Source: Woods & Poole

Employment Projections

The 2010 TAZ level employment information was derived using the 2007 InfoUSA data, information provided by CAMPO staff, and the 2010 Census Longitudinal Employer-Household Dynamics (LEHD) data. Employment projections for 2040 were developed using the Woods & Poole county-wide forecasts. The estimated percent of growth presented in Table 5 was applied to the 2010 employment to forecast employment by section for year 2040. Farm employment is expected to decrease marginally in the model area over the 25-year plan period.

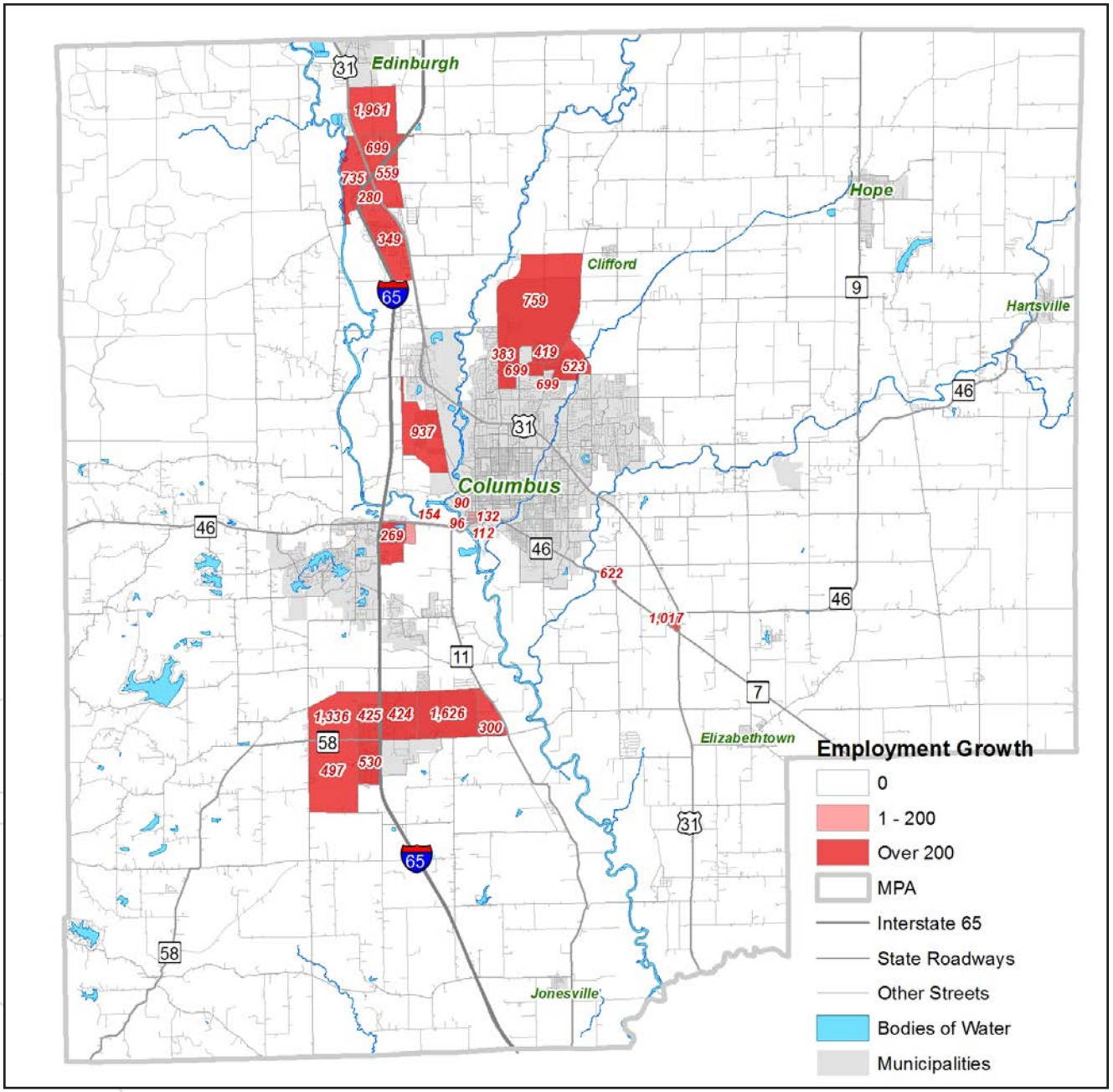
Once the county control totals were established, employment growth was then sub-allocated to the TAZs. The Columbus Strategic Growth Study and Northern Gateway Land Use Plan were utilized to determine the most likely locations for employment growth using a similar procedure for residential growth allocation. The Strategic Growth Study identified two land uses for employment: Industrial and Commercial.

A total of nine sites were identified as likely industrial growth areas and three sites were identified as commercial growth areas, with an additional six sites classified as both industrial and commercial. The 2025 industrial and commercial growth was allocated to the appropriate zones using the same tiered density approach applied to allocate population growth. Figure 36 illustrates the geographic distribution of employment growth between 2010 and 2040.

Table 5: 2010-2040 Employment Growth by Sector

EMPLOYMENT SECTOR	2010 JOBS	2040 JOBS	% GROWTH
Farm	849	843	-0.71%
Basic	2,313	3,148	36.10%
Industrial	16,703	21,781	30.40%
Retail	7,503	9,537	27.11%
Service	24,105	33,458	38.80%
Total	**51,473**	**68,767**	**33.60%**

Figure 36: 2010-2040 Employment Growth



MODEL SCENARIO DEVELOPMENT

A vital part of the long-range transportation plan is the quantitative evaluation of various transportation scenarios and their effects on the transportation system. The scenario analysis helps the agencies test possible approaches to meeting future needs and identifying the effect of policies on the transportation system. Scenario development for the CAMPO long-range transportation plan was an interactive process, with considerable stakeholder engagement and public participation, to identify trends and develop targets for each scenario.

A series of land use and transportation scenarios were developed, ranging from different land use growth patterns to policy changes and multi-modal transportation improvements, to support the goals and objectives. The scenarios were refined in response to feedback from the Steering Committee, input from the public, and from CAMPO staff. Land use and network information was coded in the travel demand model for each scenario to evaluate them objectively and quantitatively. The performance measure outputs obtained from the travel demand model were used to compare alternatives to help select strategies for making informed decisions among different investment options.

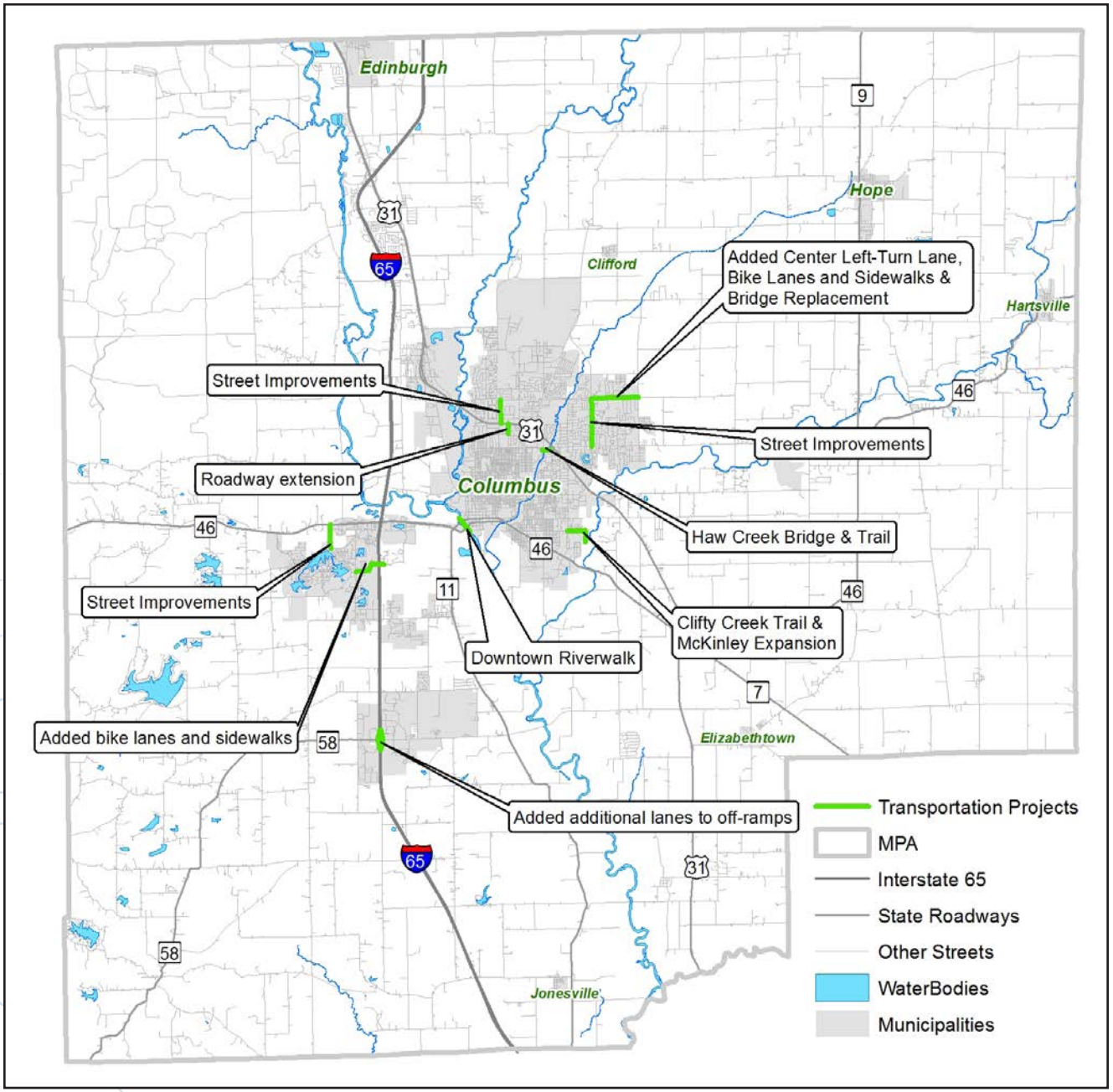
In order to compare and evaluate scenarios, it was important to establish a baseline that serves as a hypothetical point of reference to impacts of various transportation and policy strategies. This "Base Scenario" is a current trend scenario that would occur without agency, public involvement and a long-range plan process. The following sections discuss the scenarios evaluated as part of the CAMPO long-range planning process.

Base Scenario

This scenario represents the CAMPO area baseline scenario, which was estimated using past performance data, county-level forecasts and an analysis of the land use and transportation plans currently in place. The roadway network for the base year scenario was developed by incorporating projects identified in the last regional long range transportation plan completed by CAMPO in 2012, the 2016-2019 Transportation Improvement Program (TIP), and the projects with funding in the Group II or Group IV Surface Transportation Program (STP). Many projects identified in the LRTP and TIP are extraneous to the travel model as they do not affect roadway capacities (storm water improvement projects, bridge reconstruction/re-decking projects, etc.), and were disregarded. The projects that were included in the 2040 network are provided in Figure 37.

While there are no transit projects in the LRTP or the TIP, ColumBUS recently implemented a new fixed-route bus to connect western portions of Columbus to downtown Columbus (Route 5). This service started in 2015 and was not included in the 2010 base year transit network. However, it has been incorporated into the 2040 transit network route system layer.

Figure 37: Transportation Projects Included in the 2040 Baseline Scenario



LAND USE (RESIDENTIAL GROWTH) SCENARIOS

Four separate land use scenarios were developed to evaluate the impact of future residential growth patterns in the region. Infrastructure and utilities are critical for future growth and dictate the land use growth patterns. The growth on the southeast and northeast sides of the city is restricted due to limited availability of utilities, particularly sewer and water services. Moreover, the residential growth on the west side has been more desirable in recent years due to the type of development, which includes sidewalks, trails, open spaces and other desirable neighborhood-oriented elements. The land use scenarios test impacts on transportation demand and potential roadway deficiencies based on the different residential patterns. These scenarios provide the MPO, the City, and the County with information to guide policy decisions regarding future growth areas.

Each of the following four scenarios held the total growth constant but distributed it differently:

1. No Southeast Growth

The portion of residential growth that was originally allocated to the southeast side of the City of Columbus in the baseline scenario was reallocated elsewhere. This reallocated growth was split 50/50 between the northeastern and western sides of the city.

2. No Northeast Residential Growth

The portion of residential growth that was originally allocated to the northeast side of the City of Columbus in the baseline was reallocated elsewhere. This reallocated growth was split 50/50 between the southeastern and western sides of the city.

3. No East Side Residential Growth

The portion of residential growth that was originally allocated to the northeast and southeast sides of the City of Columbus in the baseline scenario was reallocated to the west side of the East Fork of the White River. This scenario was designed to test a "worst case scenario" for the connections over the East Fork of the White River and the railroad.

4. High Infill Growth

The Columbus 'Infill Site Profiles' were used to identify infill growth sites. For all of the sites that include residential land uses, a relatively high density of multi-family residential (21 units/acre) was used to allocate the growth to each site. These sites did not have enough room to absorb the entirety of the projected population growth; therefore, the remainder of the growth was reallocated to the same 'greenfield' sites identified in the baseline scenario.

A vote was conducted at the "scenario evaluation" public meeting to gauge the views of participants on what they expected the land use to be and what they preferred it to be by 2040. Twelve people (more than 70 percent of those who voted) expected no residential growth on the southeast side of the city and the remainder expected that all growth would be on the west side of Columbus. Sixteen people (95 percent of the voters) agreed that they would like to see more infill residential development by the year 2040.

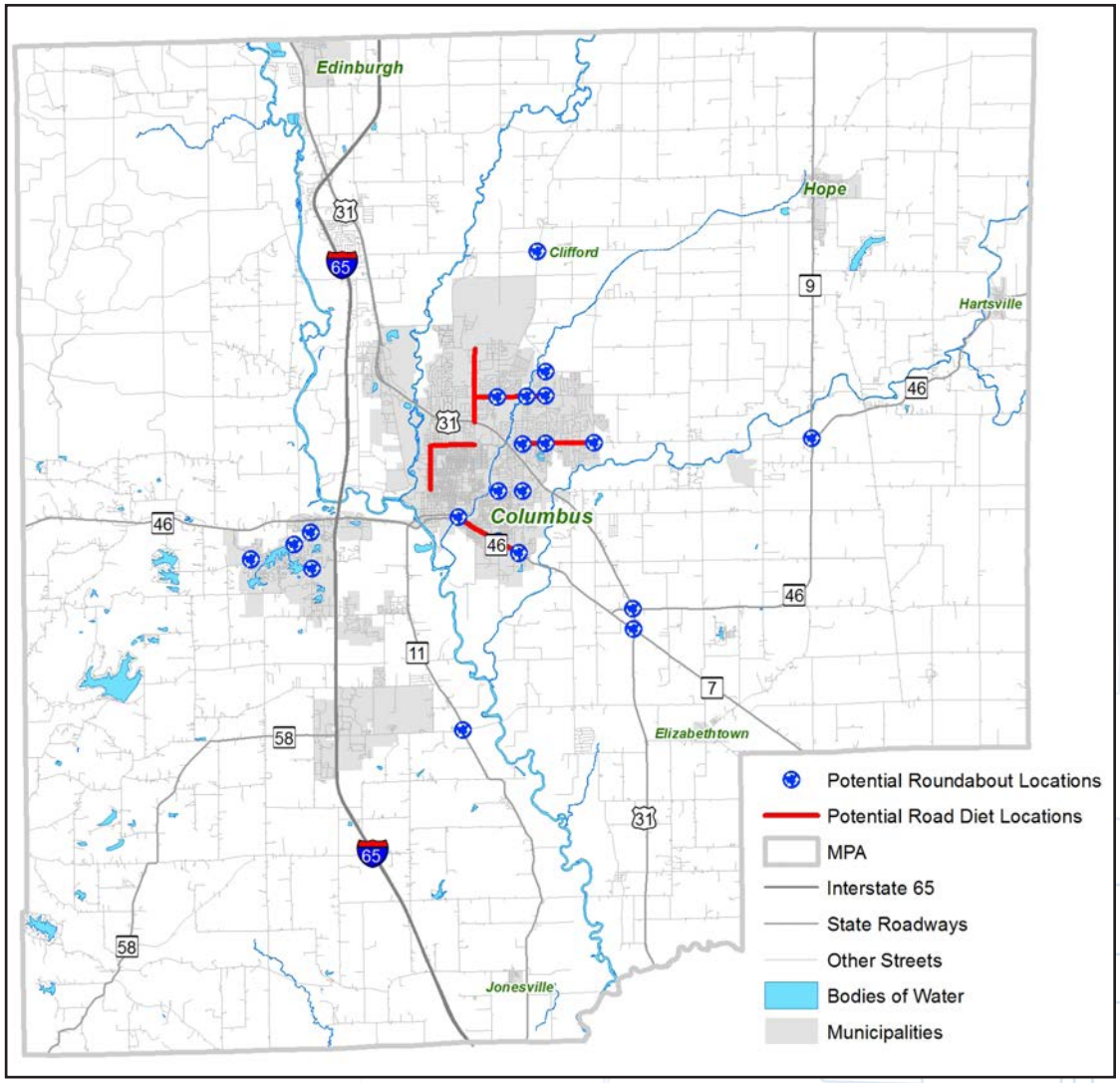
Road Diets and Roundabouts Scenario

This scenario was developed to quantify the impacts of implementing policy changes that establish a framework for performing road diets and encouraging roundabouts as a preferred intersection treatment. A road diet typically involves re-striping a four-lane undivided roadway for the purpose of improving safety and accommodating other modes of transportation. A typical solution is to reconfigure the road into two lanes plus a center turn lane for cars, with dedicated bike lanes on both sides. A road diet is a low-cost solution that can often be achieved for the cost of restriping travel lanes as part of an overlay project. A number of streets in various parts of Columbus are candidates for this approach.

Roundabouts are circular intersections that improve traffic flow and safety. They can be designed to improve safety for all transportation users, including pedestrians and bicyclists. A key component of roundabouts is the reduction of conflict points at intersections, reducing the number of crashes that result in injury or loss of life. Several locations in Columbus and Bartholomew County were identified as possible roundabout locations.

These two treatments are often used together to slow traffic to provide better access to adjacent land uses and a safer environment for biking and walking, while still maintaining the acceptable vehicular traffic flow conditions and improving vehicular safety. This scenario included road diets along several sections of State Street (SR 46), Washington Street, 25th Street, Central Avenue and Rocky Ford Road. The roundabouts were identified at 21 potential locations in the MPA. This scenario was helpful in evaluating the larger systemic impacts of policy decisions that encourage the use of roundabouts, as well as road diet improvements. Figure 38 shows the potential locations of the roundabouts and road diets.

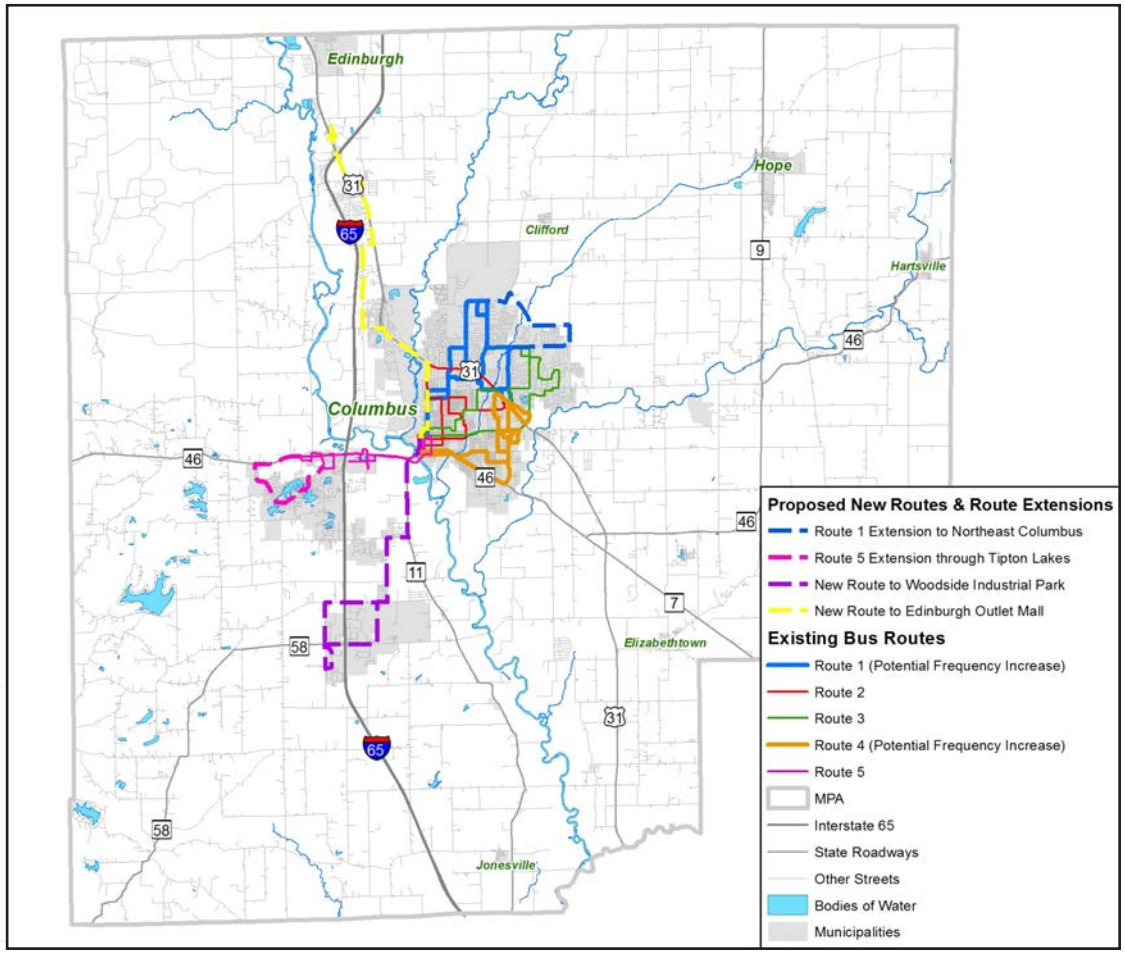
Figure 38: Road Diets and Roundabouts Scenario



Transit Service Scenario

ColumBUS currently operates five fixed-routes within the City of Columbus as well as demand response service. The transit scenario for 2040 incorporated a number of transit enhancements identified by the Steering Committee and inputs from the public. It includes two additional routes to the transit system; one to the Edinburgh Outlet Mall, and one to the Woodside Industrial Park in Walesboro which also serves the residential developments along CR 200 South. The scenario also increases the frequency of the existing Route 1 and Route 4 to 15-30 minutes from the existing one-hour headway. Route 5 was extended through the Tipton Lakes development to improve access to a fast-growing portion of the city. Figure 39 presents the 2040 transit scenario.

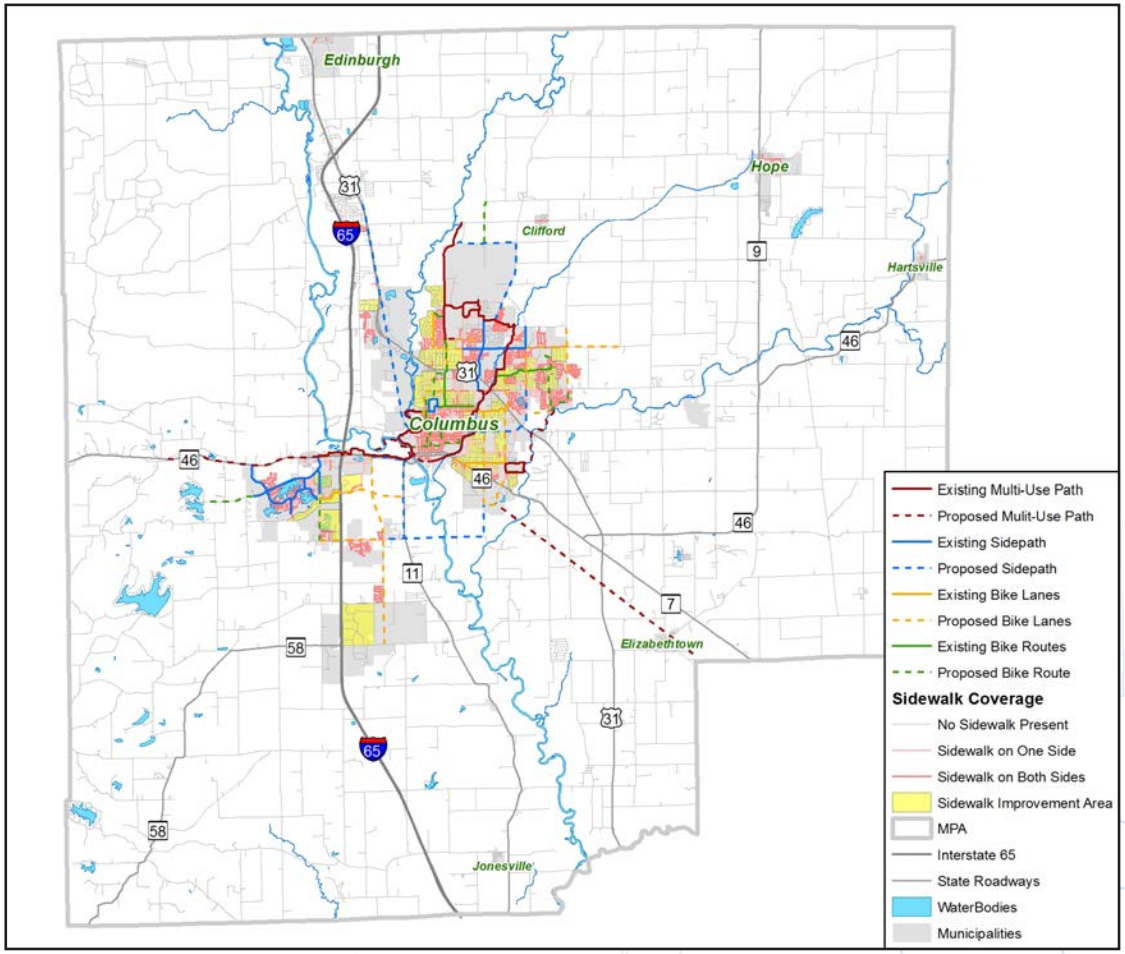
Figure 39: 2040 Transit Enhancements Scenario



Non-Motorized Transportation Scenario

This scenario included a number of bicycle and pedestrian infrastructure improvements to evaluate the impact on non-motorized travel on the travel demand. For the purpose of the scenario, neighborhoods where sidewalks are currently lacking were assumed to have sidewalks built within them, gaps in sidewalks on major roadways were filled, and it was assumed that the on- and off-street improvements recommended by the Columbus Bicycle and Pedestrian Plan were fully constructed. Figure 40 presents the 2040 non-motorized transportation scenario.

