



THE 2018 RICKENBACKER AREA STUDY

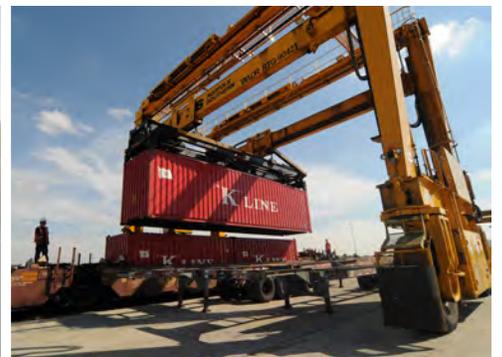
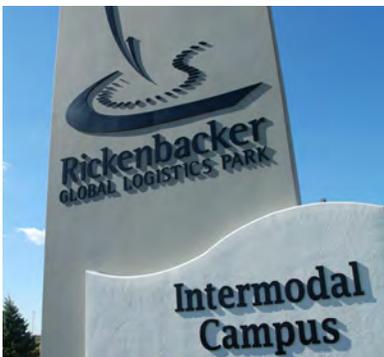


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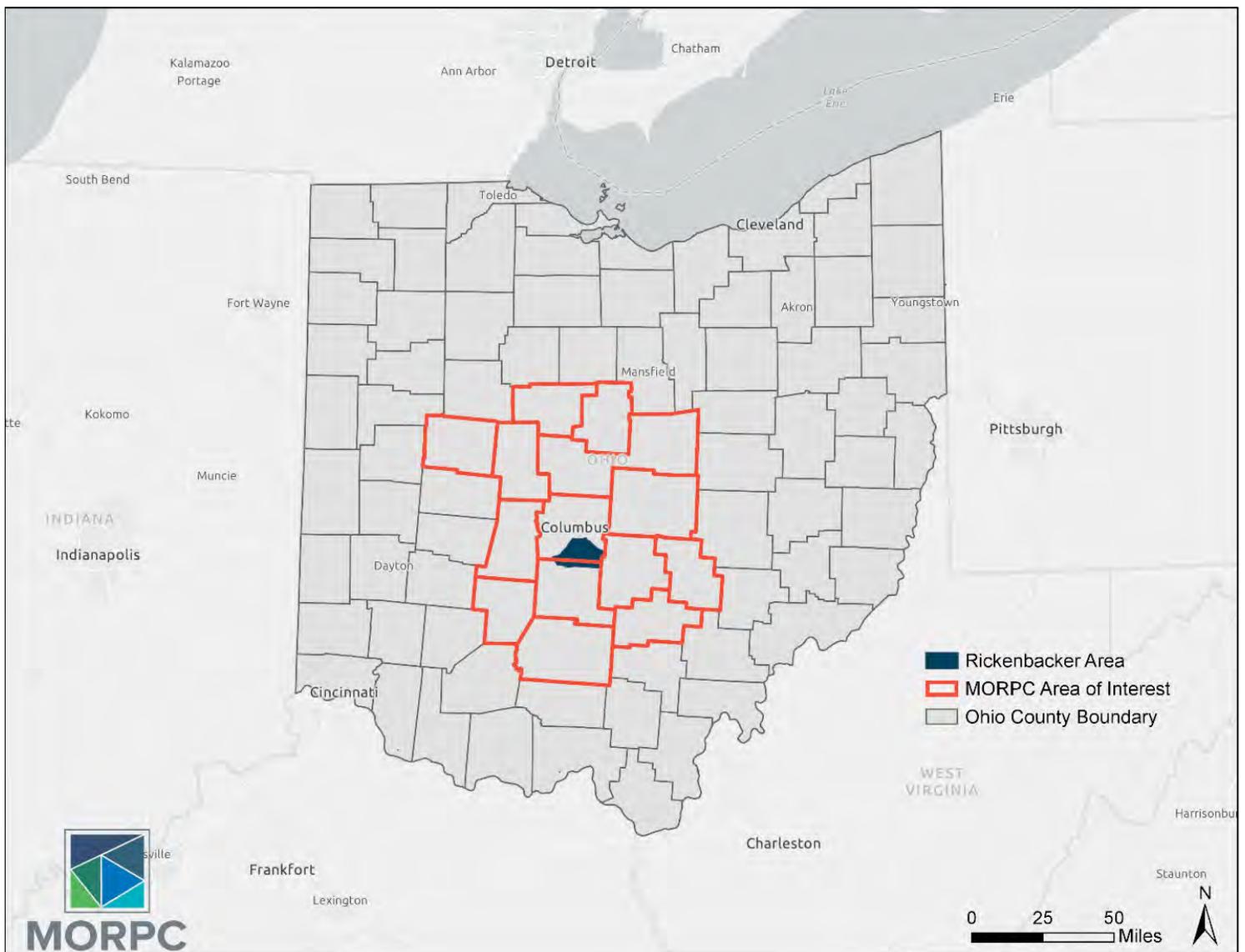


RICKENBACKER AREA STUDY

OVERVIEW

THE 2018 RICKENBACKER AREA STUDY

Located in the southern portion of the Columbus metropolitan area, the Rickenbacker area has been a focus of investment for the Central Ohio region since the late 1980s, when it became the Rickenbacker International Airport. It also became home to Foreign Trade Zone #138 and became an inland port, in addition to its pre-existing military airport activities.



Years after establishing Foreign Trade Zone #138, the Rickenbacker area experienced its first surge of economic development in the form of warehousing and logistics jobs. By the mid-1990s, the area had become a logistics employment hub. The area's success also brought a need to improve the roads to alleviate congestion and enable further development, so local leaders came together in the late 1990s to create a plan that identified road improvement priorities for the area. Since that first plan was created and its road improvements were successfully prioritized, funded, and constructed, Central Ohio stakeholders have come together roughly every 10 years to study the next generation of road improvements necessary to keep traffic flowing smoothly and to support job-generating, new land development.

Under the direction of its members, the Mid-Ohio Regional Planning Commission (MORPC) has been the lead agency to coordinate transportation planning for the Rickenbacker area. Nearly every improvement identified as a priority by past studies has resulted in completed projects. Building upon this success, in 2016, MORPC and the Columbus Regional Airport Authority (CRAA) agreed to launch two concurrent studies: MORPC's most recent area study to assess improvement needs and CRAA's update of the Rickenbacker International Airport Master Plan, as required by the Federal Aviation Administration (FAA). Through both studies, MORPC is working with the CRAA to identify specific infrastructure investments to leverage the Rickenbacker area into a successful, globally-competitive logistics hub.

MORPC has revamped its planning approach in this area study by taking on the challenge of assessing not only transportation improvement needs, but also looking at other factors that influence the success of the area. MORPC is merging its recent successes in the areas of community planning, energy, and economic development to provide more comprehensive recommendations than those provided by past Rickenbacker area studies.

Central Ohio leaders and technical experts have provided input into this study through four working groups. These working groups convened as MORPC staff advanced the scope of the study in the areas of freight and workforce mobility, safety, housing, energy, quality of life, and economic development.

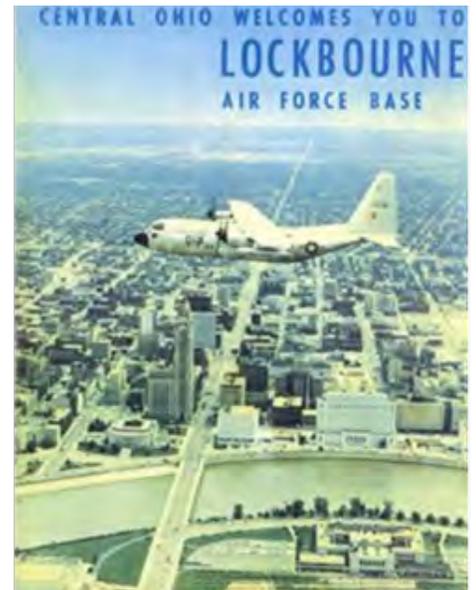
The results of this study are documented in this website with the goal of sharing the findings and recommendations within themes that address the overall context for each study element.

Through the study's process, interesting and surprising information about the history of the Rickenbacker airport was uncovered. To provide context of the multi-faceted significance of this area, some of the historic highlights of this airport are documented in this overview section.

RICKENBACKER AIRPORT: A HISTORY OF TRAILBLAZING

Opened in 1942, this airport was originally a military air base created to support World War II (WWII) operations. Until 1978, it was known as the Lockbourne Army Base. In 1978, it was renamed to Rickenbacker Air Base.

The Rickenbacker airport was the setting of historically significant milestones in American aviation history. In 1942, it was home to the Women Air-Force Service Pilots (WASP) and served as a site for transitional B-17 training for civilian women pilots during WWII. WASP was considered an experimental program to determine women's ability to pilot a wide range of aircraft and as such, successfully paved the way for creating opportunities for women in military service.



Air Base in 1945

Women Air-Force Service Pilots (WASP), 1942

RICKENBACKER AIRPORT: A HISTORY OF MILITARY EXCELLENCE

From 1946 to 1949, Rickenbacker, then known as the Lockbourne Air Base, was the final home of the Tuskegee Airmen, the only all-black unit of the U.S. Air Force. By presidential executive order, 1948 marked the end to segregation in the U.S. Armed Forces. Within their brief tenure, they were recognized as the best-managed base in the Air Force and as a model for other bases across the country.



Tuskegee Airmen, 1946-1947



THE EVOLUTION OF RICKENBACKER AIRPORT, 1942 TO 2018: A RISING REGIONAL ECONOMIC

The Rickenbacker area has been significant to national aviation operations for nearly eight decades. Significant milestones in the airport's evolution include:

Phased realignment of
Rickenbacker Air Force Base
begins

1942

Lockbourne Army Base opens

1978

1979

Rickenbacker Port
Authority established by
Franklin County Board of
Commissioners

Foreign Trade Zone #138
established under control of the
Rickenbacker Port Authority

Rickenbacker Inland Port
Commission established

1994

1990

Rickenbacker Inland Port
concept developed for marketing
purposes

1987

2003

Rickenbacker Port Authority
merged into Columbus
Regional Airport Authority

THE EVOLUTION OF RICKENBACKER AIRPORT, 1942 TO 2018: A RISING REGIONAL ECONOMIC

FOREIGN TRADE ZONE #138 AND TRANSPORTATION INFRASTRUCTURE

FTZ #138 is comprised of six pre-designated Magnet Sites with the main site encompassing industrial parks surrounding Rickenbacker International Airport. In addition, FTZ #138 is able to provide FTZ designation to any site located within a 25-county service area in Central Ohio.



Source: CRAA

BECOMING THE RICKENBACKER CARGO HUB

First regularly scheduled import service begins at airport, (Cargolux service from Hong Kong to Columbus)

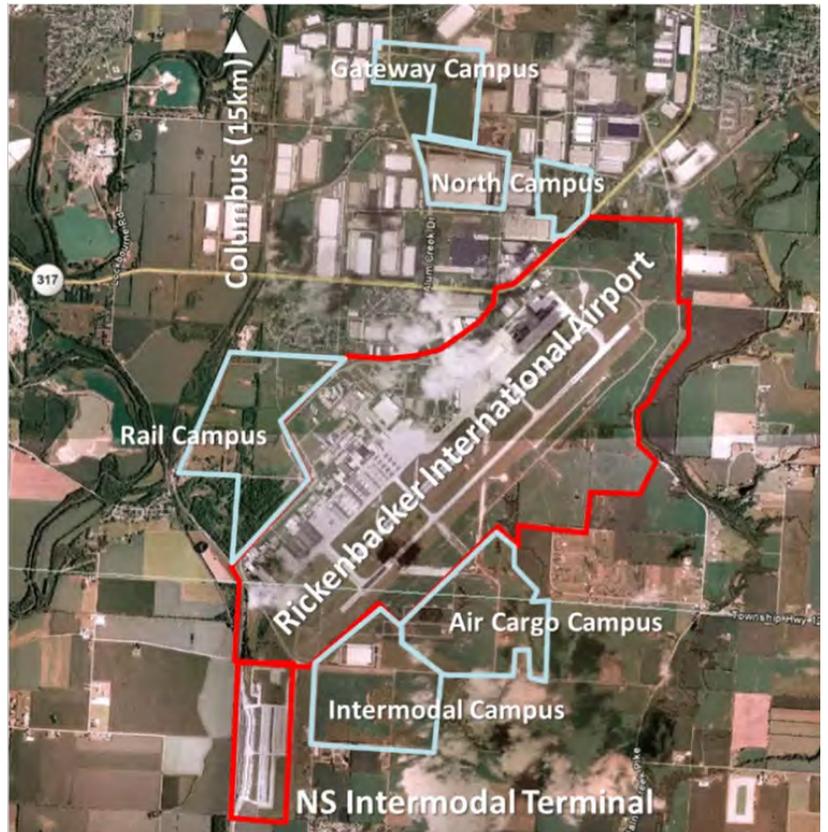
2008

Rickenbacker Rail Intermodal Facility opens

2013

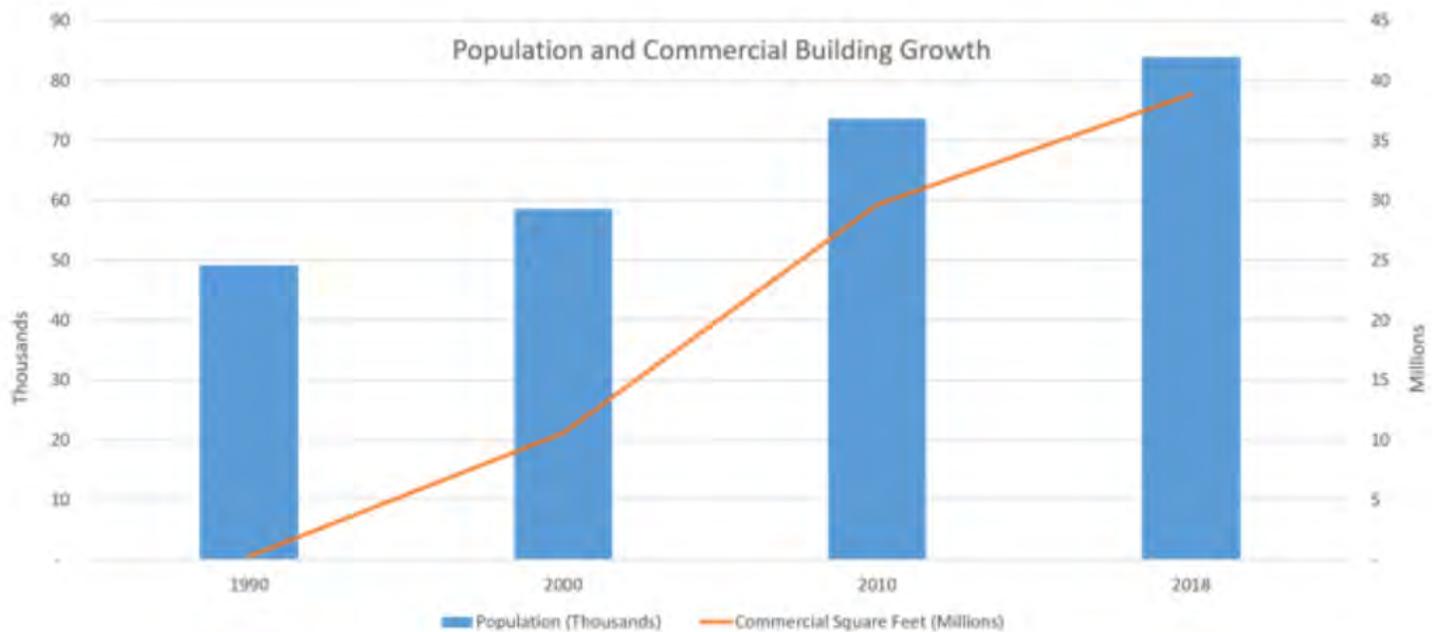
2017

Rickenbacker Intermodal begins expansion



POPULATION & EMPLOYMENT TRENDS

As the capacity at the airport and intermodal facilities grew, freight movement capabilities increased and the area's regional significance as an economic engine became more pronounced. The area's success has been reflected in the population and commercial building growth over the last three decades. The chart below shows the population and commercial square footage growth between 1990 and 2018.



Decennial Census 1990- 2010 and MORPC 2018 Population in the study area increased 71% between 1990 and 2017.

2018 Franklin County Auditor parcel based Commercial Square Feet has increased 12,640% within the study area.

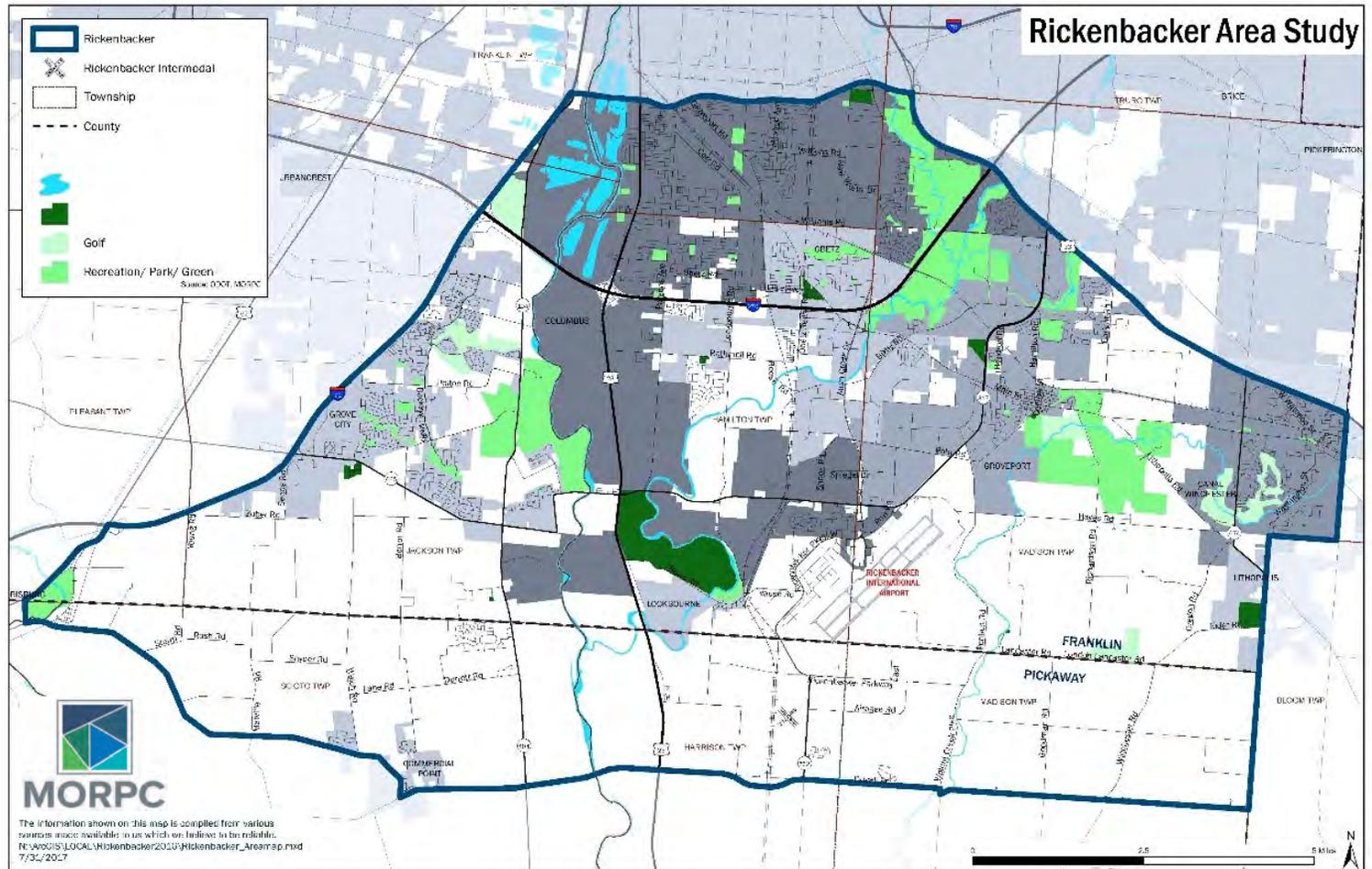
ACHIEVING POTENTIAL THROUGH REGIONAL COLLABORATION: REGIONAL COORDINATION TO LEVERAGE RICKENBACKER

Since the late 1990s, regional stakeholders have worked together roughly every 10 years to study this area and determine infrastructure needs. Previous studies focused on transportation infrastructure improvements for the lands immediately surrounding the airport. The 2018 Rickenbacker Area Study looks at improvements beyond transportation and includes strategies for economic growth, as well as improving the lives of people who live and work in the communities that make up the study area.

One of the interesting characteristics about the Rickenbacker area is that it is not within one single jurisdiction. Despite this multi-jurisdictional nature, the area's stakeholders have historically collaborated well and successfully implemented improvements identified in past Rickenbacker area studies. The map on the next page shows the different jurisdictions making up the Rickenbacker Study Area.

THE 2018 RICKENBACKER AREA STUDY

- Includes all transportation infrastructure, (including transit and last-mile connectivity (sidewalks, bike facilities).
- Looks at energy, housing, economic development, and other factors associated with quality of life (such as housing and energy consumption).
- Incorporates input from 4 working groups tasked with advising the study team as the study unfolded. These working groups were focused on energy, transportation, housing, and economic development.
- Makes recommendations based on 5 themes that capture the area's most critical needs.



STUDY THEMES

Throughout the course of the study, common themes emerged. The five themes by which this study is documented include:

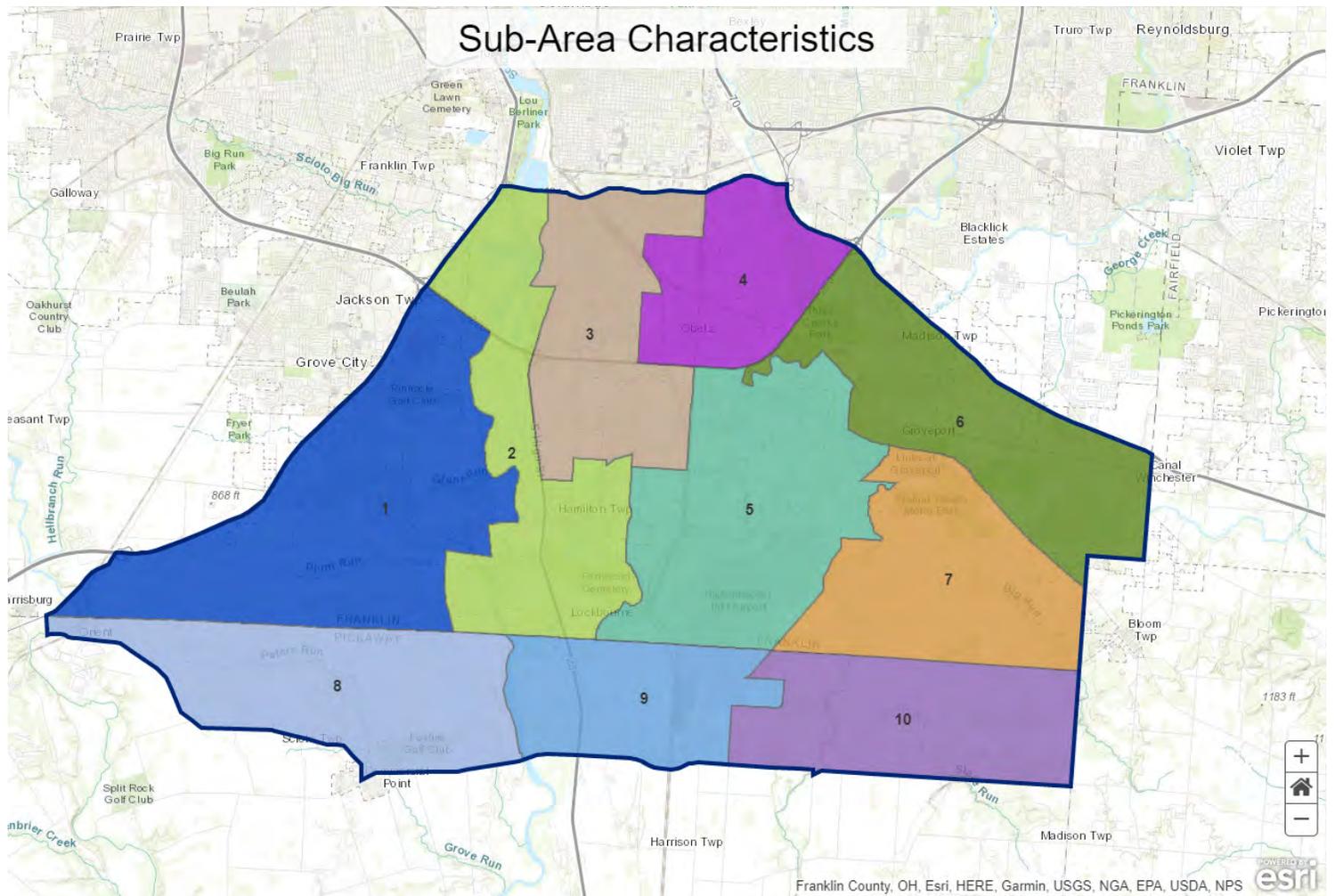
- Business Attraction & Retention
- Workforce Mobility & Safety
- Freight Routing & Access
- Resiliency & Technology Innovation
- Quality of Life



Development patterns are the driving force in determining future infrastructure needs. How and where growth occurs in the future will impact the demands placed upon the transportation system, energy and water supplies, housing stock, and communications networks. Predicting growth in housing and employment, with regard to both density and proximity, are useful in defining what types of services will be necessary to support both quality of life and economic stability, and provides decision makers with information to make sustainable investment choices.

HOUSEHOLD & EMPLOYMENT FORECASTS

To better understand the impacts of land use on transportation infrastructure, household and employment estimates were analyzed to forecast travel volumes and patterns, as well as to forecast demands on other infrastructure. To facilitate this forecast analysis, the study area was broken into 10 sub-areas, each shown in a different color in the map below.



Area 1 is characterized by two highly developed commercial corridors in Grove City and the surrounding areas of residential development of varying density within the city and surrounding townships. This makes this area one of the most balanced in the study area as it contains a fair amount of both employment and households. Area 1 is forecast to maintain its character of corridors of dense commercial development and areas of residential use. Both land use types are forecast to increase intensity with significant gains in both employment and housing.

HOUSEHOLD & EMPLOYMENT FORECASTS

Area 2 contains the lands surrounding the Scioto River and is largely occupied by land uses that require much land but relatively few employees, such as quarries, waste water treatment plants, and the Columbus Police Impound Lot. This character is reflected in a fairly low number of households and only a moderate number of employees. Area 2 experiences moderate household growth, but only small employment growth.

Area 3 is predominantly made up of high to moderate density residential neighborhoods that decrease in density as distance from Downtown Columbus increases, resulting in this area being the most populous in the study area. There is also a moderate amount of employment in this area comprised largely of neighborhood-supporting employers, such as schools and retail goods providers. The already relatively dense residential development of Area 3 gains even more households in the forecast with relatively small employment growth.

Area 4 is comprised of large logistics and warehousing employers near the CSX rail yard mixed with pockets of medium and higher density residential developments. These characteristics are evident in the relatively high number of both households and employees. Area 4 is forecast to maintain its mixed character with moderate increases in employment and households.

Area 5 contains the Rickenbacker International Airport and is otherwise largely made up of large warehouses and logistics employers. This area has seen strong growth recently as developers create more space for employers of these types. This area's status as a major employment center is clear, as the number of employees in the area easily outpaces any other area in the study area. This area does still contain a moderate amount of households with residential development in pockets near the airport and around the boundaries of the area. Area 5 is forecast to undergo very intense employment growth.

Area 6 can be characterized by two major corridors of commercial development one in Groveport and the other in Canal Winchester, which make up the high employment in the area. The land between these commercial areas ranges from moderate density residential to rural, as evidenced by a moderate number of households. Area 6 is projected to be an area of strong residential growth. Moderate employment growth is also expected.

Area 7 is predominantly rural Franklin County and Madison Township. Much of this land is currently agricultural or undeveloped leading to low household and employment totals. Area 7 is forecast to have relatively strong growth in employment and households for a currently rural area. Much of the employment growth in the area is near the western edge of the area near the Rickenbacker International Airport.

