Chapter 2: Regional Trends

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

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

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

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

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

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

2.2 Projections

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

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

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

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

The decisions that each community makes today will impact its quality of life and economic vitality for years to come. A healthy economy that attracts increased capital investment, provides jobs for residents, is supported by exceptional local services and desirable residential communities requires long-ranging planning with public-private partnerships and trust among cities and residents.

The first phase of insight2050 relied on the RapidFire modeling platform developed by project consultants Calthorpe Associates to produce a range of metrics, including land consumption, infrastructure costs, air pollution, household expenses, and public health and safety costs across four scenarios. While land use patterns reflect many separate local decision-making processes, the metrics generated by the RapidFire model provided critical insights to public and private decision makers about the impacts of key policies on transportation, fiscal, and environmental systems.
Reconnecting disjoined and economically challenged neighborhoods is also an ongoing theme. The reconstruction of the I-70/I-71 innerbelt that rings the downtown, referred to as Columbus Crossroads began in 2011 and will continue for at least the next decade. This project will result in the closure of some freeway ramps and modifications to surface streets and have long-term impact on the downtown.

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

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

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

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

Using research from insight2050 and community-based land use plans, MORPC distributed new development through intermediate steps to small geographic units called Traffic Analysis Zones (TAZs) for consumption by the travel demand
model. Whereas the travel demand model is used to predict future traffic volumes and transit ridership, MORPC uses another model to allocate future development based on local use plans. Using the future development capacities as dictated by potential future land uses in local land use plans, MORPC used an allocation model to distribute new population and employment.

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

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

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

**Low Attraction Factors**
- Density future development – areas identified in local land use plans that are intended to have low-density development
- Agriculture – development was directed away from agricultural properties
- Environmentally sensitive – lands in floodplains, wetlands, or exhibiting other unique environmentally sensitive features
FIGURE 2.2
Existing Land Use, 2015
FIGURE 2.3
Future Land Use, 2040
FIGURE 2.5
2015-2040 Forecasted Land Consumption

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

Sources:
MORPC Land Use Model

Map Legend:
- Developed Land
  - 2015
  - 2040
- MORPC Transportation Planning Area
- County Boundary
- River/Water
- Railroad

Ohio Location Map

N

0 2.5 5 Miles

MORPC

Page 29
As a result, the future growth was absorbed into much of the current urban area footprint. While the projections assume approximately 120 square miles of undeveloped land consumed around the fringe, this is radically more compact than previous projections that included over 270 additional square miles consumed.

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

![Graph showing changes in densities of housing units per acre from 2015 to 2040.](image)

**FIGURE 2.6**
Residential Projections: Changes in Densities of Housing Units per Acre
Source: MORPC

![Bar chart showing percentage of new housing projected between 2015 and 2040 by density.](image)

**FIGURE 2.7**
Percentage of New Housing Projected between 2015 and 2040 by Density
Source: MORPC
FIGURE 2.8
Households by Residential Acre Density, 2015-2040

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

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2/18/2016
FIGURE 2.9
Commercial/Office Employment Density, 2015-2040

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

2/16/2016
FIGURE 2.10
Industrial Employment Density, 2015-2040
2.3 Socio-Economic Conditions that Impact Future Growth

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

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

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

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

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

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

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

FIGURE 2.12
Percent of 2014 Population by Race: US, Great Lakes, Ohio, MPO
Source: 5 Yr ACS 2014, Table B03002

FIGURE 2.13
Percent of Total Population by Race Compared to Share of Increase in the MPO, 2010-2014
Source: 5 Yr ACS 2014, Table B03002
INTERNATIONAL DIVERSITY

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

ENGLISH PROFICIENCY

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

FIGURE 2.14
Population Moving to the MPO from Other Parts of the World, 2010-2014
Source: 5 Yr ACS, 2014, Table B05006

FIGURE 2.15
Share of Population by Language from Which English is Not Spoken "Very Well"
Source: ACS, 2014, Table S1601
HOUSEHOLD INCOME
The mean household income in the MPO hovers at just over $76,000, slightly higher than the nation, and significantly higher than the Great Lakes Region and Ohio averages. The mean household income rose by 7 percent between 2010 and 2014, compared to 6 percent or less in the other areas. Per capita income of the MPO area is also higher than the average.

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

FIGURE 2.16
Mean Household Income, 2009-2014, US, Great Lakes, Ohio, MPO
Source: 5 Yr ACS, 2014, Table S1902

FIGURE 2.17
Per Capita Income for Minority Populations Compared to Total Population*
Source: 5 Yr ACS, 2014, Table S1902

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

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

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

FIGURE 2.18
Percent of People in Poverty: 2010-2014
Source: 5 Yr ACS, 2014, Table S1701

FIGURE 2.19
Percent of Population in Poverty by Race, 2014
Source: 5 Yr ACS, 2014, Table S1701
HOUSING

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

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

![Bar chart showing percentages of owner and renter occupied housing units for US, Great Lakes, Ohio, and MPO in 2014.](image)