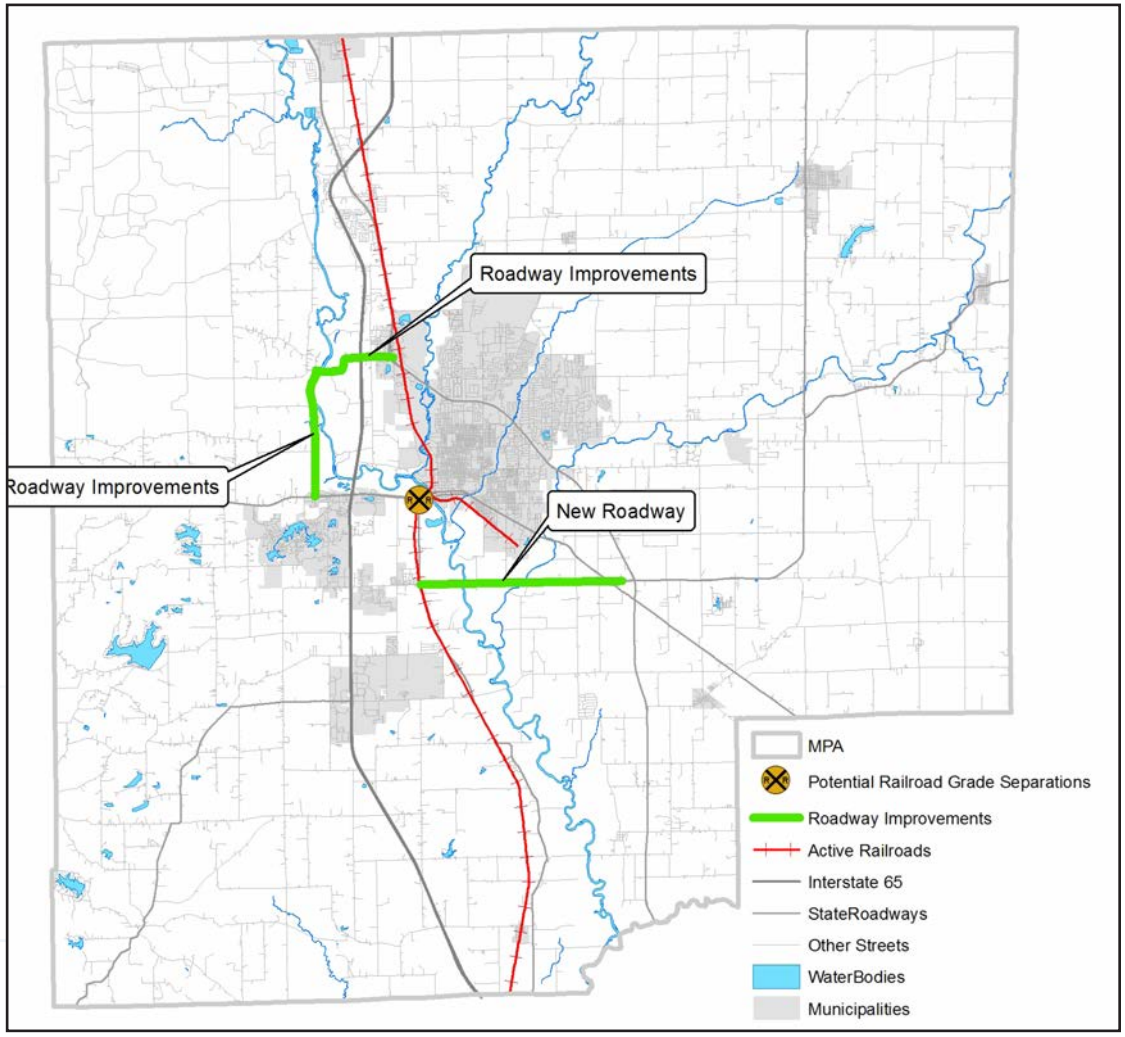
Figure 40: 2040 Non-Motorized Transportation Scenario



East-West Connections Scenario

Increased development on the west side of Columbus necessitates improved east-west connections to relive traffic demand on SR 46 and provide viable alternate travel routes. This scenario includes projects designed to improve connections over the East Fork of the White River and the railroad, which is currently a major constraint in Bartholomew County's roadway network. The scenario included a grade separation on SR 46 where it crosses the railroad tracks west of SR 11, speed and capacity improvements to CR 325 West and Lowell Road to provide an alternative to SR 46 between the west and north sides of Columbus, and an extension of CR 200 South over the East Fork of the White River from SR 11 to SR 46. This new roadway is anticipated to provide access to east and south portions of Columbus without further burdening the SR 46 bridges. Figure 41 presents the 2040 east-west connections transportation scenario.

Figure 41: East-West Connections Scenario



SCENARIO EVALUATION

Scenario analysis is a key analytical and public involvement technique in the long-range plan development process. The travel demand model was used to conduct deficiency analyses and support the identification of transportation needs, as well as suitable strategies to mitigate concerns. Given the regional needs and limited financial resources, it is important to prioritize the multi-modal transportation investment strategies. The model evaluates the impact of future transportation projects and "what-if" land use and transportation scenarios through an integrated demand-capacity analysis.

Each model scenario was assessed using the CAMPO Travel Demand Model (TDM) to provide a quantitative analysis of how each alternative performs. All of the land use and transportation scenarios were compared to the "base scenario" in order to evaluate the impact of each scenario on transportation system and regional travel demand. The TDM outputs include forecasted traffic volumes and other metrics (i.e., travel speeds, travel time, congestion levels, etc.) on the transportation network. These metrics can be used to help identify existing and future transportation system deficiencies. A key output from the TDM is the daily and peak period volume to capacity (V/C) ratio for each roadway segment. V/C is a conventional level-of-service measure for roadways, comparing roadway demand (traffic volumes) with roadway supply (traffic capacity). Each volume to capacity ratio corresponds to a Level of Service (LOS) based on accepted methodologies. LOS is a qualitative measure of traffic flow describing operating conditions. Six levels of service are defined by the FHWA in the Highway Capacity Manual for use in evaluating roadway operating conditions. They are given letter designations from A to F, with LOS A representing the best operating conditions and F the worst. A facility may operate at a range of levels of service depending upon time of day based on varying demand.

Table 6 summarizes the descriptions of the levels of service, which range from "A" (free flow uncongested travel) to "F" (severely or heavily congested flow).

Table 6: Roadway Level of Service Descriptions

LOS	V/C RATIO	DETAILED DESCRIPTION
A	<0.30	Represents best operating conditions and is considered free-flow
B	0.30-0.50	Represents reasonably free-flow conditions
C	0.50-0.70	Represents a constrained constant flow below speed limits
D	0.70-0.84	Represents traffic operations approaching unstable flow with high passing demand and restricted maneuverability
E	0.84-1.00	Represents unstable flow near capacity
F	>1.00	Represents a heavily congested flow and excessive delays

The model estimates the level of service on the model roadway network for daily conditions and four different time periods; AM Peak (6 AM- 9 AM), PM Peak (3 PM – 6 PM) and Mid-Day and Overnight Off Peak periods. The worst LOS among the different time periods is identified as the "link level of service". While, nationally accepted guidelines recommend LOS D as acceptable for urban highways and LOS C acceptable for rural highways, every community defines an acceptable LOS criteria based on local needs. Columbus and Bartholomew County maintain LOS B threshold as an acceptable level of operation for the regional roadway system.

Figure 42 on page 96 presents the level of service condition on the regional roadway system. The model results show that most of the local transportation system is anticipated to operate under acceptable level of service in year 2040. Interstate 65 shows LOS E for the majority of the distance through Bartholomew County, which is consistent with the Indiana Statewide Travel Demand Model (ISTDM) results. Small sections on SR 46 and Lindsey Street are expected to operate at LOS E/F. The operation deficiencies along these sections were identified to occur during peak times due to intersection delay. These sections do not show continued congestion throughout the day and can potentially be mitigated by cost effective measures such as improving signal timing and coordination; this result alone does not imply the need of roadway capacity improvements along SR 46 and Lindsey Street. Figure 43 on page 97 presents the average Annual Daily Traffic (ADT) on the Columbus roadway system. U.S. 31, SR 46, Central Ave, and 25th Street continue to be the major east-west and north-south corridors in Columbus.

Appendix G presents the maps illustrating the changes in travel demand and corresponding impact on the transportation system for each scenario compared to the base scenario. The land use alternatives show increases and decreases in traffic corresponding to the allotment of the socio-economic growth in the CAMPO MPA. While a change in traffic patterns is evident, it is not significant enough to cause deficiencies (LOS E /F) along any additional roadway facilities, when compared to the based scenario. In Scenario 2C – No East Side Residential Growth, LOS on SR 11 between SR 46 and CR 200 South changes from a C to a D due to a large increase in traffic associated with substantial residential growth in the CR 200 South area, and lack of viable east-west connections across the river to downtown Columbus. While SR 46 has the lane capacity to accommodate this additional traffic, the delay at intersections and the railroad crossing deteriorates traffic operations. This scenario (Scenario 2C) presents the most likely residual growth option, considering the current development trends and availability of utilities. The infill growth scenario presented the least impact on the roadway system compared to other land use alternatives, by way of increasing non-motorized trips.

The road diet and roundabout scenario was developed to examine the impact of transportation policy changes on the regional transportation system. A road diet was modeled along several corridors including sections of Washington Street, State Street/SR 46, 25th Street, Central Avenue, and Rocky Ford Road. Twenty one (21) intersection locations were modeled as potential sites for roundabouts. The model results show that the volume along road diet sections decreases marginally (less than 5 percent) without diminishing the level of service on parallel roadways. While roundabouts do not have a noticeable impact on traffic conditions (congestion/delay) compared to other intersection controls (stop signs, traffic signals, etc.), at a community-wide level, they help by mitigating crash potential and enhance traffic operations at intersections. A detailed, site-specific engineering analysis is recommended to evaluate the operational benefits of a roundabout over other intersection control options when considering intersection improvements in the future.

Figure 42: 2040 Baseline Levels of Service

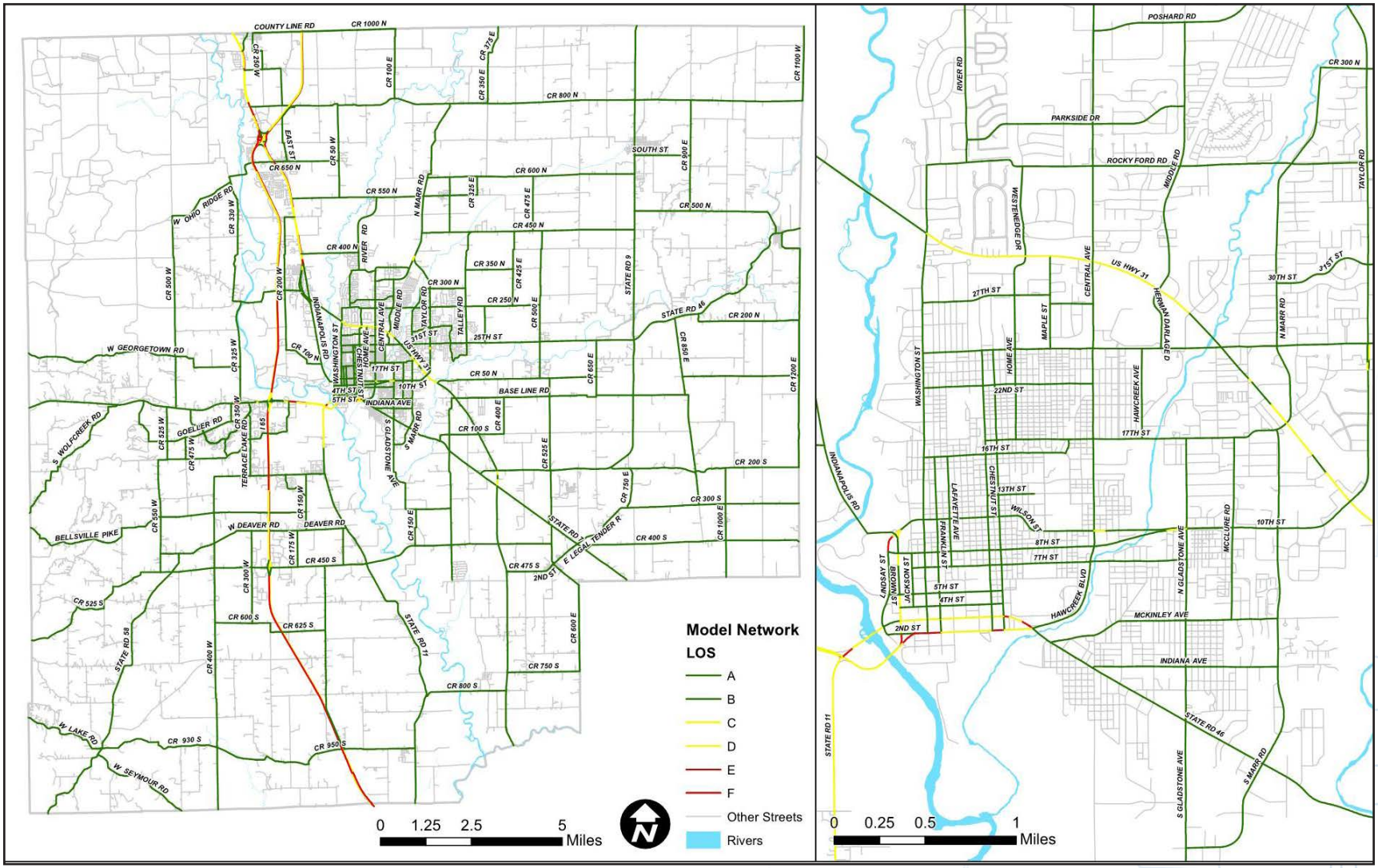
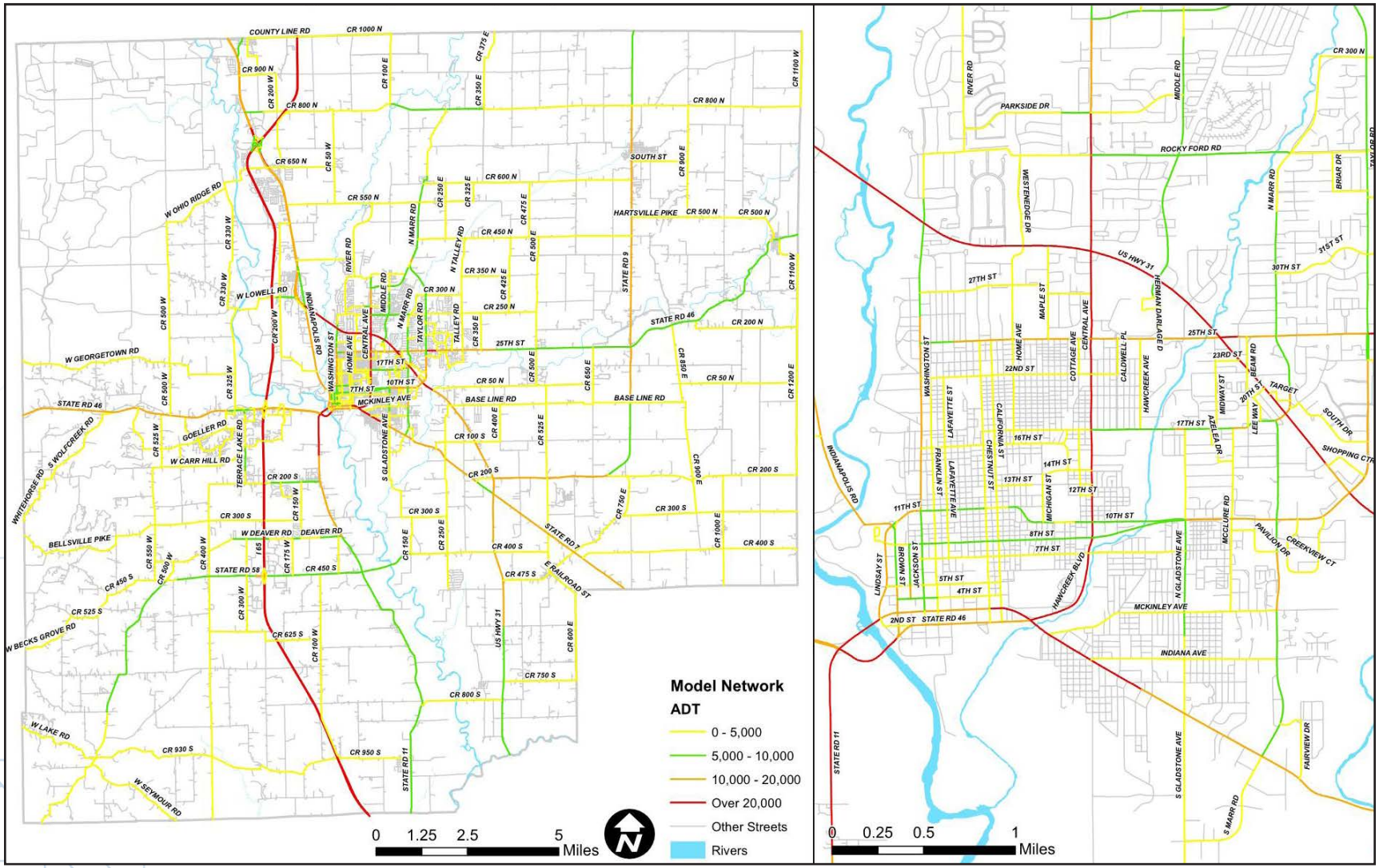


Figure 43: 2040 Average Daily Traffic (ADT)



In the transit enhancement scenario, the travel demand model is used to evaluate various factors including population density, transit route alignments, service frequency, access to employment centers, street design, gas prices and transit fares to predict transit demand in the region. The model provides technical guidance on answering questions such as:

- How will the transit demand change over the next 20 years?
- How would additional routes or service improvements impact ridership?

The model results indicate that the transit ridership could increase by 15 – 20 percent with the improvements proposed in the transit enhancement scenario compares to 2040 baseline scenario. Table 7 shows the increases in transit ridership in 2040 based on the improvement to the regional fixed-route transit service. Due to the low percentage of transit trips compared to vehicle trips, the increase in transit had very little effect on roadway volumes or LOS.

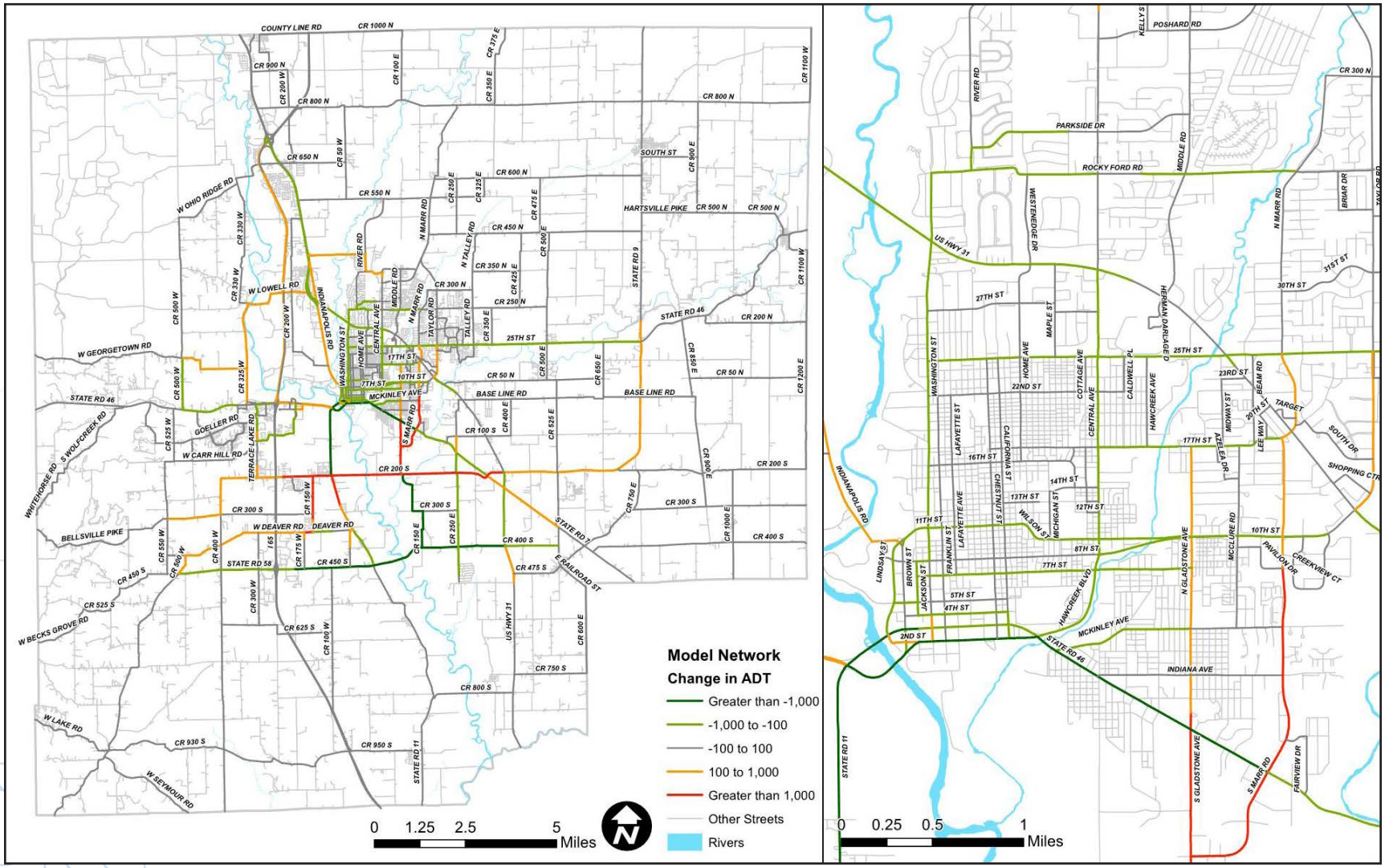
Table 7: Forecasted Transit Ridership in the MPA

YEAR	TRANSIT ASSUMPTIONS	DAILY RIDERSHIP
2010	Baseline (4 Routes)	1,015
2040	Baseline (5 Routes)	2,376
2040	Baseline + Walesboro & Edinburgh Routes	2,744
2040	Baseline + Walesboro & Edinburgh Routes + 15 Minute Frequencies on Routes 1 & 4	3,018

In the non-motorized scenario, modeling results show that if sidewalks were completed in all deficient neighborhoods, and if the Columbus Bicycle and Pedestrian Plan were fully implemented, there would be an estimated 12 percent increase in bike and walking trips in the region from 21,764 to 24,252 daily walk/bike trips.

Continued residential growth in areas west of the railroad and the East Fork of the White River in Columbus increases traffic along SR 46 and the delay experienced at the at-grade railroad crossing. Potential improvements considered in the "East-West Connections" scenario, to provide alternate east-west routes to SR 46, include the extension of CR 200 South from SR 11 to SR 46, a railroad overpass on SR 46 and improvements along CR 325 West and Lowell Road. Model results show that the proposed CR 200 South connection will divert significant amount of traffic from SR 11 and SR 46, with an estimated average daily traffic of 9,500 vehicles in the year 2040. The proposed extension provides direct access to the residents travelling to the east and south sides of Columbus via Gladstone Avenue and Marr Road, as shown in Figure 44. The links highlighted in red show the roadways with increased vehicular traffic compared to the baseline scenario (without the east-west connection improvements). These improvements help reduce the pronounced congestion experienced along SR 11 and SR 46. Roadway improvements to the CR 325 West / Lowell Road / Indianapolis Road connection also show an increase in traffic utilizing the US 31 overpass as an alternate to SR 46. SR 46 experiences marginal increases in projected ADT with improvements to the at-grade railroad crossing. This increase in traffic can be attributed to reduced delay along SR 46 due to the potential railroad overpass.

Figure 44: East-West Connections Scenario Change in ADT



In addition to identifying the impact of traffic volumes and corresponding operational levels of service at specific problem locations, region-wide statistics were also compiled to evaluate the effects of the alternatives system-wide. The countywide Vehicle Miles of Travel (VMT), the change in VMT, and the change in delay (the amount of time lost to congestion) are all provided in Table 8.

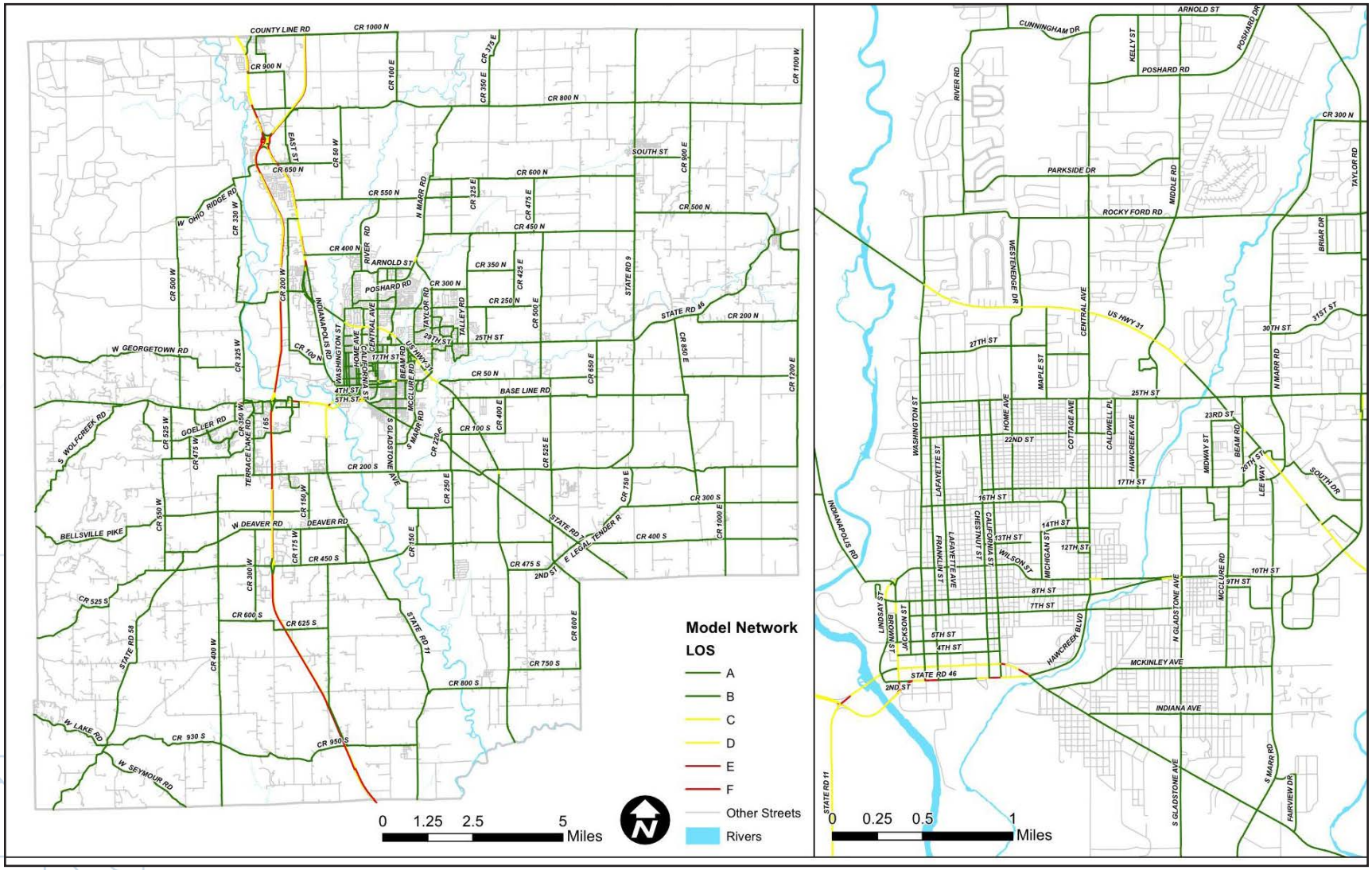
Table 8: Scenario Impacts on Roadway System Performance

#	SCENARIO	COUNTY-WIDE VMT	CHANGE IN VMT	CHANGE IN DELAY (HR.)
1	2040 Baseline	3,725,835	-	-
2a	No Southeast Residential Growth	3,731,987	6,152	9,464
2b	No Northeast Residential Growth	3,726,659	824	9,947
2c	No East Side Residential Growth	3,734,671	8,836	41,107
2d	High Infill Growth	3,717,757	-8,078	-1,983
3	Road Diets & Roundabouts	3,726,666	831	4,997
4	Transit Enhancements	3,724,880	-955	-455
5	Non-Motorized Transportation	3,722,037	-3,798	-4,316
6	East-West Connections	3,736,134	10,299	-44,897

Scenarios 2a and 2b have a minor effect on VMT when compared to the baseline scenario; however, a significant amount of delay is added to the roadway network. Scenario 2c (west side growth) has a more pronounced effect on the transportation system among the land use scenarios due to the lack of viable east-west connections. Scenario 2d (Infill development) on the other hand, has a positive impact on delay and VMT compared to the other land use scenarios, since infill development supports alternative transportation choices (transit, non-motorized travel) and generates shorter vehicular trips.