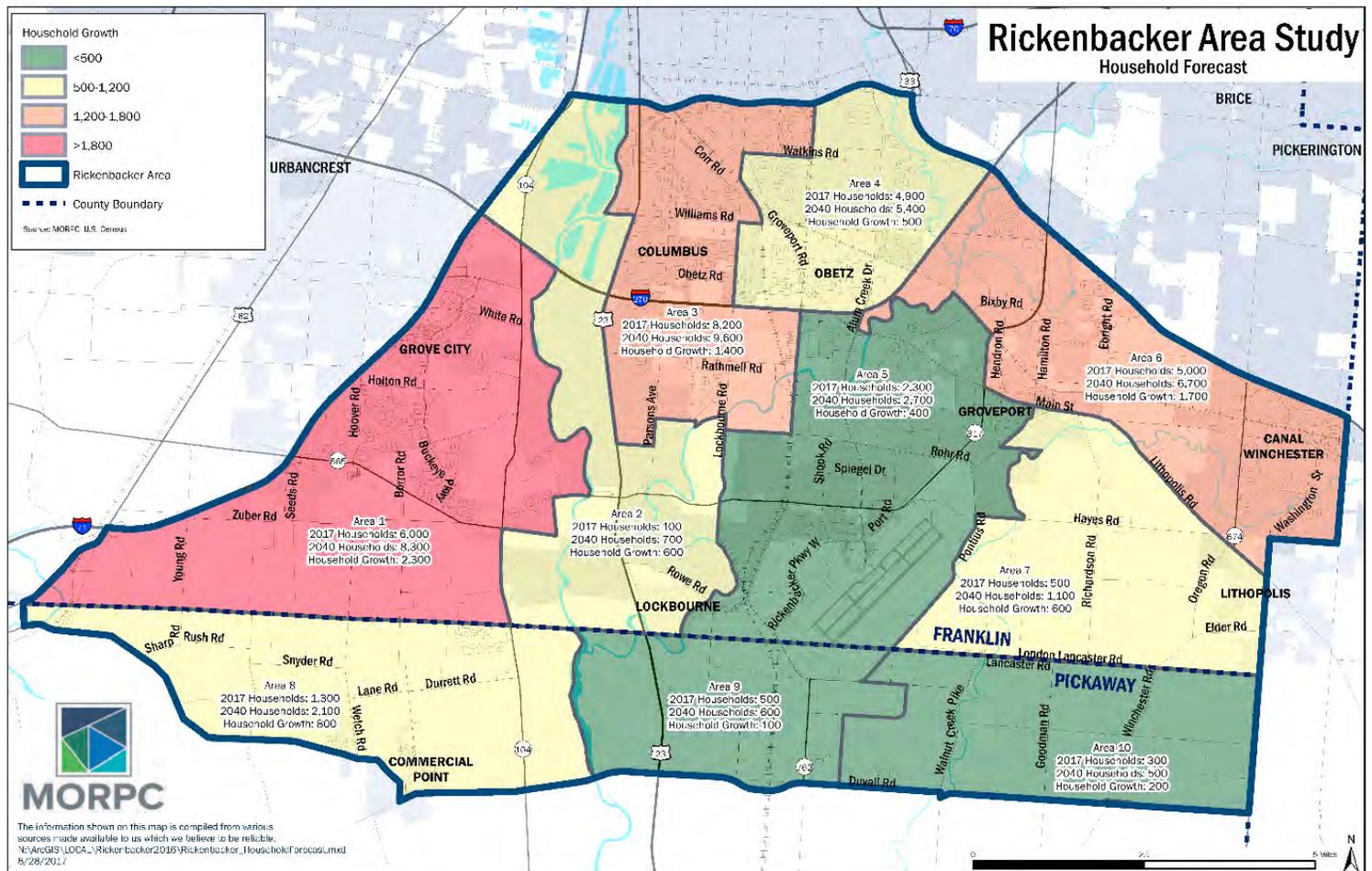
Area 8 is a largely rural and agricultural area within Pickaway County, with the exception of Commercial Point's village center, which accounts for most of the employment in the area. A few suburban residential developments make up the bulk of the total households in the area. Area 8 is expected to experience moderate household growth and employment growth largely associated with a couple of known developments in the area.

Area 9 is the land just south of Rickenbacker International Airport in Pickaway County, including some lands possessed by the airport and the Norfolk Southern Intermodal Yard. This land is currently largely agricultural and undeveloped, but has experienced some recent growth near the airport. Most of the households in this area are concentrated in a mobile home park and most of the employment is concentrated near the airport. Area 9 is forecast to experience very strong employment growth with expansion of logistics and warehousing development south of the Rickenbacker International Airport and east of the Norfolk Southern Intermodal Yard. Very little change is expected in residential character.

HOUSEHOLD & EMPLOYMENT FORECASTS

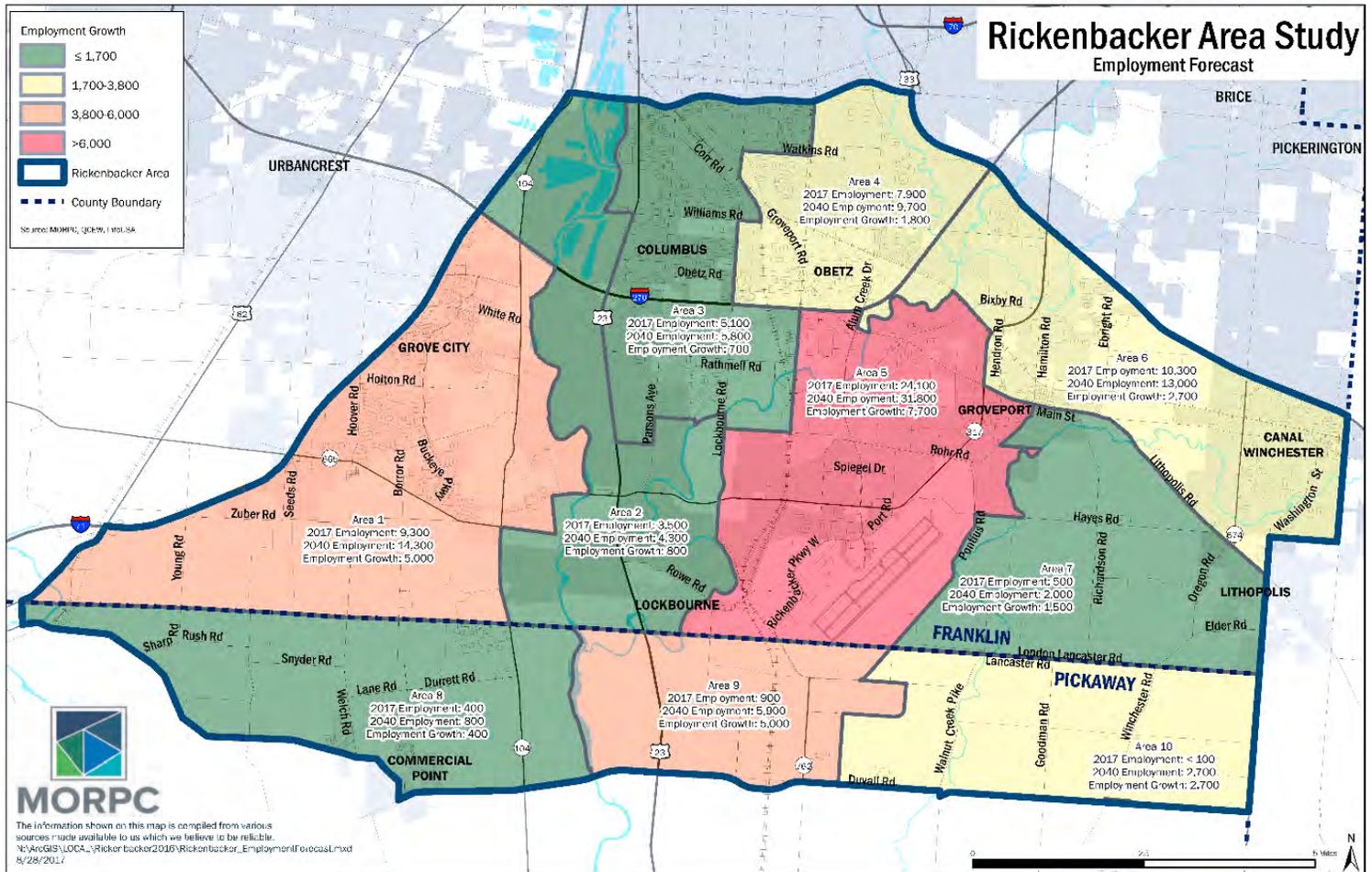
Area 10 is predominantly rural portions of Pickaway County. The area's limited amount of development is evident in very low totals of both households and employment. Area 10 is expected to undergo very little household change, but relatively strong employment growth with the logistics and warehousing uses near the Rickenbacker International Airport and the Norfolk Southern Intermodal Yard expand over the western edge of this area.

The map below shows the forecast households and employment for the year 2040 for each of the sub-areas. Overall, the most populous part of the study area in 2017 was in south Columbus. In 2040, household growth is forecast to remain high in south Columbus, with lands adjacent to I-71 and US-33 also expected to have significant increases in households. Within the study area, lands adjacent to I-71 will see the highest amount of household growth by 2040.



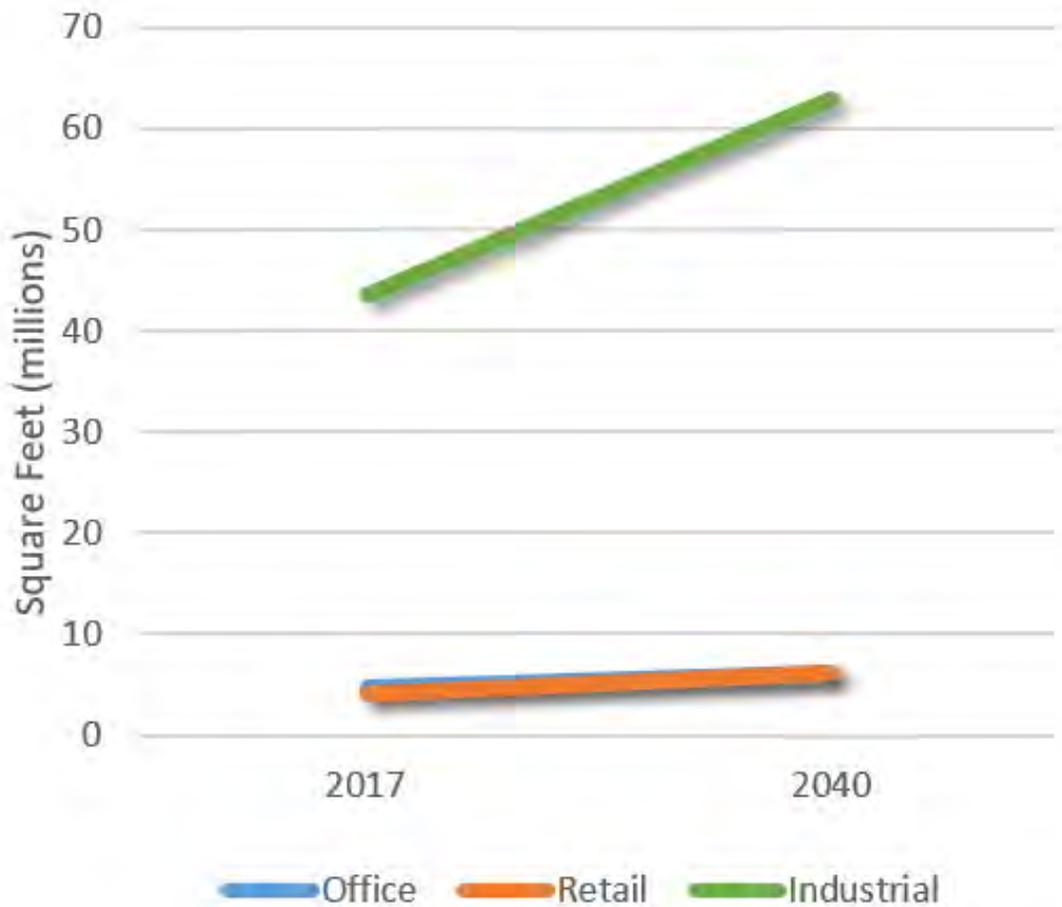
HOUSEHOLD & EMPLOYMENT FORECASTS

The following map illustrates the area's employment in 2017, and forecasts for the year 2040. As expected, the industrial and warehouse developments surrounding the airport and rail yard intermodal facilities have the study area's highest number of employees. This trend is expected to continue into 2040, as more industrial and commercial space is developed.



Forecasting the type of land development that will create new jobs in the area is a very important factor in planning for infrastructure improvements, including workforce access and mobility. The square footage shown in the chart tell a similar story to the land use and the employment forecasts. Moderate growth is experienced in the office and retail square footage, but industrial square footage, which includes warehousing, is predicted to have a large gain in square footage throughout the study area.

HOUSEHOLD & EMPLOYMENT FORECASTS



This chart summarizes forecasted square footage by employment type. These estimates are created by using conversion factors of forecasted employment to the square footage required to support that employment.

There is significant expansion of warehousing and light industrial land uses around the Rickenbacker International Airport and Norfolk Southern Intermodal Yard. Provided the economic development incentives remain unchanged, this expansion will likely see the development of the limited remaining agricultural land north of the airport with uses similar to the other warehousing and logistics employers already there, as well as similar new developments to the west and south of the airport property. One may also note significant residential and commercial development expanding south along the US 23 corridor. Also, parts of the current agricultural land between the City of Groveport and the City of Canal Winchester are slated to be used for commercial and mixed-use developments in the future.

BUSINESS ATTRACTION & RETENTION

Rickenbacker is a global, multi-modal logistics hub and key gateway location for the distribution of goods throughout North America. Anchored by one of the world's only cargo-dedicated airports and a major rail intermodal facility, Rickenbacker is also strategically located for freight distribution by truck. Positioned among major destinations including New York, Chicago, Toronto, and Atlanta, Rickenbacker is strategically located within a 10-hour drive of 47% of the U.S. and one-third of the Canadian populations.

ECONOMIC STRENGTHS & GROWTH – LAND DEVELOPMENT

As a result of the advantages of Rickenbacker's transportation assets, the area is well established as a hub for industrial development, including major warehouse and distribution facilities. Many of the major retailers and e-commerce firms have a presence at Rickenbacker, including Amazon, Mars, Eddie Bauer, Gap, Cardinal Health, Kraft, and Whirlpool. All told, more than 75 million square feet of industrial space has been constructed in the immediate area as of 2018, which is more than a quarter of the total square feet of industrial space in Central Ohio.



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BUSINESS ATTRACTION & RETENTION

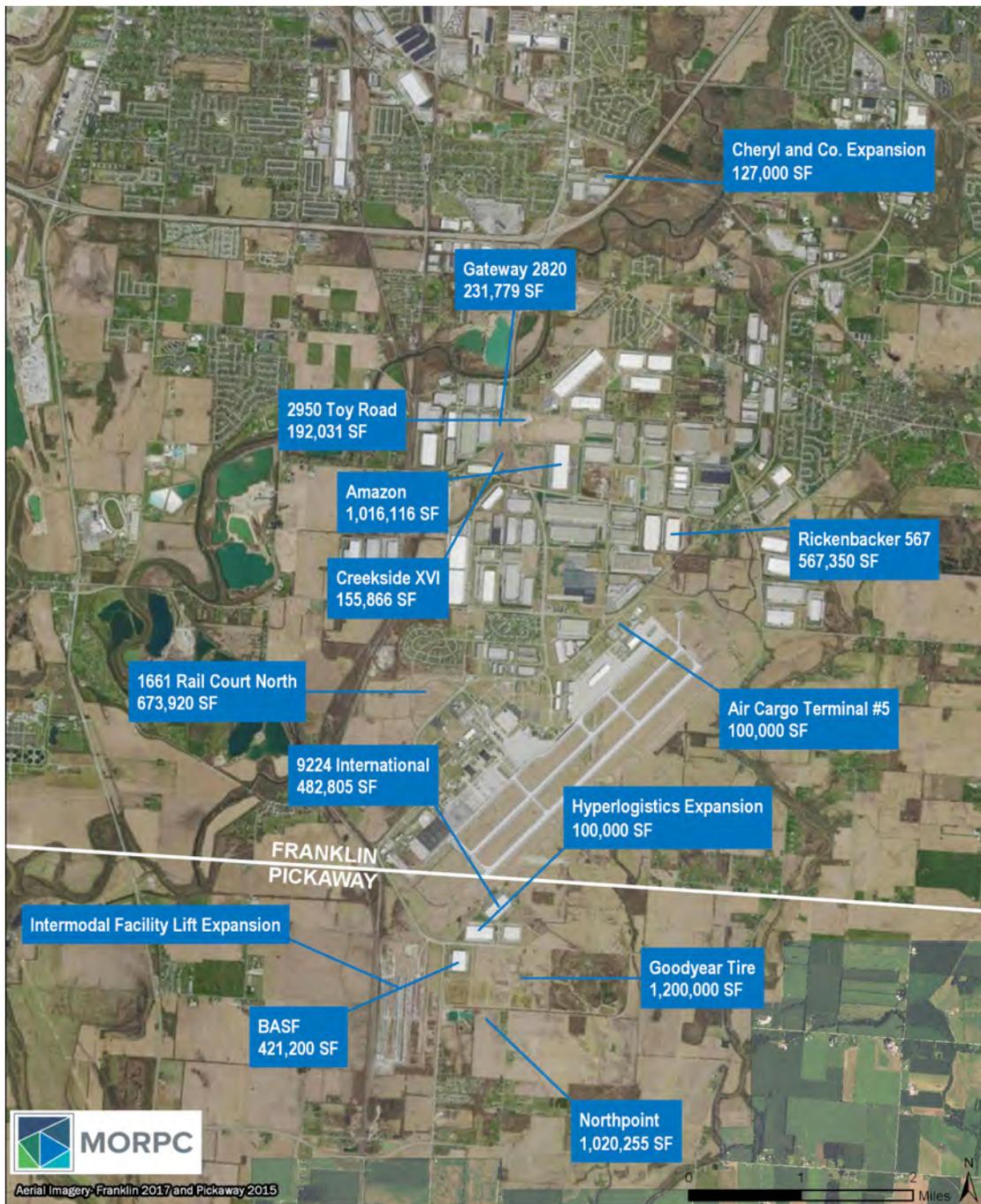
Warehouse development is very strong in the Central Ohio market, with a vacancy rate of just under 4 percent and more than a four million sq. ft. of space under construction as of mid-2018. Much of the space under construction is speculative, demonstrating the strong market confidence in the region. The majority of industrial development activity in the region has occurred at Rickenbacker, with select highlights during the study period (2017-2018) including projects by Northpoint (1 million square feet), Duke Realty (673,000 sq. ft.), Van Trust (975,000 sq. ft.), and Pizzuti (1.5 million sq. ft.). Newer projects have brought additional major firms such as Macy's and Goodyear Tire.



BUSINESS ATTRACTION & RETENTION

During the study, several developers with multi-state portfolios were interviewed regarding perceptions of development in the area. While ideas for improvements were offered, all agreed about the substantial opportunities at Rickenbacker. The area was noted as a stable location for development and long-term property holds, with good cooperation from local jurisdictions and government partners.

Nationally, the retail sector was up 4 percent between 2017 and 2018, despite thousands of brick-and-mortar store closings. This trend reflects a growth in e-commerce that is expected to drive continued growth and increase industrial space pricing. Rickenbacker is well prepared to capture substantial growth from this trend.

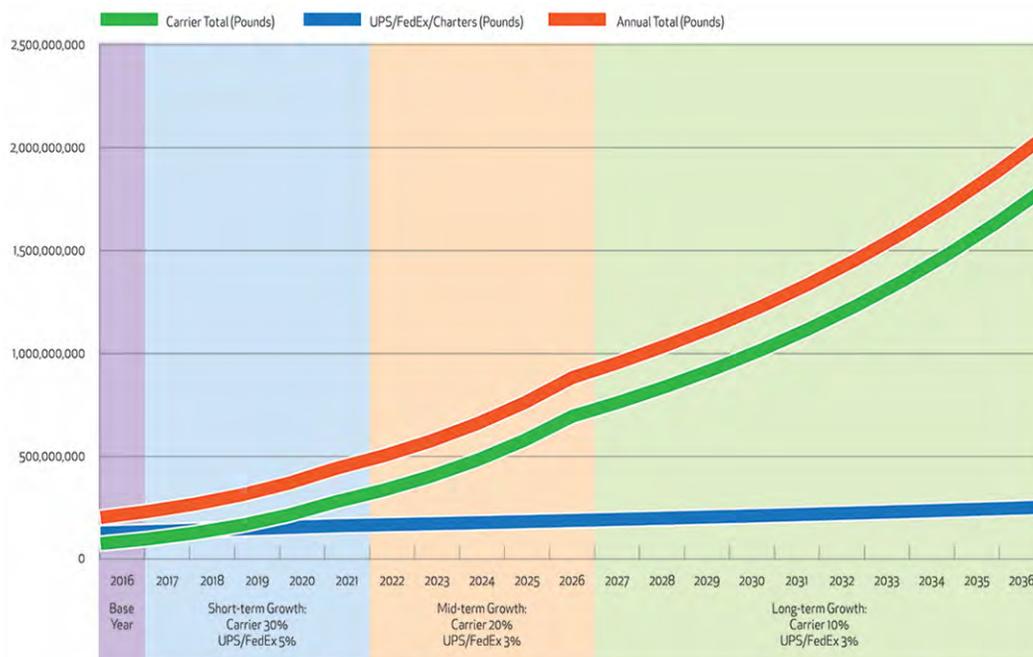


ECONOMIC STRENGTHS & GROWTH: CARGO & FREIGHT

As a global multi-modal logistics hub, Rickenbacker has tremendous transportation and logistics assets in terms of physical infrastructure, location, and private service providers such as freight forwarders, consolidators, customs brokers, and third-party logistics providers. Major assets in the area include:

- **Rickenbacker International Airport (LCK):** LCK is one of the world’s only cargo-dedicated airports. The airport provides uncongested air cargo services for shippers, with providers such as AirBridgeCargo, Cathay Pacific Cargo, Cargolux, Etihad Cargo, Emirates SkyCargo, FedEx, and UPS. The bulk of air cargo activity at the airport is generated by carriers that utilize LCK as a gateway for both domestic and international shipments.
- **Rickenbacker Intermodal Facility:** Opened in 2008 by Norfolk Southern (NS), the facility provides access for importers and exporters from/to major container ports on the East and West coasts, including New York, Norfolk, Los Angeles/Long Beach, and Seattle/Tacoma. In turn, this service network allows importers to locate distribution and warehousing facilities in the Columbus Region. Responsible for much of the facility’s growth, the Heartland Corridor provides a connection to the Port of Virginia via a NS mainline across the Appalachian Mountains.
- **Foreign Trade Zone 138 (FTZ #138):** Rickenbacker serves as the pre-designated magnet site for FTZ #138. This zone is considered outside of customs territory for the purpose of import duties (tariffs imposed on goods crossing international borders), allowing goods to be brought into the site duty-free and without formal customs entry. This allows global firms to maintain the cost competitiveness for their U.S. operations and provides a direct connection with foreign markets. Of the 186 FTZs in the country, FTZ #138 is consistently in the top 10 based on the values of goods handled. The FTZ also creates an opportunity for Rickenbacker to continue to expand its manufacturing sector.

The airport and intermodal facility are both experiencing substantial growth that is projected to continue in the years to come. LCK airport saw more than 250 million pounds of cargo in 2017, a 27% increase over 2016. The growth continued in 2018, with just over 300 million pounds of cargo added, an 18% increase. The Columbus Regional Airport Authority (CRAA) projects cargo movement at LCK airport to reach 1 million tons by 2036, as demonstrated in the below figure. Norfolk Southern has successfully increased lift counts at the intermodal facility by approximately 40% between 2008 and 2018, and is projecting the need to further expand the facility to accommodate up to 400,000 lifts annually by approximately 2025.

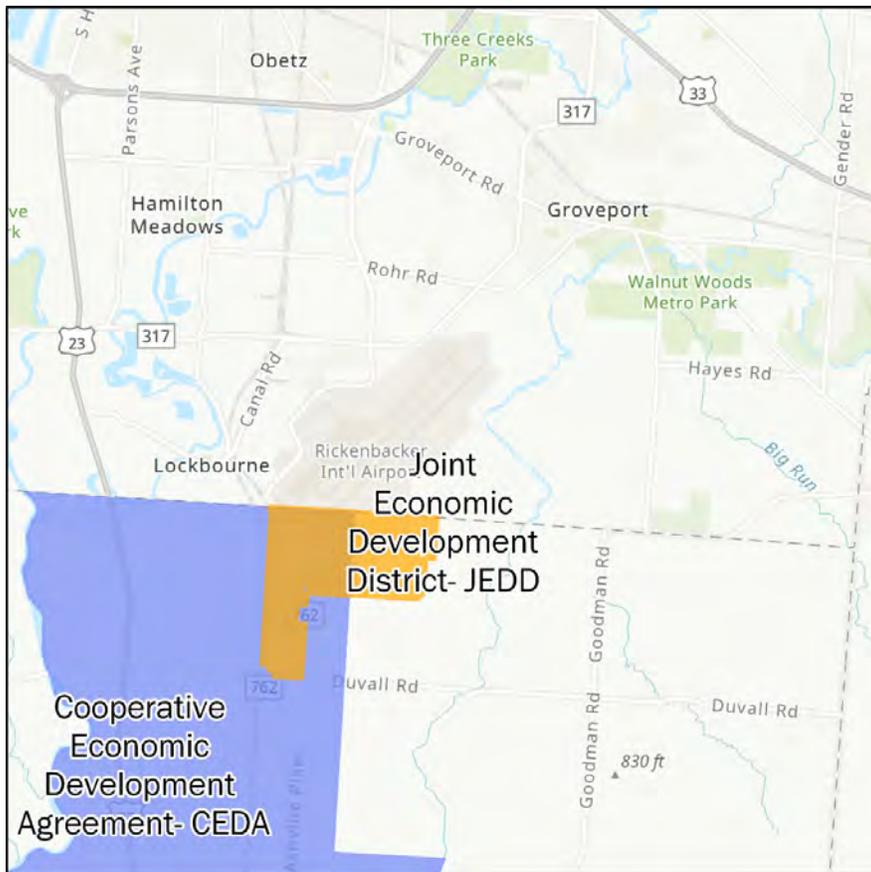


ECONOMIC DEVELOPMENT FRAMEWORK: SERVICES & PARTNERSHIPS

Several existing positive examples of jurisdictional partnerships in the area include the Joint Economic Development Districts (JEDDs) and Community Economic Development Area (CEDA). The JEDDs are a partnership between the City of Columbus and Harrison and Madison townships that allow city income tax to be levied to generate revenue for infrastructure investment. The Community Economic Development Area (CEDA) agreement has been established among Harrison Township, Pickaway County, and the villages of Ashville and South Bloomfield relative to planning, annexation, and the provision of services in Harrison Township in an effort to ensure cooperative economic growth. These tools could also be implemented in other parts of the area that present opportunities for future growth.

Economic development functions are carried out by multiple parties, including municipal and county economic development offices, as well as regional and statewide partners at Columbus 2020 and JobsOhio. The Columbus Regional Airport Authority (CRAA) plays an important role in marketing the transportation assets in the area. These assets were collectively marketed as the Rickenbacker Inland Port in recent years. In 2018, the CRAA completed work with a marketing consultant to brand the larger Columbus Region as the North American International Freight Center. The Rickenbacker area and its transportation assets are a key component within the regional International Freight Center branding, which is meant to attract attention with a global audience that may not be as familiar with the Rickenbacker name but seeks efficient distribution across the North American continent.

ECONOMIC DEVELOPMENT FRAMEWORK: SERVICES & PARTNERSHIPS



JEDD

Joint Economic Development District: a special-purpose district created among municipalities and townships to facilitate economic development and create a cooperative relationship for development activities, provision of services, and revenue sharing, including levying municipal income tax, in a designated district.

CEDA

Cooperative Economic Development Agreement: a cooperative agreement created among municipalities and townships relative to development activities, provision of services, and revenue sharing in designated areas.

As the core business area has been developed under the authority of multiple jurisdictions and by multiple developers, there is not a specific character to the area. Additionally, some complimentary amenities are lacking, such as retail and restaurants that would help create a more desirable workplace for employees. Placemaking strategies, further described in the Quality of Life theme, present an opportunity to develop the Alum Creek Drive and Rickenbacker Parkway corridors in a more coherent manner, offering a more diverse mix of uses and consistent branding. Branding efforts, including signage, wayfinding, aesthetics in the public realm, etc. can leverage both Rickenbacker and International Freight Center brands.

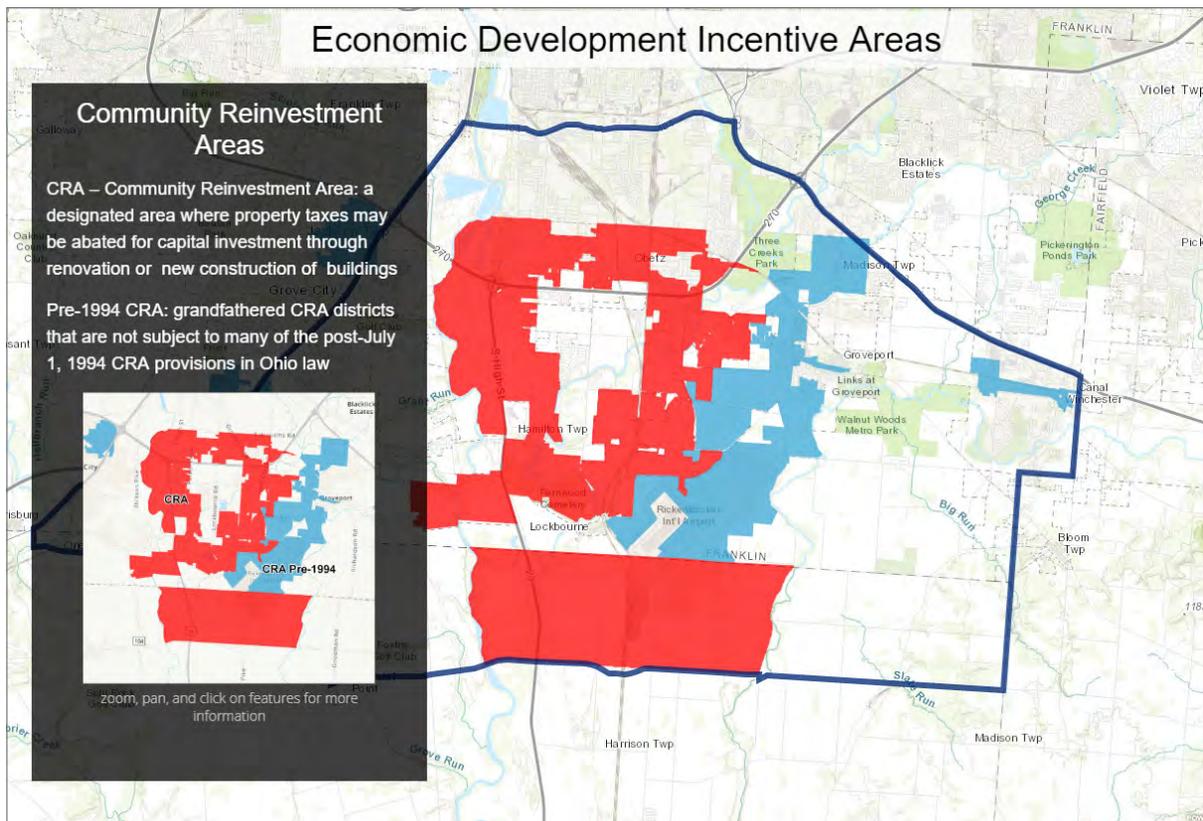
As mapped in the introduction, the study area spans portions of two counties and encompasses multiple municipalities and townships. Although local jurisdictions have been good partners and regularly cooperate toward common goals, the interviews conducted with local officials and developers during the study revealed a common theme. Many suggest that there are additional opportunities to improve coordination, create mechanisms that generate sustainable funding sources for improved services, and achieve greater outcomes for the area.