**FIGURE 2.20**
Percentages of Owner and Renter Occupied Housing Units, 2014
Source: 5 Yr ACS, 2014, Table B08137
FIGURE 2.21
Single Family and Multifamily Housing units built between 2010-2014
TRAVEL MODE

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

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

FIGURE 2.22
Mode of Travel All Commuters, 2014
Source: 5 Yr ACS, 2014, Table S0801

FIGURE 2.23
Mode of Travel for Commuters Not Driving Alone or Working At Home, 2014
Source: 5 Yr ACS, 2014, Table S0801
EDUCATION LEVELS
The population is well-educated. Comparable to the nation, the Great Lakes and the state, approximately 90 percent of the people in the MPO who are over 18 have a High School diploma. What sets the region apart is the higher percentage of people with college degrees. The area has numerous large universities and renowned medical research facilities.

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

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

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

FIGURE 2.24
2014 Education Levels in the MPO, Population Over 18
Source: 5 Yr ACS, 2014, Table S1501
FIGURE 2.25
Labor Force by Age, 2014
Source: 5 Yr ACS, 2014, Table S2301

FIGURE 2.26
Unemployment Rate by Race, 2014
Source: 5 Yr ACS, 2014, Table S2301
INDUSTRY SECTORS
The industrial sector that sets the MPO area apart from the nation, Great Lakes region and the rest of Ohio is the dominance of the banking and insurance industries. Over 8 percent of the employment is concentrated in this industry compared to only 5 percent in the nation. In addition, only 9 percent of employment in Central Ohio is dedicated to manufacturing compared to 16 percent in the Great Lakes region and 15 percent in Ohio. The diversity of the Central Ohio economy has helped the region to maintain its historically low unemployment rates.

FIGURE 2.27
Employment by Industrial Sector, 2014
Source: 5 Yr ACS, 2014, Table S2403
2.4 Natural Landscape

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

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

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

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

**BIO-DIVERSITY**
Bio-diversity is the abundance and density of different species found in a given location. It is a measure of environmental health because various plants and animals are adapted to, and depend on each other for habitat, food sources, and natural population control. The removal of one species, regardless of how insignificant it may seem, can cascade through the ecosystem. The Big and Little Darby Creeks that divide Franklin and Madison counties carry both State and
FIGURE 2.29
Floodplains
FIGURE 2.30
Potential Wetlands

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

4/26/2018
National scenic river designations due to the extent of their bio-diversity. This watershed has over 80 types of fish, including populations of 5 endangered species, such as a federally listed fish called the Scioto Madtom. Plans are in place on a multi-jurisdictional level to protect the Darby watershed.

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

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

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

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

In a number of areas, the greenways that flank the banks of streams and rivers have been transferred to public holdings in concert with public water utilities. Dams on the Scioto and Olentangy rivers, and Alum Creek and Walnut Creek have created reservoirs that are used as recreation areas and public water sources. The City of Columbus maintains parklands along Hoover Reservoir cre-
ated from Walnut Creek in southeast Delaware County, the O’Shaughnessy Reservoir in southwest Delaware County, and Griggs Reservoir on the Scioto River in central Franklin County.

In addition, park districts are actively working with public utility partners such as the City of Columbus and the Delco water company to maintain protected public areas around new underground water reservoirs. Collaborative planning among other entities, such as the Franklin County Metroparks, Delaware City, and Preservation Parks, is an example of coordination of capital investment and maintenance between partners.
This section covers regional trends in travel patterns through 2040, corresponding to the forecasted land use changes discussed in the previous section. Because distance divides where one lives, works, shops, and learns, daily life requires travel. One's travel behaviors depend upon:

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

**TRIP END DISTRIBUTIONS**

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

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

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

**AVERAGE TRIP LENGTHS**

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

<table>
<thead>
<tr>
<th>TABLE 2.1</th>
<th>Average Trip Lengths</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2015</td>
</tr>
<tr>
<td>Work Trip Length (in miles)</td>
<td>10.29</td>
</tr>
<tr>
<td>Other Trip Length (in miles)</td>
<td>7.19</td>
</tr>
</tbody>
</table>

The MTP targets a 10% increase in jobs reachable within 20 minutes via automobile, and a 20% increase in jobs reachable within 40 minutes via transit.
FIGURE 2.31
Trip End Density, 2015
Table 2.2 shows the regional changes in average trip travel from 2015 to 2040, for work trips and other trips, respectively. From 2015 to 2040, average trip travel time will increase about 6 percent for work trips and about 3 percent for other trips. This assumes no roadway expansion or other transportation system improvements as described in the MTP, and that travel behavior remains the same as today.

### TABLE 2.2
Average Trip Travel Time

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<tr>
<th></th>
<th>2015</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Trip Travel Time (in minutes)</td>
<td>16.64</td>
<td>17.68</td>
</tr>
<tr>
<td>Other Trip Travel Time (in minutes)</td>
<td>11.95</td>
<td>12.35</td>
</tr>
</tbody>
</table>

2.6 Growth & Development Strategies and Projects

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Central Ohio is home to eight CNG fueling stations.

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