Scenario 4 results in relatively nominal increases in both VMT and delay, likely a result of some diversions to different routes due to slower speeds and fewer lanes on the roadways that received road diet treatments. The model results show that the volume along road diet sections decreases marginally (less than 5 percent) without diminishing the level of service on parallel roadways. Scenarios 4 & 5 show improvements in both VMT and delay; however, these effects are minor when compared with the other scenarios. Scenario 6 has a major effect on the regional statistics. The VMT increases significantly, while delay is greatly reduced. This divergence in the statistics shows that, while the route using the new CR 200 South extension and upgraded CR 325 West / Lowell Road may be longer compared to SR 46 for some travelers, the resulting reduction in travel time makes them desirable travel routes. Scenario 6 compliments the travel time impacts of scenario 2c, showing that if there is heavy residential growth on the west side of Columbus, the additional connection over the East Fork of the White River at CR 200 South becomes more of a viable solution to relieving the congestion on the SR 46 bridges and SR 11. Figure 45 presents the LOS conditions for the East-West Connections Scenario

Figure 45: East-West Connections Scenario Levels of Service (LOS)



8 Financial Plan

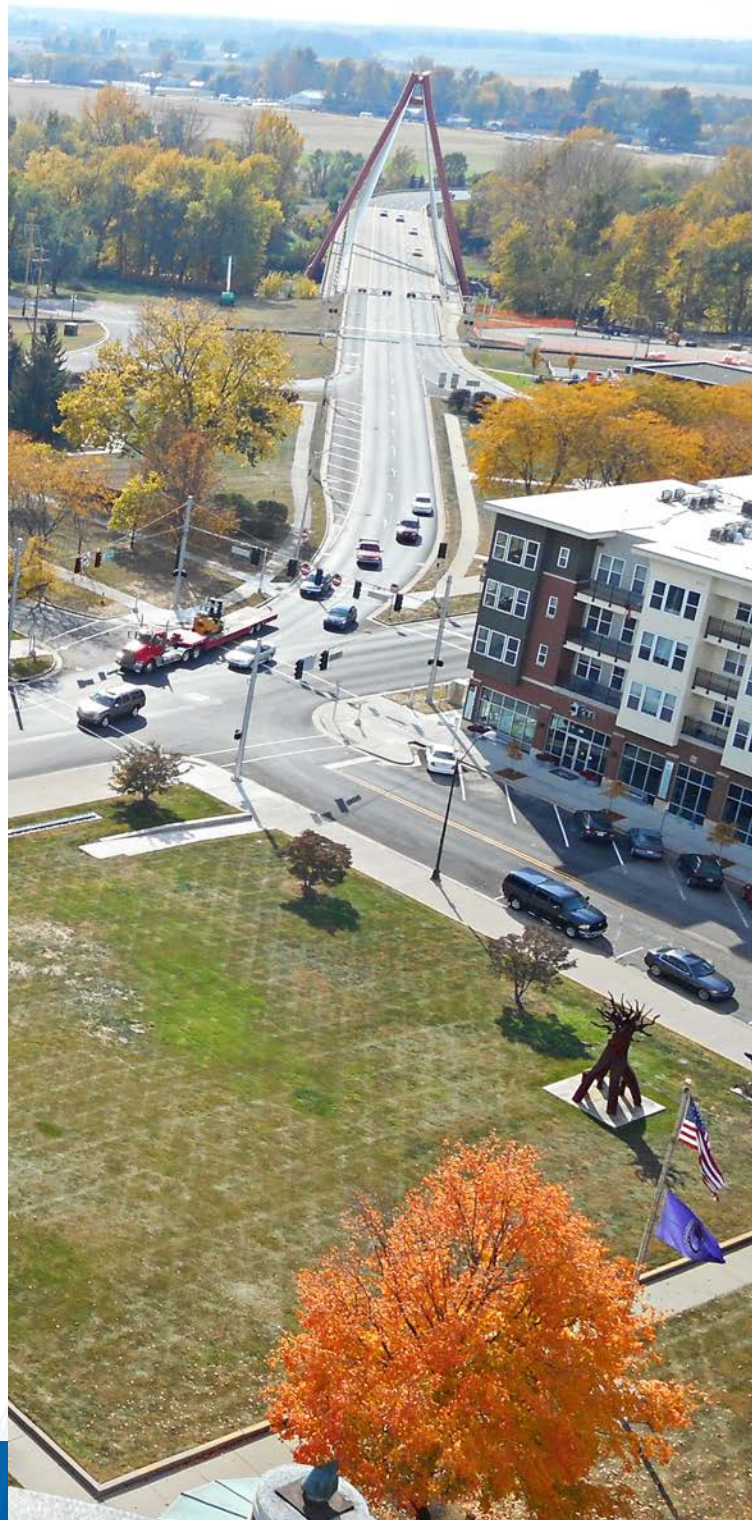
Federal Funding Sources

State and Local Funding Sources

Operation and Maintenance

Plan Financial Feasibility

Fiscally Constrained Project Plan



The Intermodal Surface Transportation Efficiency Act (ISTEA), passed in 1991, changed the long-range planning process from a need-based analysis with little consideration to transportation revenue to a more financially constrained program planning method. Subsequent reauthorization bills, TEA-21 in 1998, SAFETEA-LU in 2005, MAP-21 in 2012, and, most recently, Fixing America's Surface Transportation (FAST) Act, adopted in 2015, all require that MPOs ensure the long-range plan is "fiscally constrained", i.e. that the projects programmed do not exceed the amount of revenue reasonably expected to be available for transportation improvements over the 25-year plan period. It is important to prioritize transportation investments to maximize the return on those investments.

The financial element summarizes the analysis of potential transportation investments identified through scenario analysis, extensive stakeholder engagement, feedback from the public and inputs from CAMPO staff. This chapter identifies the estimated revenue from existing and proposed funding sources over the plan period and compares it against estimated projected costs of constructing, maintaining, and operating the existing and planned transportation system through 2040.

FEDERAL FUNDING SOURCES

This section provides an overview of funding sources that are used, or potentially available for use, to support CAMPO's transportation infrastructure improvements over the plan period.

Roadway Funding

The primary source of federal funding is the Highway Trust Fund (HTF), which is funded by federally assessed gasoline taxes, aviation fuel, and landing fees. The FAST Act authorizes a total combined amount ($39.7 billion in FY 2016, $40.5 billion in FY 2017, $41.4 billion in FY 2018, $42.4 billion in FY 2019, and $43.4 billion in FY 2020) in contract authority to fund six formula programs [1]:

- National Highway Performance Program (NHPP);
- Surface Transportation Block Grant Program (STBG);
- Highway Safety Improvement Program (HSIP);
- Congestion Mitigation and Air Quality Improvement (CMAQ);
- Metropolitan Planning; and
- The new National Highway Freight Program (NHFP).

Federal funds are apportioned among the states, and then each state's apportionment is divided among the individual apportioned programs on a formula basis. The state share is equal to the state's share of FY 2015 apportionments and adjusted, if necessary, to ensure that the total funds received by each State is at least 95 percent of the dollar amount of its contributions to the Highway Account, which funds surface transportation projects, of the Highway Trust Fund. Most federal transportation grants require a 10-20 percent match from state, local or other funding sources. Table 9 on page 105 presents the estimated apportionments for the state of Indiana for FY 2016-2019, under the FAST Act. Figure 46 on page 105 presents the federal-aid highway program apportionment percent for the State of Indiana for FY 2016.

1 FAST Act Funding Apportionment: http://www.fhwa.dot.gov/fastact/factsheets/apportionmentfs.cfm

Figure 46: FY 2016 Indiana Apportionment of Federal Funds

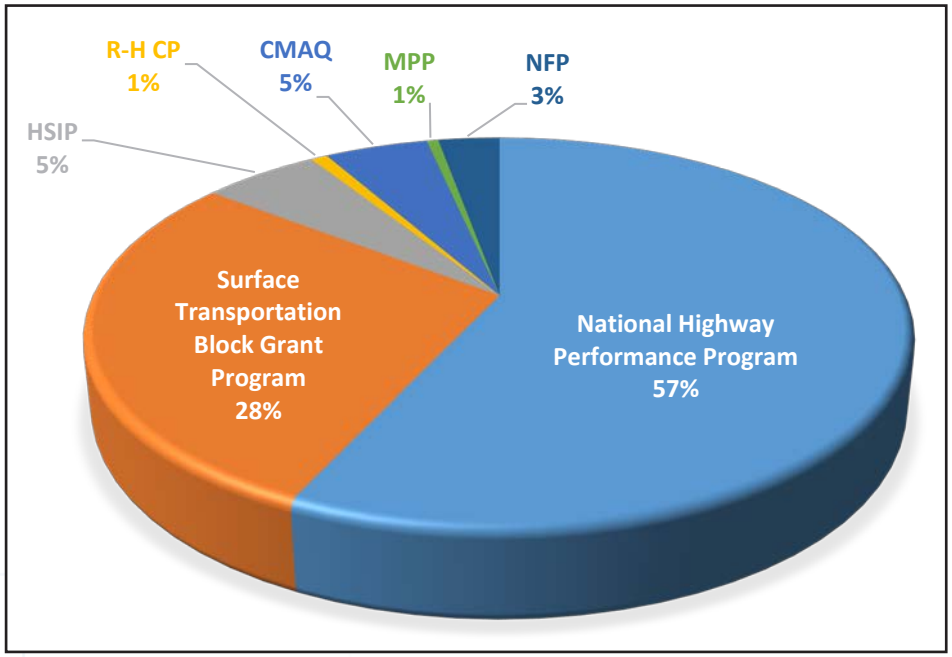


Table 9: Projected FY 16 - FY 20 Indiana Apportionment of Federal Funds

FUNDING PROGRAM	FY 16	FY 17	FY 18	FY 19	FY 20
National Highway Performance Program	550,991,617	563,220,536	573,929,689	585,739,987	597,929,430
Surface Transportation Block Grant Program	275,103,943	281,552,802	287,542,523	292,683,458	299,101,165
Highway Safety Improvement Program	52,999,254	54,177,250	55,188,237	56,176,926	57,315,499
Railway-Highway Crossings Program	7,462,921	7,628,763	7,794,606	7,960,449	8,126,291
CMAQ Program	46,932,909	47,974,557	48,886,752	49,781,663	50,792,752
Metropolitan Planning	5,212,406	5,317,955	5,429,686	5,546,264	5,675,363
National Freight Program	27,826,482	26,616,635	29,036,329	32,665,871	36,295,412
Apportioned Total	**966,529,532**	**986,488,498**	**1,007,807,822**	**1,030,554,618**	**1,055,235,912**

National Highway Performance Program (NHPP) Funds

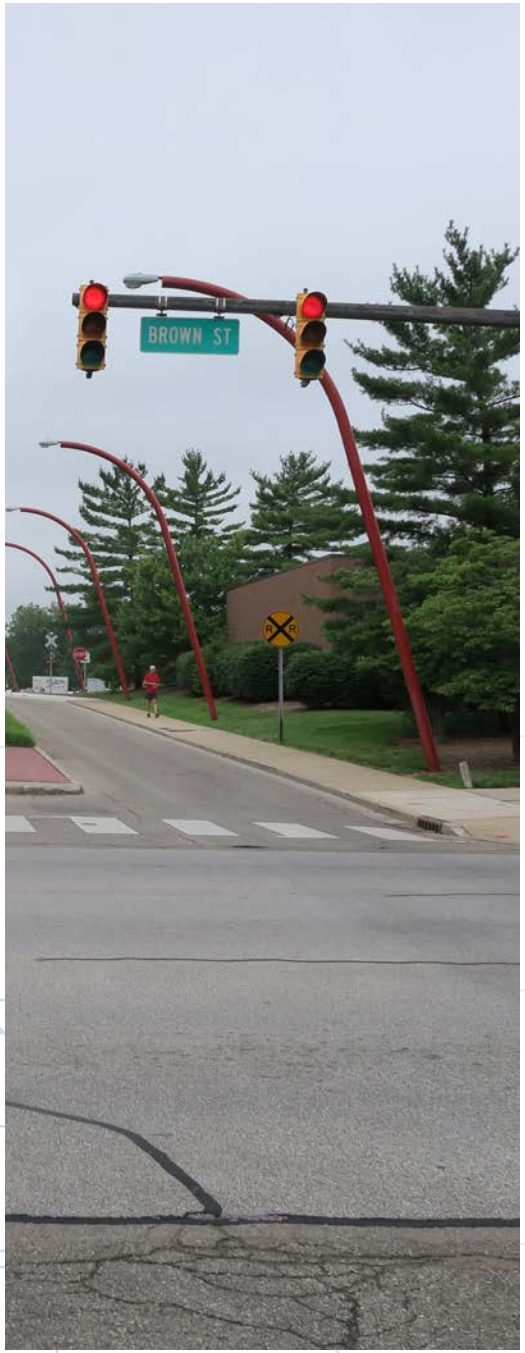
The NHPP funding, established under MAP-21, supports the construction and maintenance projects on the National Highway System (NHS) within the region. The National Highway System is the network of about 220,000 miles of the nation's most important highways, including the Interstate and US Highway systems that are essential to nation's economy, mobility, and security. The NHPP is the largest federal highway program, at 56 percent of the total Highway Trust Fund. Two percent of the NTPP funding is to be set aside for State Planning and Research (SPR) funds. States are permitted to transfer up to 50 percent of the NHPP dollars to other programs, including the Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), and the Congestion Mitigation and Air Quality Improvement program (CMAQ).

Surface Transportation Block Grant Program (STBG) Funds

The FAST Act changed the Surface Transportation Program (STP) into the Surface Transportation Block Grant Program. This program is the most flexible federal-aid highway program providing financial support to state and local agencies for construction, reconstruction, rehabilitation, resurfacing, operational improvements to federal-aid highways, transit capital projects, and replacement and rehabilitation of bridges on public roads Fifty percent of the STBG funding is obligated to MPOs and rural areas based on the relative share of the State's population. The percentage of STBG funding grows by 1 percent every year over the period of the FAST Act (51 percent in FY 16; 52 percent in FY 17; 53 percent in FY 18; 54 percent in FY 19; 55 percent in FY 20). Two percent of the STBG funding is to be set aside for State Planning and Research (SPR) funds. The remaining STBG funding may be used in any other area of the state. For off-system (not on federal-aid system)bridges, an amount not less than 15 percent of the State's FY 2009 Highway Bridge Program apportionment is set aside. The STBG covers 80 percent of the total cost of a project, with the rest covered by states, local, or other funding sources.

Congestion Mitigation and Air Quality (CMAQ)

The CMAQ program provides funding for projects aimed at relieving congestion and reducing air pollution levels to satisfy the federal air quality standards. The funding is available for areas that do not meet the National Ambient Air Quality Standards ("non-attainment areas") and for former non-attainment areas that are now in compliance (maintenance areas), to fund Travel Demand Management (TDM) projects. States without a non-attainment or maintenance area have the flexibility of using the CMAQ funds for STBG projects. However, the program cannot be used to fund projects that increase vehicular travel, such as capacity expansion/construction of new travel lanes. CAMPO continues to be an attainment area, and is not expected to reach non-attainment standards in the near future.



High Safety Improvement Program (HSIP)

Highway Safety Improvement Program (HSIP) funds are intended to significantly reduce traffic fatalities and serious injuries on the regional roadways, as well as publicly owned bicycle and pedestrian pathways or trails. HSIP requires a data-driven, strategic approach to improving highway safety on all public roads. Two percent of the HSIP funding is set aside for State Planning and Research (SPR) funds. Eligible projects include, but are not limited to, intersection improvements, traffic calming, rural corridor improvements, and bicycle and pedestrian safety projects. The federal share of this program is 90 percent.

Railway-Highway Crossing Program

The Railway-Highway Crossings program provides funds for safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway grade crossings. The program is funded via a set-aside from state's HSIP apportionment. The FAST Act authorized $350 million to be set aside from the Highway Safety Improvement Program (HSIP) for FY 2016. The federal share for this program in 90 percent.

National Highway Freight Program (NHFP)

The NHFP is a new program established under the FAST Act to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support the following goals:

- Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity;
- Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas;
- Improving the state of good repair of the NHFN;
- Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability;
- Improving the efficiency and productivity of the NHFN;
- Improving State flexibility to support multi-State corridor planning and address highway freight connectivity; and
- Reducing the environmental impacts of freight movement on the NHFN.

Transit Funding

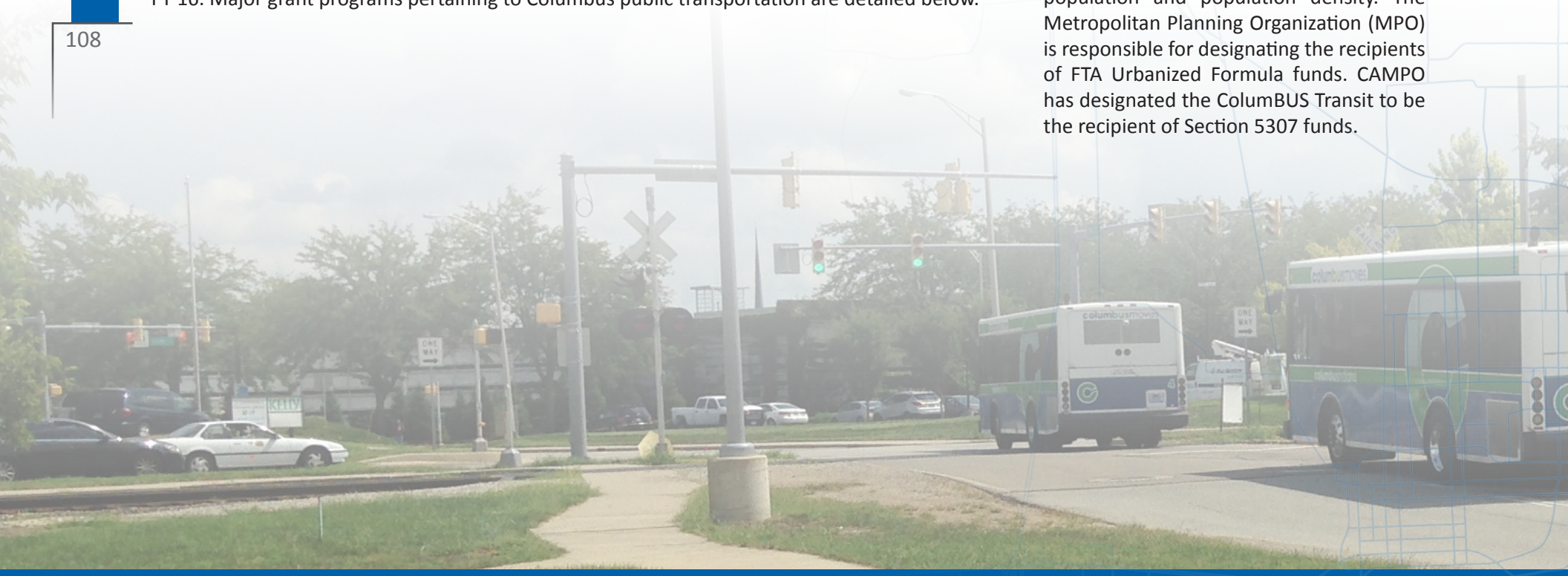
The Federal Transit Administration (FTA) is the primary federal funding source for public transportation. FTA programs are established, modified, or eliminated through authorization legislation, such as the FAST Act passed by Congress in December 2015. This act provides five years of predictable formula funding that enables transit agencies to better manage long-term assets and operational needs. Major federal transit grant programs include:

- The Urban Formula Program (Section 5307)
- New Starts (Section 5309)
- Elderly Individuals and Individuals with Disabilities Program (Section 5310)
- Rural Formula Program (Section 5311)
- State of Good Repair Program (Section 5337)

In addition, the FAST Act includes funding for new competitive grant programs for buses and bus facilities, innovative transportation coordination, workforce training, and public transportation research activities. FAST ACT authorized up to $11.8 billion for various public transit programs in FY 16. Major grant programs pertaining to Columbus public transportation are detailed below.

Urbanized Area Formula Program (Section 5307)

Section 5307 is the primary Federal funding source to support public transportation. Funding is awarded directly to the designated recipient in each urbanized areas over 200,000 in population. For urbanized areas with populations between 50,000 and 200,000, funds are apportioned to the Governor of each state or his designee. Urban Formula Program funds may be used to support public transportation capital projects, operating assistance, job access and reverse commute projects, and for transportation-related planning. For areas of 50,000 to 199,999 in population, the formula is based on population and population density. The Metropolitan Planning Organization (MPO) is responsible for designating the recipients of FTA Urbanized Formula funds. CAMPO has designated the ColumBUS Transit to be the recipient of Section 5307 funds.



Elderly Individuals and Individuals with Disabilities Program (Section 5310)

This program addresses the special transit needs of elderly individuals and individuals with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting their needs. At least 55 percent of Section 5310 funds must be spent on "traditional" projects, or capital projects, such as buses and vans, wheelchair lifts, ramps and securement devices, and transit-related information technology systems. The remaining 45 percent is for other "non-traditional" projects such as:

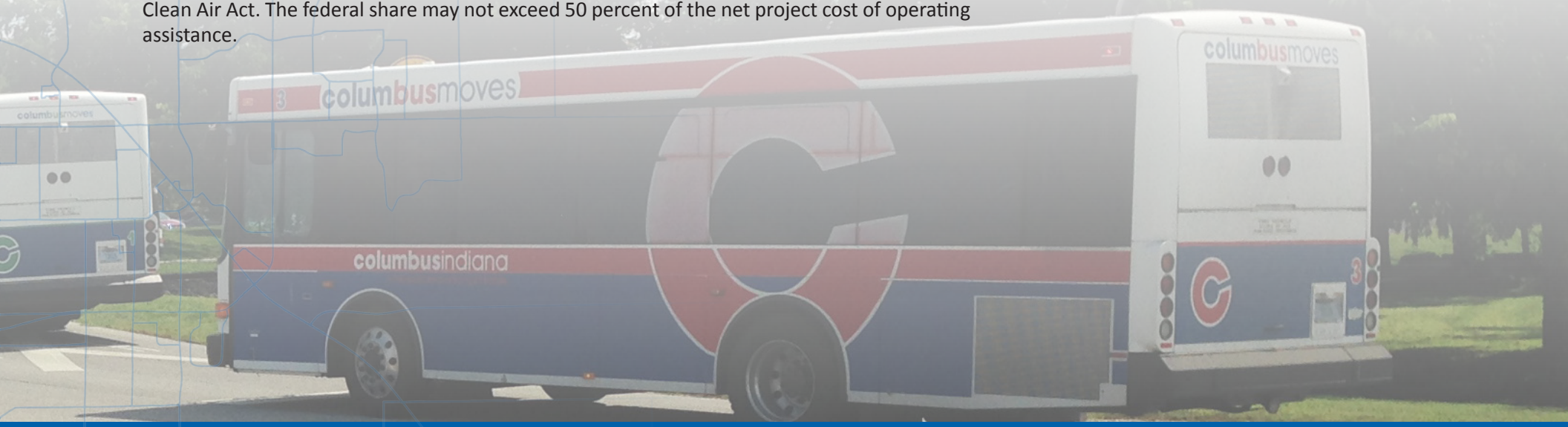
- Travel training;
- Volunteer driver programs;
- Building an accessible path to a bus stop, including curb-cuts, sidewalks, accessible pedestrian signals or other accessible features; or
- Improving signage, or way-finding technology.

The small urbanized area apportionment is provided to the state for distribution to eligible recipients. MPOs must compete with other small urbanized areas (UZAs) for these funds. Under the FAST Act, a state or local governmental entity that operates a public transportation service that is eligible to receive direct grants under Section 5311 or 5307 is now an eligible direct recipient for Section 5310 funds.

The federal share of Section 5307 and 5310 grants is not to exceed 80 percent of the net project cost for capital expenditures. The federal share may be 90 percent for the cost of vehicle-related equipment attributable to compliance with the Americans with Disabilities Act and the Clean Air Act. The federal share may not exceed 50 percent of the net project cost of operating assistance.

Bus and Bus Facilities Program (Section 5339)

MAP–21 established, and the FAST Act maintains, the Section 5339 Bus and Bus Facilities Program, changing the program from discretionary-based to formula-based. For the small urbanized areas, Section 5339 funds are apportioned to the states; the individual states are then responsible for determining the sub-allocation process and amounts that eligible small urbanized areas will receive. States will apply directly to FTA for funding on behalf of small urbanized area sub-recipients. Thus, the MPO must compete for funding with other small urban transit systems in Indiana for funding. The Federal share of project costs is 80 percent. Like all other FTA capital programs, certain capital projects (Clean Air Act, bicycle-related, and ADA projects) may be funded at higher ratios.



STATE AND LOCAL FUNDING SOURCES

State highway funds are generated from fuel taxes (gasoline and diesel) and vehicle registration fees registration, title, and license fees). Local funding for transportation projects is primarily through state allocations, block grants, municipal and county budgets, public transit fares, local park district budgets (for greenways and trails projects) and private donations. Additional revenue can be obtained from property taxes, sales taxes, and special assessments. This funding is crucial to provide the local match for state and federally funded projects. Local agencies can also work with developers and business associations to obtain private funding through impact fees, right-of-way contributions, and cost sharing.

About 3 percent of the transit annual operating expense is recovered by fare revenue in the MPA, with the remaining expenses covered by local, state and federal funding. The state of Indiana provides Public Mass Transportation Funds (PMTF) to regional transit agencies to promote and develop transportation in Indiana. The funds are allocated to public transit systems on a performance-based formula. The PMTF operating project and capital project grants are restricted to a dollar for dollar match with locally derived income. The PMTF apportioned $42.7 million in the State of Indiana in FY 2014, out of which ColumBUS' share of state assistance was $282,704. The local match for the state and federal grants is provided using City of Columbus general revenue funds. Table 10 presents the operation expense and revenue for ColumBUS Transit for FT 2010 to FY 2014.

Table 10: ColumBUS Transit FY 2010-2014 Expenses and Revenue

	COST	YEAR				
		2010	2011	2012	2013	2014
OPERATING EXPENSE SUMMARY	Fixed Route Expenses	$ 939,552	$ 1,207,669	$ 1,264,096	$ 952,385	$ 1,050,603
	Demand Response Services	$ 389,922	$ -	$ -	$ 445,884	$ 454,145
	Total Expense	**$ 1,329,474**	**$ 1,207,669**	**$ 1,264,096**	**$ 1,398,269**	**$ 1,504,748**
REVENUE SUMMARY	Fare Revenue	$ 36,198	$ 36,587	$ 40,384	$ 33,783	$ 40,043
	Contract/Other	$ 2	$ -	$ -	$ -	$ -
	Local Assistance	$ 367,236	$ 303,458	$ 313,246	$ 387,094	$ 439,648
	State Assistance	$ 279,401	$ 282,085	$ 298,611	$ 295,148	$ 292,704
	Federal Assistance	$ 646,637	$ 585,539	$ 611,855	$ 682,244	$ 732,353
	Total Revenue	**$ 1,329,474**	**$ 1,207,669**	**$ 1,264,096**	**$ 1,398,269**	**$ 1,504,748**

OPERATION AND MAINTENANCE

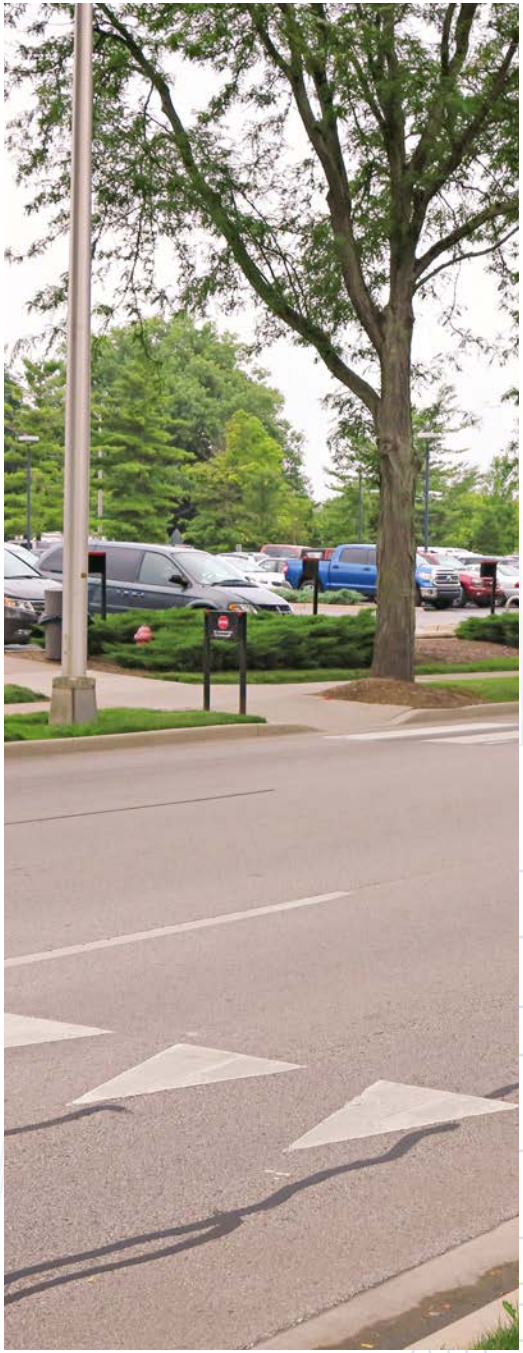
In addition to the capacity improvement projects programmed in the LRTP, the operation and maintenance of the existing transportation system is important to preserve the past investments and maximize the safety, efficiency and reliability of the existing system. The operational costs include snow and ice removal, street lighting, traffic signal maintenance, drainage work, equipment purchases, administration, and other related costs. Maintenance costs include the cost associated with maintaining the existing federal-aid roadway infrastructure, including pavement and bridge resurfacing and replacement, and right-of-way upkeep.

INDOT's role includes the day-to-day operation and maintenance of the federal-aid eligible highway system in the state. The agency commits state dollars for general operations and maintenance of the roadway system. Bartholomew County and the City of Columbus use local revenue to maintain and preserve the local transportation system in addition to providing local matches to federally funded/subsidized projects. Local revenue also supports part of the regional transit operation and maintenance costs, including repair, rehabilitation and restoration of existing transit facilities and fleets, and driver wages.