ECONOMIC DEVELOPMENT FRAMEWORK INCENTIVES

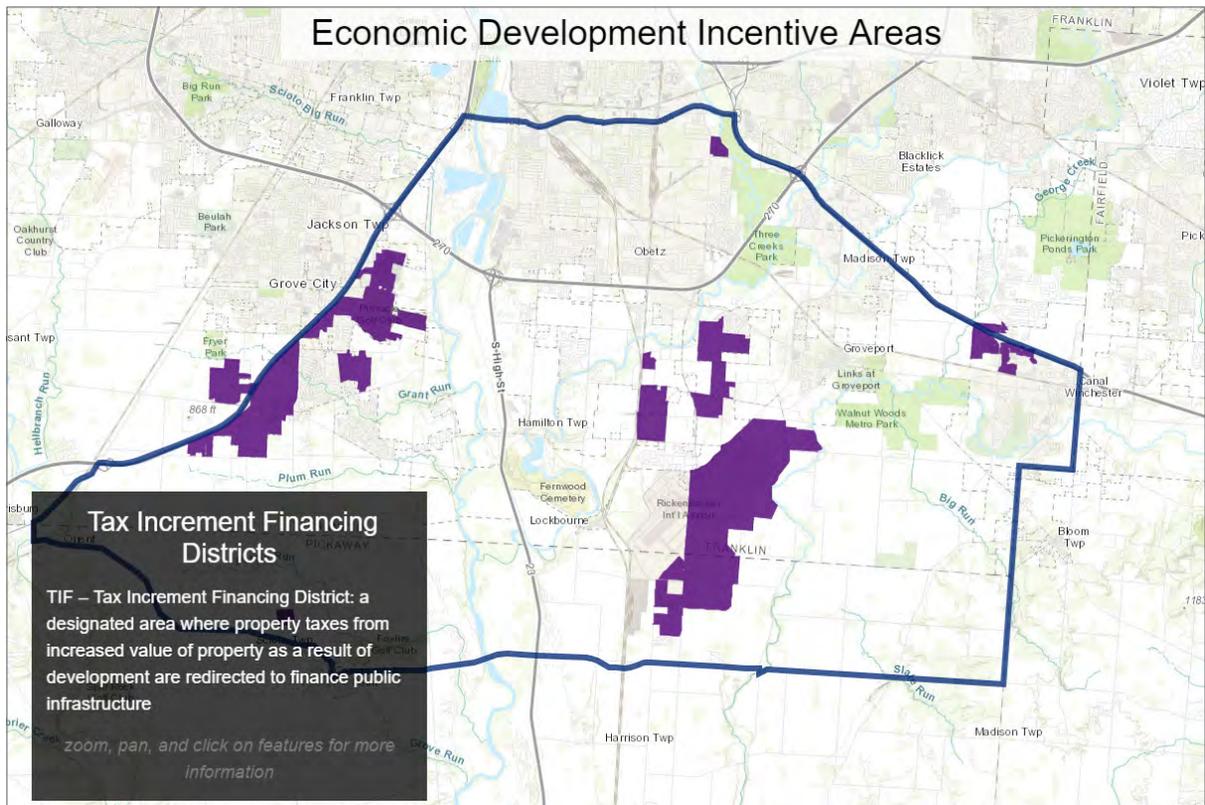
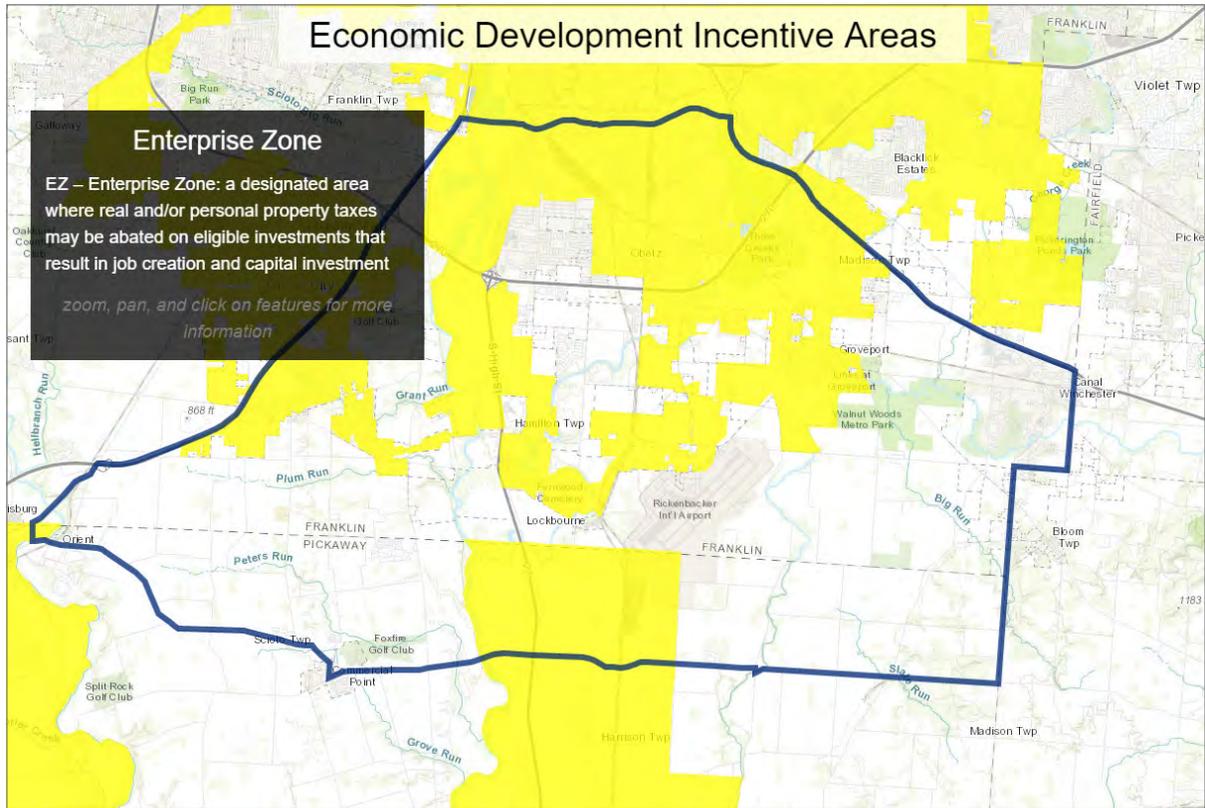
Multiple incentive districts have been established in the Rickenbacker area to encourage economic development. These tools are created by local governments and work in tandem with other local and state incentives, such as job-creation tax credits, to encourage job growth and capital investment. However, incentives are only one piece of the puzzle to attracting growth; communities must consider the overall value add that they provide for a company through the full picture of assets that they offer, including workforce, transportation, utilities, and other services.

Predominant tax abatement programs used in the Rickenbacker area include Community Reinvestment Areas (CRAs) and Enterprise Zones (EZs). As these tools are established by local governments, the requirements and rates can vary by jurisdiction and impact where and when development occurs. Additionally, several Tax Increment Financing (TIF) districts have been established to capture increased property tax revenues for public infrastructure improvements.

A new incentive from the federal Tax Cuts & Jobs Act of 2017 may provide future opportunity in the Rickenbacker Area. Opportunity Zones (OZs) are low-income census tracts where investors can receive tax incentives when they invest and hold their capital gains in opportunity funds that invest in eligible projects within OZs. As of early 2019, the U.S. Department of Treasury is finalizing guidance on creating these funds, and the economic development community is still determining how best to leverage the tool to encourage growth. As tracts in the Rickenbacker area have been designated OZs, this tool should be closely followed by local stakeholders, with the investment benefit highlighted.



ECONOMIC DEVELOPMENT FRAMEWORK INCENTIVES



ECONOMIC DEVELOPMENT FRAMEWORK INCENTIVES



A driving factor of where and how development occurs is accessibility to water and sewer services. As such, coordination and jurisdictions collaborate through agreements to provide these services for residents and businesses. The section below summarizes the existing economic development framework as it relates to water and sewer services.

ECONOMIC DEVELOPMENT FRAMEWORK: WATER & SEWER

A key component to business attraction is adequate water and sewer service. The Rickenbacker area is serviced through multiple agreements between local jurisdictions and providers. The City of Columbus is a primary water and sewer provider, and it has agreements with Groveport, Obetz, Lockbourne, and the JEDD areas under varied maintenance and distribution arrangements. Columbus has indicated that it has ample capacity at both its water production and wastewater treatment facilities to accommodate the anticipated development of the Rickenbacker area. For instance, the Parsons Avenue Water Plant, which services the area, averaged 20 million gallons per day (MGD) in usage in 2018 but has a total capacity of 50 MGD.

In Pickaway County, the City of Columbus sells water to the Earnhart Hill Regional Water and Sewer District for distribution using the district's own water lines. Columbus owns and maintains the wastewater lines in the JEDD areas, however. Columbus began construction in 2017 on the Lockbourne Intermodal Subtruck to serve the developing areas around the Rickenbacker Intermodal Facility. This sewer extension will be completed in 2020, and further extensions are in planning due to continued growth in both JEDD areas.

Concurrent with this study, the City of Columbus has engaged Prime AE to complete a Master Plan for Rickenbacker Southeast Service Area to review the sanitary sewer system and existing agreements in the area, and to develop a plan for how, when, and to which area future service should be provided. Additionally, MORPC is undertaking a 208 study for the Ohio Environmental Protection Agency (OEPA). Once completed, these documents will help to define wastewater service needs and direction moving forward.

ECONOMIC DEVELOPMENT FRAMEWORK: WORKFORCE

A common dialogue is ongoing in the economic development community about workforce. Workforce has been called “everyone’s job,” as communities nationally have come to realize that attracting and maintaining an appropriately skilled workforce is critical to retaining and adding jobs. During the study interviews, workforce was the most common concern among both public and private stakeholders.

In the Rickenbacker area, the workforce issue is multi-faceted. In addition to shortages of workers with appropriate training and soft skills, workforce access is a major concern. Most workers do not live close to their place of employment, there are many gaps in the transportation network for those without easy or affordable access to an automobile, and businesses see increased costs from absenteeism and turnover. Several individuals interviewed acknowledged that Rickenbacker has lost economic deals to other areas because of workforce concerns.

Workforce access challenges in warehousing and distribution type environments is not unique, however. In recent decades, a phenomenon sometimes known as “job sprawl” has resulted in jobs moving further out from city centers, away from where workers live. This can increase transportation costs for employees, which counterbalances the competitive advantage of a region’s lower relative cost of living nationally.

Rickenbacker presents an opportunity to comprehensively address workforce access with multiple initiatives, including new workforce housing close to employment centers, additional transit and bike/pedestrian connections, and other innovative mobility measures to make excellent workforce access the area’s competitive advantage.

Specific solutions and recommendations addressing workforce access and mobility in the Rickenbacker study area are discussed in the following sections.

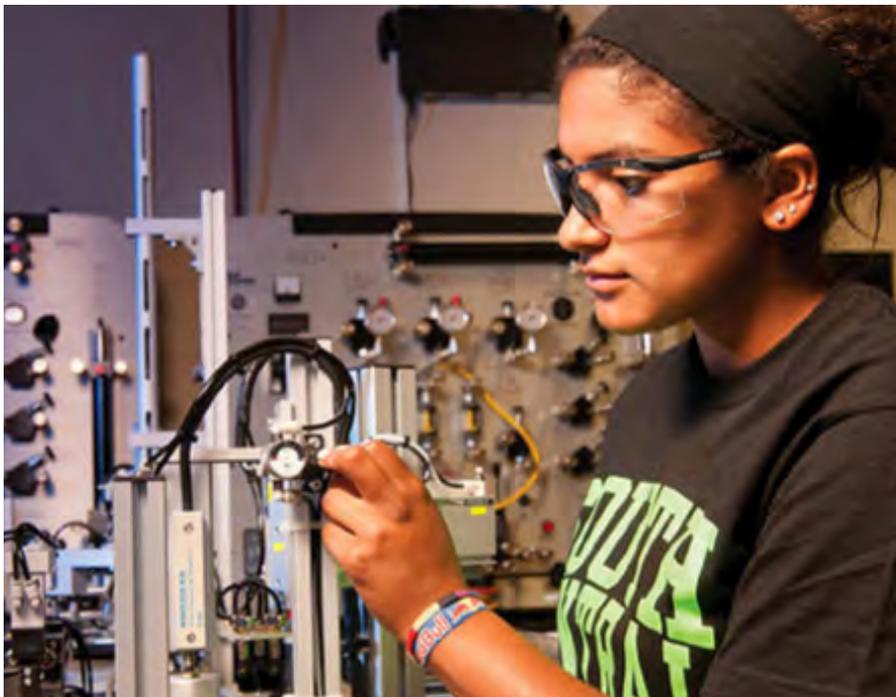


Photo sources: South Central College, IBEW48

WORKFORCE MOBILITY & SAFETY

Employers in the study area have identified workforce access as a key challenge. Employees do not live close to area businesses and the transportation system has many gaps. Transit service is limited and the bicycle and pedestrian networks lack connectivity. This causes high rates of absenteeism and turnover, which cost businesses thousands of dollars a year. While this issue is not unique to the Rickenbacker area, it is a threat nonetheless. Finding solutions to workforce mobility issues can give the Rickenbacker area a competitive edge nationally.

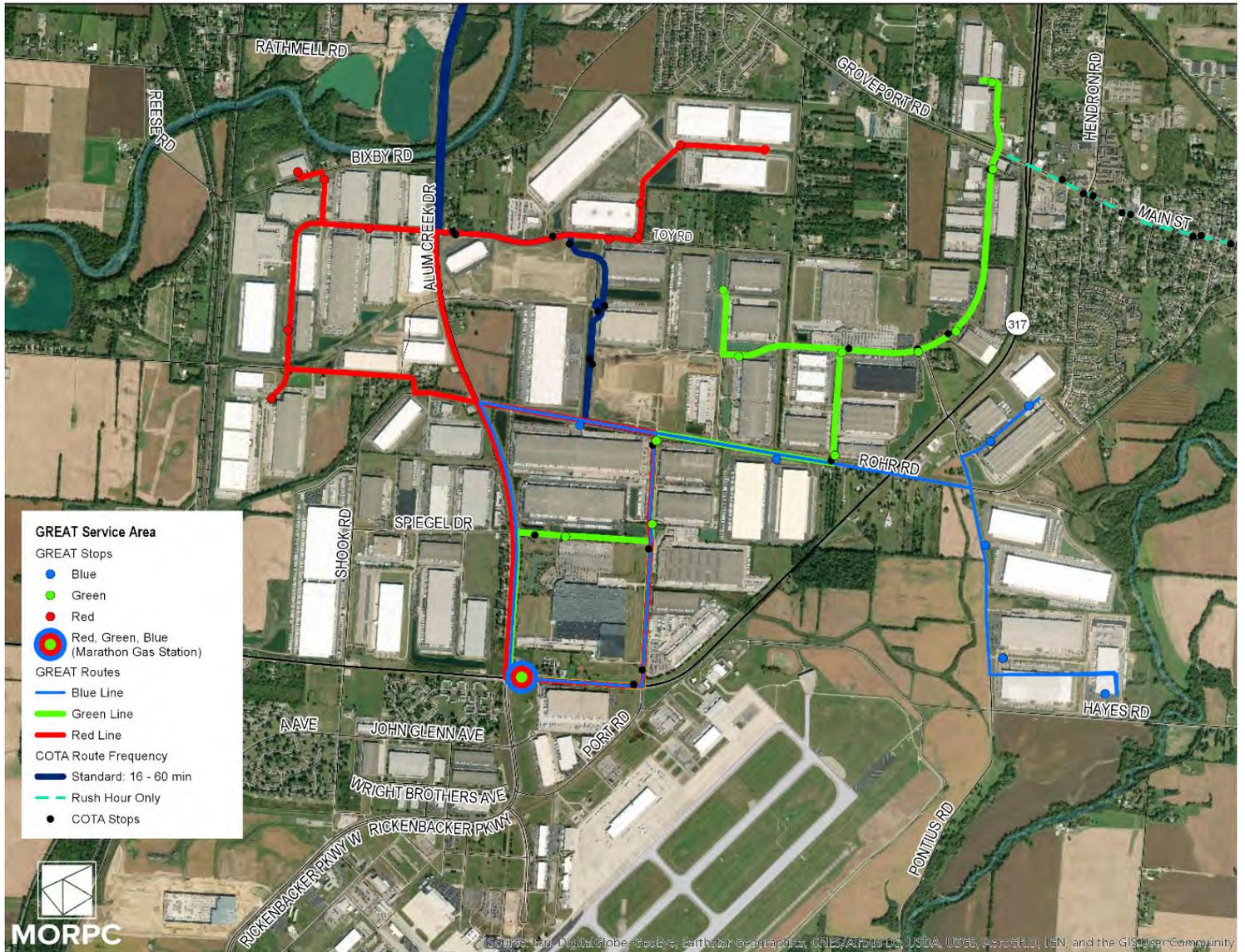
The workforce mobility challenge is a result of many factors, including low density (spread out) employers, limited transit access, and a lack of bike and pedestrian amenities such as sidewalks and bike facilities.

One tool currently being utilized to bridge the transportation gap is the Groveport Rickenbacker Employee Access Transit (GREAT) shuttle service, which connects Central Ohio Transit Authority (COTA) riders to businesses located in the Rickenbacker area. The shuttle service is operated by the City of Groveport and Village of Obetz, and it is free to all riders



GREAT shuttles coordinate with COTA lines 22 and 24, which both stop at the Marathon gas station located in the northeast quadrant of Alum Creek Drive and SR 317/London Groveport Road. Three GREAT shuttles leave from the Marathon station and stop at various businesses along three different routes, closing the last-mile transportation gap for COTA riders.

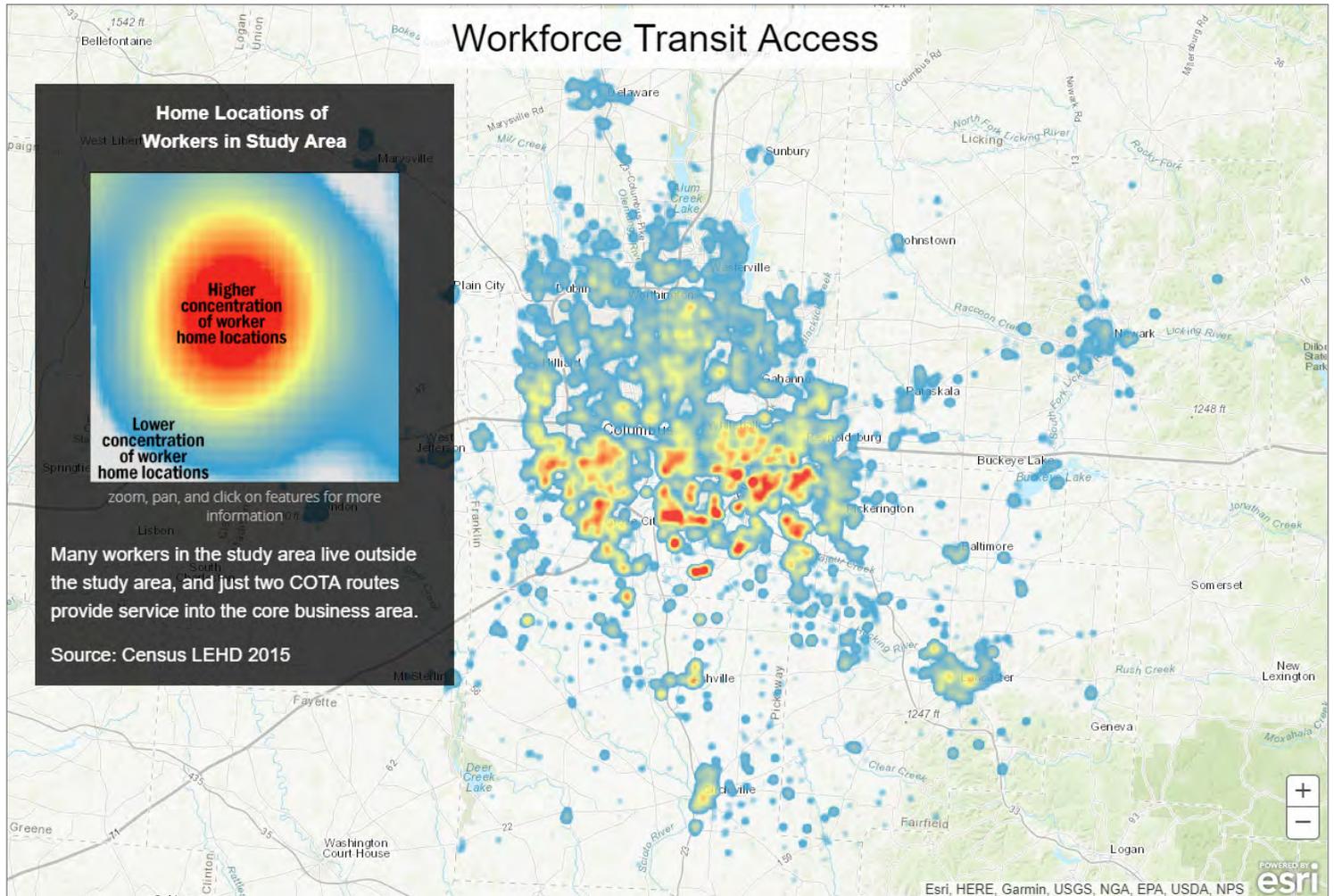
WORKFORCE MOBILITY & SAFETY



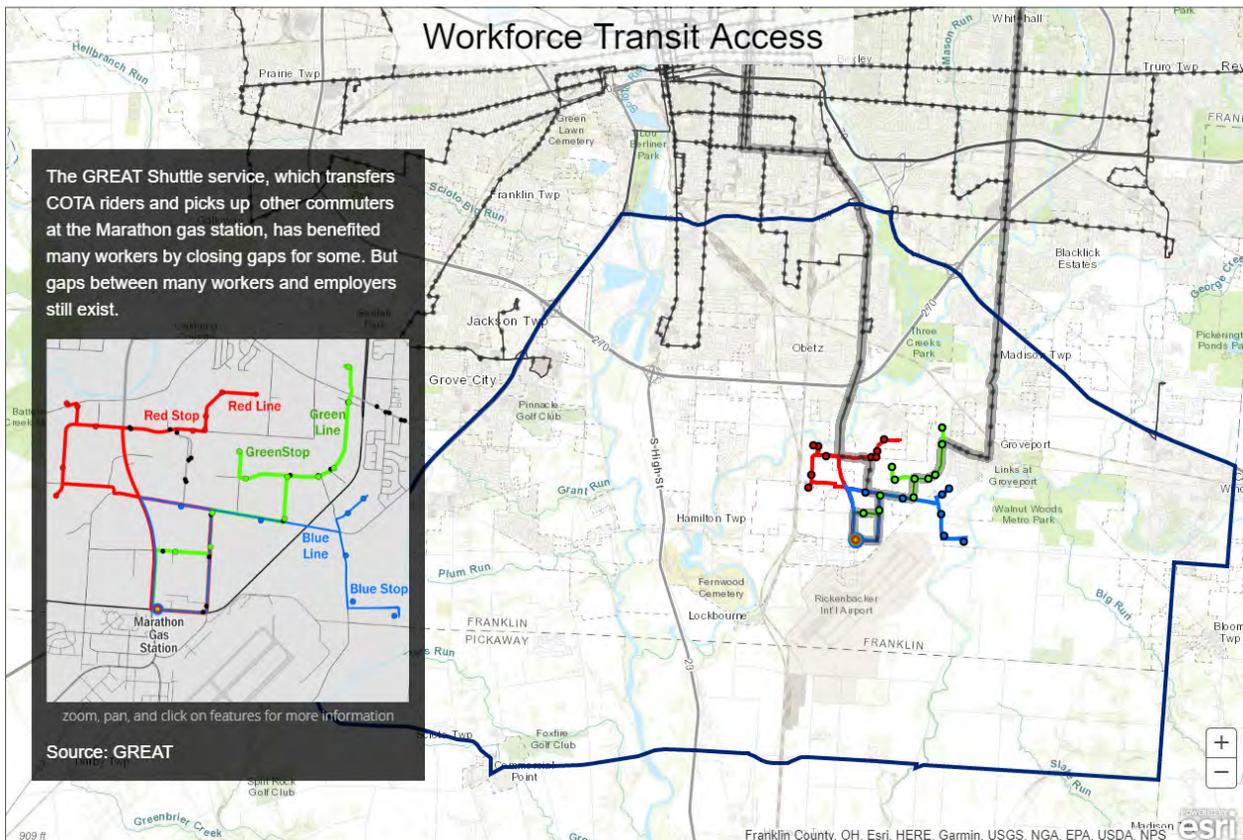
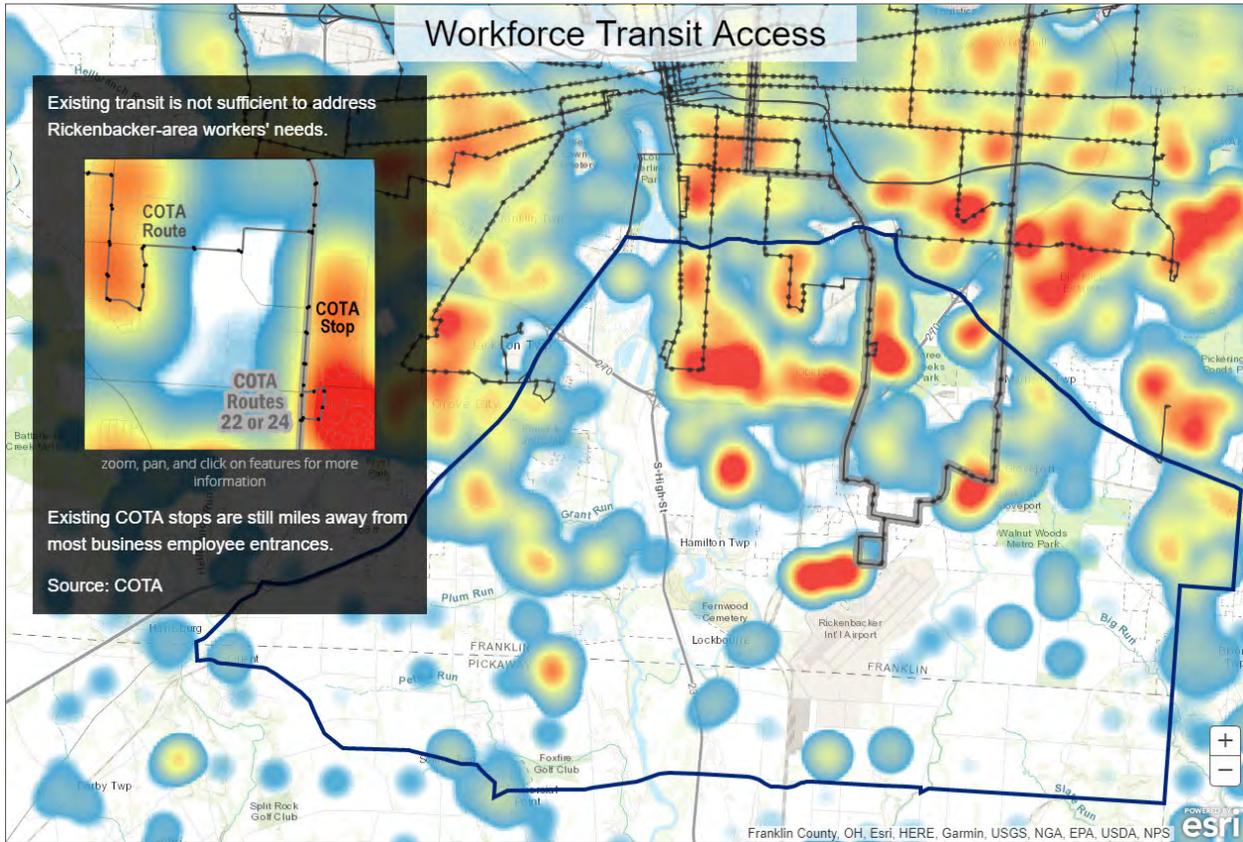
In coordination with COTA and the City of Groveport, MORPC conducted an on-board survey of the GREAT shuttle service for the purpose of learning more about the challenges facing everyday users of the services.

WORKFORCE MOBILITY & SAFETY

One of the most significant takeaways from the survey was to affirm that many transit users working in Rickenbacker live well outside the study area. This reinforced the commuter patterns reflected in the census data analysis shown in the map below.



WORKFORCE MOBILITY & SAFETY



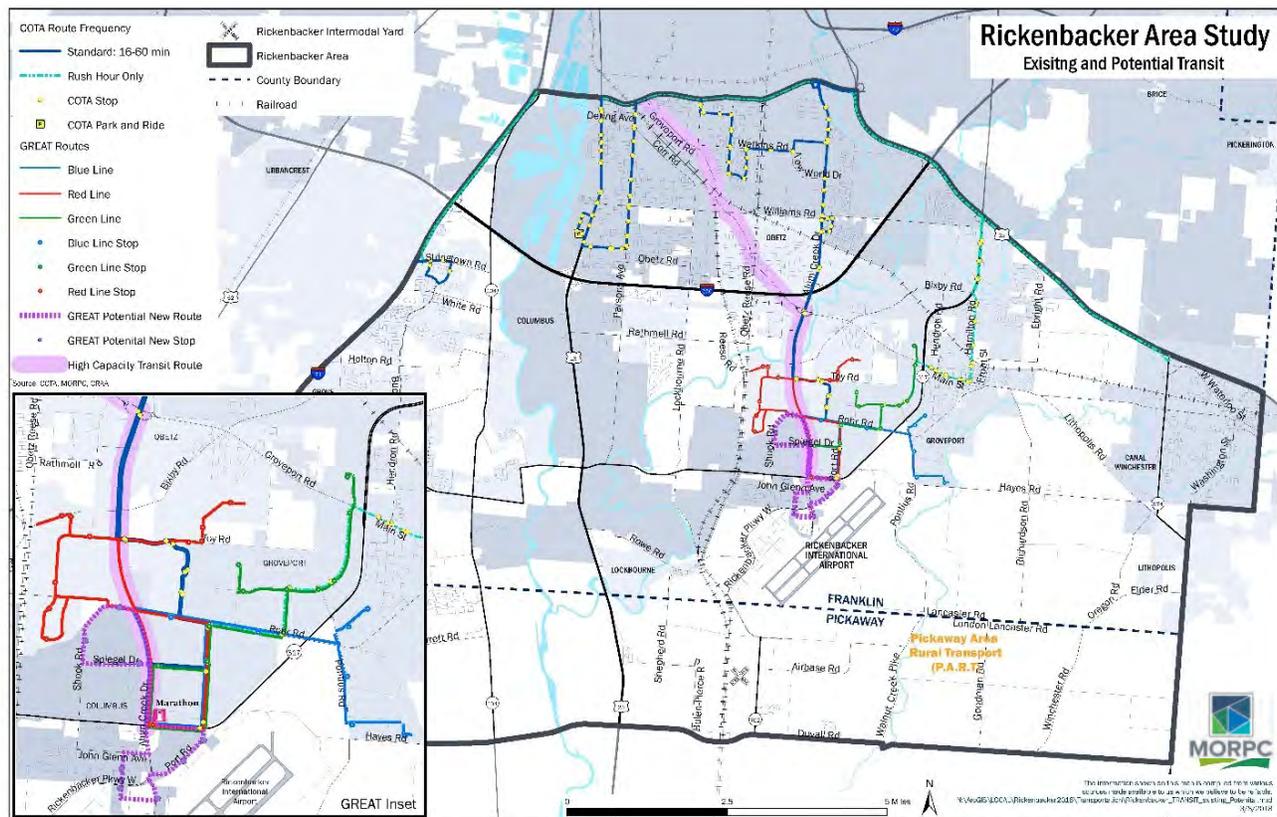
RECOMMENDATIONS TO IMPROVE WORKFORCE TRANSIT ACCESS

Findings from the GREAT on-board survey revealed that COTA buses are often overcrowded when riders board at their origin stop, forcing some riders to wait for the next bus.

In response to this issue, COTA has added “tripper buses” or a bus following 5 minutes behind regularly scheduled buses, but it is a temporary fix intended for only peak-ridership periods.

Fixed-route transit service will better serve the area workforce by:

- Increasing frequency of existing COTA Line 22, from Eastland to Rickenbacker.
- Increasing frequency of existing COTA Line 24, from Broad & Ohio to Rickenbacker.
- Enhancing stop amenities (lighting, shelter, benches) in area.
- Adding a fourth GREAT shuttle route, serving commuters working at businesses in the City of Columbus.
- Adding fixed-route service to Pickaway County and Fairfield County.



The Marathon gas station, where riders transfer from COTA routes to GREAT routes, has become a hub of near constant pedestrian and vehicular activity. COTA and GREAT riders walk across the lot to enter the store to pick up convenience items. Automobiles enter/exit, circulate, and park to utilize the fuel station and convenience store. The GREAT buses pull in, park, and circulate the lot to exit. The volume of pedestrians, automobiles, and transit vehicles, with no formal patterns or predictability, creates potentially hazardous conditions for pedestrians and vehicles, as activity increases on this site.

The potential for an additional GREAT route and high-capacity transit connecting to the area, as well as increased use of shared transportation services, makes the need for safe, multi-modal accommodations in the area crucial for workforce mobility and access.

MOBILITY CENTER

MOBILITY CENTER

A place of connectivity where various modes of transportation come together in an organized manner. With careful design, all modes can operate safely and efficiently.

A mobility center can include, but is not limited to the following:

- Transit bus bays and turn-arounds
- Bike storage
- Bike share facilities
- Park and ride
- Car2Go or other car-sharing services
- Pedestrian amenities
- Smart technologies

The Rickenbacker mobility center could potentially also be a location for mixed-used development that includes needed services such as:

- Convenience retail
- Social service offices
- Job training
- Child care
- Solar energy assets

This plan does not recommend a specific site for a mobility center, but the site selected for the development should meet the following criteria:

- The site should be located along a corridor where all COTA and/or GREAT lines serving the area can stop.
- The site should be accessible, or should be developed to be accessible, by walking and biking. In other words, it should be developed to enhance bike and pedestrian connectivity in the area.
- The site should be large enough to accommodate transit buses and shuttles (turning angles, etc), as well as have a proper design to circulate pedestrians, cyclists, motorists and transit vehicles safely.
- The site should include considerations for emerging alternative fueling stations, such as electric vehicle charging stations, to keep in line with regional strategies to promote renewable energy technologies.
- The site could include solar energy facilities and could be a pilot in the region for how to promote solar energy generation in new development.



MOBILITY CENTER

The final connection between transit stop and employer or home is almost always walking or biking. For workers who use transit to get to their employment locations, proper bike lanes, sidewalks, and street lighting are essential for a safe commute.

As the Rickenbacker area is leveraged to be more globally competitive and attract more employers, pedestrian and bike connectivity needs to be considered as the area experiences more growth.

The survey of GREAT riders confirmed that the majority of workers walking or biking the last mile to work felt unsafe. Approximately 27% of GREAT riders have to walk longer than 5 minutes to reach their final destination, and 72% reported they do not feel safe from vehicular traffic during their walk.



LOW-STRESS BICYCLE & PEDESTRIAN NETWORK

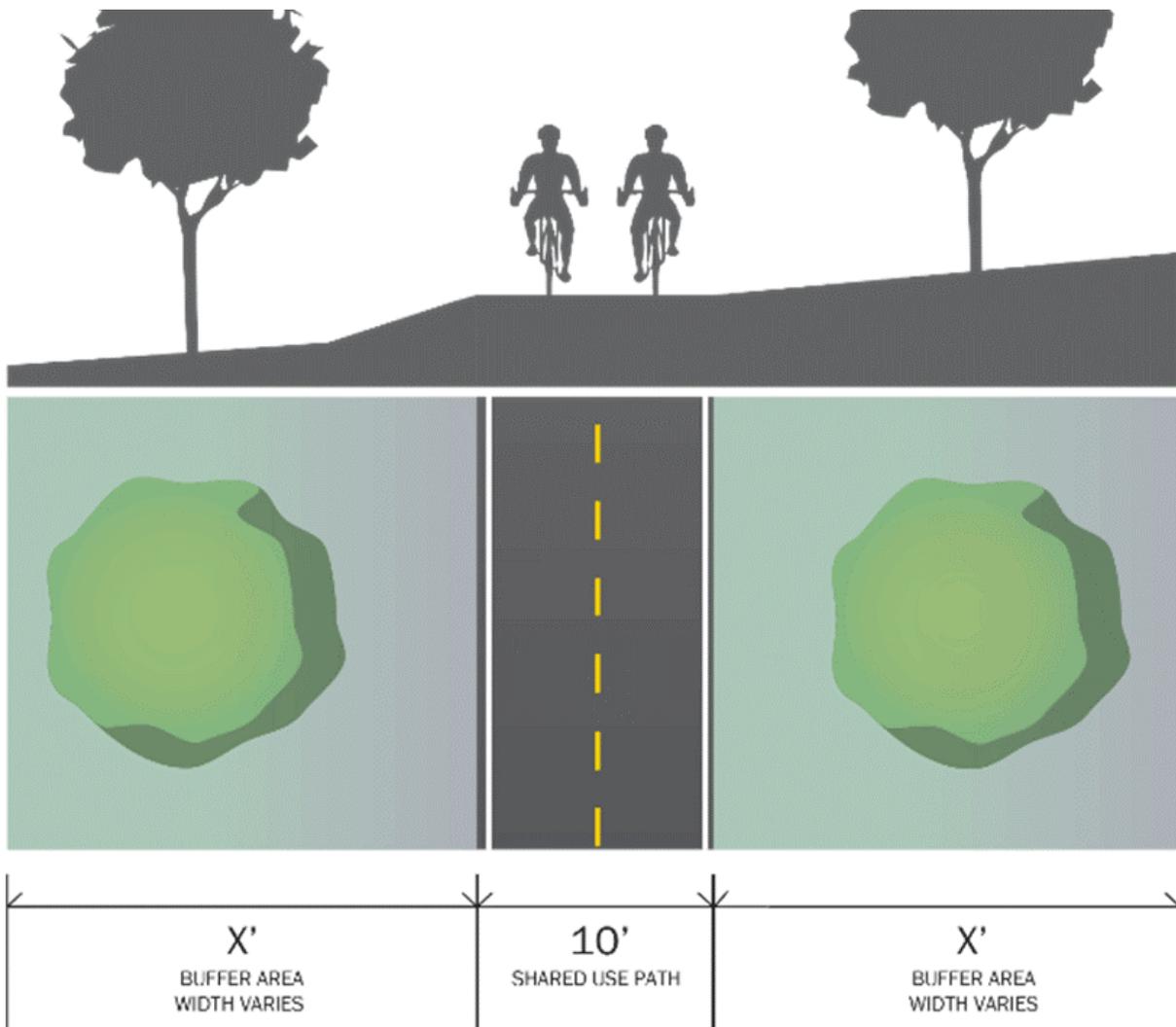
A goal of the Rickenbacker Area Study is to identify the need for investment to ensure biking and walking are safe, comfortable, and convenient forms of transportation and recreation for people of all ages and abilities.

To provide safer bike and pedestrian travel in the study area, the proposed active transportation network for the Rickenbacker area includes both a primary low-stress network and supporting priority pedestrian connections.

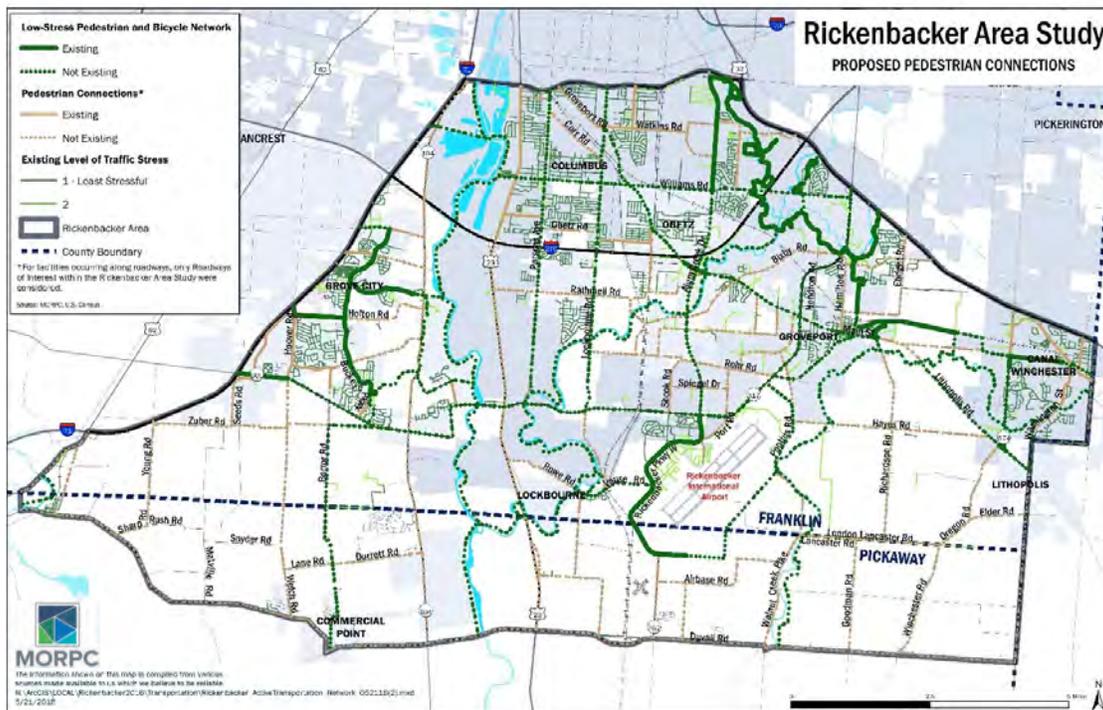
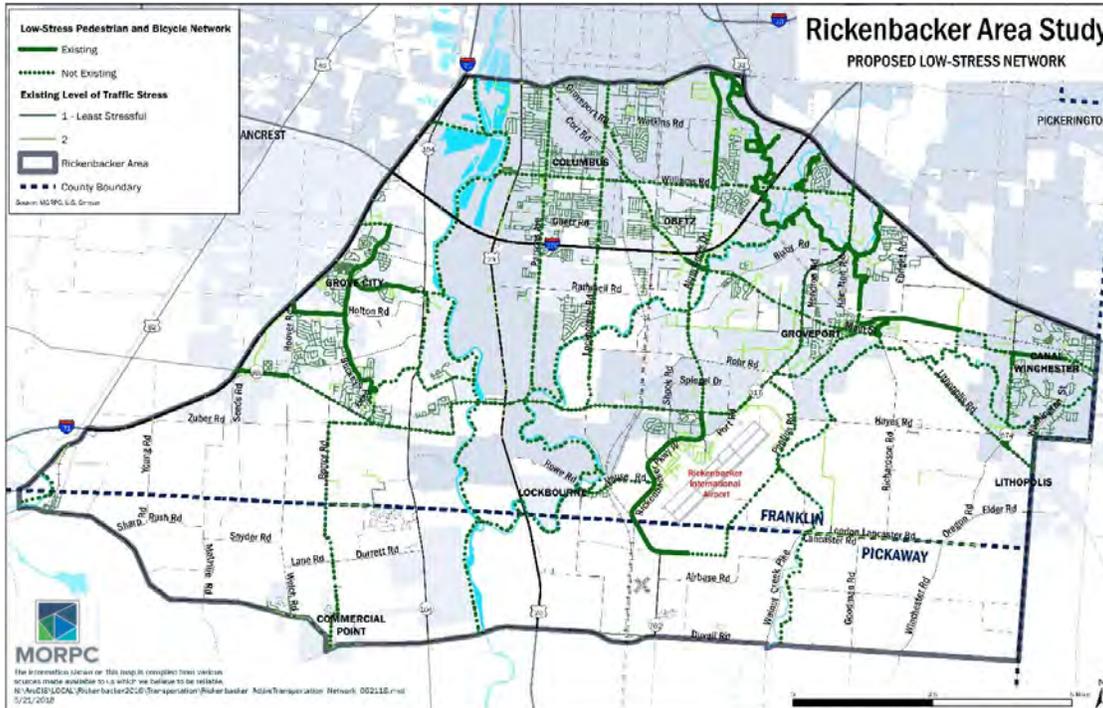
Level of traffic stress (LTS) refers to the stress experienced by non-motorized users along a segment of the transportation network due to traffic volumes and other roadway characteristics. The existing LTS was measured for facilities in the study area, and mapped below.

The proposed low-stress active transportation network is meant to provide a core network or “highway system” of connected, low-stress, active transportation routes and will provide connections across the study area, linking neighborhoods to major employment centers, recreational opportunities, and beyond.

As shown in the example below, a low-stress active transportation network is made up of facilities that include separated on- and off-street connections accessible to both pedestrians and bicyclists. Separation of modes is critical to providing safe travel options for all modes and users.



LOW-STRESS BICYCLE & PEDESTRIAN NETWORK



The relationship between workforce access and the availability of safe, well-planned multi-modal first/last mile connections has a great impact on Rickenbacker’s economic growth. The recommendations for workforce mobility and safety, and preliminary implementation strategies resulting from this study, can be viewed in further detail under the recommendations section.

FREIGHT ROUTING & ACCESS

While workforce access is a key issue to the area's competitive economic edge, as a logistics hub, the safe and efficient movement of freight accessing and circulating the area is equally important. Rickenbacker's prominence as a freight and logistics center is due to its strategic location and access to prominent North American markets.

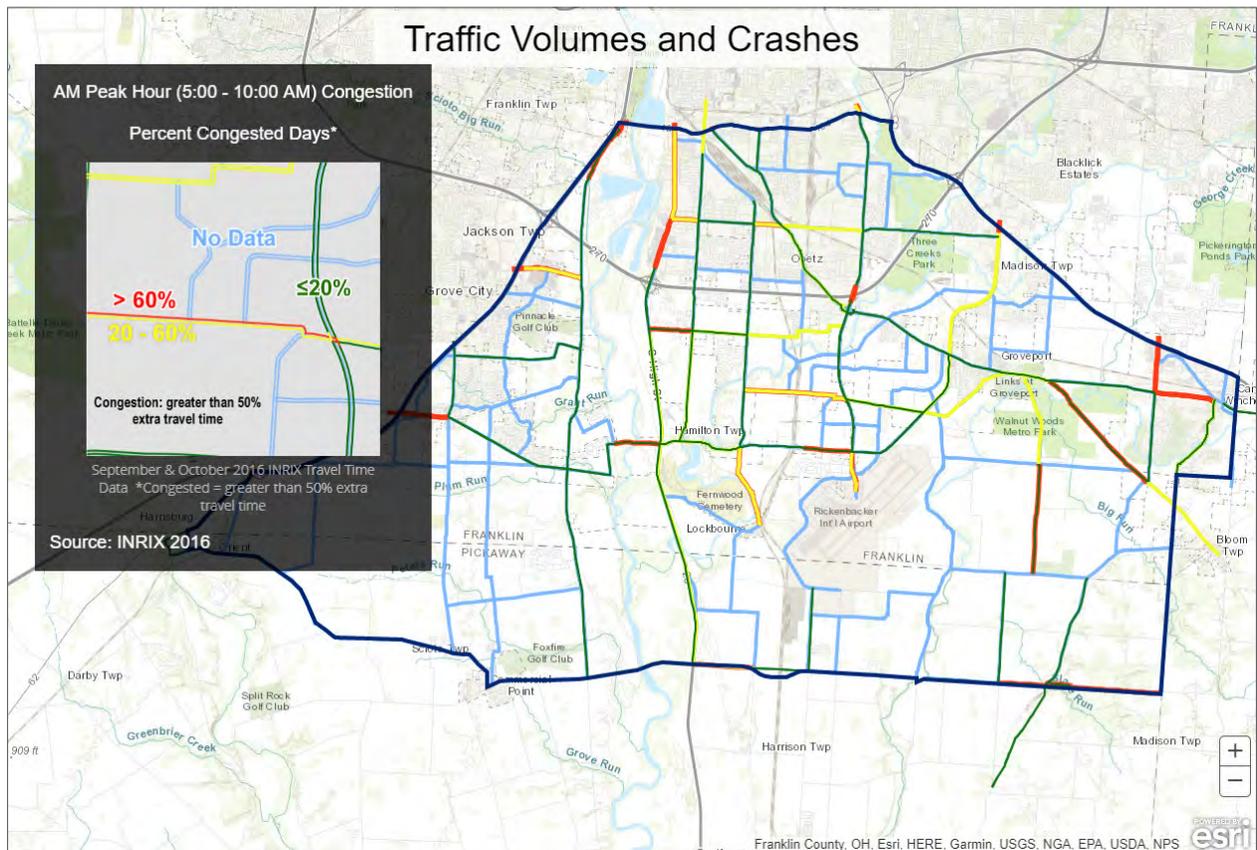
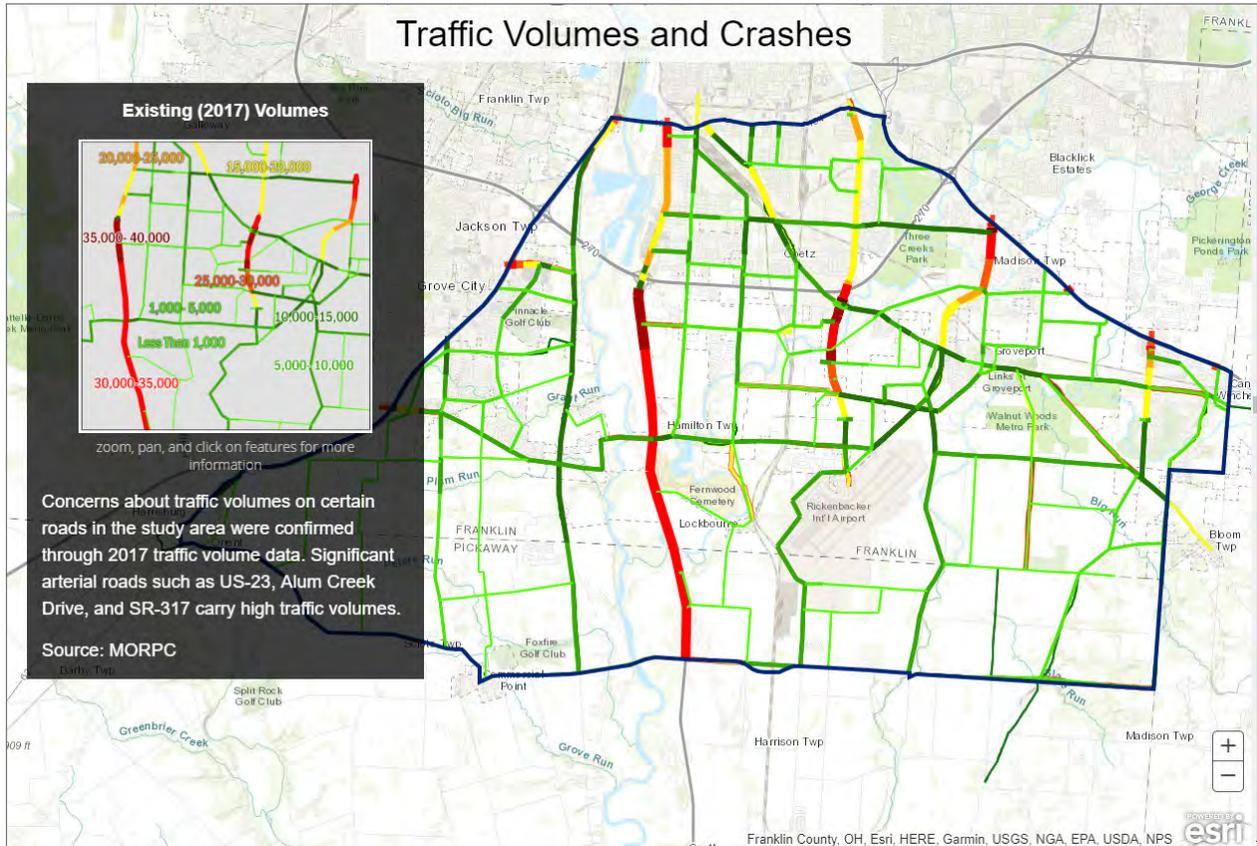
Rickenbacker is located for freight distribution by truck. Positioned between major North American metropolitan markets, Rickenbacker is strategically located within a 10-hour drive of 47% of the U.S. population and one-third of the Canadian population.



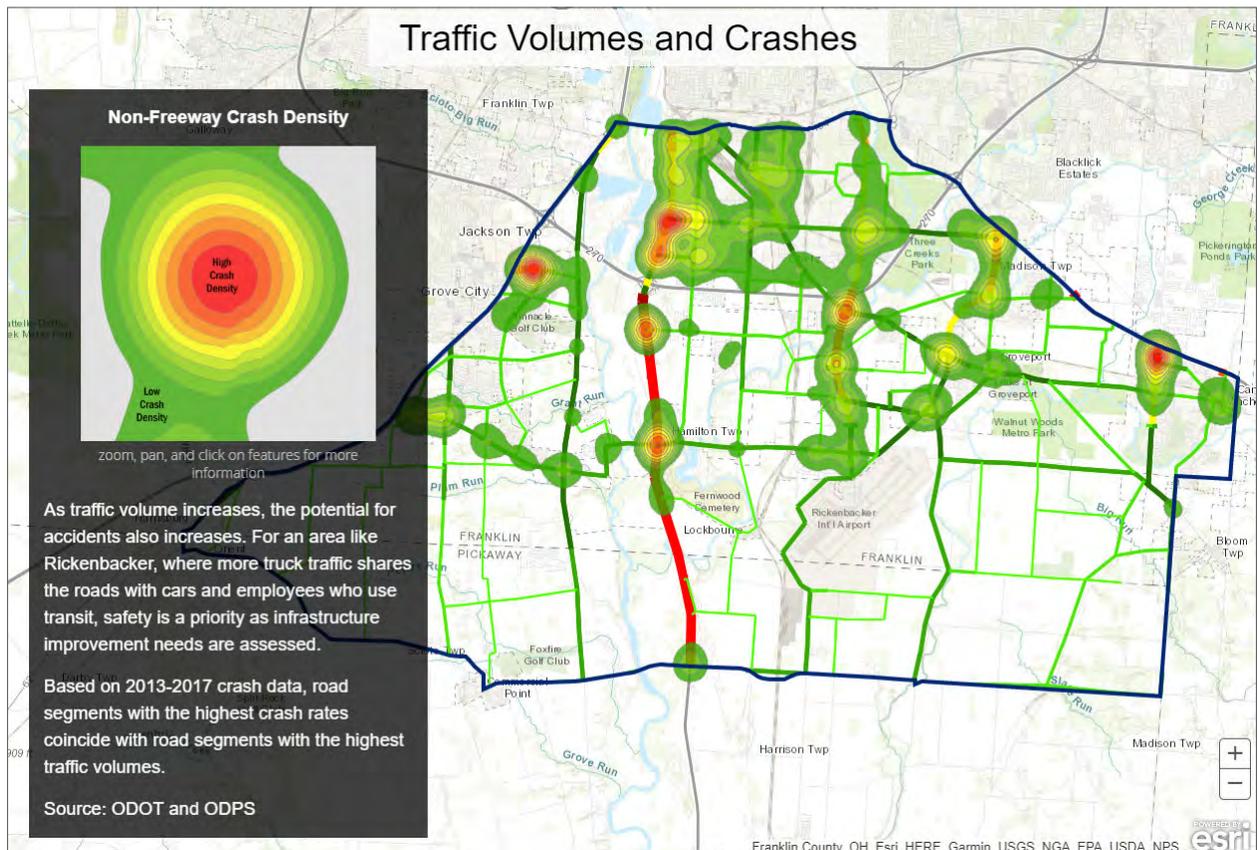
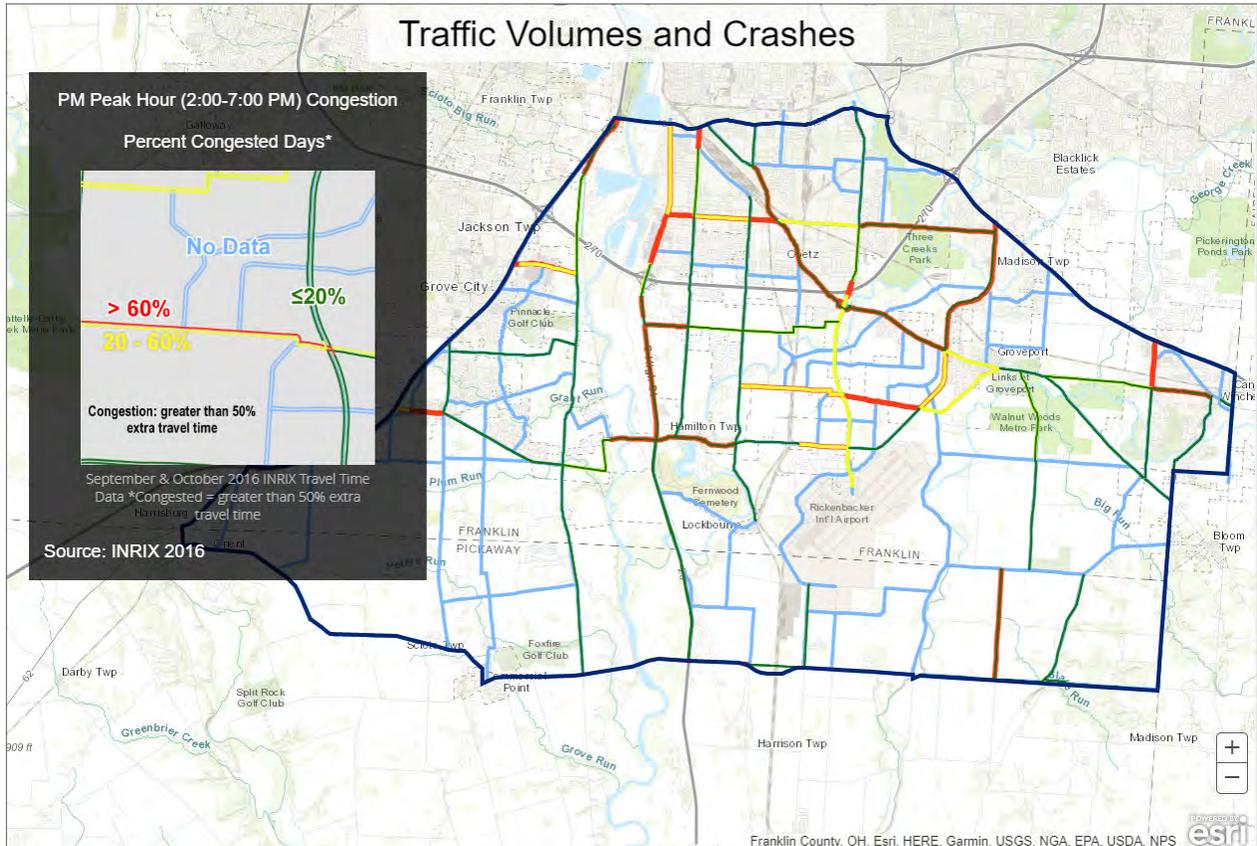
Congestion, both recurring (expected, peak period) and non-recurring (due to crashes or other unforeseen circumstances), can impact truck travel and the on-time exchange of goods.

Existing travel volumes were analyzed to identify areas that experience congestion during peak travel periods. There is a direct relationship between traffic congestion and crashes (the more congested the road segment, the more crashes). The map below shows crashes occurring between 2013 and 2017.