PLAN FINANCIAL FEASIBILITY

The FAST Act is the first transportation bill in over a decade to provide long-term funding for surface transportation infrastructure. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway projects and public transportation. While state and local agencies are assured federal assistance for the next several years, the Highway Trust Fund revenue crisis remains a concern. Motor fuel tax (MFT) provides most of the funding at the state, and federal levels. The federal motor fuel tax of $0.184/gallon has not been increased to keep up with inflation since 1993. A reduction of VMT nationally, and the increase in fuel efficient vehicles has resulted in a gradual decrease of motor fuel tax revenue. Various alternatives have been proposed to replace the motor fuel tax including mileage-based user fees, supplementing the MFT with other revenue sources such as public-private partnerships, and federal discretionary grants. While these alternatives are being tested, it is unknown if, or when, these additional/ alternate revenue sources will be implemented.

Since federal, state, or local sources do not guarantee the same level of funding every year, estimating revenue for the 25-year planning period can be complex and difficult to predict. Federal regulations require the financial plan to determine that "all cost and revenue projections shall be based on the data reflecting the existing situation and historical trends." The revenue for the first four fiscal years of the plan period is obtained from the FY 2016-2019 Transportation Improvement Plan (TIP)[2] . The revenue projections for the remaining 21 years of the plan are ideally estimated based on the funding received historically. In this financial plan, the federal funding is divided into two main revenue sources, STBG and non-STBG. STBG is guaranteed, and is administered to the MPO by INDOT based on population. Non-STBG funding, which includes all other federal revenue (NHPP, HSIP, & NHFP), is grant- based and varies substantially year-to-year. CAMPO is typically apportioned $1,626,840 of STP (STBG starting FY 16) funding annually by INDOT. In addition, INDOT and CAMPO reallocated $7,919,314 of federal funding initially programmed prior to July 1st, 2014, to the FY 2016-2019 as Prior Year Balance (PYB). To ensure reasonable funding for projects programmed in the long-range plan, only the STBG funds are assumed to account for total federal revenue during the plan period to support fiscally constrained projects. CAMPO is eligible for various non-STBG funding sources, which could be used to fund illustrative projects if, and when, this funding becomes available.



2 The CAMPO TIP can be found at http://www.columbus.in.gov/cityofcolumbus/assets/File/CAMPO_2016-2020_TIP_20160824.pdf

The federal funding for the 2040 CAMPO long-range transportation plan is estimated based on the following assumptions:

- All the projects listed in FY 2016-2019 TIP are assumed to be fiscally constrained.
- The CAMPO's allotment of STP-U funding for FY 2015 is $1,626,840.
- The STBG funding for the next 21 years (FY 20- FY40) was calculated using the FY 2016 apportionment with an annual inflation rate of 3 percent. The estimated STBG funding for the remaining 21-year period of the long range plan period is calculated to be $48,051,616.

Local agencies are expected to contribute to the required local share of the transportation projects programmed in the TIP and the long-range plan. Local revenue sources may include, municipal and county budgets, state allocations, and special assessments. Local agencies continue to seek financial participation from private developers, whose projects necessitate transportation improvements.

- A total of $3,526,947 in local funding is allocated for transportation projects in FY 2016-2019 TIP
- Assuming a 20 percent local match for the federally subsidized projects over the next 21 year period of the long range plan, the local contribution is estimated be $9,610,323.

The total federal and local transportation funding for the 21-year long-range planning period (FY 20- 40) is estimated to be $ 57,661,938.

The federal, state, and local funding allotted for transit operations for the first five fiscal years of the long-range planning period is calculated from the FY 2016-2019 TIP to be $8,090,680. Based on local, state and federal appropriations between FY 2016 - FY 2019, annual transit funding is expected to be $1,585,170. The total revenue for ColumbusBUS transit operations and maintenance for the remaining 21 years of the plan period (FY 20- FY 40) at 3 percent inflation is estimated to be $ 46,820,818.

FISCALLY CONSTRAINED PROJECT PLAN

Roadway Projects

Potential projects were identified based on scenario analyses, stakeholder engagement, public involvement, and inputs from CAMPO staff to address the existing and projected transportation needs through the long-range plan period. The cost of the planned projects are compared against the estimated revenue to ensure the projects are fiscally contained. The transportation projects are divided into short-term and long-term planning horizons. The short-term projects include all federally funded projects programmed in the fiscally constrained CAMPO FY 2016-2019 TIP. The long-term projects include projects that are anticipated to be completed within the CAMPO MPA with the estimated STBG revenue between FY 2021- FY 2040. The short-term transportation improvements programmed in CAMPO FY 2016-2019 TIP.

Table 11 on page 116 and Figure 47 on page 115 present the long-term projects identified as part of the long range plan to improve safety along the existing transportation system, encourage transit and non-motorized travel and enhance access and improve connectivity to support travel and economic development. The projects are categorized A, B, and C based on priority. The long-term projects are anticipated to be completed with the STBG funding between FY 2021- FY 2040. Other regionally significantly projects planned in the CAMPO planning area through FY 2040 which do not have dedicated funding are listed as illustrative projects in the plan. These projects are eligible for several non-STBG funding sources, including HSIP and NHPP, which are not included in federal revenue projections. If, and when, the additional funding becomes available for illustrative projects, those projects may be included in subsequent CAMPO TIPs. Table 12 on page 118 and Figure 48 on page 119 present the illustrative projects identified as part of the long range planning proves.

The long-term project costs in Table 11 are presented in Year of Expenditure (YOE) dollars and are adjusted based on a 3 percent annual inflation rate. The planning level project costs were estimated based on the estimated costs in the City of Columbus thoroughfare plan, average planning level costs for roadway and bike/pedestrian infrastructure, inputs from City and County staff, and engineering judgement. The cost of construction and the other costs involved in the major projects can fluctuate over a period of time. However, by averaging the costs incurred over a substantial time period, a reasonable estimate can be developed.

The long-range plan projects are estimated to cost approximately $119,865,590 over the twenty-year period; $27,090,747 for priority A projects, $29,280,206 for priority B projects, and $63,494,637 for priority C projects. During the same period $46,970,945 in federal STBG with a state/local match of $9,394,189 for a total of $56,365,134 is expected to be available. The anticipated revenue for the 20-year period between FY 2020 – 2040 is expected to cover all priority A and priority B projects presented in Table 11. Even though the projects identified in the long-range plan are considered fiscally constrained based on reasonable revenue projections, the projects will be only be implemented if federal and state funding becomes available, and require close planning and coordination among federal, state, and local agencies.

Figure 47: Long-Term Transportation Projects for FY 2021-2040

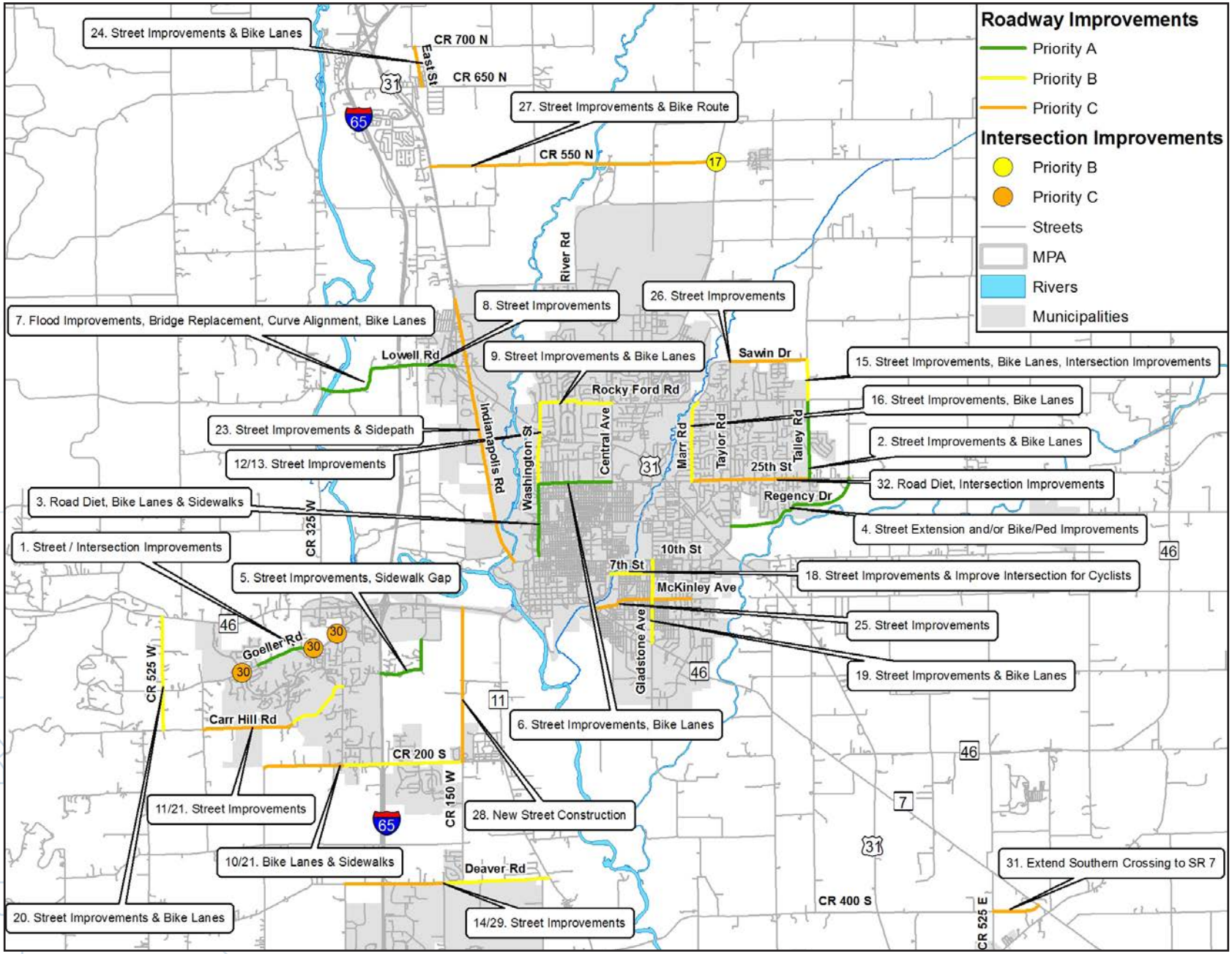


Table 11: Long-Term Transportation Projects for FY 2021-2040

PROJECT	PRIORITY	YEAR	LOCATION	DESCRIPTION	COST (YEAR OF EXPENDITURE)
Goeller Rd / CR 350 W	A	2018-2020	Goeller Rd from CR 350 W to Oakbrook Dr; CR 350 W from SR 46 to Goeller Rd	Street/ intersection improvements	2,172,270
Talley Rd	A	2020-2023	25th St to Rocky Ford Rd	Street improvements & bike lanes	3,658,560
Washington Street	A	2020-2023	11th St to 25th St	Road diet, bike lanes & sidewalks	3,086,910
Regency Drive	A	2020-2023	25th St to Taylor Rd	Street extension/ and or bike-ped improvements	5,294,153
Carr Hill Rd	A	2020-2023	1-65 to Morgan Willow Trace	Street improvements, sidewalk gap	2,060,000
25th St	A	2020-2023	Washington St to Central Ave	Street improvements, bike lane	2,972,580
Lowell Rd Improvements	A	2020-2023	CR 325 W to I-65	Flood improvements, bridge replacement, curve alignment, bike lanes (paved shoulder)	3,605,000
Lowell Rd Improvements	A	2024-2027	I-65 to Indianapolis Rd	Street improvements	4,241,274
Total Priority A Projects					27,090,747
Rocky Ford Rd	B	2024-2027	Washington St to Central Ave	Street improvements & bike lanes	3,578,575
CR 200 S	B	2024-2027	CR 150 W to Terrace Lake Rd	Bike lanes & sidewalks	1,058,743
Carr Hill Rd	B	2024-2027	Champion Dr to Terrace Lake Rd.	Street improvements	1,590,478
Washington St	B	2024-2027	25th St to US 31	Street improvements	3,578,575
Washington St	B	2024-2027	US 31 to Rocky Ford Rd	Street improvements	1,325,398
Deaver Rd	B	2028-2031	SR 11 to CR 175 W	Street improvements	3,533,949
Talley Rd	B	2028-2031	Rocky Ford Rd to Sawin Dr	Street improvements, bike lane, intersection improvements (roundabout)	2,458,399
Marr Rd	B	2028-2031	25th St to Rocky Ford Rd	Street improvements, bike lane	3,687,599
Marr Rd/ CR 550 N	B	2028-2031	Intersection	Intersection improvements	692,117

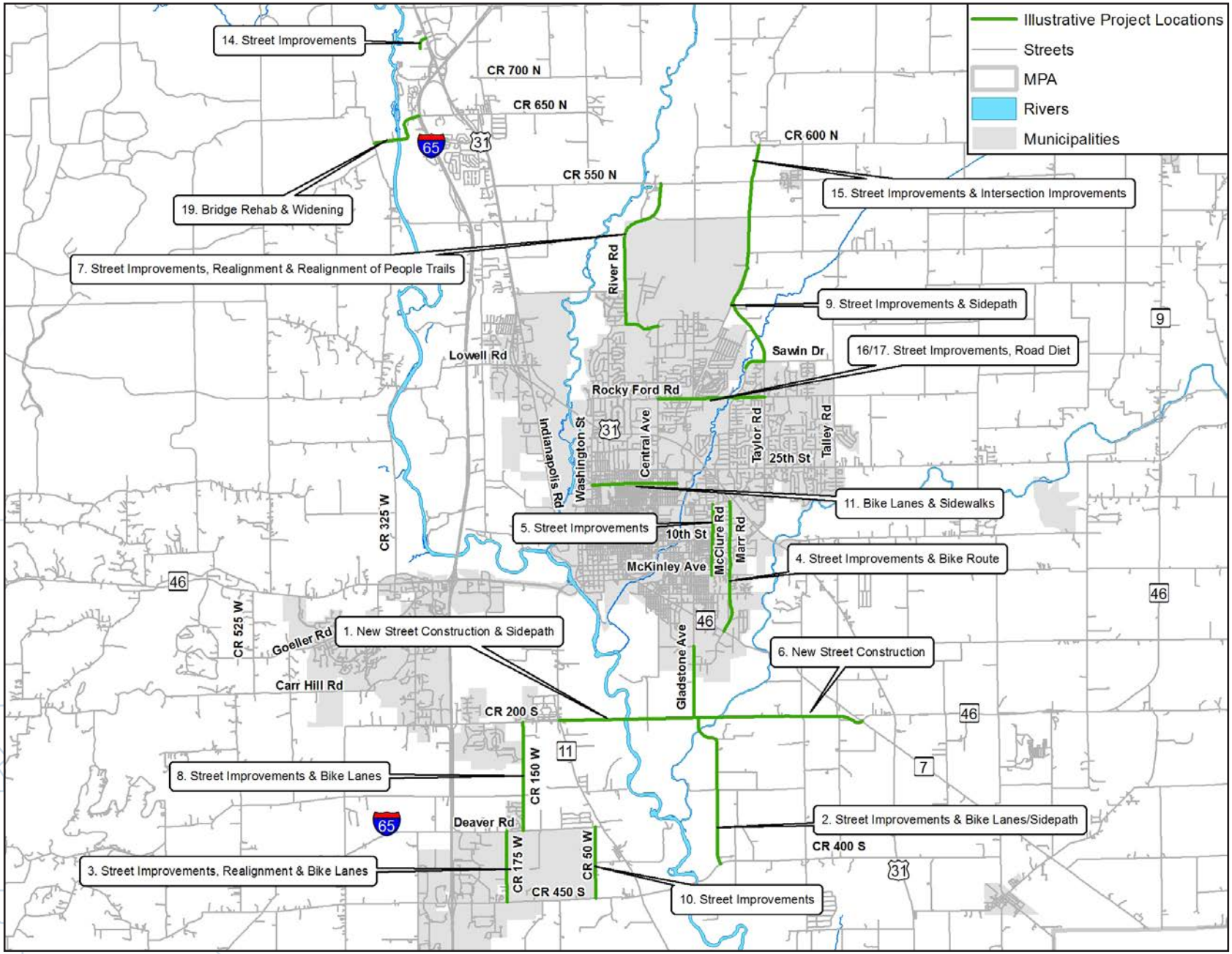
Table 11: Long-Term Transportation Projects for FY 2021-2040 (Continued)

PROJECT	PRIORITY	YEAR	LOCATION	DESCRIPTION	COST (YEAR OF EXPENDITURE)
7th St	B	2028-2031	Central Ave to Gladstone Ave	Street improvements, improve intersection for cyclists	1,382,850
Gladstone Ave	B	2028-2031	10th St to SR 46	Street improvements, bike lane	2,612,049
CR 525 W	B	2032-2035	SR 46 to Carr Hill Rd	Street improvements/ bike lanes	3,781,474
Total Priority B Projects					29,280,206
CR 200 S	C	2032-2035	Terrace Lake Rd to CR 400 W	Street improvements / bike lanes and sidewalks	2,520,983
Carr Hill Rd	C	2032-2035	CR 475 W to Champion Dr	Street improvements	3,190,052
Indianapolis Rd	C	2032-2035	Carl Miske Dr to US 31	Street improvements and sidepath	2,014,770
East St (Taylorsville)	C	2032-2035	CR 650 N to CR 700 N	Street improvements/ bike lanes	2,268,885
McKinley Ave	C	2032-2035	State Rd 46 to Marr Rd	Street improvements	3,198,447
Sawin Dr	C	2032-2035	Taylor Rd to Talley Rd	Street improvements	2,518,462
CR 550 N	C	2036-2040	US 31 to Marr Rd	Bike lanes and sidewalk	3,787,333
CR 150 W	C	2036-2040	CR 200 S to SR 46	New street construction	7,785,567
Deaver Rd	C	2036-2040	CR 175 W to CR 300 W	Street improvements	4,087,423
East and West intersections of Goeller Blvd & Tipton Lakes Blvd; intersection of Goeller Blvd & Terrace Lake Road	C	2036-2040	Intersections	Intersection improvements (roundabouts)	1,841,181
Southern Crossing (CR 450 S)	C	2036-2040	Extend to SR 7	New road construction	7,014,024
25th St	C	2036-2040	Marr Rd to Talley Rd	Intersection improvements (roundabouts)	1,841,181
Total Priority C Projects					42,068,306
Grand total					98,439,259

Table 12: CAMPO 2040 Illustrative Projects

NO.	PROJECT	LOCATION	DESCRIPTION
1	CR 200 S	SR 11 to Gladstone Ave	New street construction, sidepath
2	Gladstone Ave	Kreutzer Dr to CR 400 S	Street improvements, bike lanes/ sidepath
3	CR 175 W	Deaver Rd to CR 450 S	Street improvements & Re-alignment, bike lanes
4	Marr Road	State St to 17th St/US 31, bike route	Bike route
5	McClure Rd	17th St to McKinley Ave	Street improvements
6	CR 200 S	Gladstone Ave to SR 46	New street construction
7	River Rd	Central Ave to CR 550 N	Street improvements & re-alignment, re-alignment of People Trail
8	CR 150 W	CR 200 S to Deaver Rd	Street improvements, bike lane
9	Marr Rd	Taylor Rd to CR 550 N	Street improvements, sidepath
10	CR 50 W	Deaver Rd to CR 450 S	Street improvements
11	22nd St	Washington St to Hawcreek Ave	Bike lanes & sidewalks
12	2nd ColumBUS hub/ transfer station	Location to be determined	
13	Bike Trail - Downtown Columbus to Woodside Industrial Park	Route to be determined	
14	Hartman Dr.	West of US 31, Edinburgh	Street Extension to Willoughby Drive
15	Marr Rd	CR 550 N to CR 600 N	Street improvements/ intersection improvements
16	Rocky Ford Rd	Marr Rd to Taylor Rd	Street improvements – Road Diet and Roundabouts
18	Sidewalk improvements in existing neighborhoods	Areas to be determined	
19	Tannehill Bridge	Tannehill Rd (CR 650 N) over Driftwood River	Bridge rehab & widening
20	Woodside Industrial Park & Edinburgh bus routes	Routes to be determined	

Figure 48: CAMPO 2040 Illustrative Projects



Transit Projects

ColumBUS transit is in the planning stage of adding a 6th route to the fixed-route system with service to the Woodside Industrial Park/Walesboro area. Additional proposed improvements also include:

- Restructuring Route 1 to include IUPUC/Airport area on the inbound trip (a 2014 Route Study request) and change direction of the route on Rocky Ford in front of Candlelight for safety purposes.
- Adding an area of Route 3 at the Villas/ Fairington to Route 2, to help Route 3, which runs late hourly outbound, affecting all routes at the Target Transfer Point
- Route 3 outbound change to access Fairington on the 25th Street side for safety. Adding an inbound detour to accommodate Fair Oaks

Transit expenditure is generally separated into operations and capital costs. Operating expenditures include costs necessary to keep the system operating, such as driver wage and maintenance costs. Capital expenditure includes costs related to new vehicles, shelter at bus stops, office equipment and furnishings, and spare parts for vehicles. Based on data presented in Table 10 on page 110, Columbus is expected to use the funding received from federal, state, and local sources through the 25-year planning period towards transit operations, ensuring a fiscally constrained transit plan.

In addition to route changes and improvements, ColumBUS current funding allotments include the acquisition of six Gillig buses for fixed-route and two buses for "Call-a-bus" service, in the CAMPO FY 2016-2019 TIP. Table 13 presents the short-term capital projects programmed in the TIP. Additional capital improvement include:

- Bus shelters; requested in the 2017 Capital Budget.
- Bike racks are currently on the 5 Gillig buses which accommodate 2 bikes at time.
- GPS Systems will be requested on the replacement vehicles

Funding for future capital projects that are not included in the current TIP are grant based, and are not forecasted as part of the long-range transportation plan.

Table 13: Short-Term Capital Expenses for Transit

YEAR	PURCHASE ITEM	COST
2016	Fixed-Route Buses (2)	$910,000
2016	Call-A-Bus Vehicles	$315,000
2016	Low-Floor Minibus Vehicles	$73,000
2017	Fixed-Route Buses (2)	$910,000
2018	Fixed-Route Buses (2)	$910,000
Total		**$3,118,000**

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Appendices

Appendix A

Acronyms and Definitions

The following is a listing of definitions of acronyms commonly used in transportation planning.

%RMSE – Percent Root Mean Squared Error

3-C – Continuing, Cooperative, and Comprehensive

ACS – American Community Survey

ADA – Americans with Disabilities Act

ADT – Average Daily Traffic

ADTT – Average Daily Truck Traffic

APC – Automatic Passenger Counters

ARRA – American Recovery and Reinvestment Act

AVL – Automatic Vehicle Locators

CAAA – Federal Clean Air Act Amendments

CAC – Citizen's Advisory Committee

CAMPO – Columbus Area Metropolitan Planning Association

CMAQ – Congestion Mitigation and Air Quality Improvement

CO – Carbon Monoxide

FAST Act – Fixing America's Surface Transportation Act

FHWA – Federal Highway Administration

FTA – Federal Transit Administration

FY – Fiscal Year

HSIP – Highway Safety Improvement Program

HTF – Highway Trust Fund

INDOT – Indiana Department of Transportation

INAFSM – Indiana Association for Floodplain and Stormwater Management

IRBC – Indiana Business Research Center

IRI – International Roughness Index

ISTEA – Intermodal Surface Transportation Efficiency Act

ISTDM – Indiana Statewide Travel Demand Model

ITS – Intelligent Transportation Systems

L&I – Louisville & Indiana Railroad Company

LEHD – Longitudinal Employer-Household Dynamics

LOS – Level of Service

LRTP – Long Range Transportation Plan

MAP-21 – Moving Ahead for Progress in the 21st Century

MFT – Motor Fuel Tax

MPA – Metropolitan Planning Area

MPO – Metropolitan Planning Organization

NAAQS – National Ambient Air Quality Standards

NHFP – National Highway Freight Program

NHPP – National Highway Performance Program

NHS – National Highway System

NO2 – Nitrogen Dioxide

O3 - Ozone

Pb – Lead

PCI – Pavement Condition Index

PM10/PM2.5 – Particulate Matter

PMTF – Public Mass Transportation Funds

PYB – Prior Year Balance

TIP – Transportation Improvement Program

SAFETEA-LU – The Safe, Accountable, Flexible, Efficient Transportation Equity Act

SIP – State Implementation Plan

SO2 – Sulfur Dioxide

SOW – Statement of Work

SRTS – Safe Routes to School

STBG – Surface Transportation Block Grant Program

STP – Surface Transportation Program

SWOT – Strengths, Weaknesses, Opportunities, and Threats

TAZ – Traffic Analysis Zone

TDM – Travel Demand Model

TIP – Transportation Improvement Plan

USDOT – United States Department of Transportation

UZA – Small Urbanized Area

V/C – Volume to Capacity Ratio

VMT – Vehicle Miles of Travel

W&P – Woods & Poole Economics

YOE – Year of Expenditure

Appendix B

Regional Demographics

This appendix presents much of the data behind the conclusions drawn in Chapter 2 (the 'Regional Trends' chapter). The data comes from numerous sources including the US Census Bureau, Woods & Poole Economics, the Indiana Business Research Center, and InfoUSA. The data has been combined and compiled into succinct tables to highlight specific characteristics of the City of Columbus, the Columbus Urbanized Area, and the CAMPO MPA. A brief description of the data presented is provided before each table.

The historical and forecasted population in the CAMPO planning area (Bartholomew County) and the Columbus Urbanized Area is presented in Table B-1. The historic population, for 2000 and 2010, are from the most recent two decennial censuses. The forecasted populations are estimated from a number of sources including Woods & Poole, IBRC and historic growth trends.

Table B-1: Regional Population Forecasts

REGION	2000	2010	FORECASTED 2025	FORECASTED 2040
CAMPO MPA	71,435	76,794	84,982	91,384
Columbus Urbanized Area	49,712	54,718	60,251	62,347

Sources: US Census Bureau, Woods & Poole, Indiana Business Research Center

Table B-2 presents distribution of age groups within the CAMPO MPA. As with the previous table, the historic age group breakdowns are from recent decennial censuses; the forecasted population breakdowns are from Woods & Poole Economics.

Table B-2: Population Distribution

POPULATION	2000		2010		2040	
Under 5	5,260	7%	5,227	7%	5,725	7%
Age 5 to 19	15,182	21%	16,043	21%	17,198	20%
Age 20 to 24	4,000	6%	3,979	5%	5,051	6%
Age 25 to 44	21,181	30%	20,553	27%	20,629	24%
Age 45 to 64	17,160	24%	19,823	26%	20,198	24%
Age 65 and Over	8,652	12%	10,230	13%	16,557	19%
Total Population	**71,435**		**75,855**		**85,358**	

Sources: US Census Bureau, Woods & Poole

The ethnic breakdown within the CAMPO MPA is shown in Table B-3 and compared to the national average for context. 2000 and 2010 breakdowns are from recent decennial censuses and the forecasted ethnic breakdowns are from Woods & Poole Economics.

Table B-3: Distribution of Race and Ethnicity

RACE	COLUMBUS MPA			UNITED STATES		
	2000	2010	2040	2000	2010	2040
White	94.2%	92.2%	86.5%	75.1%	72.4%	78.3%
Black or African American	1.8%	1.7%	4.4%	12.3%	12.6%	12.7%
American Indian/Alaska Native	0.1%	0.2%	0.3%	0.9%	0.9%	0.8%
Asian	1.9%	3.2%	8.9%	3.6%	4.8%	8.0%
Native Hawaiian/Pacific Islander	0.0%	0.0%		0.1%	0.2%	
Other Race	1.0%	1.1%	-	5.5%	6.2%	-
Two or More Races	1.0%	1.6%	-	2.4%	2.9%	-
Hispanic of Any Race	*2.2%*	*5.6%*	*15.2%*	*12.5%*	*15.7%*	*27.0%*

Sources: US Census Bureau, Woods & Poole

The change in the number of households and household size in the CAMPO MPA between 2000 and 2010 are presented in Table B-4. The household breakdown characteristics are from recent decennial censuses.

Table B-4: Total Households and Household Size

HOUSEHOLD SIZE	2000		2010	
	# OF HOUSEHOLDS	% OF HOUSEHOLDS	# OF HOUSEHOLDS	# OF HOUSEHOLDS
Total Households	**27,936**	**100.0%**	**29,856**	**100.0%**
1 Person Household	6,692	24.0%	7,165	24.0%
2 Person Household	9,936	35.6%	10,927	36.6%
3 Person Household	4,633	16.6%	4,956	16.6%
4+ Person Household	6,675	23.9%	6,807	22.8%

Source: US Census Bureau

Table B-5 presents the median income for households in the CAMPO MPA from the 2010 Decennial Census.

Table B-5: 2010 Median Income by Age of Householders

AGE OF HOUSEHOLDER	COLUMBUS MPA	UNITED STATES
15 to 25 Years	$36,506	$26,465
25 to 44 Years	$57,674	$57,132
45 to 64 Years	$65,665	$63,398
65 Years and Older	$33,588	$33,906
Total Median Income	**$52,742**	**$51,914**

Source: US Census Bureau

The educational attainment for the population age 25 years and older in the City of Columbus are shown in Table B-6, based on the 2010 Decennial Census. The table provides both educational attainment for the population as a whole, as well as broken down by males and females.

Table B-6: Educational Attainment

EDUCATIONAL ATTAINMENT (2010)	CITY OF COLUMBUS			
	TOTAL	MALE	FEMALE	TOTAL %
Less than High School Graduate	3,017	1,416	1,601	10.5%
High School Graduate	9,038	3,654	5,384	31.5%
Some College	5,590	2,494	3,096	19.5%
Associate's Degree	2,185	1,011	1,174	7.6%
Bachelor's Degree	4,745	2,427	2,318	16.5%
Graduate or Professional Degree	4,159	2,481	1,678	14.5%
Total	**28,734**	**13,483**	**15,251**	

Source: US Census Bureau

Table B-7 presents the poverty status by age in Bartholomew County (the CAMPO MPA) as well as the City of Columbus. These poverty statistics come from the two most recent decennial censuses, the increase in poverty among many of the age groups is likely a result of the 2010 Decennial Census occurring in the midst of the Great Recession.

Table B-7: Poverty Status by Age Group

AGE	CAMPO MPA		CITY OF COLUMBUS	
	2000	2010	2000	2010
Under 5 Years	10.6%	21.3%	12.4%	23.4%
5 to 17 Years	8.6%	13.5%	8.5%	16.1%
18 to 64 Years	6.4%	9.1%	7.2%	9.8%
65 to 74 Years	6.6%	2.9%	6.9%	2.8%
75 Years and Older	8.4%	7.0%	7.7%	6.5%

Source: US Census Bureau

The anticipated growth in employment by sector between 2010 and 2040 is presented in Table B-8. The 2010 statistics are from the most recent decennial census and InfoUSA, the 2040 employment forecasts come from Woods & Poole Economics. The growth in employment is driven primarily by growth in manufacturing, followed by service jobs including educational, health and social services employment.

Table B-8: Projected Employment Growth by Sector

EMPLOYMENT CATEGORY	2010	2040	% CHANGE
Agriculture, Forestry, Fishing, Hunting and Mining	890	888	-0.2%
Transportation, Warehousing and Utilities	1,576	1,721	9.2%
Construction	2,139	2,985	39.6%
Manufacturing	13,862	17,959	29.6%
Wholesale Trade	1,398	2,219	58.7%
Retail Trade	5,274	6,392	21.2%
Information	506	561	10.9%
Finance, Insurance, Real Estate and Leasing	2,916	3,480	19.3%
Professional, Scientific, Management	5,526	8,220	48.8%
Educational, Health and Social Services	4,610	7,957	72.6%
Arts, Entertainment, Recreation and Accommodations	3,836	5,041	31.4%
Other Services (except Public Administration)	2,229	3,145	41.1%
Public Administration	6,711	8,199	22.2%
Total	**51,473**	**68,767**	**33.6%**

Sources: InfoUSA, US Census Bureau, Woods & Poole

Table B-9 presents the travel time to work for workers within the CAMPO MPA from the 2010 Decennial Census. In general, commutes are relatively short, with the majority of trips taking between 10 and 25 minutes.

Table B-9: Travel Time to Work

TRAVEL TIME	% OF TOTAL
Less than 5 minutes	2.7%
5 to 9 minutes	13.7%
10 to 14 minutes	24.8%
15 to 19 minutes	21.4%
20 to 24 minutes	14.9%
25 to 29 minutes	4.8%
30 to 34 minutes	5.5%
35 to 39 minutes	1.5%
40 to 44 minutes	1.9%
45 to 59 minutes	3.7%
60 to 89 minutes	3.8%
90 or more minutes	1.3%

Source: US Census Bureau

The mode of travel to work for workers in the CAMPO MPA are provided in Table B-10 from the most recent decennial census. The same statistics for the United States as a whole are also provided for context. Overall, automobiles are the predominant mode of travel to work at approximately 94% of commutes. The Columbus area is more automobile-dependent than the nation as a whole, which has an automobile commute rate of 86%.

Table B-10: Means of Transportation to Work

TOTAL COMMUTERS	COLUMBUS MPA	UNITED STATES
Drove Alone	84.3%	76.4%
Carpooled	9.4%	9.6%
Public Transportation	0.6%	5.1%
Walked	1.8%	2.8%
Taxi, Motorcycle, Bicycle, Other	1.8%	1.8%
Worked at Home	2.3%	4.4%
Total Commuters	**100.0%**	**100.0%**

Source: US Census Bureau

APPENDIX C

SAFETY IN THE MPA

This appendix presents much of the data behind the conclusions drawn in Chapter 5 (the 'Safety in the MPA' chapter). The bulk of the data regarding crash and travel statistics comes from the Indiana Department of Transportation. The data has been combined and compiled into succinct tables to highlight specific characteristics of the types of crashes, locations of crashes, and injury statistics. A brief description of the data presented is provided before each table.

Table C-1 presents the total crashes and injuries by injury severity level in the CAMPO MPA. The crash severities are defined as follows:

- *Fatal* – Crashes that results in the death of one of more persons.
- *Incapacitating Injury* – Any injury, other than fatal injury, including severe lacerations, broken ribs, skull or chest injuries and abdominal injuries.
- *Non-Incapacitating Injury* – Any injury, other than fatal and incapacitating injury, with evident injury including lumps on head, abrasions, bruises and minor lacerations or claims of injuries that are not evident.
- *Property Damage Only (PDO)* – Crashes involving property damage only with no injuries.

Table C-1: 2011-2015 Crashes by Severity

YEAR	CRASHES			INJURIES		
	FATAL	INJURY	PDO	FATALITIES	INCAPACITATING	NON-INCAPACITATING
2011	6	520	1419	6	33	658
2012	7	558	1512	8	54	691
2013	5	488	1438	6	29	646
2014	11	543	1475	12	88	678
2015	16	504	1517	19	291	397
Grand Total	**45**	**2613**	**7361**	**51**	**495**	**3070**

Table C-2 presents the fatality and incapacitating injury rates per 100 million VMT in the CAMPO MPA and compares it against statewide average injury rates. Since the number of crashes is usually expected to increase with an increase in VMT, the crash rate is a valuable measure to compare crashes between different regions across different years. Fatality rates have increased over the past five years. Incapacitating crashes, on the other hand, do not present a clear trend, mainly due the change of methodology in reporting incapacitating injury crashes. The CAMPO MPA injury rates remained under Indiana statewide average injury rates between 2011 and 2013, while the regional rates were higher than statewide rates in 2014 and 2015.

Table C-2: Fatal and Incapacitating Injuries - CAMPO MPA vs. Indiana

YEAR	COLUMBUS MPA		INDIANA	
	INJURIES PER 100 M VMT		INJURIES PER 100 M VMT	
	FATALITIES	INCAPACITATING	FATALITIES	INCAPACITATING
2011	0.56	3.07	0.98	4.46
2012	0.77	5.21	0.99	4.84
2013	0.55	2.66	1.00	4.39
2014	1.08	7.90	0.92	6.77
2015	1.70	26.11	1.01	22.72

Note: VMT for 2014 was used for 2015.

Crashes by the time of day are provided in Figure C-1. The crashes were highest on Friday and remained relatively low on the weekends. The crash frequency remained constant on other days of the week.

Figure C-1: Regional Traffic Crashes by Day of Week

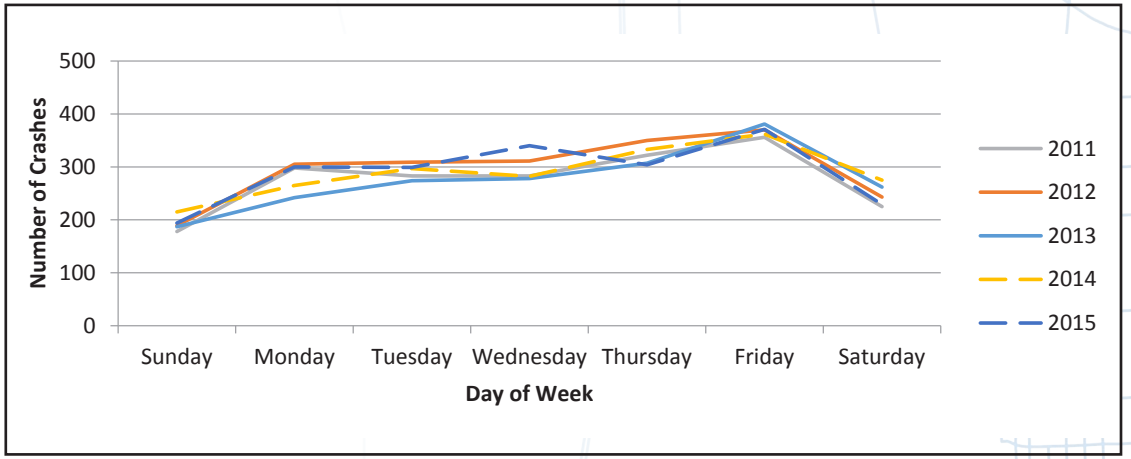

Table C-3 presents the total crashes in Columbus MPA by major collision types. Rear-end crashes are the most common collision type contributing to more than a quarter (29%) of the total crashes. Right angle, along with turning, crashes are the second most prevalent collision type in the CAMPO MPA at 23% of total crashes. The rear end, right angle, and turning crashes commonly occur at intersections and along congested corridors. Prior to 2014, the "Collision with Object on Road" and "Collision with Animal" collision types were not used, and instead the crashes involving animals were noted as "Animal/ Object in Roadway" as primary cause and categorized into other collision types, such as "Head on Collision", "Sideswipe", "Ran Off Road", "Other", etc. It is anticipated that this change in categorizing crashes involving animals came in effect mid-October 2014, at the same time as the change in definition of incapacitating crashes. While the "backing crashes" and "same direction sideswipe" crashes decreased between 2011 and 2015, "turning crashes" and "ran of road" crashes increased noticeably during the same period. Most other crash types remained consistent between 2011 and 2015.

Table C-3 : Crashes by Collision Type

COLLISION TYPE	2011	2012	2013	2014	2015	Grand Total
BACKING CRASH	164	173	146	135	133	**751**
COLLISION WITH ANIMAL	-	-	-	63	183	**246**
COLLISION WITH OBJECT IN ROAD	-	-	-	5	28	**33**
HEAD ON BETWEEN TWO MOTOR VEHICLES	222	246	231	203	45	**947**
LEFT/RIGHT TURN	114	90	119	142	143	**608**
NON-COLLISION	16	37	32	28	10	**123**
OPPOSITE DIRECTION SIDESWIPE	51	43	61	43	33	**231**
OTHER	96	92	71	94	135	**488**
RAN OFF ROAD	245	282	299	395	374	**1,595**
REAR END	462	542	443	457	495	**2,399**
REAR TO REAR	4	5	3	4	1	**17**
RIGHT ANGLE	372	382	375	328	322	**1,779**
SAME DIRECTION SIDESWIPE	199	185	151	132	135	**802**
Grand Total	**1,945**	**2,077**	**1,931**	**2,029**	**2,037**	**10,019**

Table C-4 presents the alcohol impaired and distracted crashes in the Columbus MPA between 2011 and 2015. Distracted driver crashes include fatigued, illness/ medicated, prescription drugs, asleep, inattentiveness, etc. The impaired driving crashes have remained constant over the five-year analysis period, peaking in 2012 and 2014. The distracted driving crashes have decreased over the same period. and 2015.

Table C-4: Impaired and Distracted Driver Crashes

YEAR	CRASHES	INJURIES		
		FATAL	INCAPACITATING	NON-INCAPACITATING
Impaired Driving Crashes				
2011	47	4	2	21
2012	58		3	26
2013	39	3	2	15
2014	54	3	6	22
2015	44	6	13	4
TOTAL	**242**	**16**	**26**	**88**
Distracted Driving Crashes				
2011	167			77
2012	126		4	53
2013	134	2	2	57
2014	140		14	55
2015	129	3	15	43
TOTAL	**696**	**5**	**35**	**285**

The age distribution of drivers involved in impaired (alcohol & drugs) crashes is provided in Figure C-2. Crash frequency is the highest for age groups between 25- 35, which account for about 27% of crashes in this age range. The impaired driving decreases as the age of drivers increases, with less than 10 crashes involving drivers over 65 years old.

Figure C-2: 2011-2015 Impaired Driver Crashes by Age Group

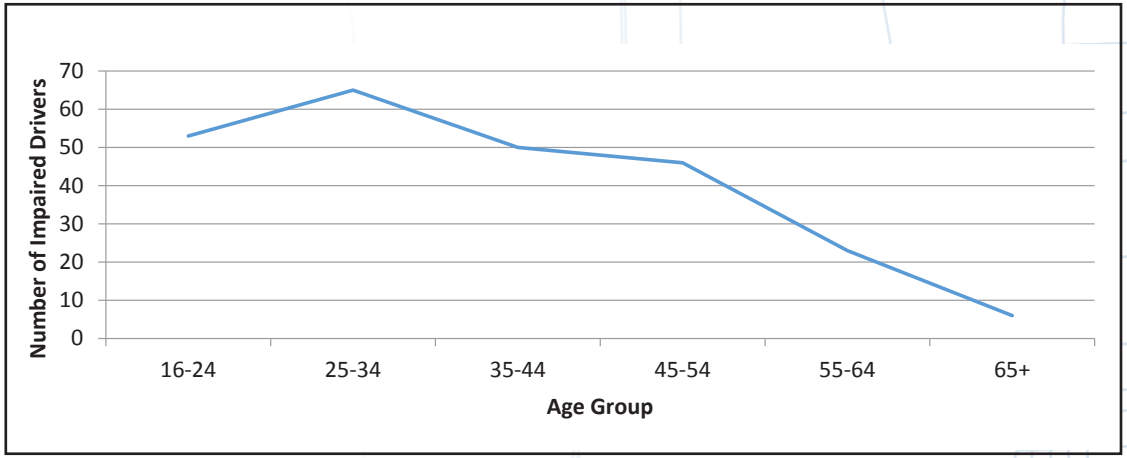

Table C-5 presents the crashes involving bicycles and pedestrians in the CAMPO MPA. The majority of the bicycle and pedestrian crashes resulted in injuries, with five fatal pedestrian crashes in the region between 2011 and 2015

Table C-5: 2011-2015 Bicycle and Pedestrian Crashes by Severity

YEAR	TOTAL	INJURIES		
		FATAL	INCAPACITATING	NON-INCAPACITATING
Bicycle Crashes				
2011	20		2	19
2012	15			14
2013	14			13
2014	14		3	11
2015	14		3	7
TOTAL	**77**	**0**	**8**	**64**
Pedestrian Crashes				
2011	21	1	2	16
2012	24	1	2	21
2013	14		1	12
2014	25	2	4	20
2015	21	1	8	11
TOTAL	**105**	**5**	**17**	**80**

Figure C-3 and Figure C-4 present the age distribution of pedestrians and bicyclists involved in the crashes respectively. The crashes were noted to be highest for pedestrians between the ages of 15 and 19, and bicyclists between the ages of 10 and 14.

Figure C-3 : 2011-2015 Pedestrian Crashes by Age Group

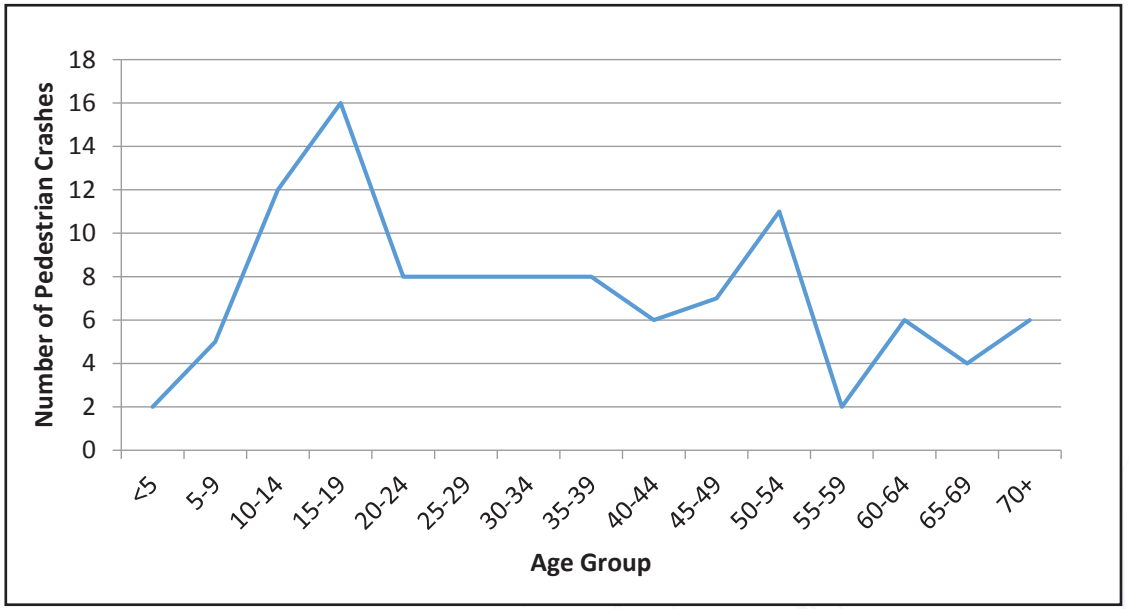

Figure C-4: 2011-2015 Bicycle Crashes by Age Group

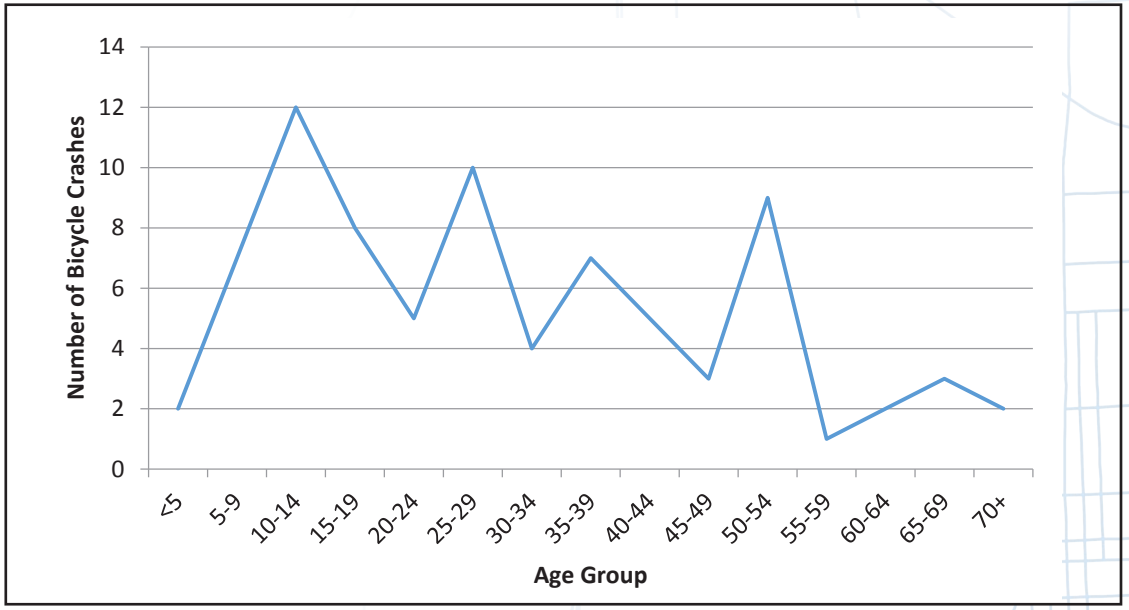

Figure C-5 presents fatal and injury crashes along the major corridors in the region. Higher speed state routes and city arterials are the source of the majority of injury and fatal crashes during the study period.

Figure C-5: 2011-2015 Crashes on Major Corridors by Severity

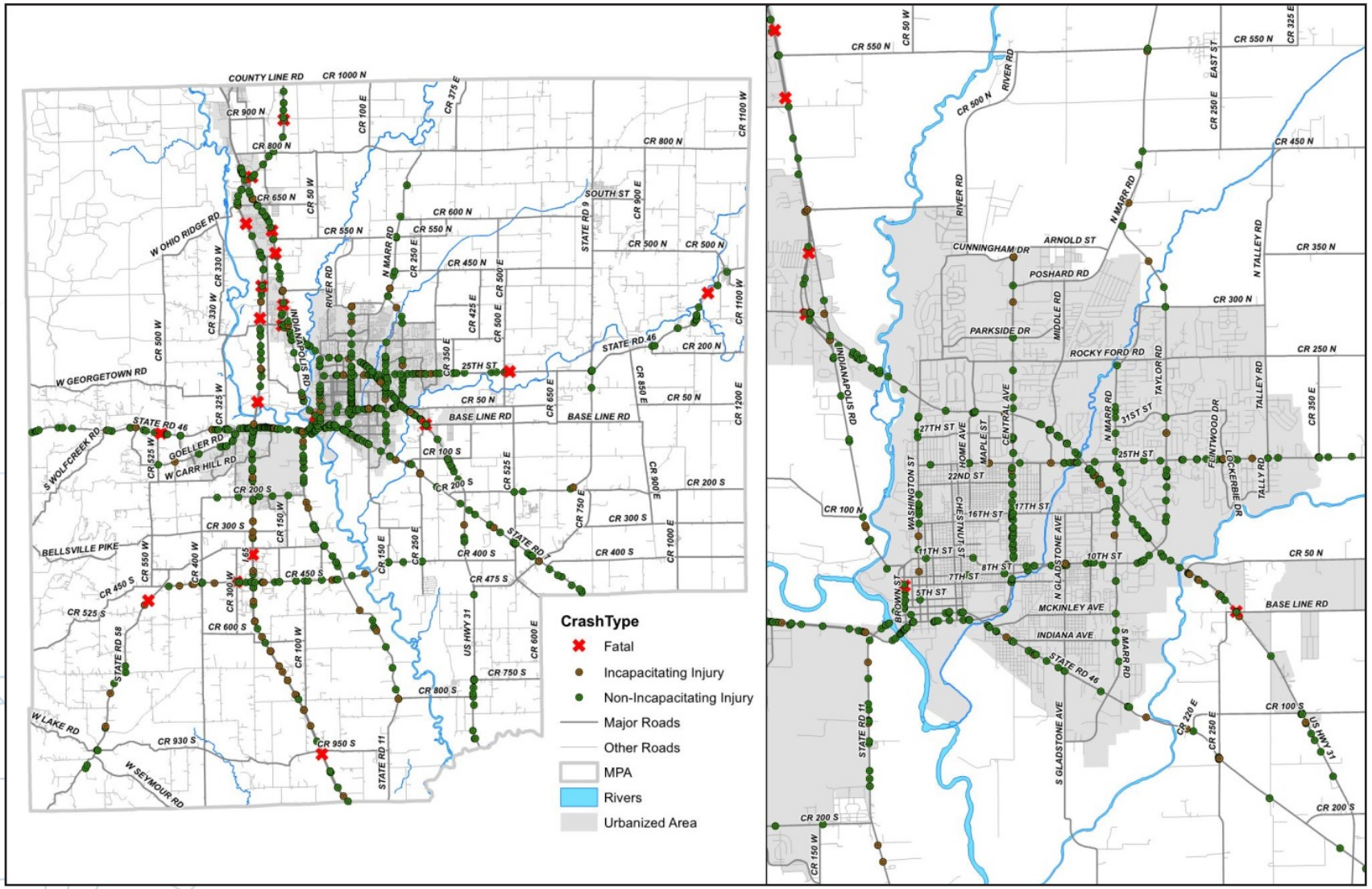

Table C-6 presents the mid-block crash data for the major corridors in the region. SR 46, US 31, 25th St., SR 11, and Central Ave. are the highest crash frequency corridors in the region.

Table C-6: Mid-Block Crashes on Major Facilities

CORRIDORS	CRASHES	INJURIES		
		FATAL	INCAPACITATING	NON-INCAPACITATING
25th Street	254	1	12	72
Central Avenue	182	0	6	70
CR 200	76	2	3	11
I-65	857	13	72	172
Marr Road	100	0	4	34
SR 11/Jonesville Road	206	1	17	61
SR 58	111	1	8	24
SR 7	117	0	3	45
SR 46	885	4	35	252
US 31	738	5	38	189

Table C-7 presents the major crash intersection locations in Columbus. Intersection of 25th Street and US 31 recorded the highest number of crashes over the five-year period. Other high crash frequency intersections included US 31 and Central Ave., US 31 and Marr Rd., and 25th and Taylor Road.

Table C-7: 2011-2015 High-Frequency Intersection Crash Locations

INTERSECTION	CRASHES	INJURIES		
		FATAL	INCAPACITATING	NON-INCAPACITATING
25th St & US 31	116	0	1	37
US 31 & Central Ave	83	0	1	37
US 31 & Marr Road	80	0	3	20
25th St & Taylor Road	77	0	4	37
SR 7 & US 31	68	0	1	18
10th St and Marr Road	67	0	4	23
US 31 & I-65	64	0	14	17
SR 46 & SR 11	58	0	1	26
25th St & Central Ave	50	0	3	24
3rd St & Lindsay Street	49	0	0	21

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APPENDIX D

CAMPO SWOT ANALYSIS

The goals and objectives for CAMPO were developed based on regional FAST Act priorities, INDOT transportation policy factors, extensive stakeholder engagement and input received during public meetings. A SWOT (Strengths, Weaknesses, Opportunities and Threats) exercise was performed with the CAMPO LRTP steering committee members to help highlight the positive or negative factors impacting the existing and future transportation infrastructure in the region. The four elements explored as part of the SWOT analysis include:

- **STRENGTHS:**
  Characteristics of the CAMPO region that give it an advantage over other, similarly sized regions in the country.
- **WEAKNESSES:**
  Characteristics of the CAMPO region that put it at a disadvantage relative to other similarly sized regions in the country.
- **OPPORTUNITIES:**
  Either elements of the CAMPO region which can be exploited to be an advantage for the region, or elements that are currently underutilized within the region.
- **THREATS:**
  Elements of the transportation system or growth trends that could potentially cause problems for the CAMPO region over the next 25 years.

The inputs received under each element of the SWOT analysis is presented below:

STRENGTHS

1. Strong economy
2. Schools K-12 and Higher Education (IUPUC)
3. Parks in the community
4. Diversity
5. Public transportation
6. Interstate system
7. Easy access to big metros
8. Active community
9. Engaged public/Public involvement
10. Art scene
11. Architecture
12. Top 5 retirement area in the US
13. Airport
14. Columbus marathon
15. Easy access to shops
16. Festivals
17. Safety and low crime
18. Low congestion relative to other places
19. Stable housing market
20. Engaged employers- volunteer services dedicate many hrs/ year
21. Philanthropy
22. Good social services
23. Medical services
24. Good public spaces urban /suburban
25. Golf Courses
26. Kids activities - soccer fields - ball fields - foundation of youth
27. Good representation of faith services
28. Welcoming Community
29. Good emergency services
30. Awesome downtown
31. Solid work opportunity
32. Clean town

WEAKNESSES

1. West side is cool but railroad tracks / noise
2. Poorly coordinated traffic signals - Flashing yellow at nights
3. Shortage of low cost housing
4. Dilapidated housing
5. Only one path from one side of town to other SR 46
6. Flooding Problems
7. Twenty-something/younger crowd attracted to Indy/ Chicago
8. Public Transportation only in City
9. Lack of developable land for industrial/ residential
10. Same as above
11. Large concentration of employees in one company
12. Congestion along SR 46 congestion and along I-65 interchanges.
13. School zone peak hour congestion 7:30 to 8:00 and again 3:00 and 3:30 even around 5 pm
14. Limited eastside parking
15. Vehicles vs. Pedestrian vs. Cyclists issues
16. Cyclists use county roads
17. Drug Use / Safety issue
18. Condition of some aged sidewalks /gaps / safety issue
19. Limited local taxi services
20. Lack of roundabouts
21. Prevalence of state highways 11,46,58,31,7,9,I-65
22. Bike/Ped mobility from east to west
23. Condition of roads on the perimeter of the City
24. Expensive housing. Price per sq. ft. - Cheaper housing up in Greenwood

OPPORTUNITIES

1. Monetize the high train traffic (25 trains/day)
2. Reduce delays/congestion caused by at-grade rail crossings
3. Make necessary improvements to allow for high-speed track
4. Enhance emergency services on both sides of town East & West, especially west side
5. US 31 has a RR overpass - upgrade County Roads around CR 325 to SR 46
6. Examine fringe county roads for improvement needs to serve existing and future development.
7. Encourage mixed-use redevelopment
8. Exit 64 - Opportunity for signalization (58/480450) International Drive to Woodside industrial park
9. Beautify US 31 from Taylorsville Exit to Columbus
10. Bike/Ped expansion (per plan)
11. Expand county transportation service with service to Indy airport and metro centers
12. Expand transit/transportation service
13. Leverage strength of Columbus via marketing to young single employment base
14. Living migration - change the trend of work in Columbus but live elsewhere
15. Identify business and industry partners for provision of transit
16. Enhance pedestrian safety with signalization, signage and markings, i.e. Pedestrian HAWK signals.