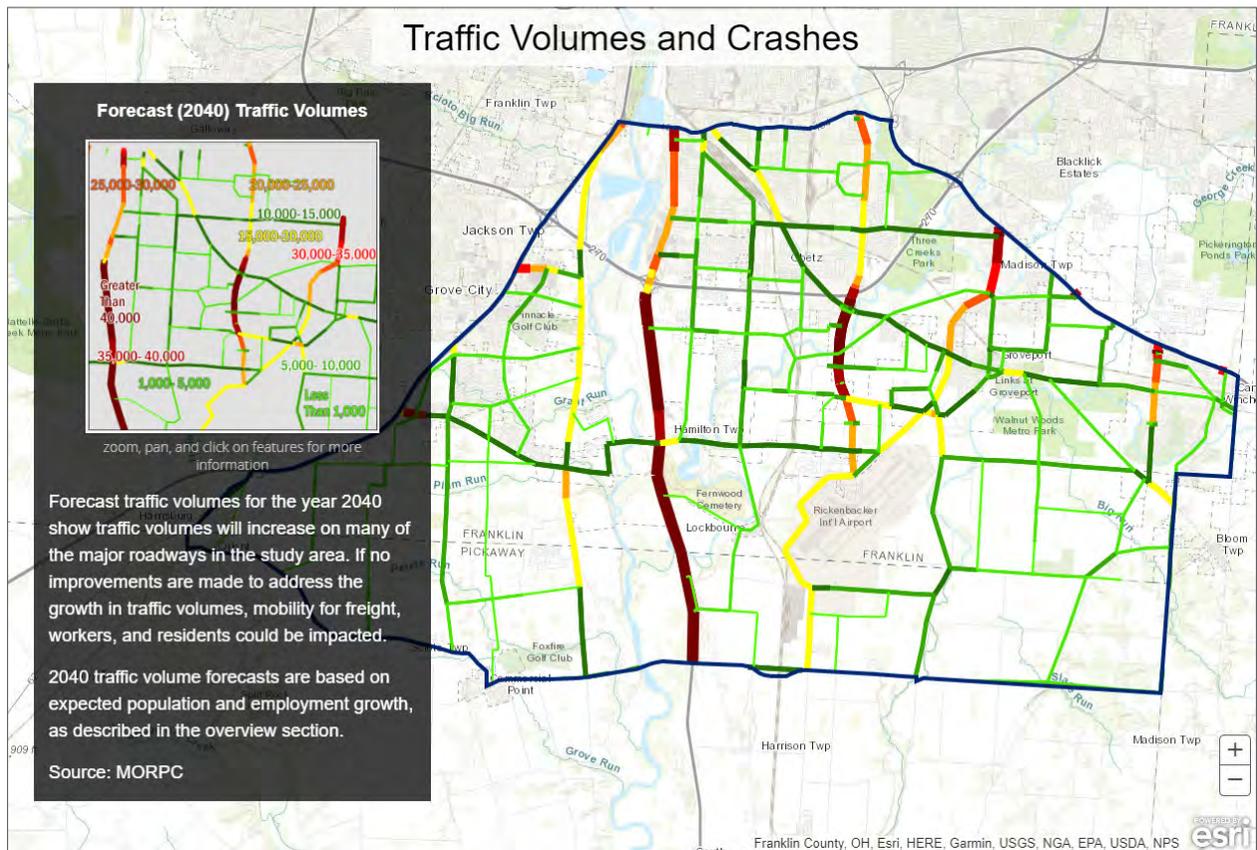
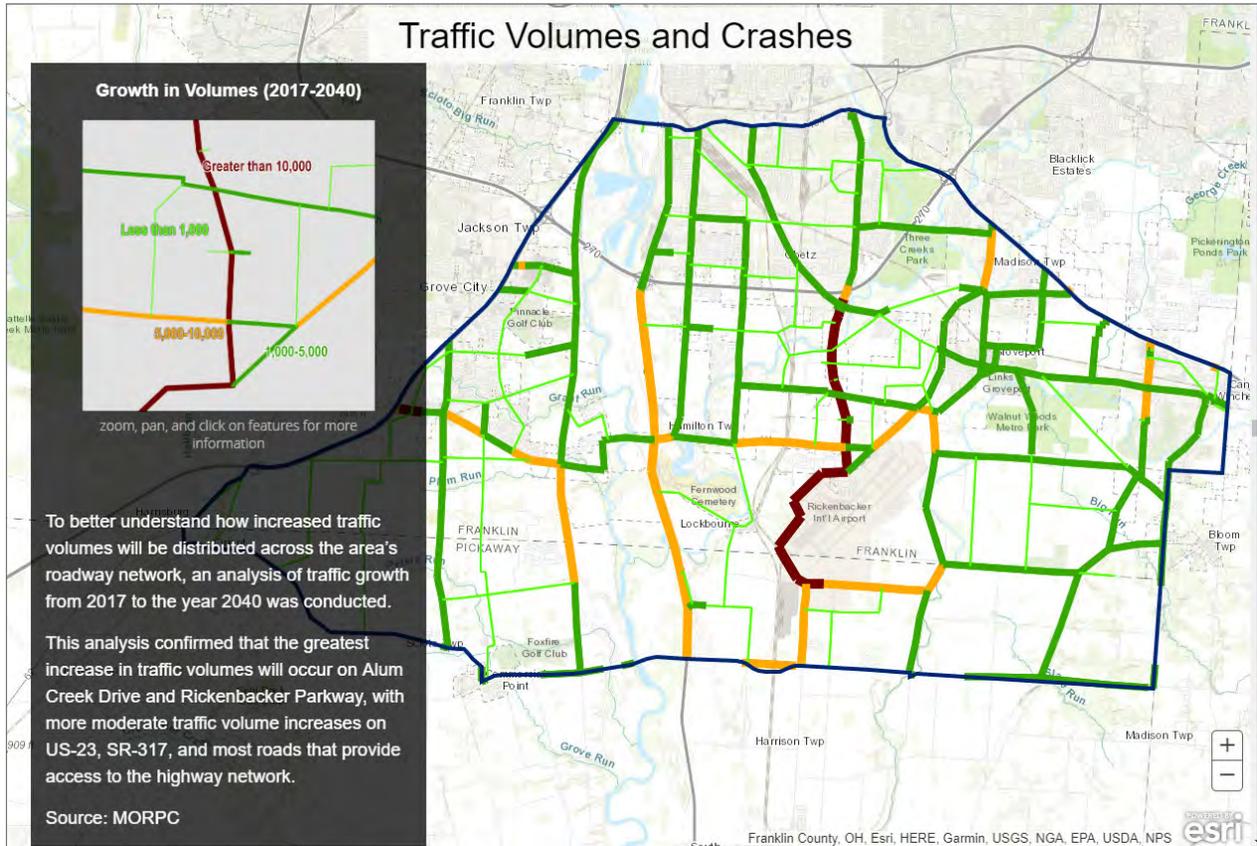
FREIGHT ROUTING & ACCESS



FREIGHT ROUTING & ACCESS

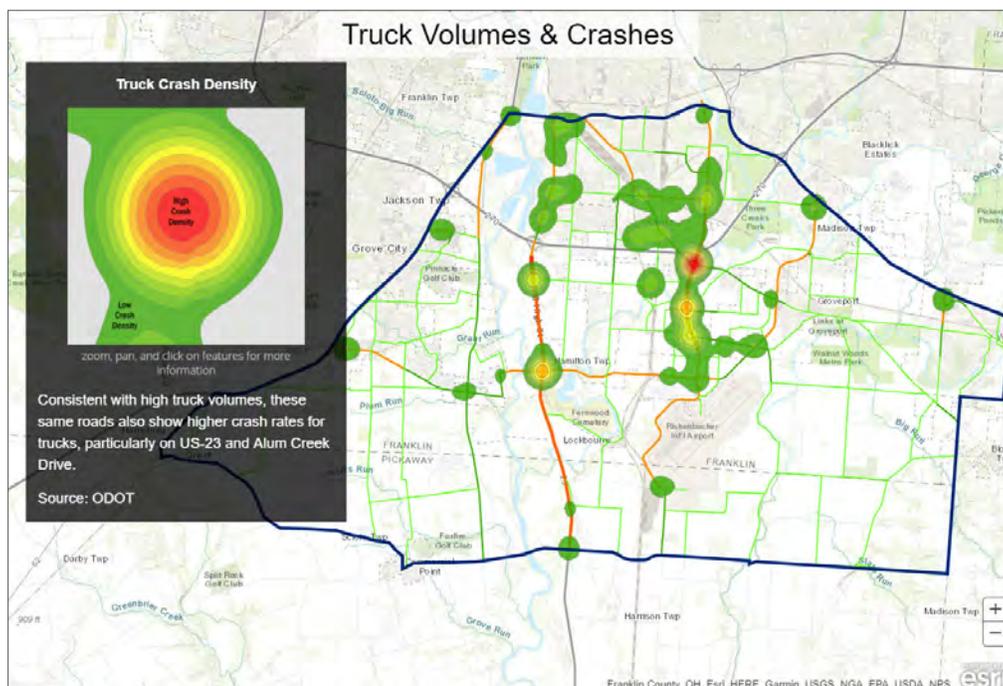
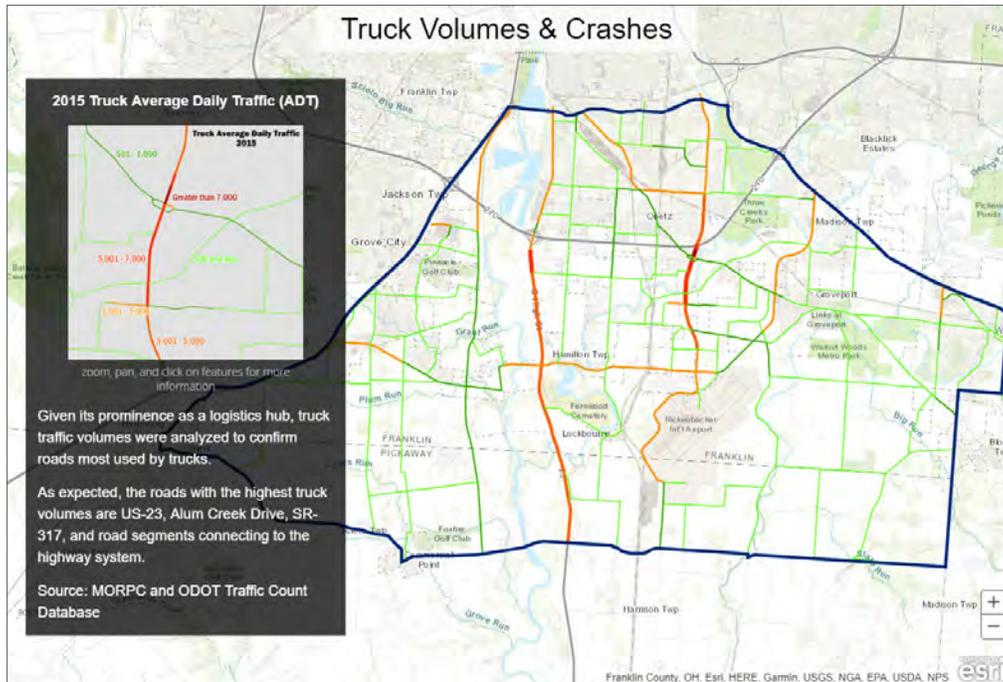


FREIGHT ROUTING & ACCESS



FREIGHT ROUTING & ACCESS

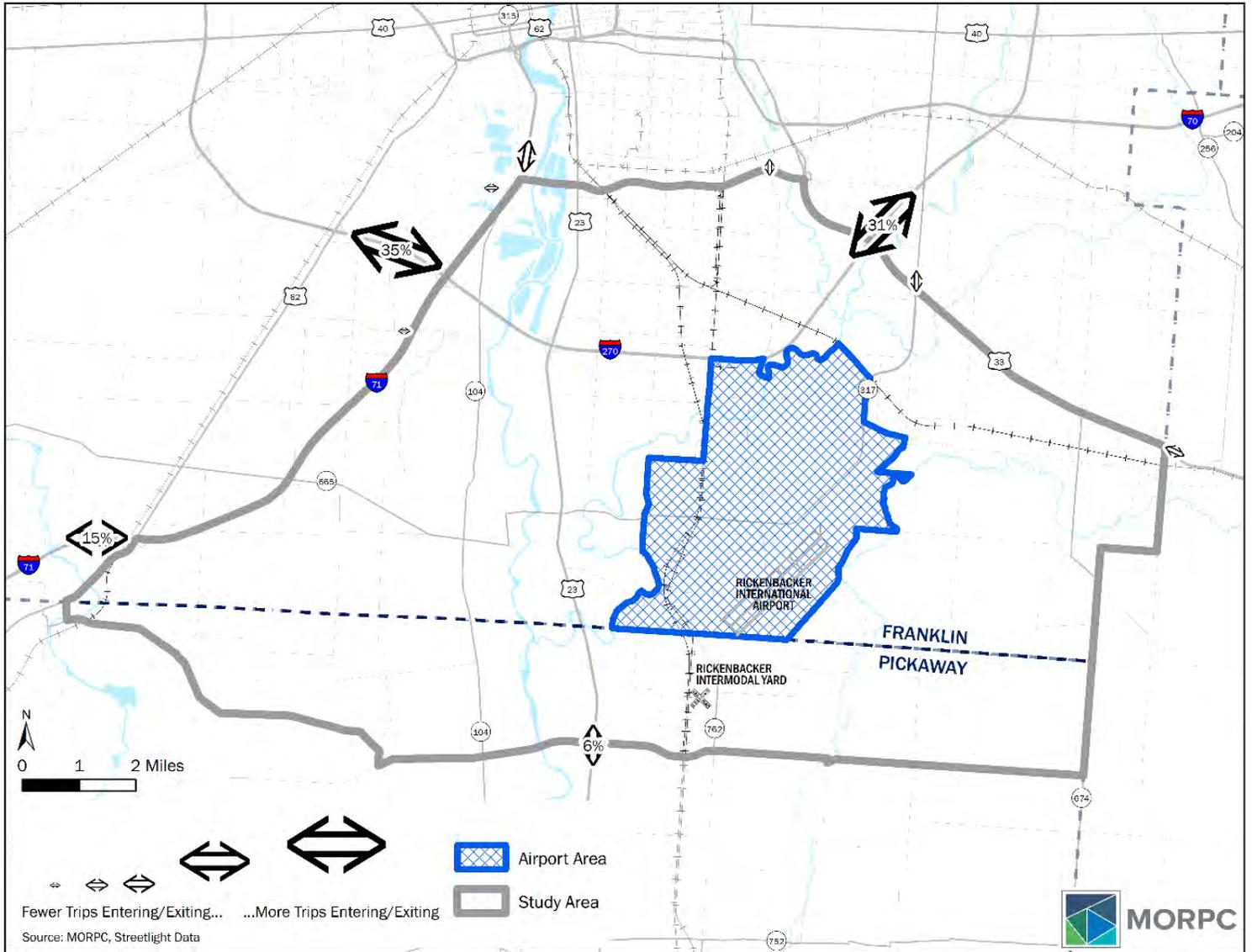
While general traffic volumes and crash information provides us with a clear picture of overall congestion and safety conditions, understanding freight-specific traffic volumes and crashes is a valuable analysis tool that helps identify necessary improvements for freight-supporting routes.



With over 80% of the commercial traffic in the study area originating from or destined for locations outside the study area, access to freeways is essential for efficient movement of trucks.

Much of the commercial traffic leaving or entering the study area is generated by the hub of warehouses surrounding the Rickenbacker International Airport.

COMMERCIAL TRAFFIC TO & FROM OUTSIDE THE STUDY AREA STARTING OR ENDING NEAR RICKENBACKER INTERNATIONAL AIRPORT



The arrows indicate which roadway network links are used for trucks to enter or exit the warehouse hub (blue hatched area).

Approximately 66% of trucks travel to or from the warehouse hub via I-270 West or I-270 East. About 15% utilize I-71 South.

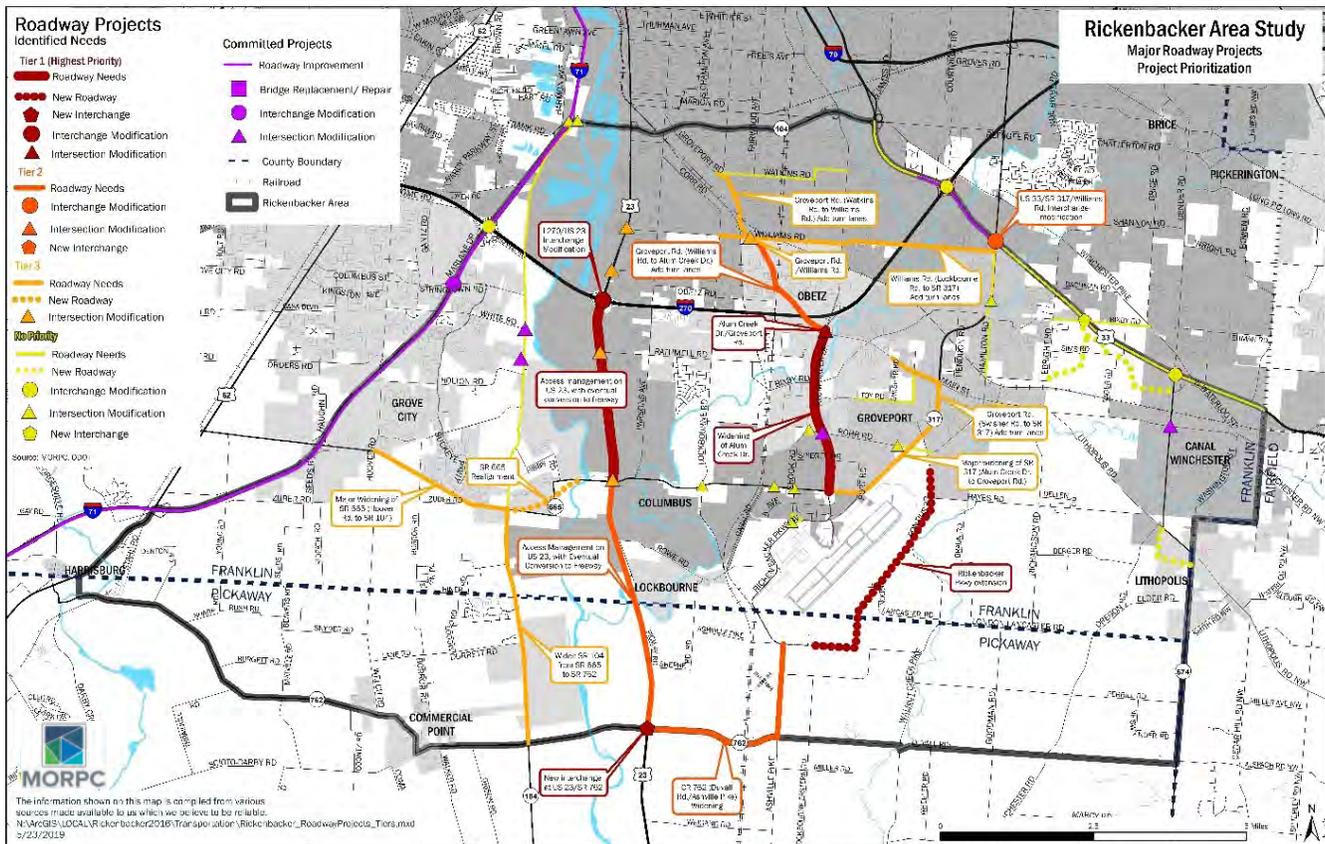
RECOMMENDED ROADWAY PROJECTS

Roadway projects that were identified through previous local and regional planning efforts, as well as needs identified through safety and forecast volumes analyses and identified in the study's Transportation Working Group were evaluated based on their ability to address:

- Safety
- Congestion
- Freight access
- Workforce mobility (incorporation of bike/pedestrian facilities into the project)
- Technology integration (ability of a project to leverage or incorporate digital infrastructure)

Projects were then grouped into the following four priority groups:

- Tier 1 (highest-priority projects)
- Tier 2 (second-highest priority projects)
- Tier 3 (third-highest priority projects)
- No Priority (a need was identified, but the project is not a priority at this time)



A recurring challenge for industrial areas such as Rickenbacker is how to implement improvements for workforce mobility (sidewalks, bikeways, etc.) while also prioritizing roadway projects that specifically improve the mobility of freight. As such, the roadway improvements recommended in this section should be prioritized hand-in-hand with recommendations for workforce mobility and safety. By addressing workforce needs and freight routing needs, Rickenbacker will continue to rise as an attractive area for existing and new businesses.

RESILIENCY & TECHNOLOGY INNOVATION

From a social and economic resiliency perspective, it is becoming increasingly important to consider the relationship between access to energy choices, adequate broadband services, and the region's economic prosperity. In addition to social benefits of having communities with adequate access to energy choices and broadband, these are both elements upon which new technologies are being developed – from warehousing operations, autonomous and platooning trucks needing state-of-the-art broadband speeds, to transportation technologies that embrace alternative fuels.

This study section aims to introduce energy and broadband considerations as they relate to broader strategic planning efforts.

ENERGY

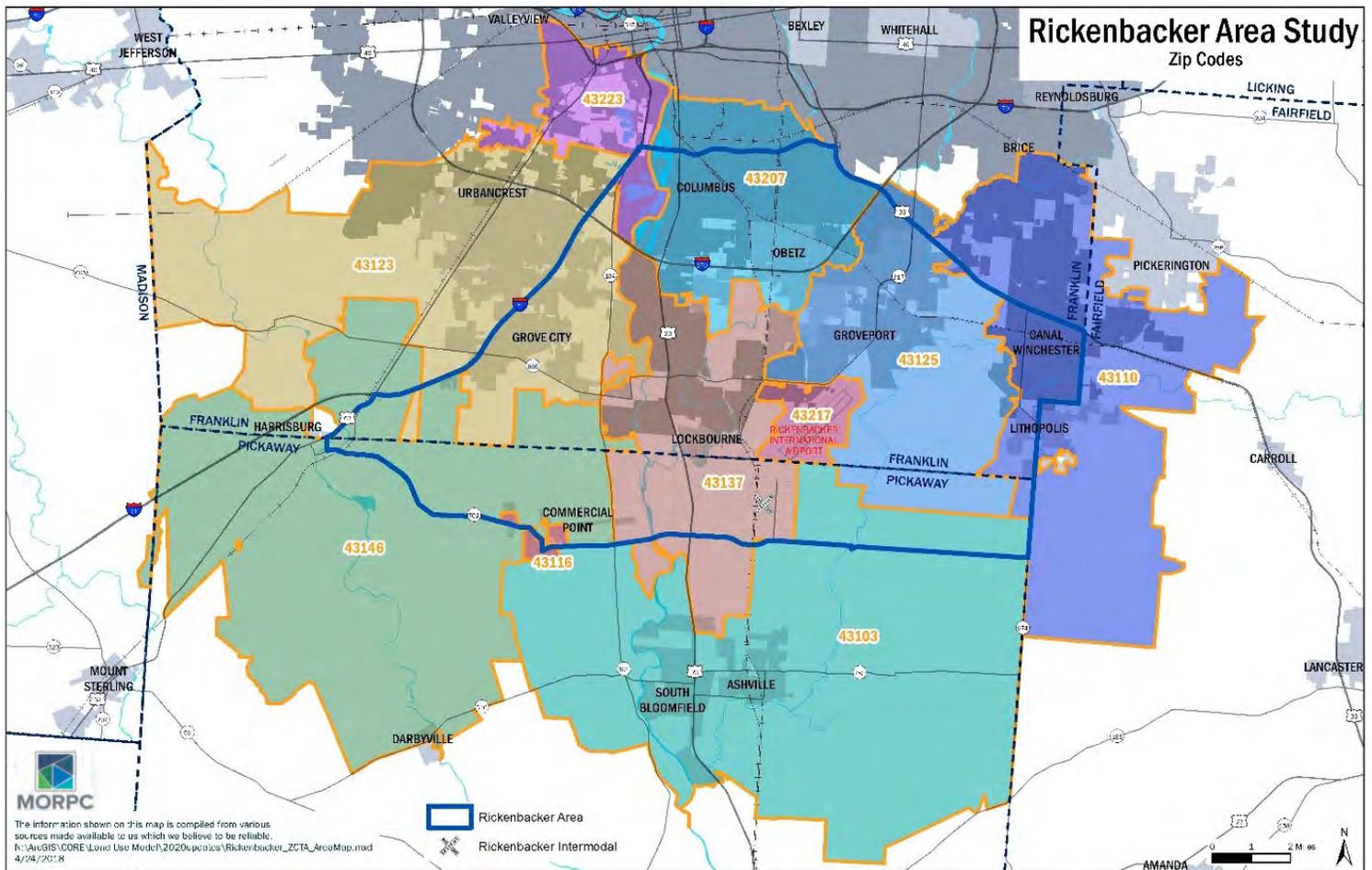
Energy is a resource that is inextricably linked to every aspect of our daily lives. Its availability, its cost, and the outcomes of its use are all tied to the economic and environmental resiliency of our communities. If energy costs increase, so do the costs of the goods and services we produce and purchase. Likewise, our energy choices, particularly in transportation, have a direct impact on health outcomes and the quality of life in our neighborhoods. Planning for our energy needs allows us to identify issues before they occur and helps protect our communities from price shocks and the environmental impacts of our energy choices.

To create strategies that maximize the region's energy sources and facilitate more energy alternatives, we need to understand existing energy source and consumption conditions. To this end, MORPC recently completed the Franklin County Energy Baseline Study, which looked at how the county produces and uses energy through an energy baseline analysis. It provides a data-driven assessment of energy use and production across key sectors of the economy in order to:

- Establish a quantified foundation for understanding energy production, use and outcomes;
- Provide a shared basis for identifying region-specific energy issues, opportunities, and needs;
- Provide county and localized data to catalyze stakeholder engagement and identify priorities for action;
- Establish an initial baseline for tracking progress.

RESILIENCY & TECHNOLOGY INNOVATION

The Franklin County Energy Study provided a starting point for a more targeted energy study in and around the Rickenbacker Study area. Due to the nature of the data available, the energy study for the Rickenbacker area utilizes the ZIP code geography, which includes areas outside of the identified area of focus for the other components of the Rickenbacker Area Study, as shown in the map below. To reflect the fact that the energy baseline analysis for this study has a different geography, the area of analysis will be referred to as “Rickenbacker ZIP code area.”



ZIP Code Tabulation Areas (ZCTAs)

Total primary energy consumption is a measure in which energy is quantified for monitoring and planning purposes. It accounts for all fuels and electricity consumed within a noted area. The values include all sectors: residential, commercial, industrial, and transportation. We know that some energy is lost in the creation of electricity and its transmission and distribution. These losses are also accounted for in the total primary energy consumption value, and understanding this loss and the sectors from which it comes from provides a valuable source of potential energy efficiency gains for an area.

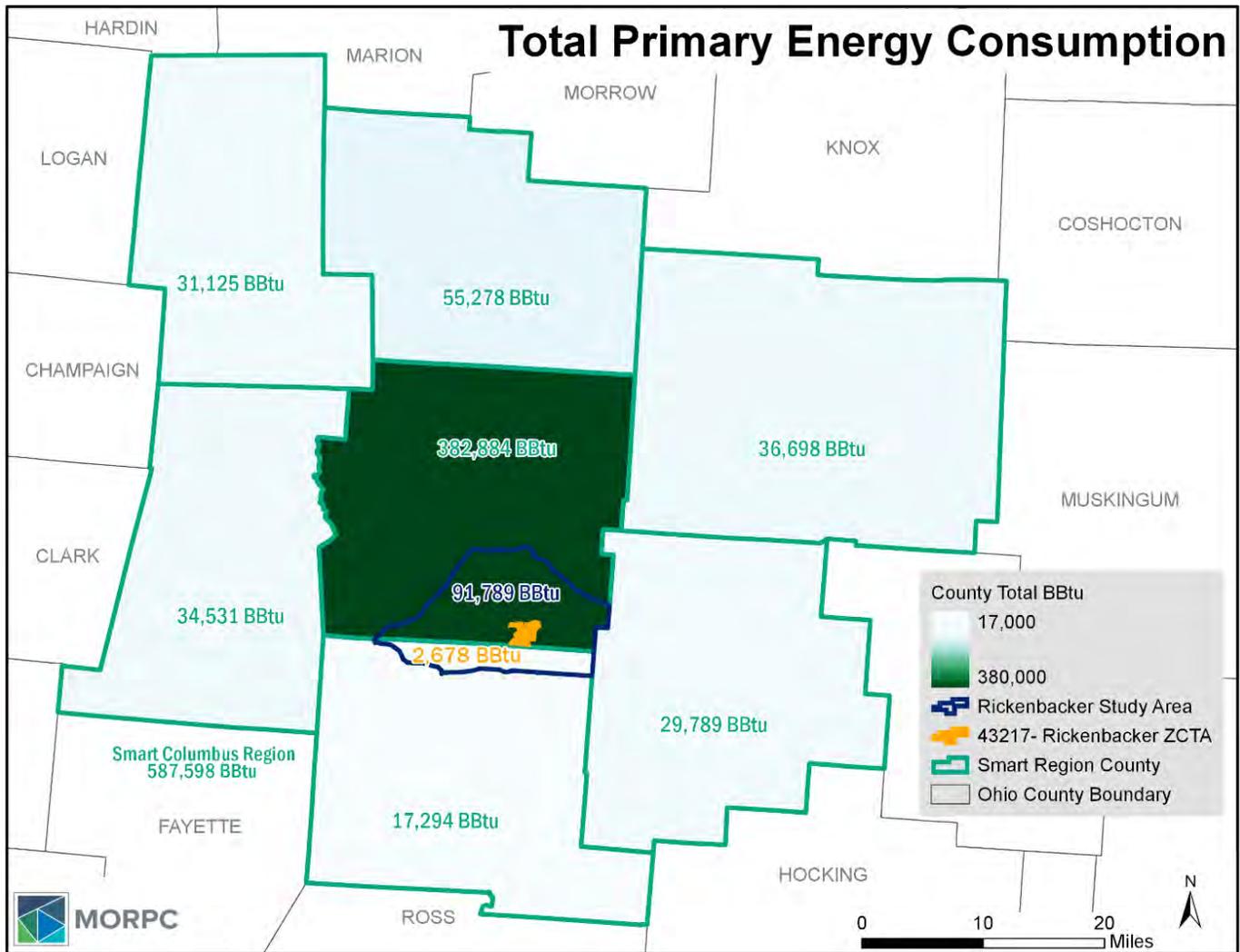
RESILIENCY & TECHNOLOGY INNOVATION

MEASURING ENERGY

The following map displays the total primary energy consumption for the Rickenbacker Study Area and the surrounding counties. This energy use is provided in BBtu, or billion British thermal units, a common metric that is able to convey the energy content of any energy source, be it natural gas, electricity, or gasoline.

The Rickenbacker Study Area accounts for 16% of the energy consumed in the Smart Columbus 7-County Region (Delaware, Fairfield, Franklin, Licking, Madison, Pickaway and Union) and 24% of energy consumed within Franklin County.

Operations within Rickenbacker International Airport represent only 3% of the energy consumed within the study area.



Providing access to various energy sources as the Rickenbacker area grows requires an understanding of existing energy consumption patterns, with the goal of informing regional collaboration and coordination of resources to bring cost-effective sources of energy to the area. To this end, this study includes an analysis of energy consumption by sector in the section on the next page.

RESILIENCY & TECHNOLOGY INNOVATION

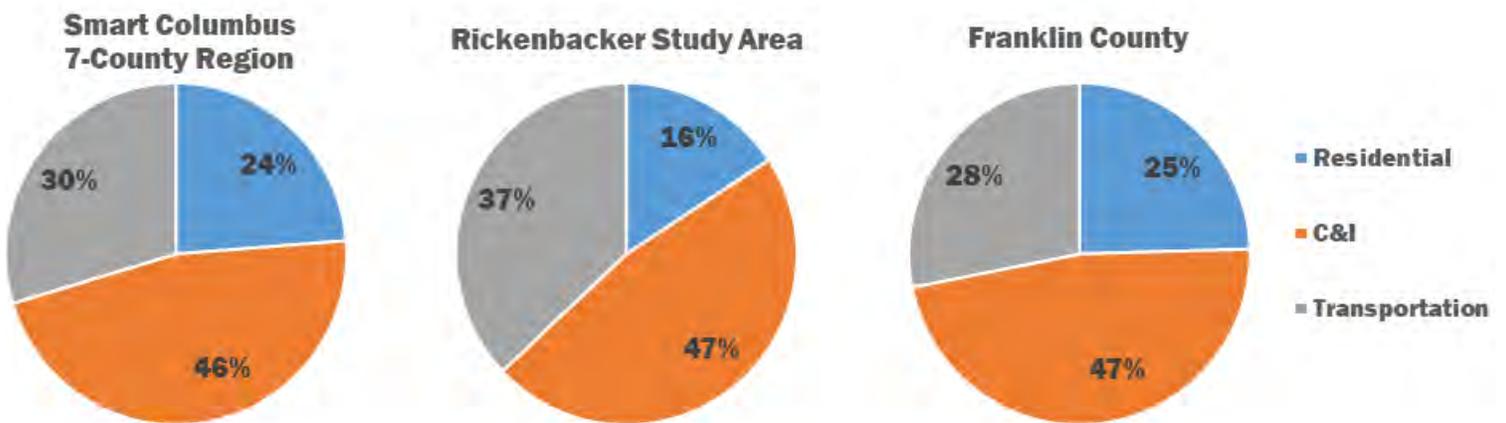
ENERGY CONSUMPTION BY SECTOR

Total primary energy consumption can be broken down into three major sectors of energy consumption: residential, commercial/industrial, and transportation. The graphs below show how energy consumption by sector in the Rickenbacker study ZIP code area compares to the seven-county region and Franklin County.

Within the study area ZIP Codes, 47% of energy is consumed by the commercial and industrial sectors.

Transportation accounts for 37% of energy use.

The residential sector accounts for the remaining 16%.

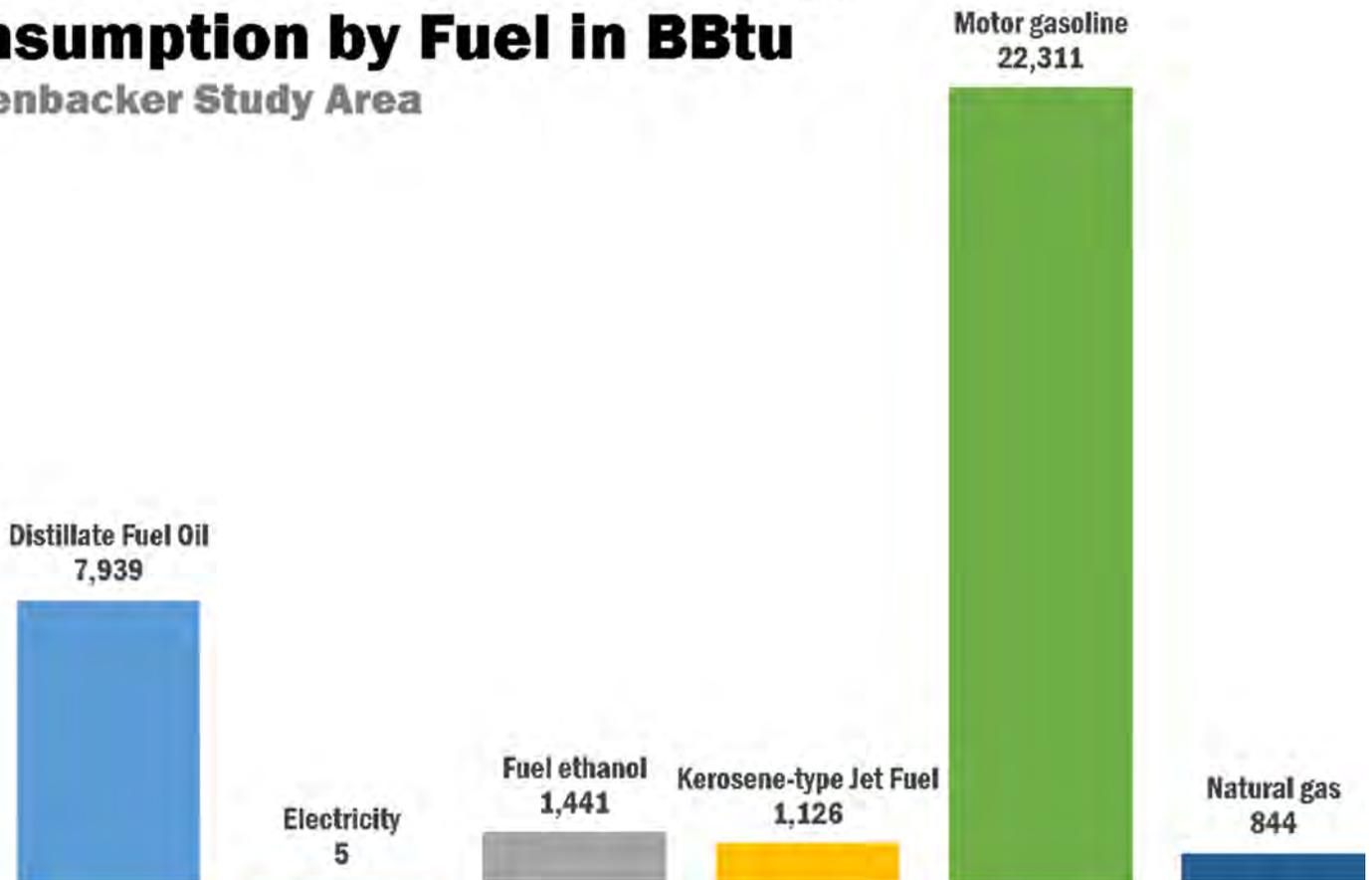


Within the 43217 ZIP Code, which is where Rickenbacker International Airport is located, the largest consumer of energy is the transportation sector, which accounts for 53% of all energy use. This can be attributed to the industries specific to this ZIP Code.

RESILIENCY & TECHNOLOGY INNOVATION

Gasoline accounted for 70% of energy consumption in the transportation sector (inclusive of ethanol), followed by diesel fuel (23%). Both kerosene-type jet fuel and natural gas play a significant role in the transportation sector (3% and 2%, respectively). In 2015, \$567 million was spent on energy in the transportation sector.

Transportation End-Use Energy Consumption by Fuel in BBtu Rickenbacker Study Area



Energy expenditures in the Rickenbacker study ZIP code area totaled \$1.02 billion in 2015, nearly 25% of all of the dollars spent on energy in Franklin County alone. The magnitude of these expenditures allows for opportunities to capitalize on energy efficiency measures, which, on smaller scales, may be more expensive to implement.

A further breakdown of energy consumption by fuel source was done for each sector. The resulting charts can be viewed in the Rickenbacker Study ZIP Code Area Energy Efficiency Metrics summary.

RESILIENCY & TECHNOLOGY INNOVATION

ENERGY WASTE, INTENSITY, AND PRODUCTIVITY

Measuring energy efficiency is an important component of informing energy policy and programs. Wasted energy, intensity and productivity are three metrics used to determine energy efficiency in a given economy. This study looked at these three metrics as part of the energy baseline analysis. The results are summarized below. To view energy efficiency graphs for the study ZIP code area, follow the link featured at the end of this section.

Wasted energy occurs before it gets to the meter (at generation and through transmission and distribution), and after it gets to the meter (inefficient heating, lighting, appliances, and vehicles). In total, wasted energy in the Rickenbacker ZIP code area accounted for nearly \$670 million in 2015.

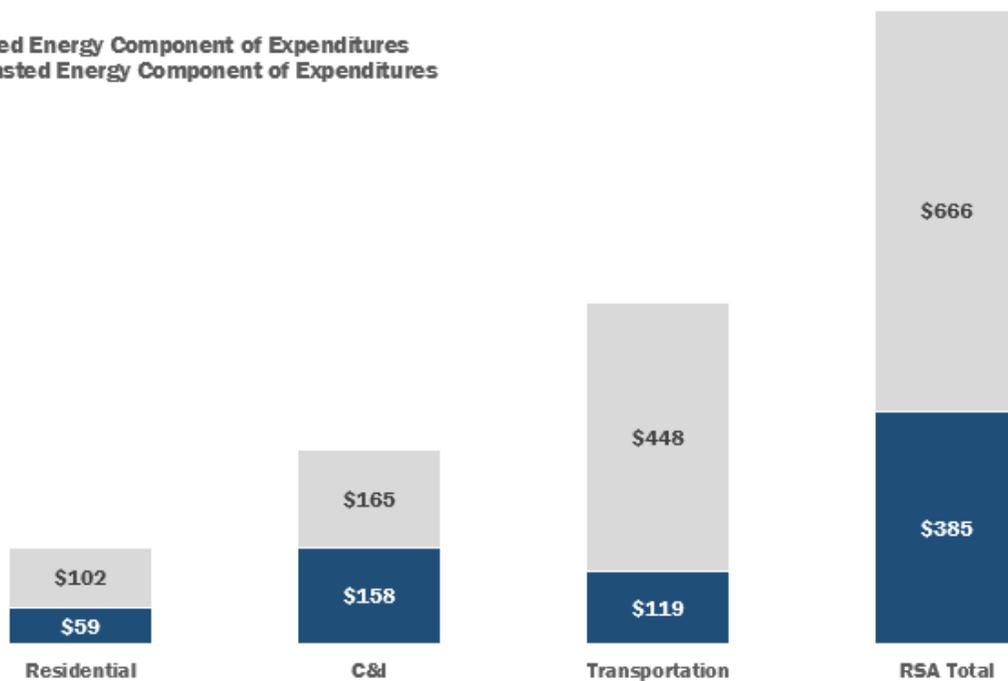
Wasted electricity across all three sectors represents 63% of the total energy used in the Rickenbacker ZIP code area, with wasted energy in the transportation sector having the highest-wasted energy in the form of end-use inefficiency losses. The exceptional amount of wasted energy in the transportation sector is due exclusively to the reliance on the internal combustion engine. Although this may seem shocking, the efficiencies of the study area are in line with national averages. Even minor gains in efficiency, however, can lead to significant financial savings.

Electricity losses represented 41% of total energy used in the residential sector, 47% in the commercial sector, 29% in the industrial sector, and less than 1% in the transportation sector (due to minimal electricity being used for transportation, and when electric vehicles are used, many are charged at home, which is reported in residential sector). End-use inefficiencies accounted for 21% of total energy used in the residential sector, 19% in the commercial sector, 36% in the industrial sector, and 79% in the transportation sector.

RESILIENCY & TECHNOLOGY INNOVATION

Rickenbacker Study Area Energy Expenditures in Million 2015\$

■ Used Energy Component of Expenditures
■ Wasted Energy Component of Expenditures



Energy intensity (EI), another way to assess energy efficiency, is calculated as MMBtu (million British thermal units), an energy measuring unit, per capita. High energy intensities indicate high energy consumptions per person (or less efficient use of energy), while low energy intensity indicates lower energy consumption per person (or higher, and better, energy efficiencies).

The Rickenbacker study ZIP code area is one that is primarily composed of industrial and transportation activities. These activities, such as shipping and warehousing, are energy-intensive in nature and represent the highest energy intensity for the area. In addition, the study ZIP code area has proportionally fewer residents than other areas in the Central Ohio region. The EI metric should be understood within this context, but is still useful in order to develop efficiency programs geared towards specific industries at specific economies of scale.

Energy productivity is an energy efficiency metric that measures the amount of economic output (represented by personal income) as derived from each unit of energy consumed. The Rickenbacker study ZIP code area is comprised of energy-intensive industries that are essential to the economies of other parts of the state and country. Measuring energy intensity in an area like Rickenbacker has its limitations, given that warehousing and transportation activities predominate. As support services, much of the value-added from these activities may be being recorded at other points of industry (e.g. regional offices, headquarters, wholesaler, and retailer). However, including energy productivity in energy monitoring is helpful in establishing trends over time, and it will provide data to guide future energy policies and programs.

Details about wasted energy, intensity and productivity can be viewed in the Rickenbacker Study ZIP Code Area Energy Efficiency Metrics summary.

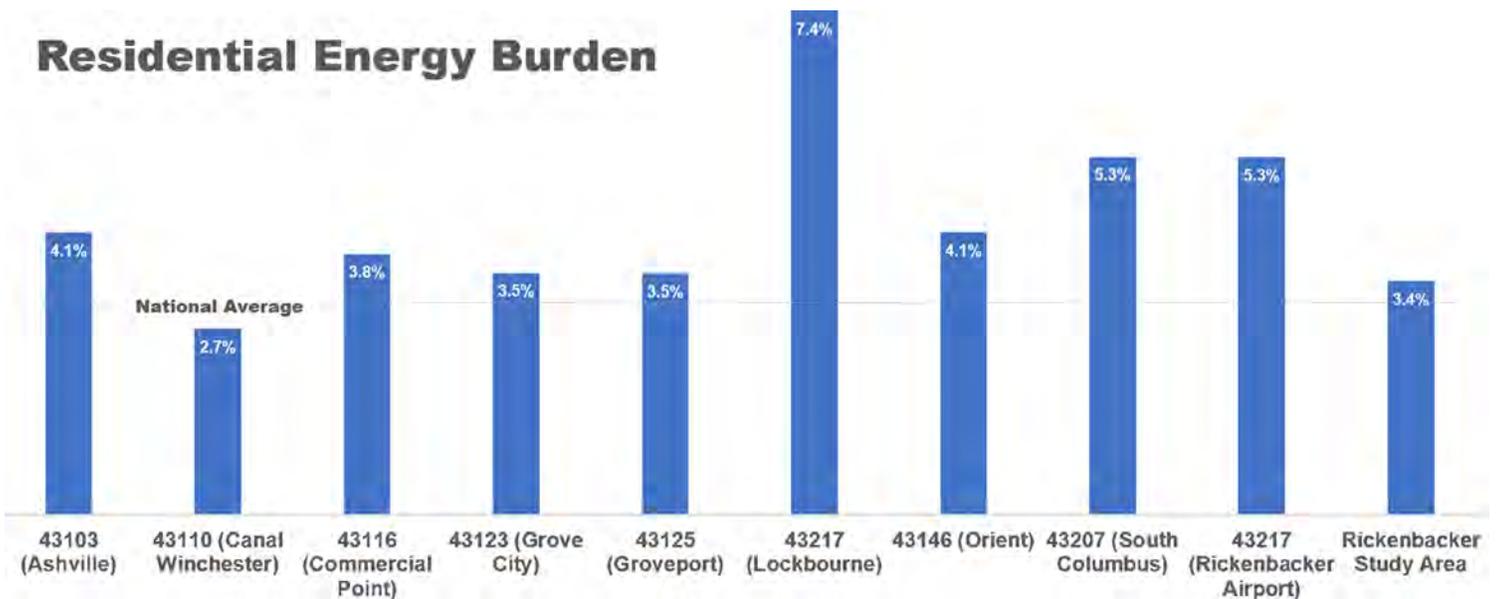
RESILIENCY & TECHNOLOGY INNOVATION

RESIDENTIAL ENERGY BURDEN

Understanding what energy is used within the home is essential to a resident's economic well-being. Whereas natural gas is an economical source of heat in the winter, extended cold snaps can reduce supply and cause prices to increase significantly. Likewise, electricity use in the summer peaks during heatwaves, when air conditioners are being used.

An energy baseline analysis that assesses residential energy consumption provides valuable information about areas where the cost of heating or cooling a home presents a heavy burden to the financial well-being of a household. The graph below shows residential energy burden for the Rickenbacker study ZIP codes, which is calculated as a percentage of income spent on home electricity and heating needs.

Energy burden is the percentage of income spent on home electricity and heating needs. The average residential energy burden in the United States hovers around 3.5%. Above 6% is considered unaffordable, and above 10% is considered energy poverty. Within the Rickenbacker Study area, Lockbourne has an energy burden over 6%, although the south Columbus portion of the study area is at 5.3% and the Rickenbacker International Airport area is also at 5.3%. As a comparison, Franklin County has an average energy burden of 4%.



Further analysis during the Franklin County Energy Study showed a significant increase in energy usage in structures built prior to 1979, when the Model Energy Code was adopted. This is consistent with the study's findings, which showed that the Village of Lockbourne, a community in the study area with older homes, needs specific intervention in order to rectify the high residential energy burden (7.4%).

RESILIENCY & TECHNOLOGY INNOVATION

ENERGY RECOMMENDATIONS

Based on the energy baseline analysis described in this section, the Rickenbacker Area Study includes the following recommendations centered on energy policy and programs.

FUEL-SWITCHING

Electric vehicles have three times the energy efficiency of internal combustion engine vehicles. Public and private fleets, as well as private individuals, should take advantage of grants and incentives available to reduce the capital costs of these purchases.

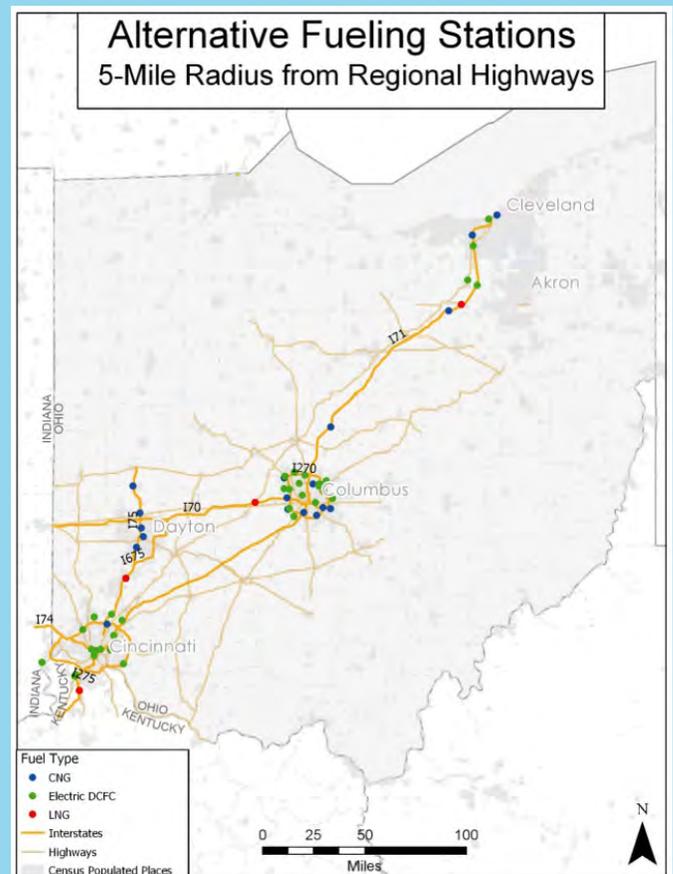
This study recommends that local governments work with MORPC and Smart Columbus on creating a public/private strategy with corporate entities to create an accessible network of alternative fuel charging stations on public and private property. Undertaking these efforts will maximize existing charging and fueling infrastructure, and present opportunities for public/private investments in alternative fueling infrastructure.

ALTERNATIVE FUELING STATIONS

In early 2018, the majority of I-71 and all of I-270 were designated by the Federal Highway Administration as alternative fuel corridors. Shown in the map below, these corridors fit the requirements for fueling station signage for both electric vehicles and compressed natural gas.

I-70 from Columbus to Indiana is also signage-ready for compressed natural gas. This designation allows for strategic funding opportunities to develop more alternative fuel stations and the signage necessary to alert drivers to the proximity the stations are to the highway.

There are 14 publicly available alternative fuel stations located in the Rickenbacker study ZIP code area, with opportunities to increase these assets as part of broader economic development strategies. This study recommends that regional stakeholders work with MORPC to leverage opportunities for planning, funding, and construction of alternative fuel stations.



RESILIENCY & TECHNOLOGY INNOVATION

RICKENBACKER AREA ENERGY CONSORTIUM

Commercial and industrial facilities, as well as government operations, can all benefit from energy efficiency measures and the installation of on-site generation. The right technologies and economics currently exist within the region. Some of the barriers facing their implementation include the perceived lack of cost-effectiveness based on previous analyses and simply not understanding how to bring these projects into reality. As such, we recommend forming a Rickenbacker energy consortium, a group of local officials, corporate social responsibility directors, economic developers and utilities providers that would work in tandem with the energy consortium of local governments developed through MORPC's Local Government Energy Partnership. By providing the arena for the necessary parties to work with each other on energy initiatives, costs and time can be minimized by removing duplicate efforts, and confidence can be built in this type of project. The energy consortium should identify the energy needs and issues of the commercial and industrial communities within the Rickenbacker Study area, and the pathway to achieve their energy goals.

Among other goals, this consortium could:

Collaborate on energy efficiency:

Develop programs targeted at sectors we know could greatly improve in energy efficiency based on the study's energy baseline analysis (i.e., Microgrids retrofit assistance programs for warehousing and other industrial facilities to minimize wasted energy).

Engage in cooperative purchasing:

Cooperative purchasing programs have proven to be successful and provide benefits for participants. Smart Columbus has developed a cooperative purchasing program to provide electric vehicles for government fleets at a reduced cost. This program is available to all government entities within the Smart Columbus 7-county region, which includes the Rickenbacker area. A similar program could be developed for private activities focusing specifically on drayage and other warehousing vehicles. This could also include another program that negotiates and provides access to high efficiency products, solar panels, cogeneration systems, and associated services. Rickenbacker presents an excellent pilot opportunity.

Develop a solar tool-kit:

In an effort to respond to the individual needs of different companies and entities, it is recommended that a solar toolkit be developed that lays out the general process of solar development, expected successes, appropriate contact information, common issues, and the ways community partners are positioned to help overcome these challenges.

Engage in Clean Energy Financing:

Multiple avenues for funding clean energy projects exist in the Rickenbacker area. Property Assessed Clean Energy (PACE) financing is a common option property owners can use to afford upgrades, without utilizing capital expenditure funds. More funding was available for PACE-financed projects in 2018.

Create an Alternative Energy Zone:

The Franklin County portion of the Rickenbacker Study area can be classified as an Alternative Energy Zone, exempting qualified energy facilities from certain real and property taxes. An energy consortium could work with county commissioners to adopt a resolution to designate an Alternative Energy Zone and through this process they would agree to approve all applications for energy projects seeking tax exemptions. This endeavor would require the support of the jurisdictions within the Rickenbacker area, which could be facilitated through the energy consortium.

RESILIENCY & TECHNOLOGY INNOVATION

Local Energy Generation:

Solar and Storage Opportunities

Due to a lack of local generation, nearly 100% of all energy expenditures leave the area to pay for fuel produced in other states or electricity generated in other counties. By increasing local generation, there is the ability to transform everyday expenditures into local investments. As primarily a center of commercial and industrial activities, the study area holds opportunity to minimize the outflow of energy expenditures by taking advantage of:

1. Commercial roof-top and ground-mounted solar arrays
2. Community cooperative solar arrays
3. Utility scale solar arrays within the study area
4. On-site generation paired with storage

Residential solar arrays are a cost-effective solution for providing up to 120% of a home's electricity demand. As the residential component of the study area is minimal, and much is renter-occupied, significant savings will not likely be realized on a wide basis within the study area. Residential solar may make sense when looking at individual cases.

With significant square footage of rooftops in the Rickenbacker Study area, it is recommended to conduct a full potential study of the costs and benefits of commercial solar in the study area. Many issues that would impede solar development exist, and should be identified. This study, as well as recommendations based upon them, should be pursued by a group of stakeholders with both local and regional perspectives (such as the energy consortium or through MORPC's Local Government Energy Partnership).

Community solar arrays also offer an opportunity to gain the benefits of solar power without the additional costs of residential solar. South Central Power recently built a cooperative-owned solar installation in neighboring Fairfield County, which allows South Central Power members to purchase locally produced solar power. With no up-front initial investment required by the cooperative's members, the facility costs are paid over time by members who opt-in. The facility sits on four acres of otherwise unusable land inside an industrial park, and produces enough electricity to power roughly 60 homes. This example could serve as a model for the Rickenbacker area.

Utility-scale solar development should be led by the utilities in coordination with the energy consortium. Local governments and development organizations are integral in the success of any project however. Both can ensure the success of programs by pre-identifying areas suitable for solar and engaging the community in the process.

Although on-site storage (battery) of electricity tends to add expense to a project, it also adds to the profitability of on-site generation projects. Where cost-effective, on-site storage should be paired with on-site generation.

Combined Heat and Power

Combined heat and power technology has shown exceptional energy and dollar savings for commercial and industrial businesses. This study recommends stakeholders consider doing a full study of the costs and benefits of combined heat and power technology deployed within the study area, in the same manner as the

RESILIENCY & TECHNOLOGY INNOVATION

BROADBAND INTEGRATION

Broadband infrastructure is essential to a thriving community. It impacts our personal lives as well as the region's economy, education, government operations, health, and public safety. It is now becoming as critical to the future of economic growth as access to other infrastructure such as water and sewer.

From an economic resiliency perspective, creating an interconnected municipal fiber optic network throughout Central Ohio would improve coordination among local governments, enhance the delivery of public services, provide for new economic development opportunities, and facilitate the adoption of new transportation technologies such as connected and autonomous vehicles and truck platooning. Additionally, ensuring universal access to high-speed broadband, ideally from multiple providers, is key to making the area attractive to future employers as well as residents. Recognizing the growing importance data and technology are playing in all aspects of communities, MORPC's Smart Region Task Force is creating a shared vision for what it means for Central Ohio to be a "smart region," and it is working to align complementary efforts to develop digital infrastructure and connected technology throughout the region.

Central Ohio is in the early stages of developing strategies to expand broadband infrastructure and access throughout the entire region. A key first step in this effort is gathering information on existing conditions related to broadband. To this end, MORPC is working with its members to compile mapping of all existing publicly-owned fiber optic networks in the region. This information will help identify gaps in the public network, and provide municipalities with the information they need to form strategies focused on a resilient, regional public fiber network. Similarly, data on publicly-available broadband coverage, usually through private internet service providers, and speeds are sparse and outdated. MORPC is also undertaking an effort to gather better data on broadband availability, speeds, costs, and other key factors to inform decisions and strategies to extend broadband to every resident and business in the region.

Public Fiber/Broadband Recommendations:

Strategic Collaboration through Smart Region Task Force Deliverables

By the end of 2019, the Smart Region Task Force will complete its work on several deliverables. Included in these is a Smart Region Resource Guide that provides local governments with guidance on building digital infrastructure through best practices, policies, and funding opportunities. The task force will also produce a Smart Region Playbook consisting of recommended projects and initiatives for MORPC staff and committees to undertake over the next several years to support smart region efforts in Central Ohio. Rickenbacker presents a great opportunity to pilot creative, ambitious infrastructure agreements that contribute to expanded fiber/broadband networks and access. This study recommends that jurisdictions within the Rickenbacker Study area look for such opportunities.

Support for MORPC Smart Streets Policies

Through its new Smart Streets Policy, MORPC is ensuring that projects receiving transportation funding through the attributable funding process are considering the inclusion of digital infrastructure components, such as fiber, wireless communications, or conduit to support future installations, as are appropriate for the circumstances. It also encourages local governments to develop similar policies of their own. This study recommends that Rickenbacker-area jurisdictions use this and other policy tools to incorporate needed digital infrastructure in future infrastructure improvement projects.

QUALITY OF LIFE

Where and how residents live in relationship to the jobs, services, and amenities they access is an important factor in a community's ability to provide a high quality of life.

“Quality of life” is a somewhat intangible concept that could be thought of as the measure of the livability of a place, corresponding to a community's ability to attract and retain residents, future vitality and economic growth. How livable a place is may be determined by the availability and variety of housing options and the presence of amenities like schools, services, recreational and green space, access to water and waterways, and other supporting uses. Infrastructure elements like sidewalks, public transit access, bicycle lanes, and multi-use paths, also contribute to livability. All of these amenities can be found within the Rickenbacker area and contribute to residents' and workers' quality of life. This section will explore how quality of life for Rickenbacker-area residents is impacted by the following factors:

- Housing and transportation cost burdens
- Access to services and open space
- Leveraging natural assets for recreation and tourism

By understanding the existing conditions of the quality-of-life factors listed above, regional stakeholders have the basic information needed to identify areas with improvement opportunities.

REGIONAL HOUSING & TRANSPORTATION TRENDS

Central Ohio is a dynamic and growing region with well over 2 million residents in 2018. The population could reach 3 million people by 2050. Along with growth, the population changes taking place now and over the coming decades will influence housing and mobility preferences, setting a new standard for quality of life and shaping Central Ohio neighborhoods, including those in the Rickenbacker Area.