THREATS

1. Funding
2. Railroad
3. Dead-end Roads
4. Jurisdiction of roads between City and County
5. Public Education/ Awareness
6. Historic right of way
7. Flooding
8. Environmental

APPENDIX E

PUBLIC PARTICIPATION

The 2040 CAMPO long-range planning process involved an extensive public outreach effort, resulting in a large number of spoken and written comments from the public. This effort was consistent with the requirements of CAMPO's Public Participation Plan (2007). Between June and September, the MPO staff conducted four public open houses over the course of the plan development process. The staff also held a week-long public outreach effort at the Bartholomew County Fair in July. Participants at these events had the opportunity to review and provide input on regional goals and objectives, scenario development, and key transportation improvement initiatives, and to express any concerns about specific transportation issues in the community.

The public open houses utilized PowerPoint Presentations to highlight the planning process, graphically illustrate scenarios, and examine deficiencies at selected locations where transportation improvements were proposed. Display boards with maps of Columbus and Bartholomew County were utilized during open houses to facilitate public comment. To generate enthusiasm and boost participation during these events, "voting" exercises were conducted to prioritize the land-use and transportation scenarios. CAMPO's website, Facebook page, media releases, and email contact group lists were utilized to keep the public updated on the process and aware of events throughout the long-range plan process. The public involvement process is summarized below.

Public Open House 1

Columbus City Hall
June 14, 2016, 6:00 p.m. to 8:00 p.m.

An open house was conducted at the Columbus City Hall to gather public input on the proposed scenarios to be evaluated by the CAMPO Travel Demand Model. A total of 23 people attended the meeting. A short PowerPoint presentation was given by Lochmueller Group to present the scenarios to the public. After the presentation, the public had the opportunity to go through the scenarios in detail and provide comments. CAMPO and Lochmueller Group staff were available to discuss the scenario details with the public.

A voting exercise was conducted where participants were given two stickers, one green and one orange. The participants were asked to place the green sticker on the land use scenario they would most like to see occur over the next 25 years, and the orange sticker should go on the scenario they most expect to occur. 16 of the 17 participants preferred infill residential growth scenario (Scenario 2d), while one participant preferred no southwest residential growth scenario (Scenario 2a). 12 of the 17 participants expected no southeast residential growth (Scenario 2a) by 2040, followed by 4 participants voting of the scenario with all residential growth on the west side of Columbus and one voting for infill residential development as the most expected scenario.

Comments received during the public meeting related to improving the transit service, the lack of sidewalks in the east side of Columbus, need for additional bike lanes and multi-use path, potential locations for roundabouts, and alternate routes to SR 46.

Public Input

Bartholomew County Fair
July 8-15, 2016

Staff of the planning department promoted CAMPO's LRTP in the City's booth. The booth was open for eight evenings from 4:30 p.m. to 9:00 p.m. Fair-goers had the opportunity to comment on transportation issues in the community, and to indicate areas for improvement on city and county maps. More than 90 comment cards were filled out during the course of this week-long event. ColumBUS Transit had a presence in the booth, which helped facilitate conversations about desired changes and additions to bus routes. The booth also provided information from the City's Engineering Department on storm water and environmental issues, and from Colum**Bike** on the community's new bike sharing network.

Comments received included many about specific problems, including signal timing, traffic violations, and potholes, but the majority were related to more substantial issues such as the lack of sidewalks in some neighborhoods, the need for better connections to parks and the People Trail, the need for safer street crossings in many areas, suggestions for adjustments and expansion of transit routes, the need for more and safer bike lanes/trails, and the desirability of roundabouts at some intersections.

Public Open House 2

Columbus Municipal Airport
July 27, 2016, 6:00 p.m. to 8:00 p.m.

An open house was conducted at the Columbus Municipal Airport to present the travel demand model results for each scenario. The modeling results were used to analyze and compare each land use and transportation improvement scenario. A total of 21 people attended the meeting. Lochmueller group presented the modeling results and explained the impact of each scenario on the future transportation system. After the presentation, CAMPO and Lochmueller Group staff were available to discuss the modeling results with the public.

A "transportation buck expenditures" exercise was conducted where participants were given four fake one dollar bills and were asked to vote on the scenarios they thought was were most important. The participants had the opportunity to use all their dollar bills to vote for one scenario, if they so wished. This exercise was conducted to simulate the real life condition, where funding for local infrastructure projects are limited. Emphasis to land use scenarios and road-diet/roundabout scenario shared the higher priority at $24, followed by East-West Connection scenario at $15, and Non-motorized at $13. Transit scenario received $6.

Comments at the public meeting included the need for additional sidewalks, bike and pedestrian safety, the need for additional sidewalks, congestion along SR 46, driver education on multi-modal safety, roadway improvements, and improving transit service, including additional transit hubs.

Public Open House 3

Columbus City Hall
August 2, 2016, 11:30 a.m. to 1:30 p.m.

This open house was held mid-day to be convenient for lunch-hour participants. No presentation was given, but otherwise, the public input process was the same as for the second open house. Twenty-three people attended this event, not counting planning department staff and LRTP consultants. Comments related to topics such as support for complete streets/road diets, concern about the anticipated increase in rail traffic and the lack of east-west connections, opportunities for protected bike lanes, a need for rural transit, and the possibility of a multi-hub transit network.

Public Open House 4

Columbus City Hall
September 26, 2016 6:00 p.m. to 8:00 p.m.

The fourth and final public open house was held to allow public comment on transportation needs and projects. (As of the date of this draft, this open house hadn't taken place yet, and more information will be added here later.)

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APPENDIX F

CAMPO Travel Demand Model

A Travel Demand Model (TDM) is an important transportation planning tool developed to evaluate transportation systems through an integrated demand-capacity analysis. The model utilizes a study area roadway network, land use data, and regional travel patterns to replicate existing travel conditions in the form of traffic allocated to the roadway network. Once the model is validated and calibrated against the observed conditions, the model is used to predict future travel patterns based on roadway and transit network changes, future population and employment growth, and land use modifications. The model provides information used by decision-makers to consider future infrastructure investments and policy scenarios that help reduce traffic congestion and promote economic growth in the region. Some of questions the model is equipped to answer include:

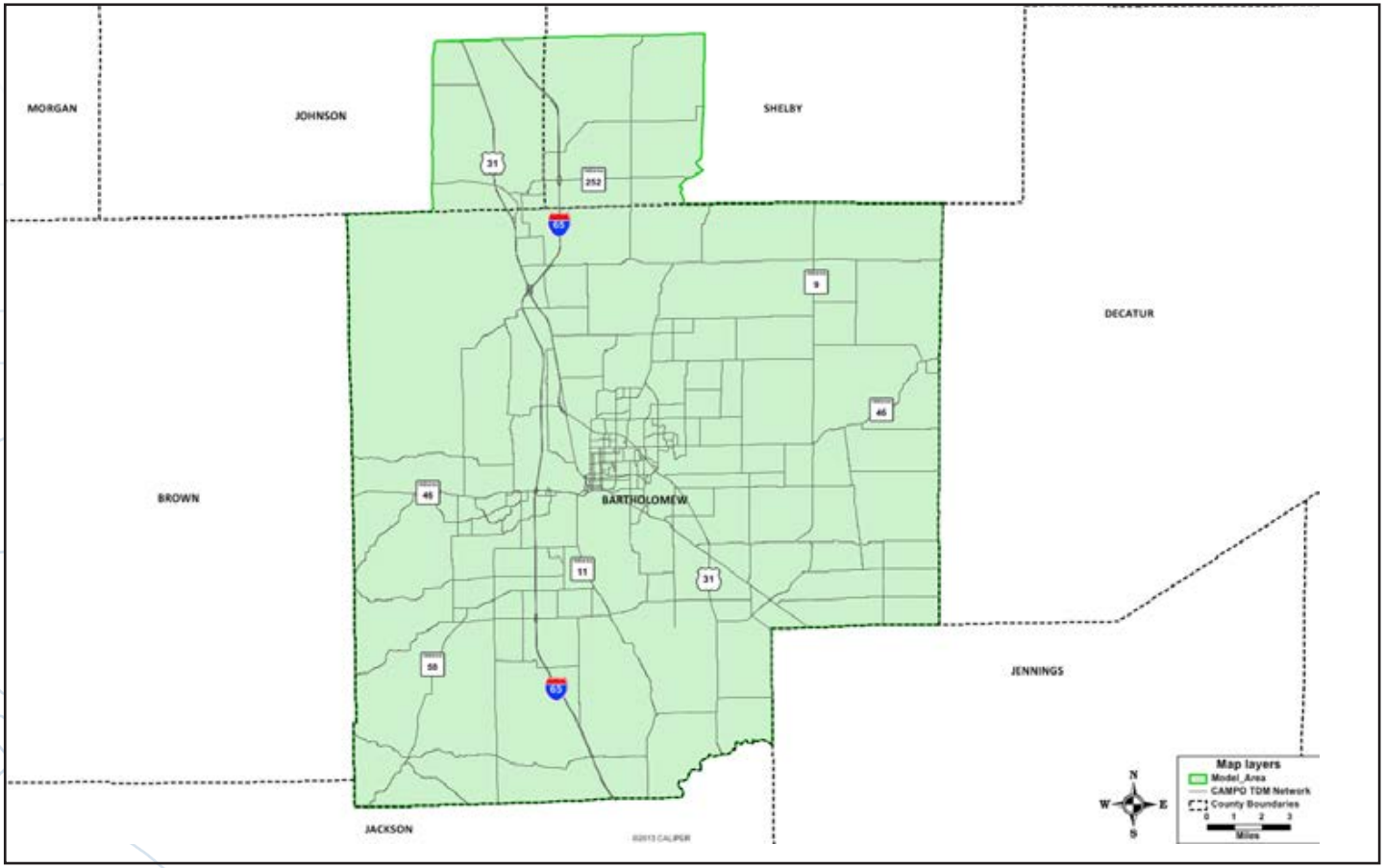
- Would transit ridership increase as a result of more frequent transit service or new routes?
- Would vehicle-miles-traveled decrease as a result of denser, mixed-use developments?
- Would adding dedicated pedestrian and bicycle infrastructure result in fewer trips being made by automobile?
- Would increasing travel/parking costs result in modified travel behaviors relative to destination and mode preferences?

Lochmueller Group has completed the first TDM for the Columbus Area Metropolitan Planning Organization (CAMPO). The CAMPO TDM was developed for a base year of 2010 on the TransCAD platform. The model area encompasses the entirety of Bartholomew County, as well as portions of Johnson and Shelby Counties. A map of the model area is provided in Figure F-1. The model area was sub-divided into 413 (379 internal and 34 external) small geographical areas called traffic analysis zones (TAZs). The socioeconomic characteristics of each TAZ, such as population and employment, are used by the model to generate traffic demand for trips into and out of each TAZ. The socioeconomic data for 2010 was obtained from the US Census and American Community Survey (ACS).

The model network includes 574 miles of roadways plus the ColumBUS transit fixed route service to assign trips between the TAZs. The model utilizes outputs from the Indiana Statewide Travel Demand Model Version 7 (ISTDM v7) to estimate trips originating and ending outside of the model study area, as well as trips passing through the model area without stopping (such as those on Interstate 65).

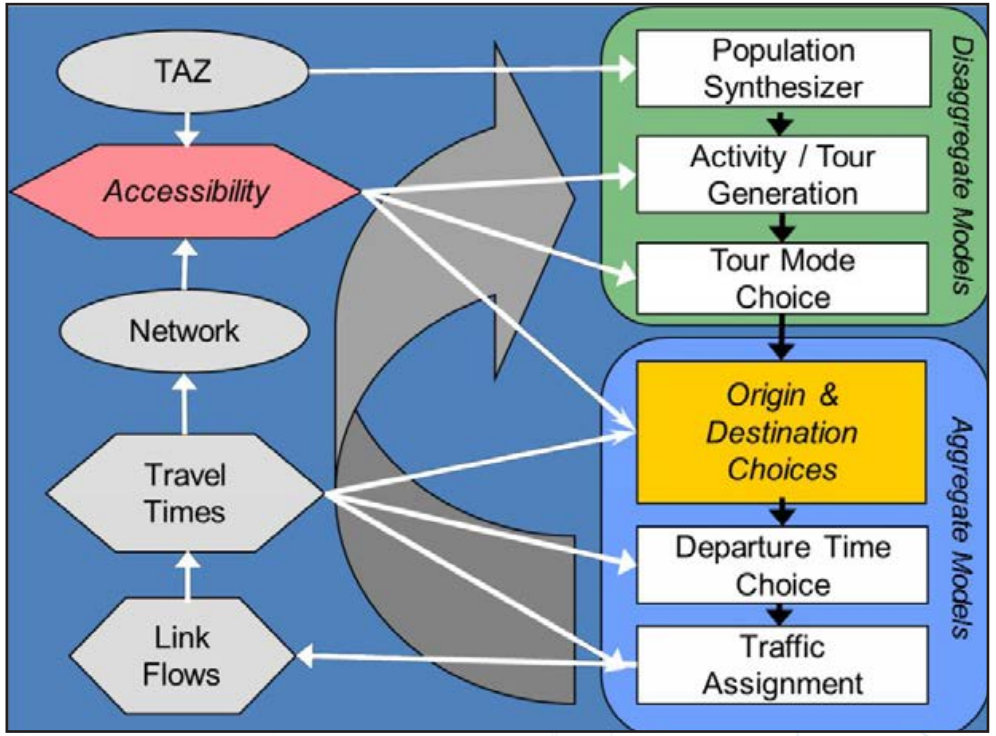
The CAMPO TDM was developed as a "hybrid" travel demand model. The hybrid model blends aspects of both traditional four-step models and activity-based models. It provides a distinct advantage over the most commonly used traditional four-step models by reducing zonal aggregation bias which can skew model results and by providing consistency with tour and trip-chaining behavior, realistic representation of special populations (seniors, low-income, students) for environmental justice purposes, sensitivity to fuel prices and urban design, and planning capabilities for transit, bicycle and pedestrian modes among several additional benefits. Unlike the data and resource intensive activity based models the CAMPO hybrid travel demand model was developed in under a year and takes less than 20 minutes to run.

Figure F-1: CAMPO TDM Model Area



The hybrid model begins by generating a synthetic population of individual households based on the aggregate characteristics of the population encoded in the TAZs. Then a model predicting households' level of vehicle ownership is applied. The number of tours of various purposes (work, school, other, etc.) and the number of stops on these tours are predicted for each household. The dominant mode of travel (private automobile, school bus, public bus, walking/biking) is modeled for the household's tours of each purpose. Then, grouping households within the same TAZ together, probable locations of the stops on automobile tours are chosen. Next, for each probable stop location, a preceding location is chosen such that the resulting probable sequences of stops form tours that begin at home and proceed from one stop to the next until returning to home.

Figure F-2: Hybrid Travel Demand Model Structure



For each trip in the resulting travel pattern, the probability of walking, driving alone or with passengers is predicted, as is the departure time (in 15 minute time periods). Finally, the trips are assigned to the roadway network and routes are chosen such that travelers minimize their travel time and costs. The resulting travel times are used to recalculate accessibility variables, and both are then fed back and used to repeat the process, beginning from the generation of tours and stops, until the changes from one iteration to the next in the resulting roadway volumes are minimal. This process is illustrated in Figure F-2. Detailed model description is presented in the CAMPO Travel Demand Model – Technical Document.

The model was calibrated to satisfy the validation standards recommended in the "Travel Model Validation and Reasonableness Checking Manual", published by Federal Highway Administration (FHWA). The model was well calibrated with a Percent Root Mean Squared of Error (%RMSE) of 28 percent.

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Appendix G

Travel Model Output Results

This appendix presents the maps illustrating the model results of the scenario analysis. The Average Daily Traffic (ADT) and roadway level of service (LOS) maps for each scenario are presented on the following pages.

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SCENARIO 1: BASELINE SCENARIO

Figure G-1: 2040 Base Scenario Average Daily Traffic (ADT)

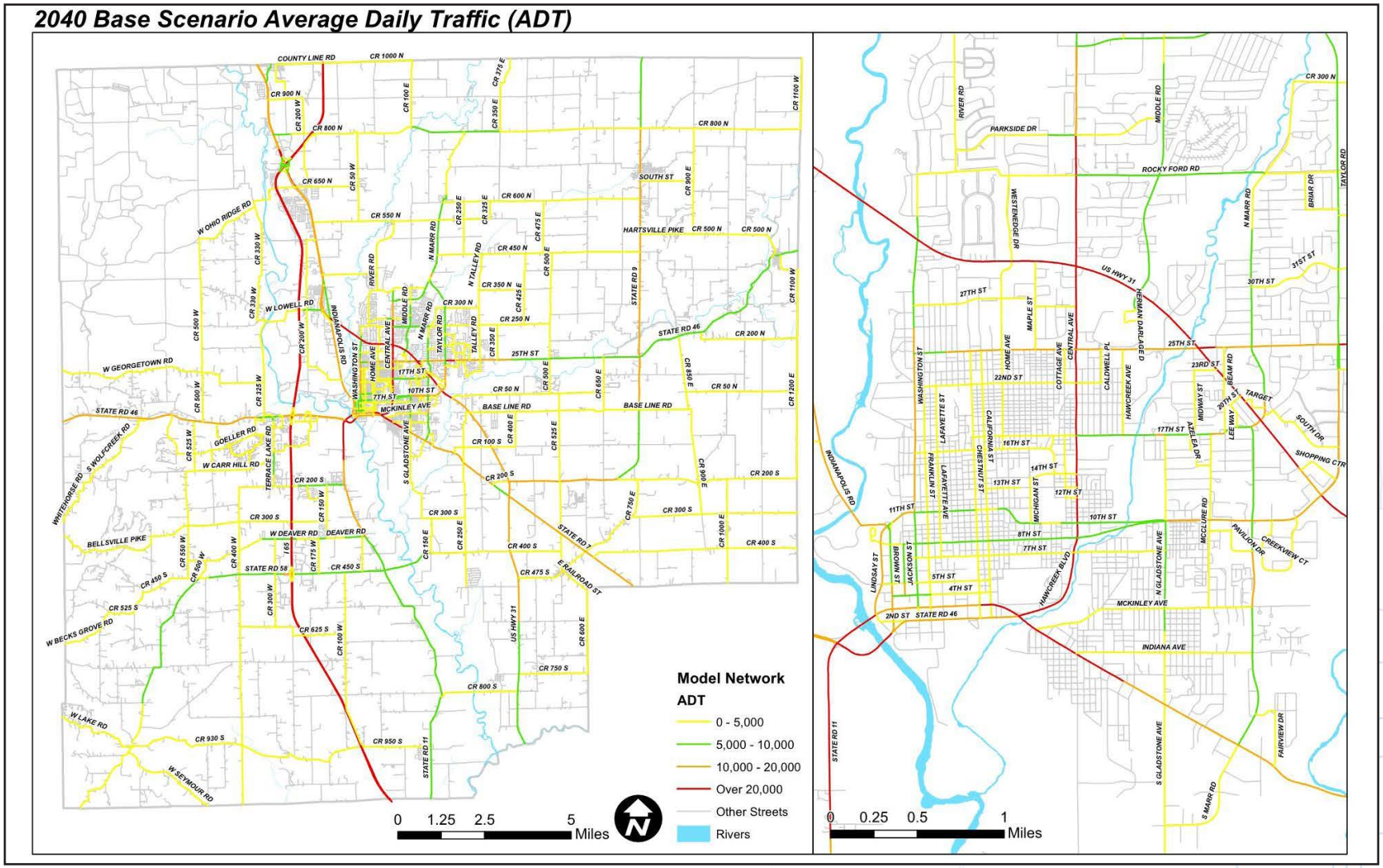
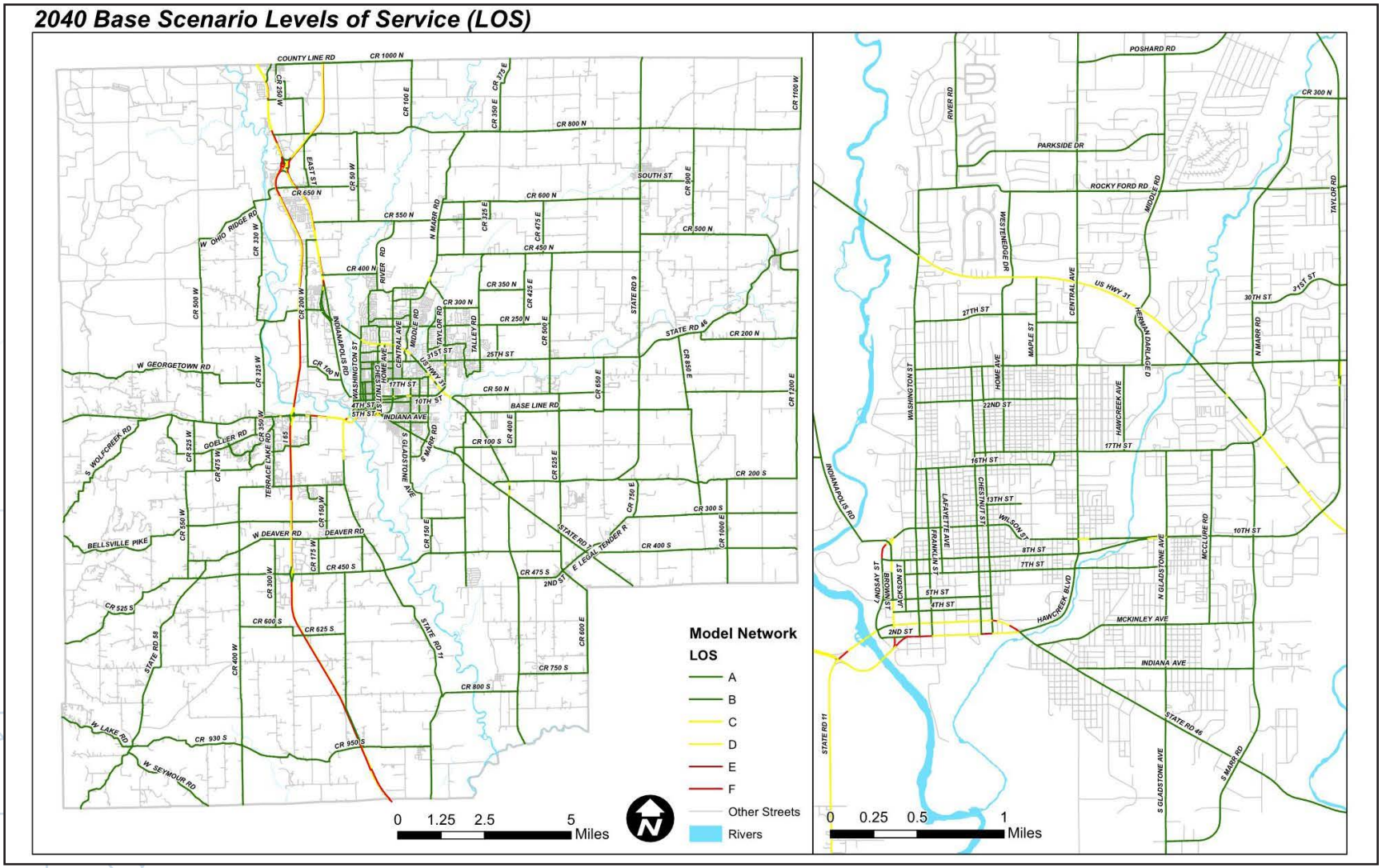


Figure G-2: 2040 Base Scenario Levels of Service (LOS)



SCENARIO 2A: NO SOUTHEAST RESIDENTIAL GROWTH SCENARIO

Figure G-3: No Southeast Residential Growth Scenario Change in ADT vs. 2040 Base Scenario

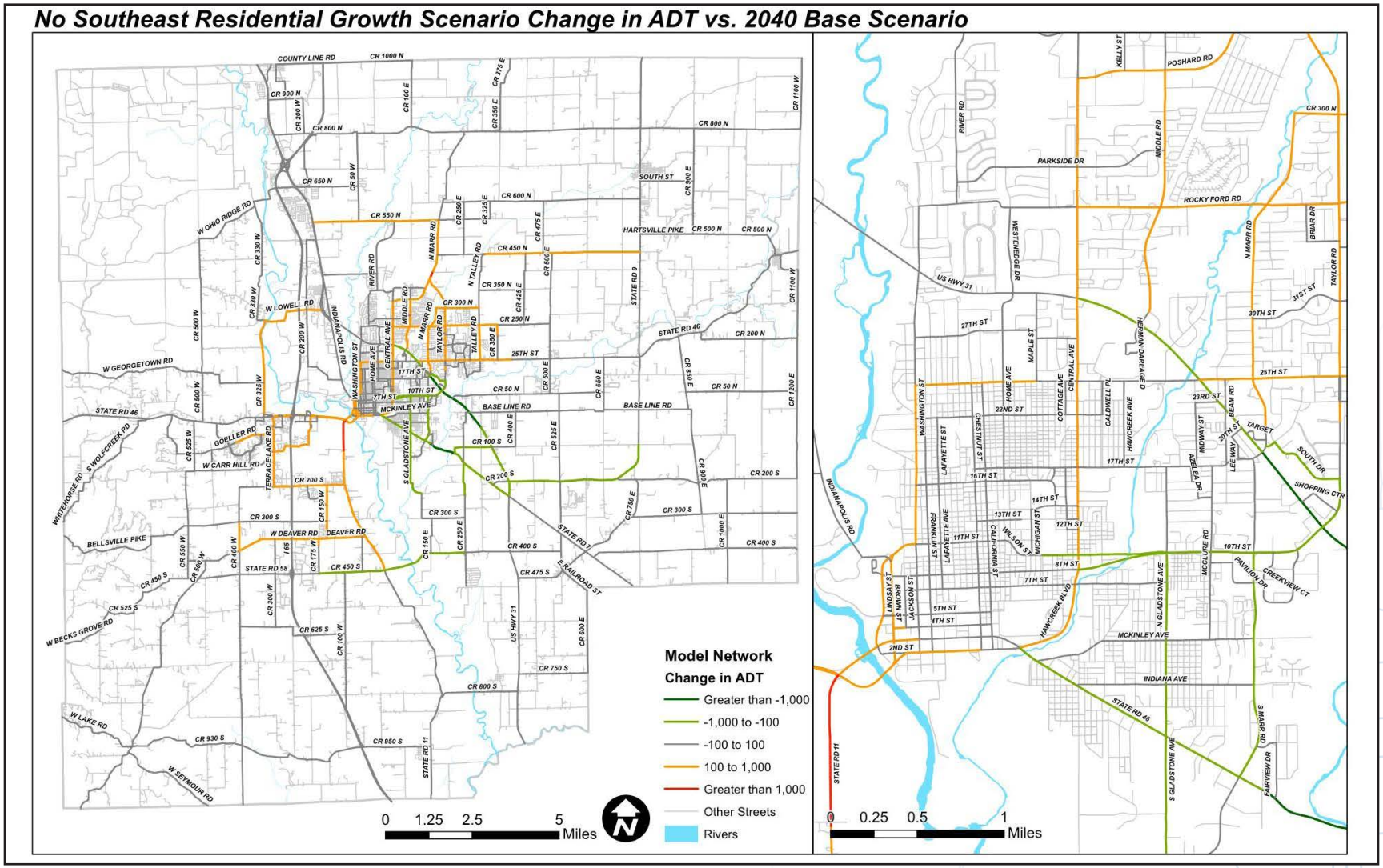
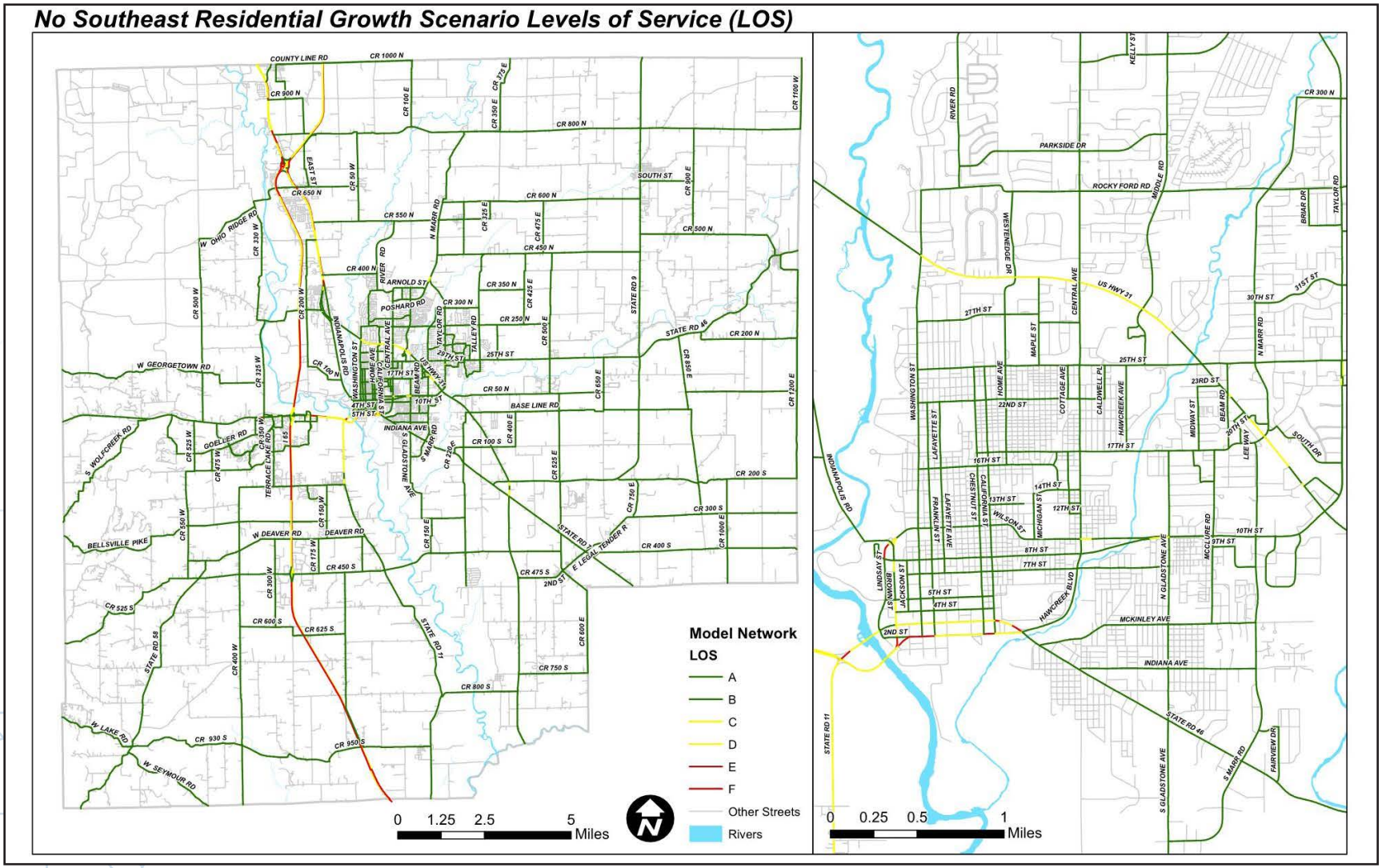


Figure G-4: No Southeast Residential Growth Scenario Levels of Service (LOS)



SCENARIO 2B: NO NORTHEAST RESIDENTIAL GROWTH SCENARIO

Figure G-5: No Northeast Residential Growth Scenario Change in ADT vs. 2040 Base Scenario

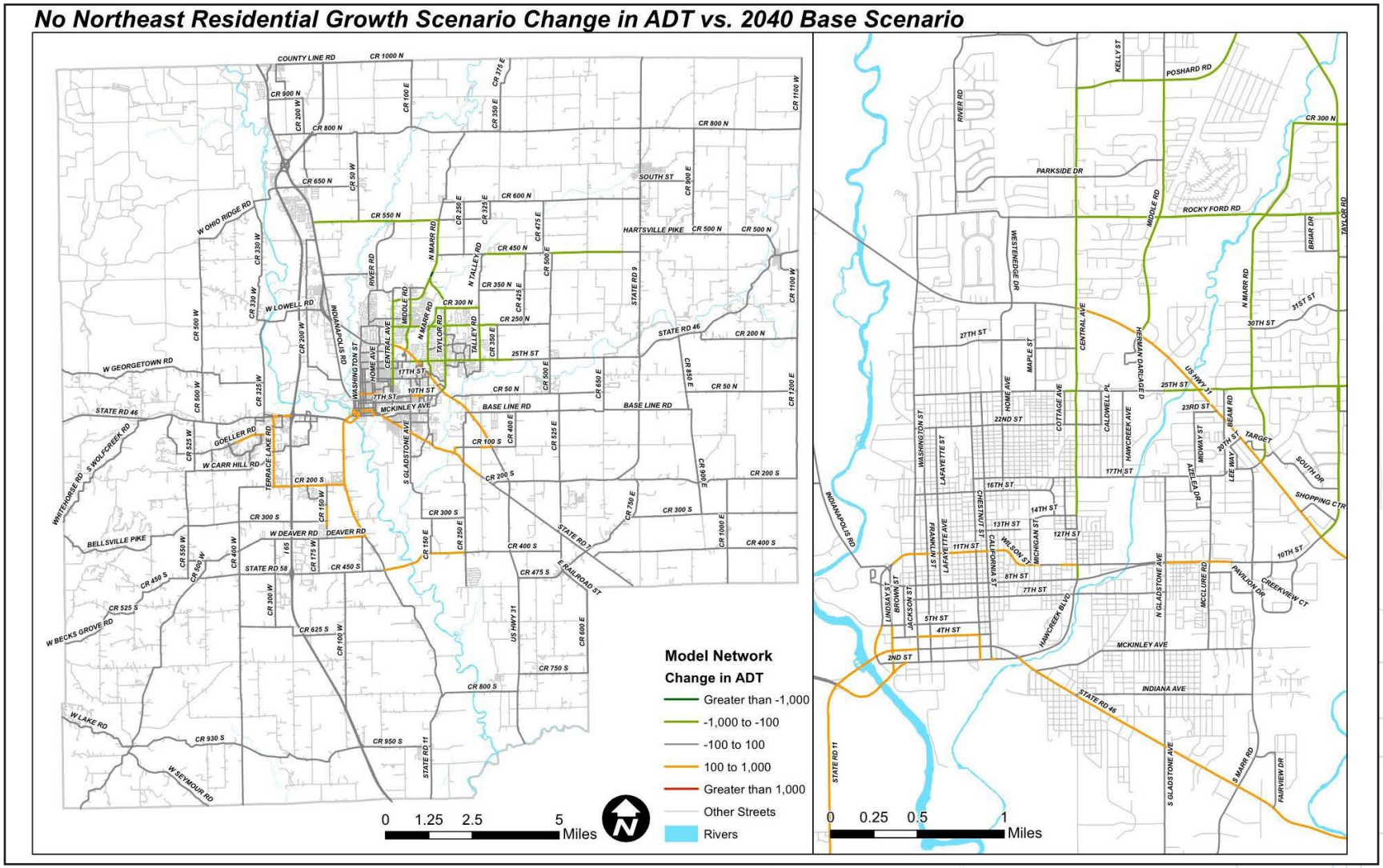
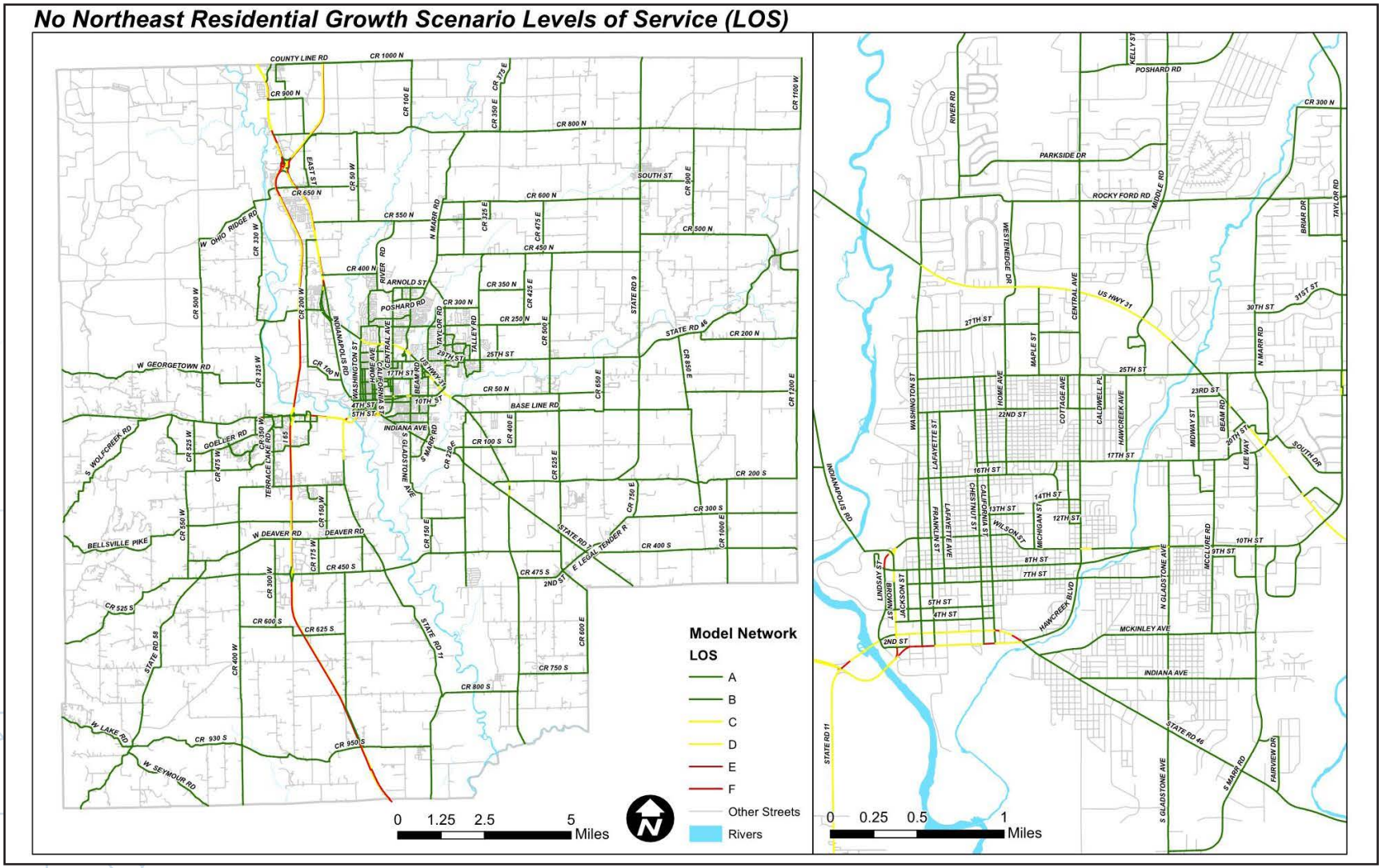


Figure G-6: No Northeast Residential Growth Scenario Levels of Service (LOS)



SCENARIO 2C: NO EAST SIDE RESIDENTIAL GROWTH SCENARIO

Figure G-7: No East Side Residential Growth Scenario Change in ADT vs. 2040 Base Scenario

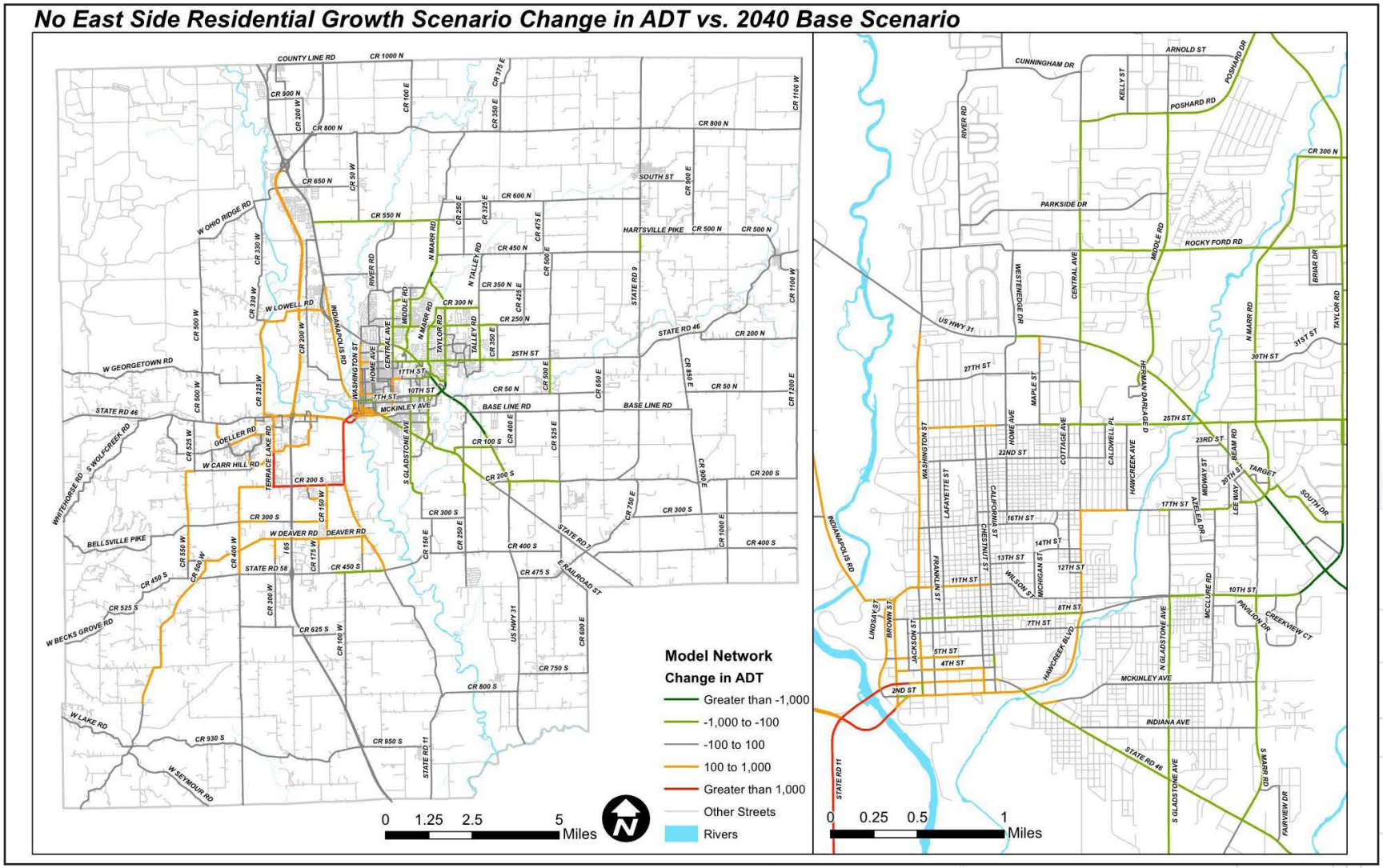
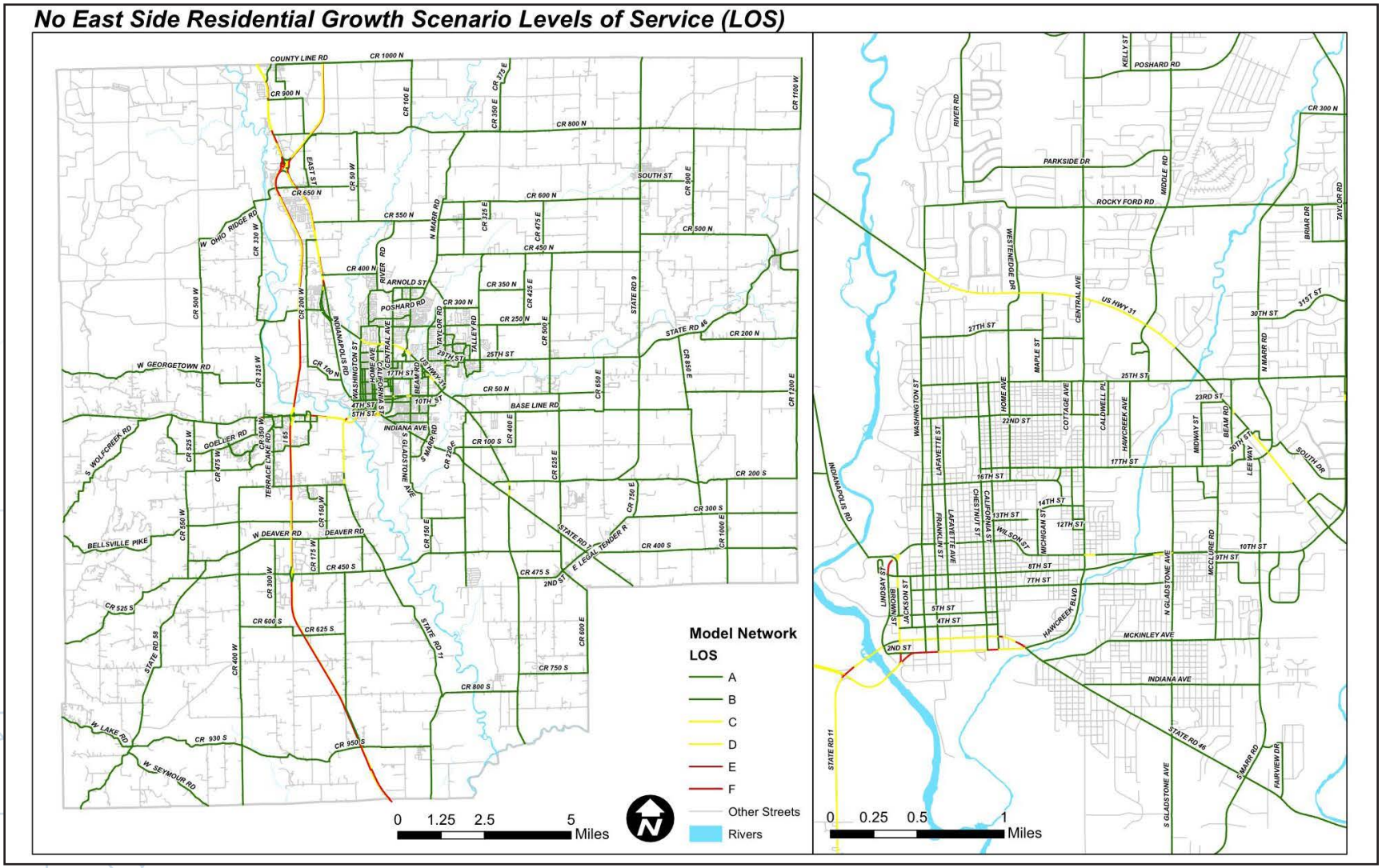


Figure G-8: No East Side Residential Growth Scenario Levels of Service (LOS)



SCENARIO 2D: INFILL GROWTH SCENARIO

Figure G-9: Infill Growth Scenario Change in ADT vs. 2040 Base Scenario

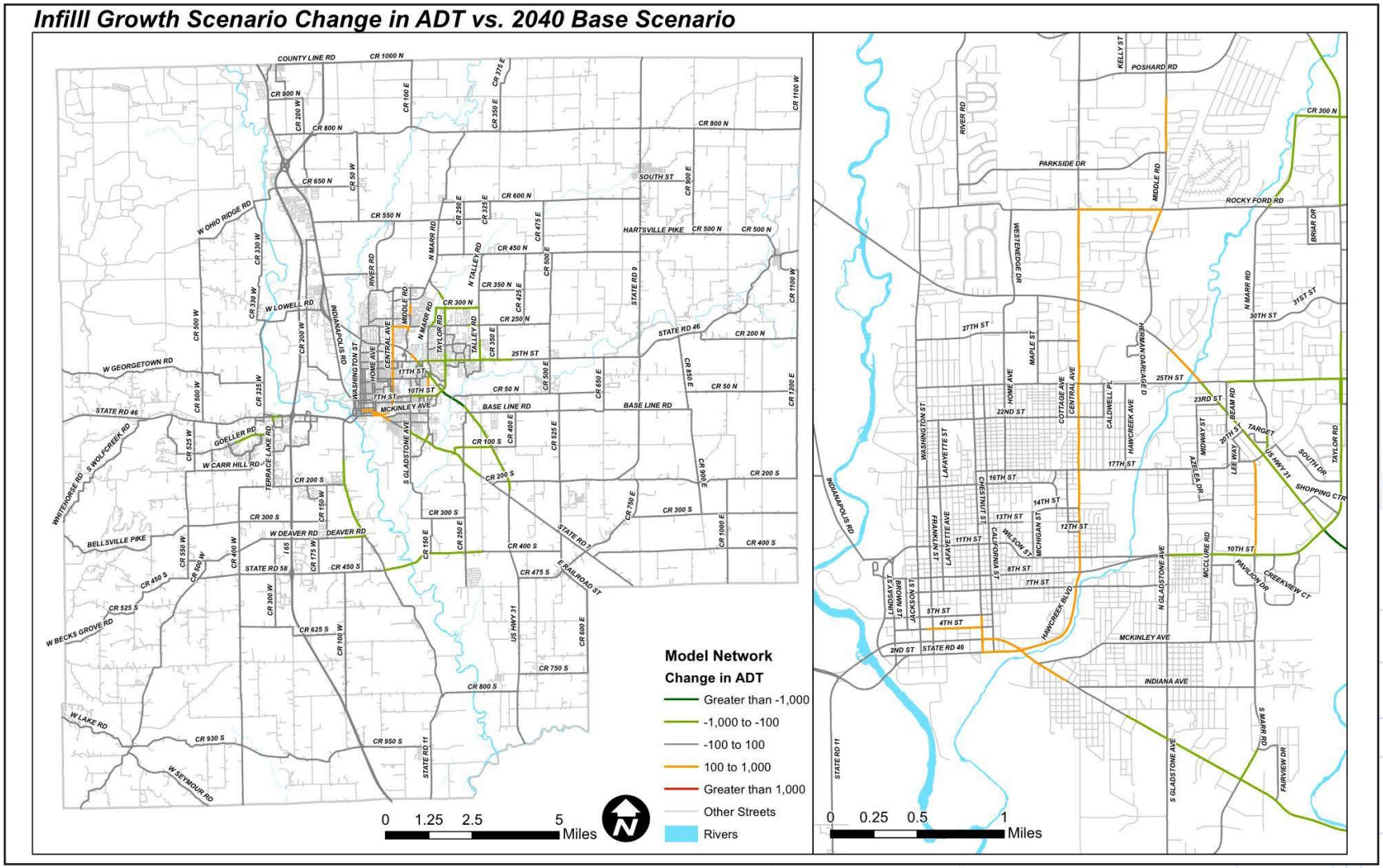
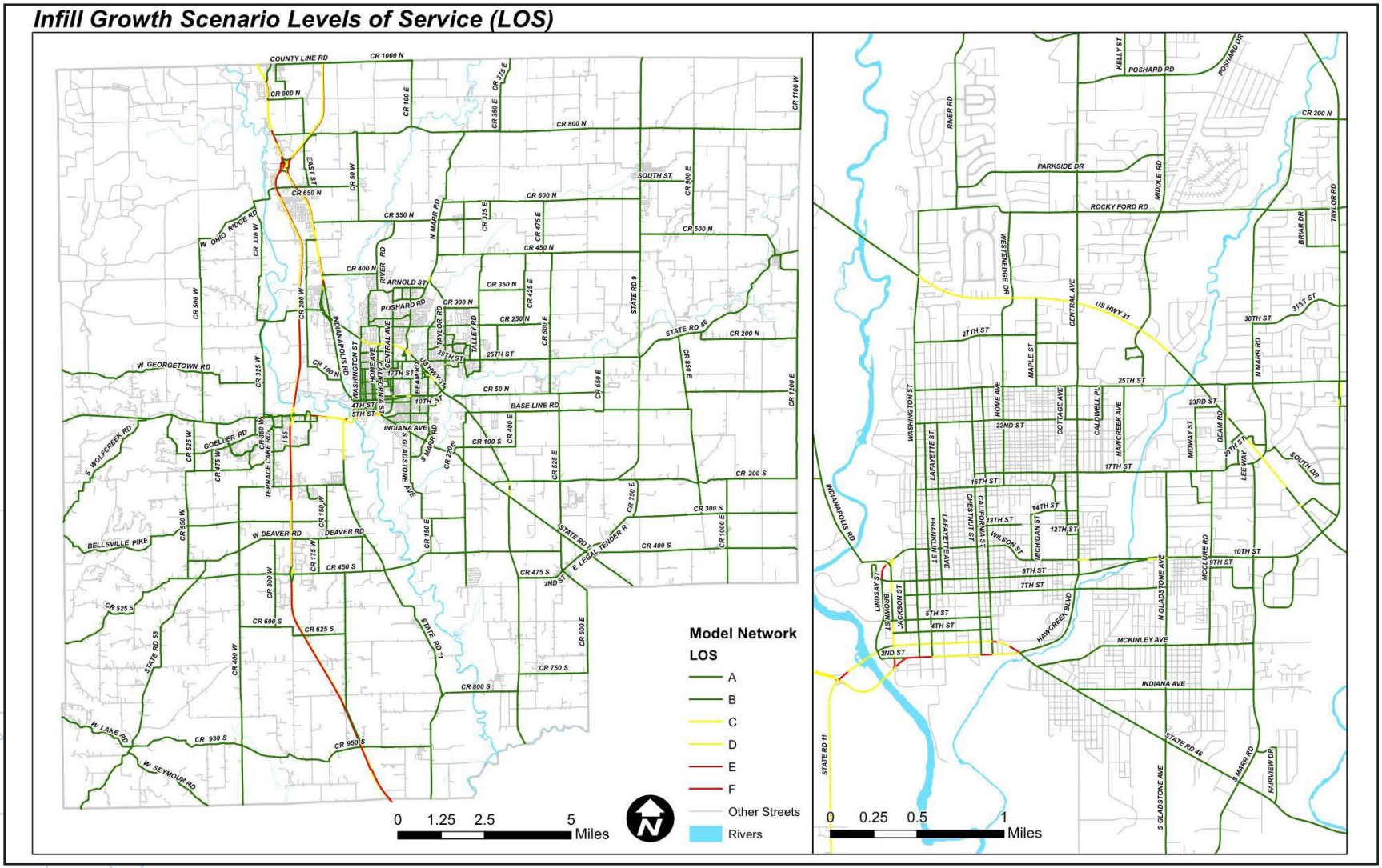


Figure G-10: Infill Growth Scenario Levels of Service (LOS)



SCENARIO 3: ROAD DIETS AND ROUNDABOUTS SCENARIO

Figure G-11: Road Diets and Roundabouts Scenario Change in ADT vs. 2040 Base Scenario