Consider the previous wave of growth and development in Central Ohio:

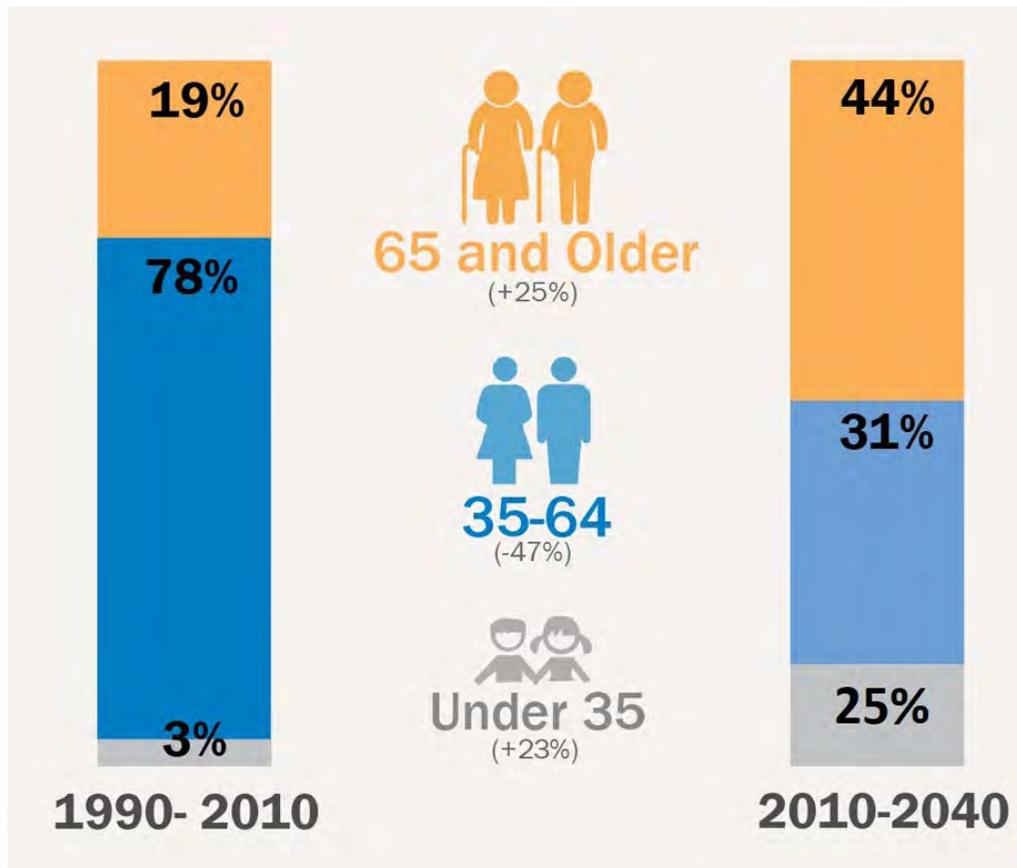
Starting in 1986, the region has grown between 1-2 % nearly every year. On average, that equates to 60 new residents per day over the last three decades.

Continuing into the early 2000s, the region experienced rapid growth, led by Baby Boomers who had come into the peak of their family-raising and wage-earning years. Suburban communities beyond downtown Columbus, including those in the Rickenbacker area, became prime real estate for new residential subdivisions to accommodate growing demand for larger single-family homes on larger lots.

Today, demographics are changing. The Baby Boomers are becoming “empty-nesters” and moving toward their retirement years. At the same time, younger residents aged 16 to 34 will become the largest and most diverse age group and account for up to 25% of the region's growth.

Thanks to these demographic changes, it is likely that the number of households with children will make up a smaller share of the region's growth in the coming decades than it did in the past, resulting in different market preferences for housing and neighborhood design.

QUALITY OF LIFE



Source: Arthur C. Nelson (NRDC)

A growing number of people want to live closer to the places they frequent throughout their day, such as their work location, grocery store, or neighborhood restaurant. More people want a choice in how to get to those places, also. Whether to save money, to help us remain in their homes as they age, or simply for convenience, more Central Ohioans are choosing neighborhoods that are better connected to amenities that provide more options for transit, walking, biking, or using a transportation service.

There are many ways the region may choose to accommodate these changing preferences for housing and mobility. The insight2050 study provides data and information to help communities understand the impacts of these choices. Insight2050 uses scenario planning to show how population changes and development choices impact land use, economic development, mobility, and other considerations.

Central Ohio communities are responding to this information by encouraging development patterns that better connect residential development to jobs, services, and amenities.

Mobility is also changing to meet demand. Transit systems like COTA are exploring high-capacity options such as the recently built bus rapid transit line, CMAX, which provides service along Cleveland Avenue. Providers of mobility as a service, also known as “MAAS” – Lyft or Uber, car and bike share—offer on-demand alternatives to driving alone. The insight2050 scenarios demonstrate the benefits of shifting away from the sprawling development trends of the past toward a future that accommodates the growing preference for better-connected neighborhoods. These benefits include reduced household costs, fewer vehicle miles traveled and improved public health – all indicators of quality of life. Household costs related to housing and transportation are particularly revealing indicators of a place’s livability.

QUALITY OF LIFE

HOUSING & TRANSPORTATION AFFORDABILITY IN THE RICKENBACKER AREA

Housing costs, typically the biggest share of household expenses, should not exceed 30% of household income according to guidelines from the U.S. Department of Housing and Urban Development (HUD). Households spending more than 30% of their income on housing costs are considered to be housing cost-burdened, which may affect the residents' ability to pay for other needs.

In the Rickenbacker area, about 30% of all households are spending at least 30% of monthly income on housing costs. Renters are more likely than homeowners to experience a higher housing cost burden; 43% of renters spend at least 30% on housing, while 25% of homeowners are in this situation.

Transportation costs are typically the second-biggest household expense. Conventionally, these costs should not exceed 15% of household income. However, in the sprawled, auto-oriented communities commonly found in the Midwest, transportation costs are often higher. To truly understand the affordability of a neighborhood, it is important to factor in expenses related to transportation. By this standard, households spending more than 45% of their income on housing and transportation costs are said to be cost-burdened.

Given these guidelines, how affordable are Rickenbacker neighborhoods for the typical Central Ohio household? U.S Census data can provide insight into the relationship between housing and transportation costs as an indicator of neighborhood affordability.

Studies of Census data show a correlation between residential density, access to transit, and transportation costs. Residents of more "location-efficient" neighborhoods – that is, neighborhoods with increased residential density and more access to transit – spend less of their household income on transportation costs. As a result, households in location-efficient neighborhoods naturally bear a lighter cost burden than households in less dense neighborhoods with fewer transportation options.

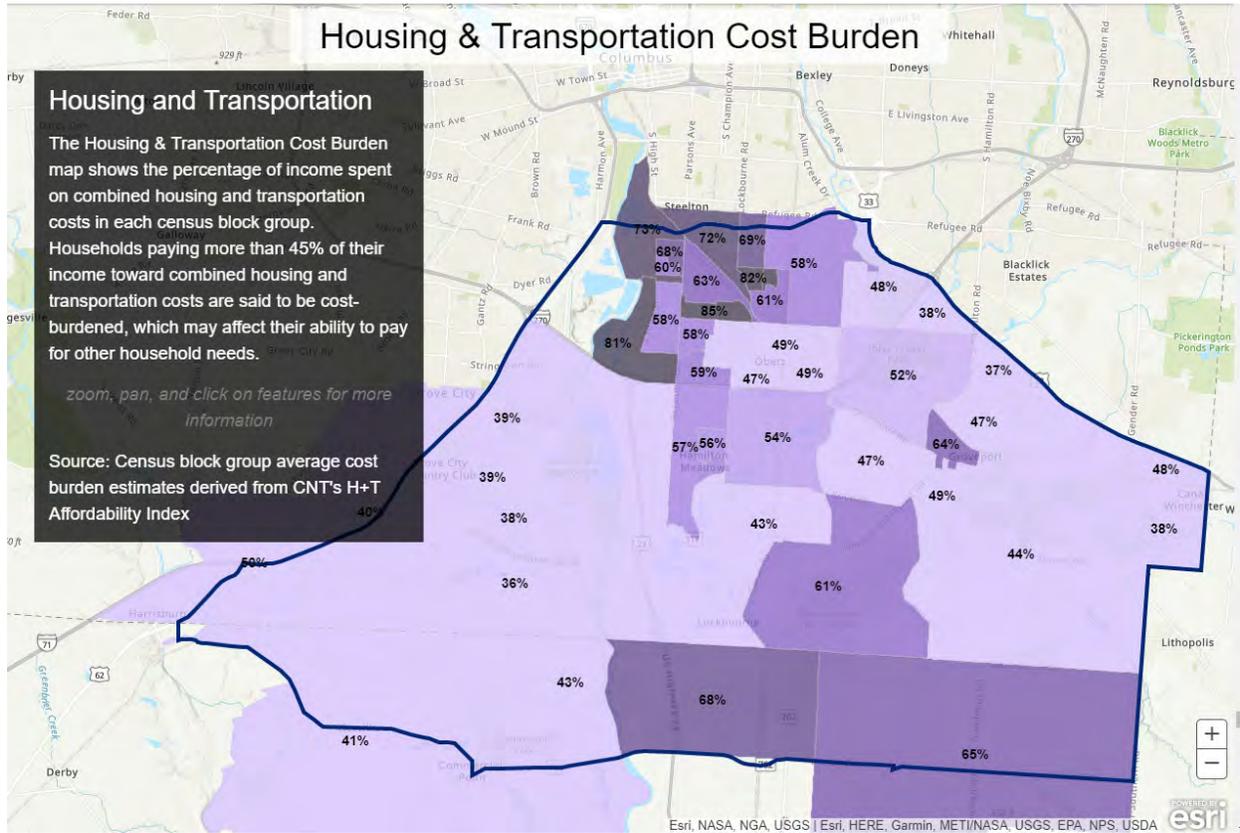
The Center of Neighborhood Technology's Housing and Transportation Index was used to calculate estimates of average housing and transportation costs for census block groups in the study area. These estimated costs were compared to estimated median household income for census block groups, using the United States Census 2012-2016 5-year American Community Survey.

Relative to other major cities, Columbus is generally regarded as having an affordable housing market. In communities beyond the capital city, the picture of affordability fluctuates, largely due to transportation costs in neighborhoods where transit service is less frequent.

The communities that comprise the Rickenbacker area vary in terms of density, proximity to transit, and many other variables. Combined housing and transportation costs also vary, from a low of 24% of the typical Central Ohio household income to a high of 75%. Most Rickenbacker neighborhoods fall in the range of 51% to 61% of the typical Central Ohio household income, considerably higher than the 45% cost-burden threshold.

When it comes to residential affordability, location matters. Relative to other metros, housing in the Rickenbacker area is generally affordable. But in some cases, transportation costs exceed housing costs. In most cases, housing and transportation costs combined exceed 45% of the region's typical household income. To consider a neighborhood affordable, therefore, considering only the 30% housing threshold isn't enough. Housing costs would have to be even lower or transportation would have to be more accessible to consider many neighborhoods truly "affordable." MORPC and the City of Columbus are partnering on a housing study to further explore the issues of housing demand and affordable housing in the region.

QUALITY OF LIFE



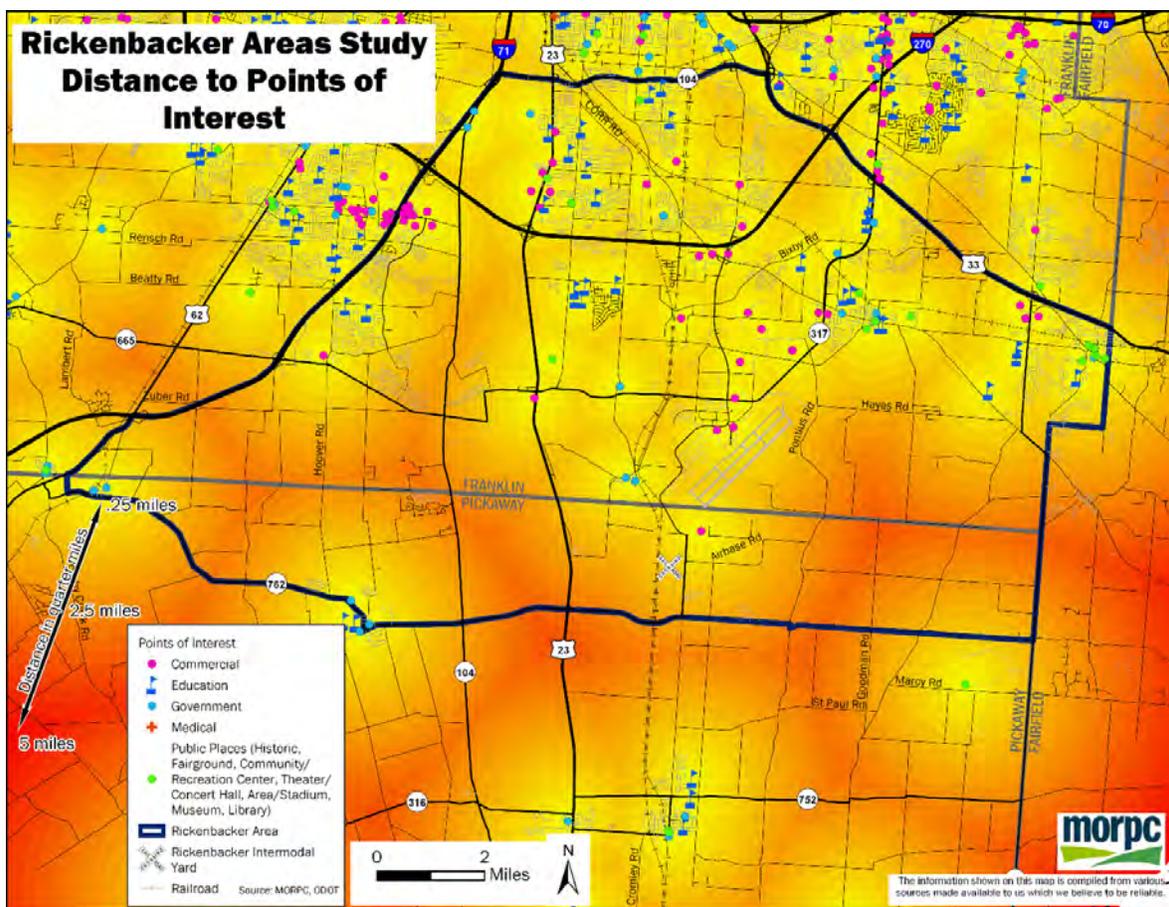
QUALITY OF LIFE

ACCESS TO AMENITIES & OPPORTUNITY

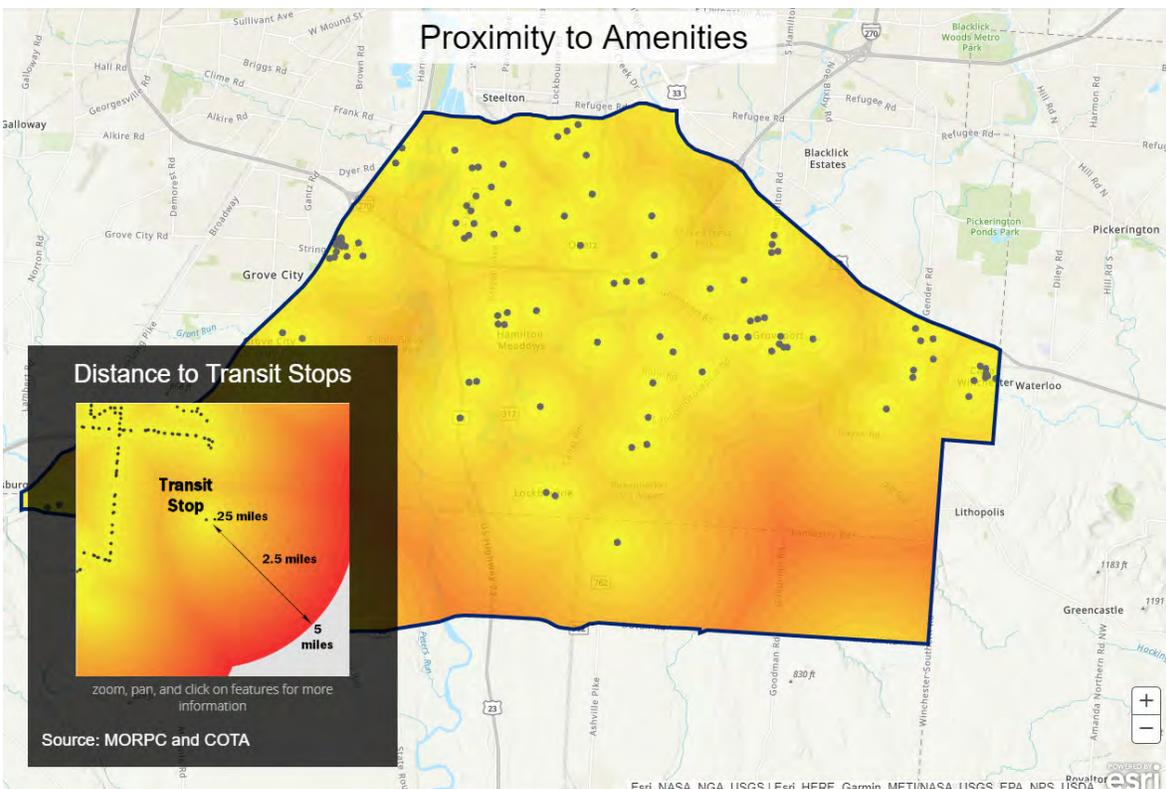
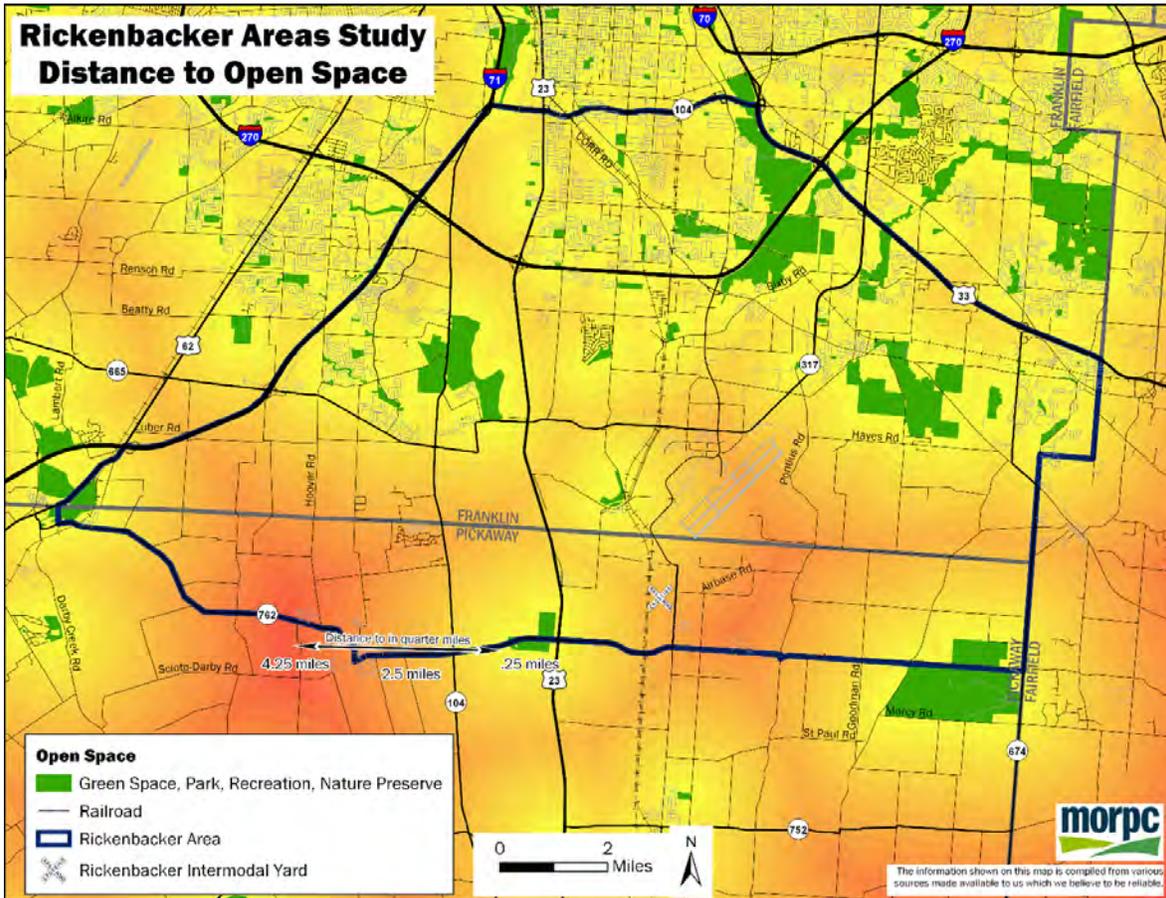
The following maps visualize existing residential development and its proximity to various points of interest (amenities) such as:

- Grocery stores, restaurants, retail, and anchor institutions like educational, medical, and corporate centers
- Parks and open space
- Transit stops

These “proximity analyses” can be used to connect the dots – to identify naturally-occurring corridors where connections between residents and the jobs, services and amenities they access can be enhanced through the strategic direction of resources, policies, and investments.



QUALITY OF LIFE

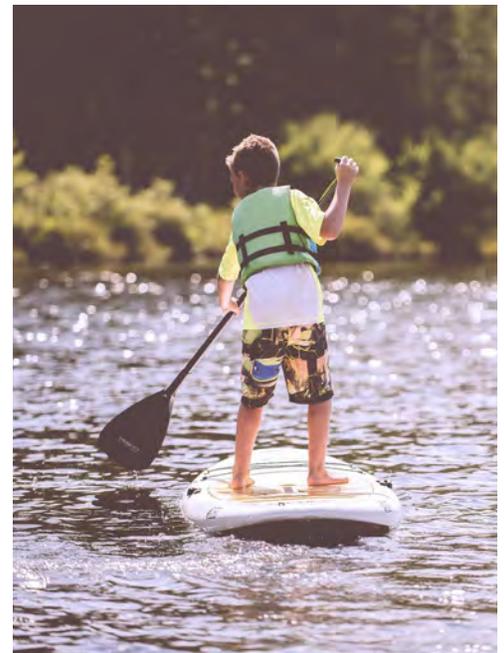
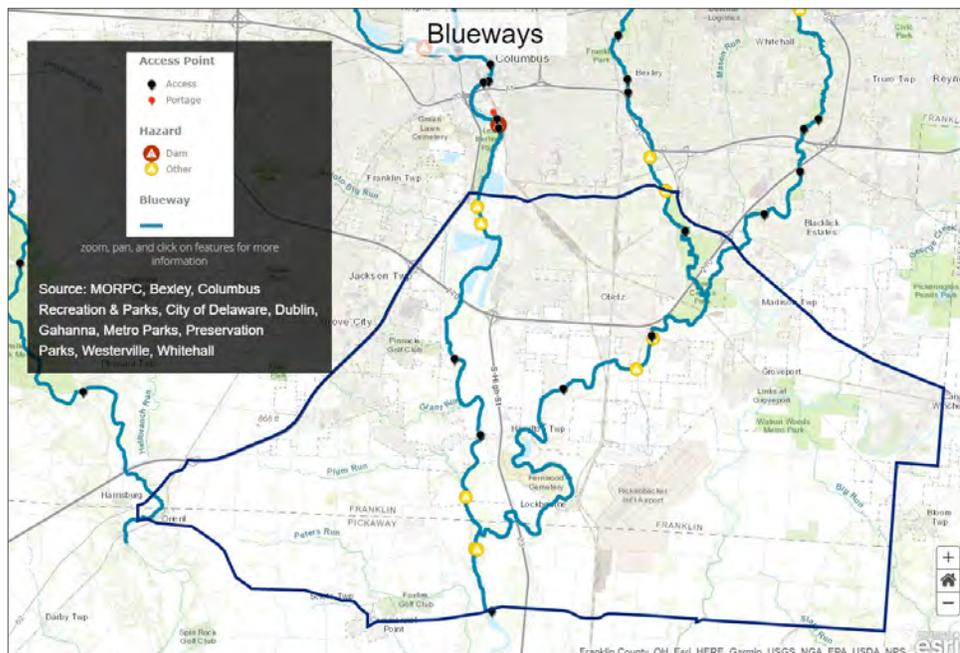


QUALITY OF LIFE

The Points of Interest Proximity Analysis and the Transit Stops Proximity Analysis showed corridors such as SR 317, Alum Creek Drive, and Parsons Avenue as existing corridors that provide access to transit and points of interest. This information can assist in forming a basis for creating incentives and policies that focus on developing even more amenities along these corridors, including access to them through multimodal network improvements as new infrastructure and development occurs.

The Open Space Proximity Analysis showed that the most populated areas in the northern portion of the study area also have the most significant amount of parks and open space. The Rickenbacker area presents a great opportunity to incorporate new open space as development occurs, ideally creating a network of connected active open spaces over time. This include investing in multi-use paths, which have been shown to improve economic value to residents, as summarized in a recent Impact of Trails study, commissioned by MORPC.

Rivers provide additional recreational opportunities such as fishing, swimming, and paddle sports. Recent studies across the country have shown that connecting communities to natural resources such as rivers can provide opportunities for economic growth, increase the quality of life of local residents, raise property values, and attract new business investment. Outdoor recreation is a booming segment of the U.S. economy, particularly in waterfront destinations. The map below shows the river assets in the Rickenbacker area, including access points and other important information for water sports and recreational activities.



The Scioto River, Alum Creek, and Big Walnut Creek all flow through the study area, and there are seven public access points within or in close proximity to the study area. Opportunities to make the river assets safer and more accessible to people should be considered as part of a broader strategy to improve the area's economic potential and quality of life. This can be achieved through:

- Developing more access points in conjunction with public property owners such as local municipalities and regional (Metro Parks) and state parks (ODNR) districts
- Promoting safe and legal use of the rivers and environmental stewardship to maintain and improve water quality for drinking and wildlife
- Creating a River Towns Program as an inspiration for civic, economic, and tourism development. The Pennsylvania Environmental Council River Towns Program and Historic Towns of Westchester are two examples.

QUALITY OF LIFE

RECOMMENDATIONS

As the study unfolded, it became increasingly evident that certain corridors could be the focus of targeted, strategic investments that will eliminate gaps in accessibility to amenities and opportunity, thus improving the quality of life for people who live and/or work in the Rickenbacker area.

From a placemaking perspective, we can use the proximity maps to identify naturally occurring corridors where connections between residents and the jobs, services and amenities they access can be enhanced through the strategic direction of resources, policies, and investments. This study recommends three types of placemaking corridors as a strategy to improve upon existing amenities in the area:

- Community Strengthening
- Business Core
- Recreational Greenways & Blueways

COMMUNITY STRENGTHENING PLACEMAKING CORRIDORS

These corridors have some existing amenities and are already destinations for residents and workers in the area. However, opportunities exist to provide even more amenities along these corridors, therefore they are identified for mixed-use infill development. This study recommends that Rickenbacker jurisdictions consider targeting construction of diverse housing options and residential-supportive amenities in proximity to these corridors. Connectivity to these corridors should be considered for new residential and commercial development. This includes inclusion of complete streets to connect and foster sustainable, livable neighborhoods.

BUSINESS CORE PLACEMAKING CORRIDORS

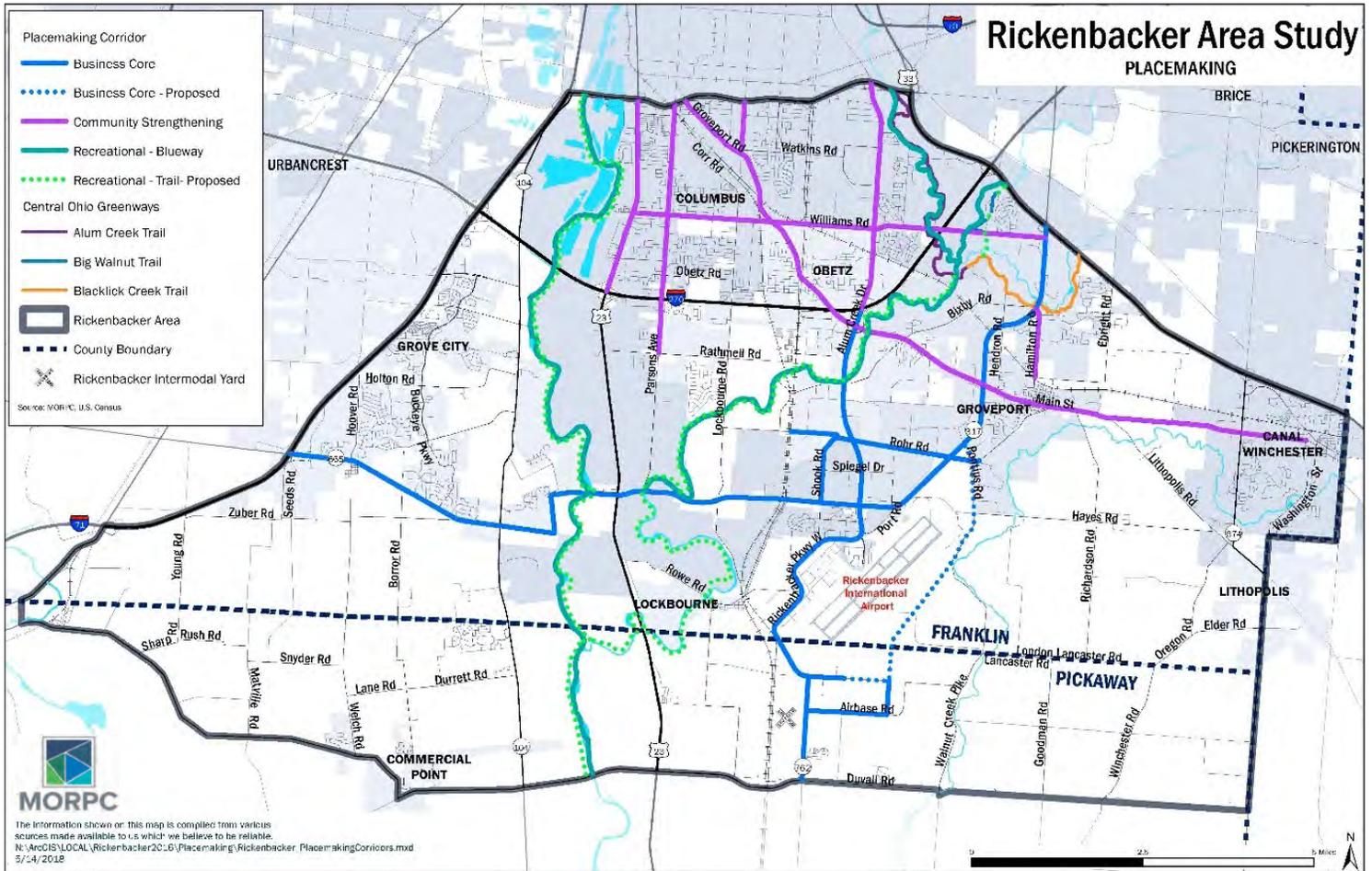
Providing a “sense of place” or branding for the Rickenbacker business core corridors is a tool that would improve the identity of this employment area, as well as improve the aesthetic marketability for potential new businesses. Adding signage, lighting, and common site design requirements with a branded theme will provide identity and sense of place to the logistics core. Easily identifiable way-finding will support additional efforts to route commercial vehicles on desired facilities.