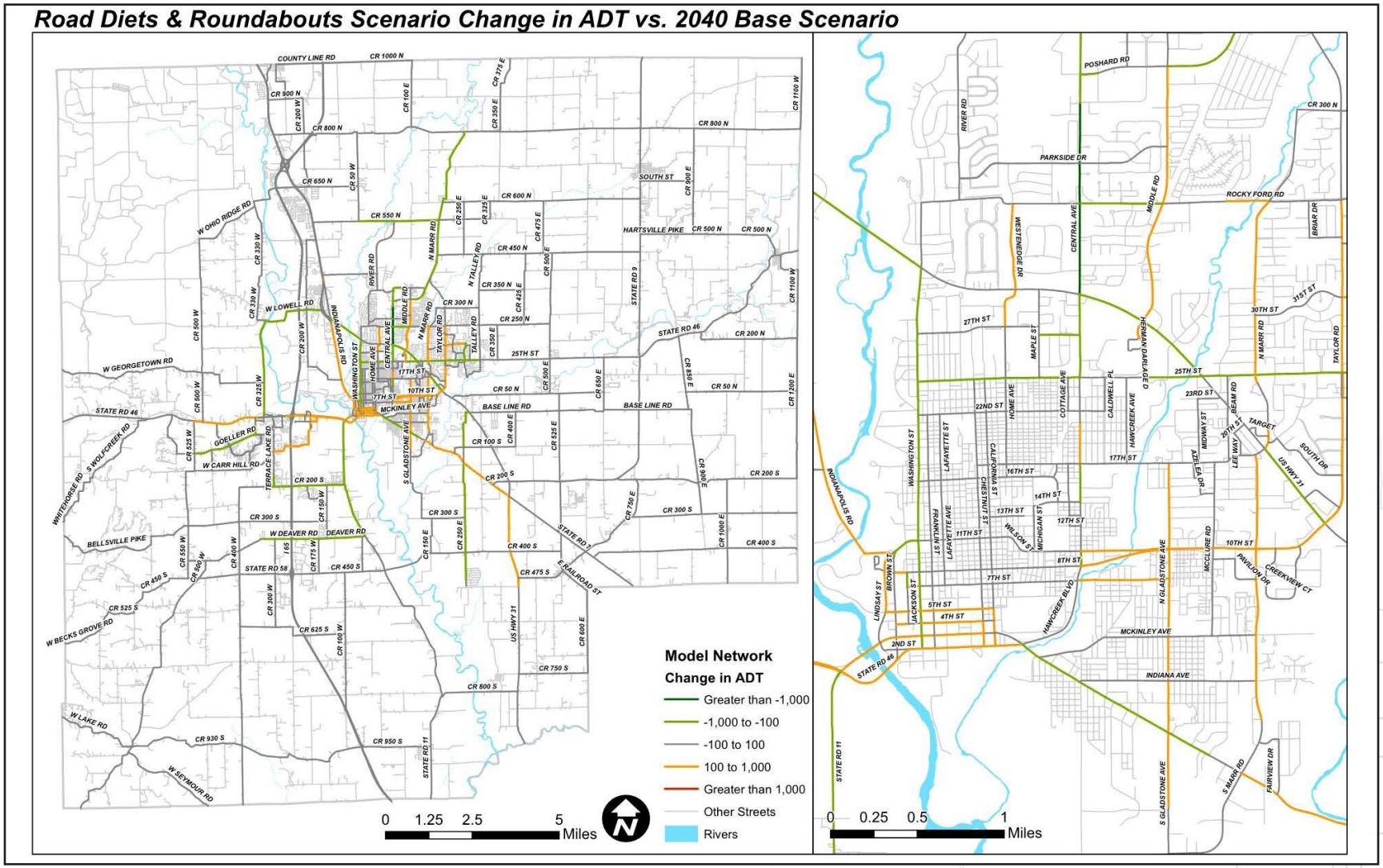
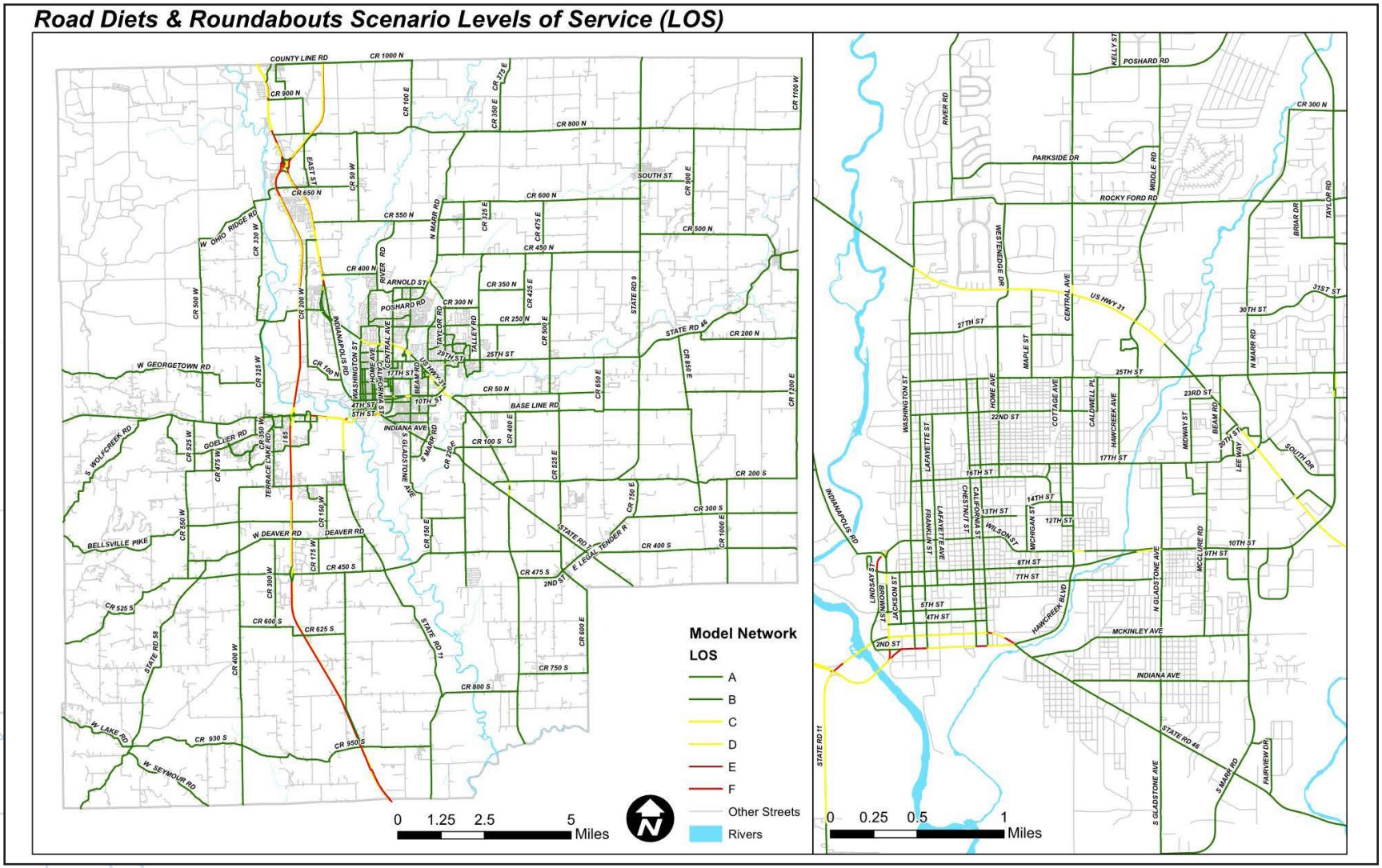


Figure G-12: Road Diets and Roundabouts Scenario Levels of Service (LOS)



SCENARIO 4: TRANSIT ENHANCEMENTS

Figure G-13: Transit Enhancements Scenario Change in ADT vs. 2040 Base Scenario

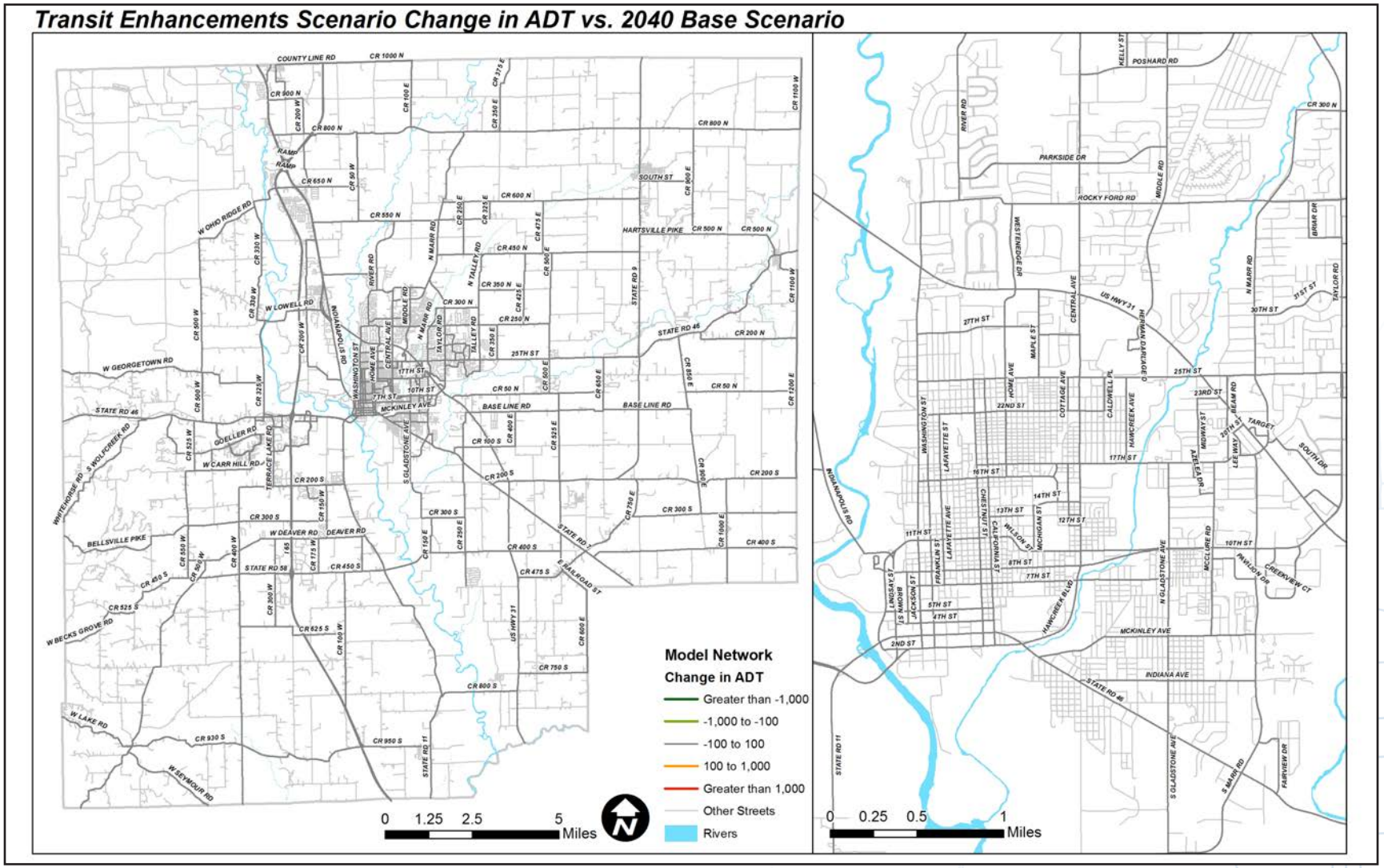
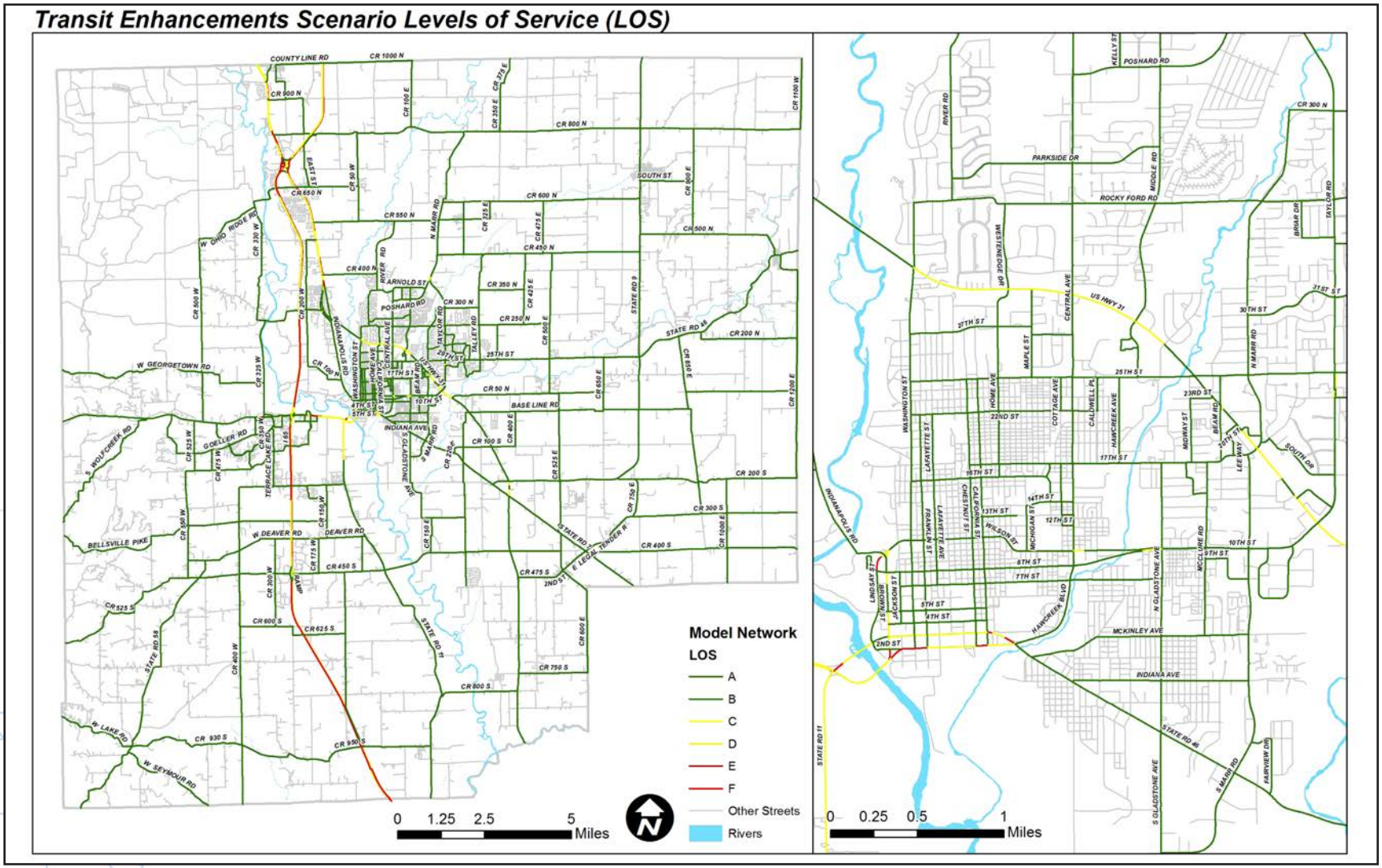


Figure G-14: Transit Enhancements Scenario Levels of Service (LOS)



SCENARIO 5: NON-MOTORIZED SCENARIO

Figure G-15: Non-Motorized Transportation Scenario Change in ADT vs. 2040 Base Scenario

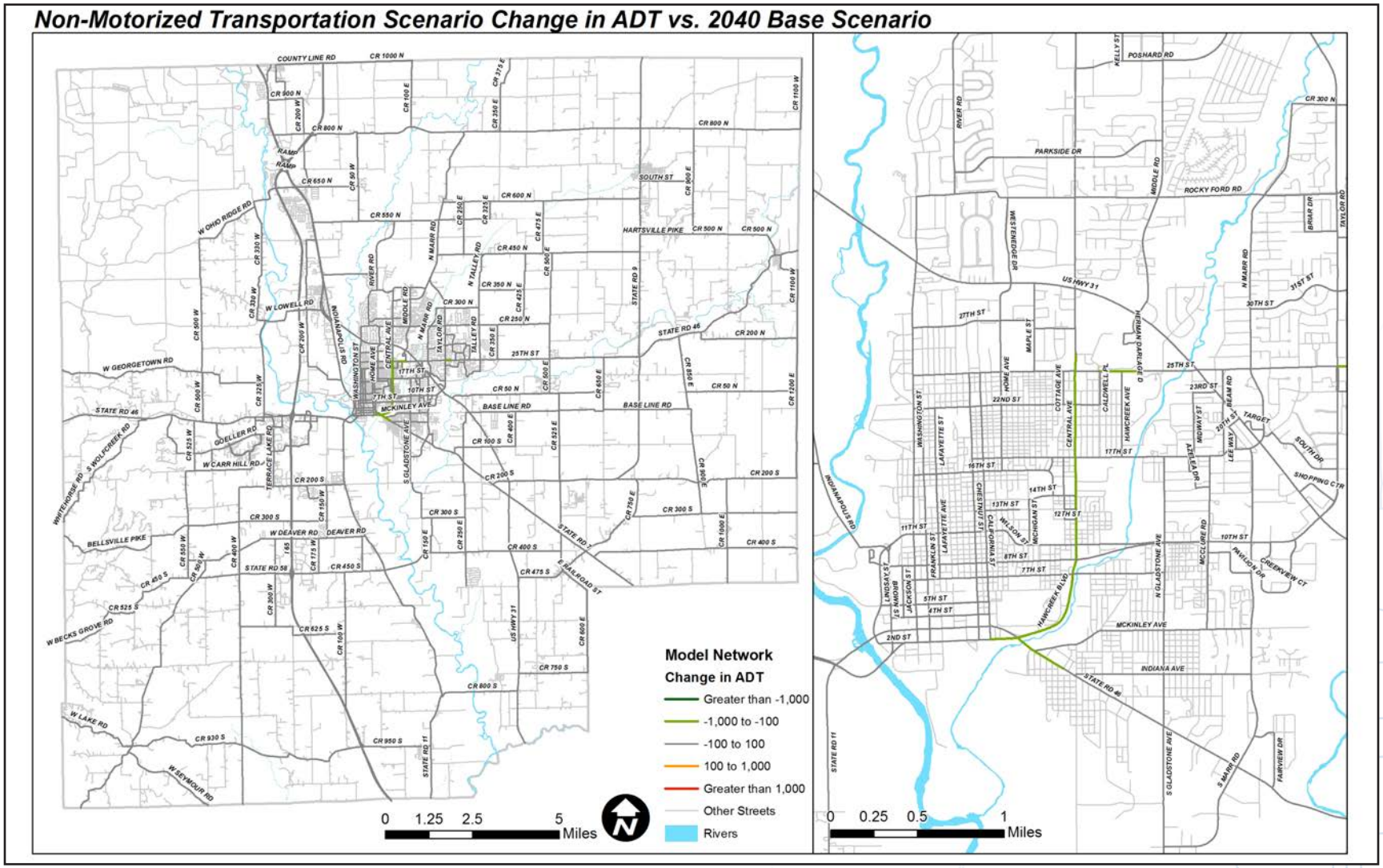
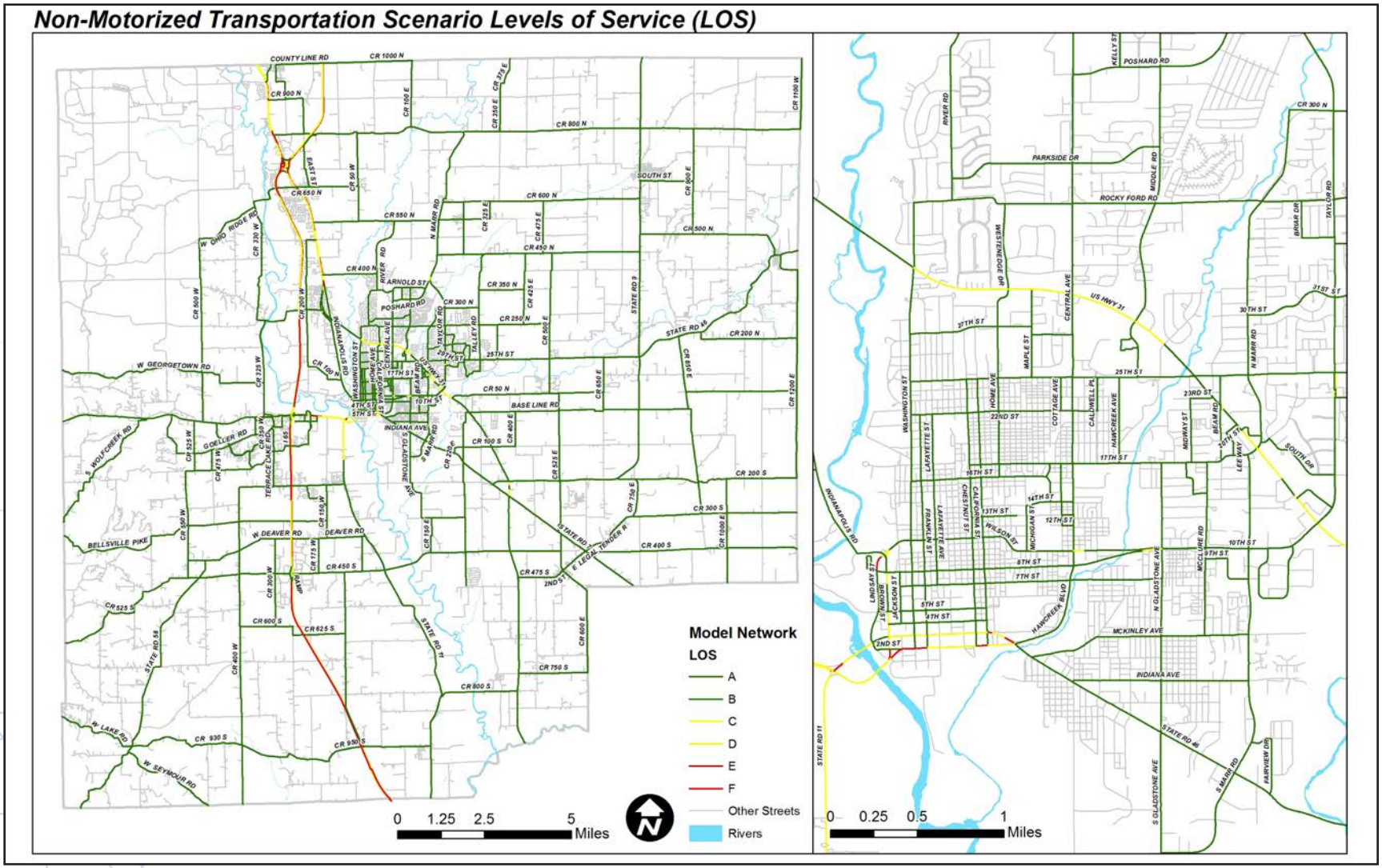


Figure G-16: Non-Motorized Transportation Scenario Levels of Service (LOS)



SCENARIO 6: EAST-WEST CONNECTIONS SCENARIO

Figure G-17: East-West Connections Scenario Change in ADT vs. 2040 Base Scenario

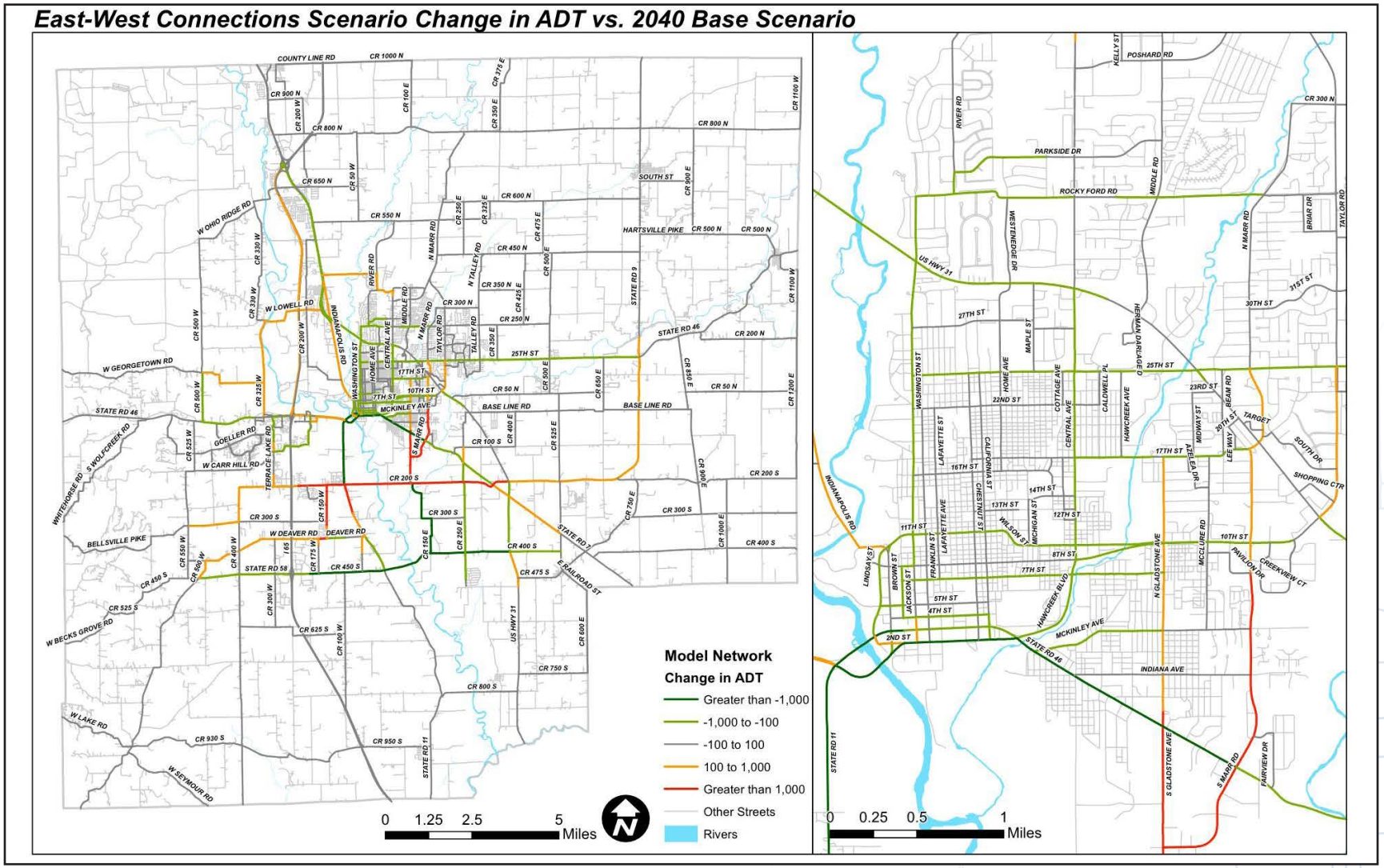
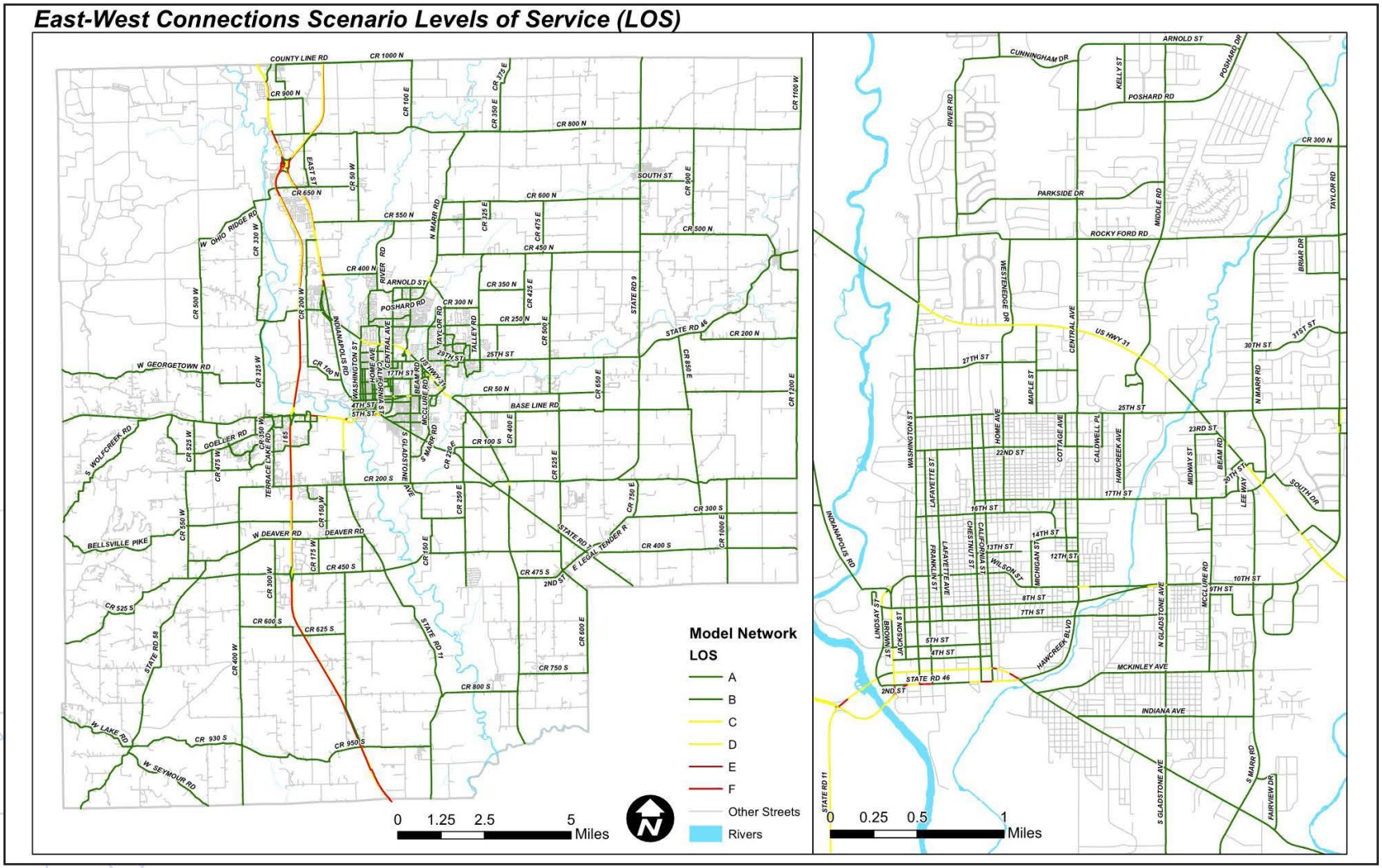


Figure G-18: East-West Connections Scenario Levels of Service (LOS)



COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION

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