RECREATIONAL GREENWAYS & BLUEWAYS PLACEMAKING CORRIDORS

Focusing on recreation as a quality of life factor, these corridors provide connections to green space, water access, and other proposed low-stress network facilities within the study area, as well as the regional Central Ohio Greenways network.

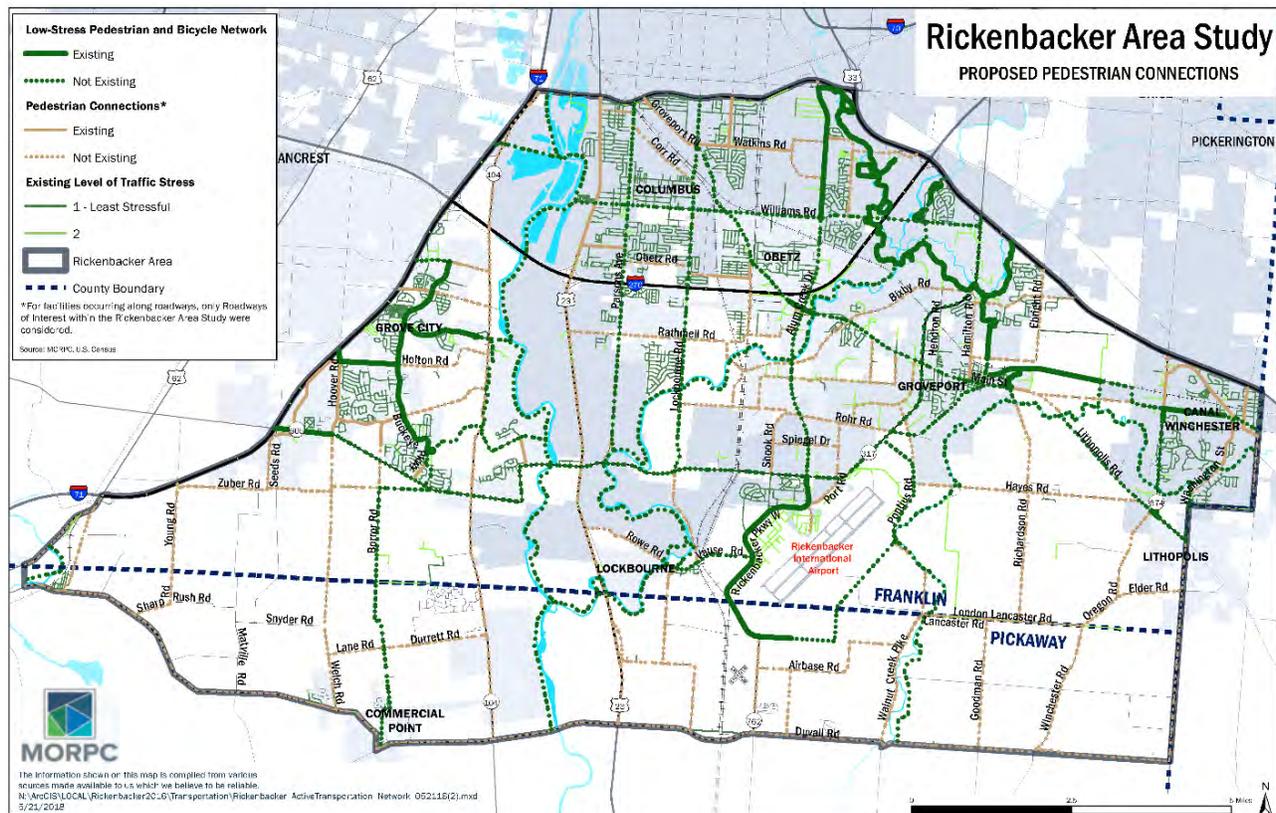
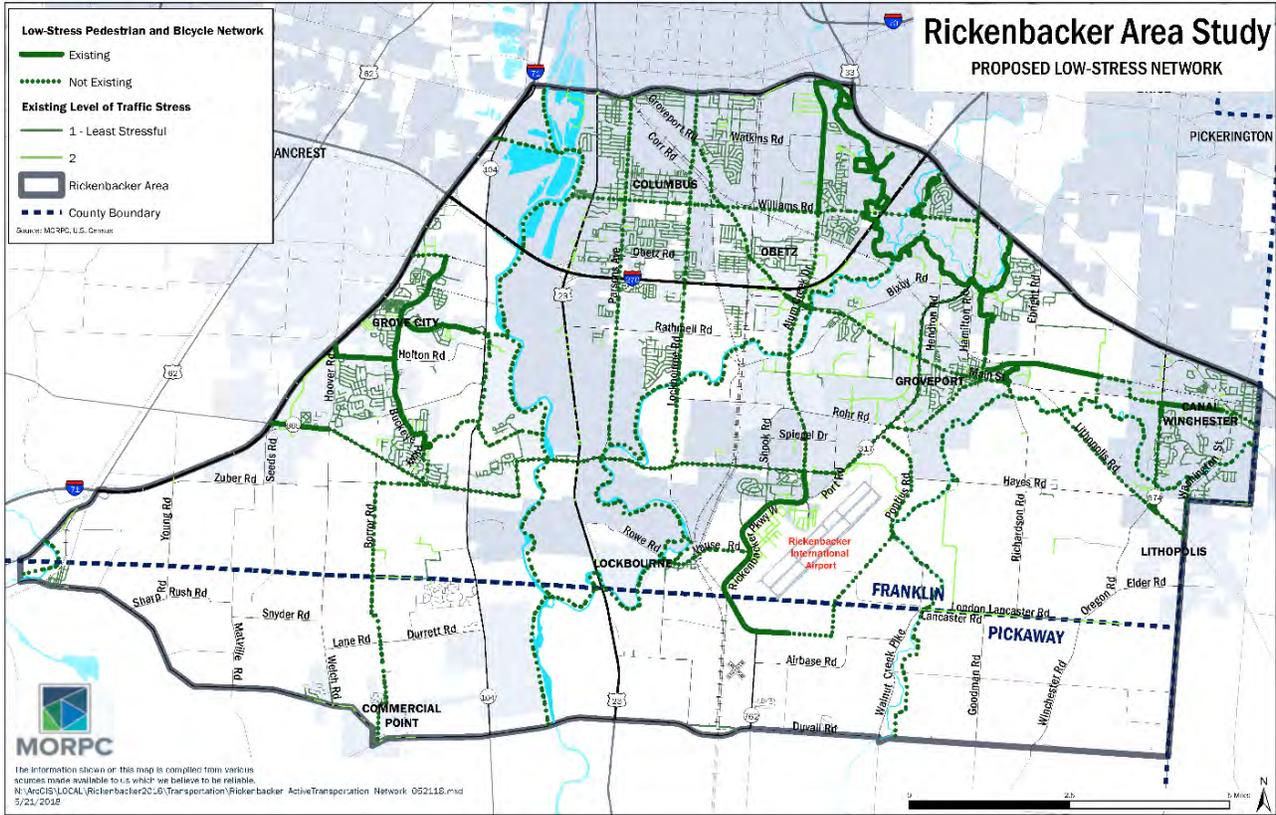


QUALITY OF LIFE



In recent years, prominent employers like Amazon have selected new headquarter locations based on factors such as strong transit service, housing option availability, and other quality-of-life considerations. Thus, implementation of placemaking, as recommended in this study, seeks to raise the economic as well as the social profile of the study area. Fulfilling the vision of these recommendations will require cross-jurisdictional collaboration, but it is essential to maximize the area's existing assets, and build upon them to improve the area's overall competitive advantage.

RICKENBACKER AREA STUDY RECOMMENDATIONS



RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Create an stakeholder-led committee to oversee the implementation of this study's recommendations	Past Rickenbacker studies culminated with the creation of an oversight committee that convened on a quarterly basis to expedite infrastructure improvements as prioritized in the latest MORPC Rickenbacker study. This study recommends a similar committee be convened in 2019, similar to past committees such as the Rickenbacker Infrastructure Coordination Committee (RICC) . This committee should be composed of area stakeholders and would oversee the implementation of the 2018 Rickenbacker Area Study recommendations.	Local jurisdictions CRAA MORPC Northern Pickaway JEDDs		Low		Ongoing
Make Workforce Access Rickenbacker's Competitive Advantage through Comprehensive Strategy	Rickenbacker is not alone in its challenges of workforce mobility. Job sprawl impacts peer industrial areas around the region and county as large-scale industrial development often occurs outside of developed areas where affordable housing exists. Rickenbacker has an opportunity to become one of the most integrated workforce access environments in the nation with a comprehensive approach that includes housing development, transit improvements, and innovative mobility solutions. Success of this strategy would allow economic developers to market the area as a location where transportation barriers are heavily minimized, ensuring employers will be able to access our region's workforce and not experience turnover and absenteeism costs that often result from workforce access challenges. Recommendations under the workforce mobility and safety section support this larger strategy, in addition to Insight2050's Corridor Concepts Study, which includes a potential high capacity transit corridor in the Rickenbacker area.	Local jurisdictions Northern Pickaway JEDDs MORPC Private developers	COTA Pickaway Area Rural Transit GREAT CRAA Columbus 2020 Central Ohio Greenways	n/a	Regional partnership tools (see description), Private developers, Local jurisdictions	1-3 years
Workforce Access: First Mile/Last Mile Ongoing Planning Recommendation	In addition to the new GREAT shuttle route that is proposed in this study, to meet demand based on existing developments, planning and coordination needs will evolve as development continues. As new lands to the east, west, and south of the airport are developed and achieve a critical mass of businesses and employment, similar first/last mile solutions may be necessary to provide a bridge to regional transit routes. Therefore, the study recommends that MORPC, COTA, local jurisdictions, CRAA, the Northern Pickaway JEDD districts, private developers, GREAT partners, and other mobility providers should collaborate to regularly evaluate evolving needs for first/last mile solutions as these areas develop. This could include expansion of GREAT service or other innovative mobility solutions.	COTA Pickaway Area Rural Transit MORPC Local jurisdictions Northern Pickaway JEDDs Private developers	CRAA Columbus 2020 GREAT	Low	Refocus existing resources	Ongoing
Leverage Regional Partnership Tools to Create Sustainable Funding Sources, Improve Services, and Implement Projects	The Rickenbacker Area includes two counties and multiple jurisdictions. While these entities have a good history of collaboration, there are opportunities to utilize regional partnership tools to continue improvements in the area. These tools are enabled through the Ohio Revised Code, such as Transportation Improvement Districts or Special Improvement Districts, which could be utilized to pool resources to advance infrastructure investments and operations. Other tools, such as Councils of Governments and Joint Economic Development Districts, allow multiple jurisdictions to collaborate to advance development of an area. The attached matrix outlines example opportunities using these partnership tools.	Local jurisdictions	MORPC	Low	Refocus existing staff resources	Ongoing
Diversify Industry Mix for Resiliency	Distribution and warehousing are the predominant industry uses in the core of the Rickenbacker Area, but are often only utilizing highway and trucking assets. For the purposes of economic resiliency, area wage growth, and fully leveraging the air and rail assets, significant interest and opportunity exists to provide for industry use diversification. This study recommends that economic development partners collaborate to advance manufacturing uses and target firms that will utilize the airport and/or intermodal assets. Manufacturing uses could leverage the Foreign Trade Zone and benefit from close proximity to transportation facilities for raw materials sourcing and product distribution. Value-added manufacturing may also be an opportunity.	Columbus2020, local jurisdictions/economic development officials, Northern Pickaway JEDDs, private developers	Columbus Partnership	Low	Refocus existing economic development resources	5 years +
Expand Commercial and Mixed-Use Development in the Rickenbacker Core Business Area	Limited retail, restaurant, and hospitality opportunities exist in the core area of Rickenbacker. As additional and diversified employment grows, retail and restaurant development is necessary to create a desirable workplace environment to provide employees with options for food and shopping at lunch and after the workday. The study recommends that community partners collaborate to identify locations and facilitate development of restaurant and retail uses. These uses would preferably be located in mixed-use developments where housing and other uses (e.g. office, hotels, etc.) are adjacent. Finally, hospitality needs should be studied to determine if the market can support additional hotel development.	Local jurisdictions	Private developers	Low	Refocus existing planning and development resources	2-5 years
Create a Hub for Smart Technologies	The Columbus Region has positioned itself to be the epicenter of smart transportation technologies development and deployment. As part of the Smart Columbus initiatives, the Freight Signal Priority technology will be installed on the traffic signals along Alum Creek Drive to allow for truck platooning once trucks reach the interstate system. As a logistics hub and major employment center, Rickenbacker has the opportunity to become a hub for development of related smart technologies. During the study process, innovative ideas that emerged included a hyperloop freight portal (i.e. station) near Rickenbacker Airport, deployment of artificial intelligence and drone technologies in warehouse operations, electric generation through solar field and/or solar roofs, and switching to electric vehicles for drayage from the intermodal facility to area warehouses.	Smart Columbus Columbus 2020 Columbus Partnership Local economic development officials	MORPC DriveOhio	TBD	Dependent on technologies pursued	Ongoing
Leverage the North American International Freight Center Branding	The Rickenbacker Area has been marketed as the Rickenbacker Inland Port for nearly a decade. During development of this study, regional partners and CRAA collaborated to create the North American International Freight Center brand. This new brand actually recognizes the freight and logistics assets of the larger Columbus Region, with Rickenbacker as a key set of assets within the International Freight Center. Partners in the Rickenbacker Area should leverage this opportunity by incorporating the new brand in marketing and business attraction efforts. Additionally, area signage and wayfinding improvements recommended for placemaking should incorporate the brand to position the area as a key hub in the International Logistics Center.	Local economic development officials	CRAA MORPC	TBD	Local jurisdictions Private developers	1-2 years and Ongoing

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Monitor Opportunity Zones to Maximize Impact	Opportunity Zones (OZ) were created by Congress in December 2017 to encourage investment in economically-distressed communities by providing federal tax advantages. After recommendations from the State of Ohio, several census tracts within the Rickenbacker Area were designated as OZs by the U.S. Department of Treasury. Guidance and regulations are still being finalized for the program at the time of completion of the study, but local economic development officials see potential to use OZs to significantly spur development and provide a competitive advantage that other areas may not be able to provide. This tool should be closely monitored by economic development officials to ensure maximum impact for community and economic growth in the Rickenbacker Area.	Local economic development officials	Private developers	Low	Refocus existing economic development resources	1-2 years
Increase Frequency of COTA Line 22 (from Eastland to Rickenbacker)	Two COTA lines service the core job center at Rickenbacker and tie into the GREAT shuttle for first/last mile connections. Ridership on these lines is relatively high and COTA has responded by adding additional buses that follow the scheduled bus to handle the capacity at peak times (known as 'Trippers'). COTA should strive to permanently increase frequency along these lines. This is especially important as additional bike/pedestrian and first/last mile services are added that connect to COTA service. In this way, COTA Line 22 is a key component to comprehensively improving workforce access at Rickenbacker. Line 22 OSU/Rickenbacker– COTA currently has 30-minute service all day, 7 days a week down to Rickenbacker. The following scenarios have been estimated to provide the annual and operating costs to improve service, from Broad & Ohio to Rickenbacker: 1) 15-minute service from approximately 5:00 a.m. to 9:00 a.m. and 2:00 p.m. to 6:00 p.m. on weekdays, all year 2) Same scenario as above but only during peak season (September-December) The cost shown in this table reflects scenario 1, which is double the current frequency.	COTA	MORPC	One-time capital cost for additional buses: \$2.7 million Additional annual operating cost: \$675,400	TBD by lead agency and stakeholder oversight committee	1-3 years
Increase Frequency of COTA Line 24 (from Broad & Ohio to Rickenbacker)	Two COTA lines service the core job center at Rickenbacker and tie into the GREAT shuttle for first/last mile connections. Ridership on these lines is relatively high and COTA has responded by adding additional buses that follow the scheduled bus to handle the capacity at peak times (known as 'Trippers'). COTA should strive to permanently increase frequency along these lines. This is especially important as additional bike/pedestrian and first/last mile services are added that connect to COTA service. In this way, COTA Line 24 is a key component to comprehensively improving workforce access at Rickenbacker. Line 24 Hamilton – COTA currently provides 60-minute service during weekday peak periods from Eastland to Rickenbacker. For the same timeframe in morning and evening time periods, the following scenarios have been estimated to provide the annual & operating costs to improve service, from Eastland to Rickenbacker: 1) 30-minute service 2) 15-minute service 3) 30-minute service - all day on weekdays 4) 60-minute late night service only during the peak season (September-December) The cost shown in this table reflects scenario 1, which is double the current frequency.	COTA	MORPC	One-time capital cost for additional buses: \$1.08 million Additional annual operating cost: \$168,800	TBD by lead agency and stakeholder oversight committee	1-3 years
Add 4th GREAT service route	Observations during the GREAT shuttle survey as well as interviews with shuttle staff identified the need for service into parts of the City of Columbus. The current three lines circulate in Obetz and Groveport only. Employees outside these jurisdictions face the same access challenges: COTA transit stops are not in close proximity, sidewalks and crosswalks do not exist in many areas, and roadways are not lighted. Workers in the City of Columbus are already using some lines of the GREAT shuttle to shorten their walking commute, but are still left to cross Alum Creek Drive without proper crosswalk accommodations and sidewalk connections. Working with GREAT staff, a fourth shuttle route has been identified to circulate through parts of the City of Columbus. Like the existing GREAT service, this route would leverage COTA Lines 22 and 24 to provide more direction connections between affordable neighborhoods and major employers at Rickenbacker.	City of Columbus City of Groveport	Village of Obetz COTA	\$165,000 annual operating, plus vehicle cost	TBD by lead agency and stakeholder oversight committee	1-3 years
Mobility Center	The Mobility Center is envisioned as a multi-modal hub for the Rickenbacker area, similar to transit centers constructed by COTA. The Marathon Gas Station at SR 317 and Alum Creek Drive functions as a de facto mobility center today, as COTA and GREAT services both stop and exchange riders at the station. A new mobility center is envisioned as a physical site and building(s) where transit converges and connecting services are available, including bike and/or scooter rentals, autonomous vehicle connections, ride hailing access, connections with other regional transit such as Lancaster's system, etc. This facility could also include workforce services, such as job training or a day care center.	Rickenbacker jurisdictions COTA MORPC	CRAA Columbus 2020	\$3.75 million +	Private-Public Partnership	5 years +
Low Stress Bicycle and Pedestrian Network and Supporting Pedestrian Connections	Creating a safe network of bike and pedestrian routes within the study area is critical to improve safety and improve the area's non-motorized mobility. This study proposes eliminating existing gaps in the area's bike and pedestrian network, or low-stress network, that will connect low-stress islands by adding separated on-and off-street bike and pedestrian facilities, allowing for safe travel for non-motorized users of all ages and abilities.	Local jurisdictions	MORPC	TBD	TBD by lead agency and stakeholder oversight committee	1-3 years
Lancaster to Columbus transit corridor	As a regional employment center, workers travel from surrounding counties to jobs at Rickenbacker. The City of Lancaster Public Transit Department, which operates Lancaster-Fairfield Public Transit, has proposed launching a new transit route linking Lancaster with Rickenbacker. The service is envisioned for commuters and would be timed to exchange with the GREAT shuttle. This service could eventually connect to the proposed Mobility Center.	Lancaster-Fairfield Public Transit	COTA MORPC	\$80,000 annual operating, plus vehicle cost	TBD by lead agency and stakeholder oversight committee	1-3 years

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Roadway Transportation Tier 1 Priorities	Highest-priority roadway improvements to be made first. Complete street facilities should be included as appropriate. Cost estimates are in year 2020 dollars. Projects are not listed in a particular order and are not prioritized within each tier level.					
I-270 and US 23 - Interchange Modification	Improvements to the existing interchange at I-270 and US 23.	ODOT	MORPC	\$16 million	TBD by lead agency and stakeholder oversight committee	
US 23 - Convert to Freeway from I-270 to SR 317	Access management on US 23 with eventual conversion to freeway from I-270 to SR 317.	ODOT	MORPC	\$26 million	TBD by lead agency and stakeholder oversight committee	
Groveport Road and Alum Creek Drive - Intersection Modification	Intersection modification at Groveport Road and Alum Creek Drive to improve safety.	Local jurisdiction	MORPC	TBD	TBD by lead agency and stakeholder oversight committee	
Alum Creek Drive - Major Widening from SR 317 to Groveport Rd.	Major widening of Alum Creek Drive from SR 317 to Groveport Road from four lanes to six lanes with complete streets facilities	Local Jurisdiction	MORPC	\$27 million	TBD by lead agency and stakeholder oversight committee	
Rickenbacker Parkway - Extension from Ashville Pike to SR 317	Construction of a new roadway, two lanes in each direction, to extend Rickenbacker Parkway from Ashville Pike to SR 317.	Local jurisdiction	MORPC CRAA	\$32 million	TBD by lead agency and stakeholder oversight committee	
US 23 and SR 762 - New Interchange	Construction of new interchange at US 23 and SR 762.	ODOT	MORPC	\$17 million	TBD by lead agency and stakeholder oversight committee	
Roadway Transportation Tier 2 Priorities	Second highest-priority roadway improvements to be completed next. Complete street facilities should be included as appropriate. Cost estimates are in year 2020 dollars. Projects are not listed in a particular order and are not prioritized within each tier level.					
Groveport Road - Minor Widening from Williams Road to Alum Creek Drive	Minor widening of Groveport Road from Williams Road to Alum Creek Drive, adding turn lanes and complete-street facilities.	Local jurisdiction	MORPC	\$14 million	TBD by lead agency and stakeholder oversight committee	
US 33, SR 317, and Williams Road - Interchange Modification	Interchange modification at US 33, SR 317, and Williams Road.	ODOT	MORPC	\$21 million	TBD by lead agency and stakeholder oversight committee	
US 23 - Convert to Freeway from SR 317 to SR 762	Access Management on US 23 with eventual conversion to freeway from SR 317 to SR 762.	ODOT	MORPC	\$37 million	TBD by lead agency and stakeholder oversight committee	
SR 762 (Duvall Road/Ashville Pike) - Major Widening from US 23 to Rickenbacker Parkway	Major widening of SR 762 (Duvall Road/Ashville Pike) from US 23 to Rickenbacker Parkway from two to four lanes total both directions with complete streets facilities.	Local jurisdiction	MORPC ODOT	\$37 million	TBD by lead agency and stakeholder oversight committee	
Roadway Transportation Tier 3 Priorities	Third highest-priority roadway improvements to be completed as funding becomes available. Complete street facilities should be included as appropriate. Cost estimates are in year 2020 dollars. Projects are not listed in a particular order and are not prioritized within each tier level.					
US 23 and Williams Road - Intersection Modification	Intersection modifications at US 23 and Williams Road.	Local jurisdiction	MORPC ODOT	\$2 million	TBD by lead agency and stakeholder oversight committee	
US 23 (High Street) at Obetz Road - Intersection Modification	Intersection modification at High St. (US 23) and Obetz Road.	Local jurisdiction	MORPC ODOT	\$2 million	TBD by lead agency and stakeholder oversight committee	
Groveport Road - Minor Widening from Watkins Road to Williams Road	Minor widening, adding turn lanes and complete streets facilities to Groveport Road from Watkins Road to Williams Road.	Local jurisdiction	MORPC	\$9 million	TBD by lead agency and stakeholder oversight committee	
US 23 and SR 665/SR 317 - Intersection Modification	Intersection modifications at US 23 and SR 665/SR 317.	Local jurisdiction	MORPC ODOT	\$4 million	TBD by lead agency and stakeholder oversight committee	
Williams Road - Minor Widening from Corr Road/Lockbourne Road to Alum Creek Drive	Minor widening of Williams Road from Corr Road/Lockbourne Road to Alum Creek Drive, adding turn lanes and complete streets facilities.	Local jurisdiction	MORPC	\$14 million	TBD by lead agency and stakeholder oversight committee	
Williams Road - Minor Widening from Alum Creek Drive to Hamilton Road	Minor widening of Williams Road from Alum Creek Drive to Hamilton Road, adding turn lanes and complete streets facilities.	Local jurisdiction	MORPC	\$18 million	TBD by lead agency and stakeholder oversight committee	
Williams Road and Groveport Rd. - Intersection Modification	Intersection modification at Williams Road and Groveport Rd.	Local jurisdiction	MORPC	\$2 million	TBD by lead agency and stakeholder oversight committee	

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
SR 665 - Major Widening from Hoover Road to SR 104 (Jackson Pike)	Widening of SR 665 (London-Groveport Road) from Hoover Road to SR 104 (Jackson Pike) from two lanes to four lanes total in both directions with complete streets facilities.	Local jurisdiction	MORPC ODOT	\$24 million	TBD by lead agency and stakeholder oversight committee	
SR 665 - Major Widening and Road Realignment from SR 104 to Scioto River	Realign SR 665 from SR 104 to Scioto River, and widen from one to two lanes in each direction with complete streets facilities.	Local jurisdiction	MORPC ODOT	\$14 million	TBD by lead agency and stakeholder oversight committee	
SR 104 - Major Widening from SR 665 to SR 762	Major widening of SR 104 from SR 665 to SR 762 from two to four lanes total both directions with complete streets facilities.	Local jurisdiction	MORPC ODOT	\$39 million	TBD by lead agency and stakeholder oversight committee	
Groveport Road - Minor Widening from Swisher Road to SR 317	Minor widening of Groveport Road from Swisher Road to SR 317, adding turn lanes and complete streets facilities.	Local jurisdiction	MORPC	\$6 million	TBD by lead agency and stakeholder oversight committee	
SR 317 (London-Groveport Road) - Major Widening from Alum Creek Drive to Main Street (Groveport Road)	Major widening of SR 317 (London-Groveport Rd) from Alum Creek Drive to Main Street (Groveport Road) from two lanes to four lanes total in both directions with complete streets facilities.	Local jurisdiction	MORPC ODOT	\$29 million	TBD by lead agency and stakeholder oversight committee	

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Fuel-Switching	Electric vehicles have three times the energy efficiency of internal combustion engine vehicles. Public and private fleets should take advantage of grants and incentives available to reduce the capital costs of these purchases. This study recommends that local governments work with MORPC, Smart Columbus and others on creating a public/private strategy with corporate entities to create an accessible network of alternative fuel charging stations on public and private property. This will maximize existing charging and fueling infrastructure, and present opportunities for public/private investments in alternative fueling infrastructure.	Local governments	MORPC Clean Fuels Ohio Smart Columbus Utilities	TBD	Incentive funding typically available through Smart Columbus and utilities	1-3 years
Alternative Fueling Stations	In early 2018, the majority of I-71 and all of I-270 were designated by the Federal Highway Administration as Alternative Fuel Corridors. These corridors fit the requirements for fueling station signage for both electric vehicles and compressed natural gas. There are fourteen publicly available alternative fuel stations located in the Rickenbacker study zip code area, with opportunities to increase these assets as part of broader economic development strategies. This study recommends that regional stakeholders work with MORPC to leverage opportunities for planning, funding, and construction of alternative fuel stations.	Local governments	MORPC Clean Fuels Ohio Smart Columbus Utilities	TBD	Incentive funding typically available through Smart Columbus and utilities	1-3 years
Mobility Center and Additional GREAT Routes	The concept of a mobility center and additional GREAT routes both offer the potential for energy savings, and thus emissions and dollar savings. The mobility center proposed in the workforce mobility and safety section could be designed to include solar panels and other alternative energy sources. Additional GREAT routes could present an opportunity to use alternatively fueled shuttle buses (such as natural gas or electric).	Rickenbacker jurisdictions	MORPC Rickenbacker Energy Consortium	TBD		
Rickenbacker Area Energy Consortium	This study recommends forming a Rickenbacker Energy Consortium, a group of local officials, corporate social responsibility directors, economic developers and utilities providers that would work in tandem with the Energy Consortium of local governments developed through MORPC's Local Government Energy Partnership. By providing the arena for the necessary parties to work with each other on energy initiatives, costs and time can be minimized by removing duplicate effort. The Energy Consortium should identify the energy needs and issues of the commercial and industrial communities within the Rickenbacker study area, and the pathway to achieve their energy goals through tools such as energy efficiency programs, cooperative purchasing, solar tool-kits, clean energy finance, and alternative energy zones.	Rickenbacker Energy Consortium	Private companies in area MORPC Utilities Local governments	Low		1-3 years
Energy Efficiency Programs	Develop programs targeted at sectors we know could greatly improve in energy efficiency based on the study's energy baseline analysis (example: Microgrids retrofit assistance programs for warehousing and other industrial facilities to minimize wasted energy).	Rickenbacker Energy Consortium	Utilities Local governments MORPC	Low		
Cooperative Purchasing	Cooperative purchasing programs have proven to be successful and provide benefits for participants. Currently, Smart Columbus has developed a cooperative purchasing program to provide electric vehicles for government fleets at a reduced cost. This program is available to all government entities within the Smart Columbus 7-county region, which includes the Rickenbacker area. A similar program could be developed for private activities focusing specifically on drayage and other warehousing vehicles. This could also include another program that negotiates and provides access to high efficiency products, solar panels, cogeneration systems, and associated services. Rickenbacker presents an excellent pilot opportunity.	Rickenbacker Energy Consortium	TBD	Low		
Solar Tool-Kit	In an effort to be able to respond to the individual needs of different companies and entities, it is recommended that a solar toolkit be developed which lays out the general process of solar development, expected successes, appropriate contact information, common issues, and the ways community partners are positioned to help overcome these challenges.	Rickenbacker Energy Consortium	MORPC Local governments Department of Energy	Low		6 months
Clean Energy Financing	Multiple avenues for funding clean energy projects exist in the Rickenbacker area. Property Assessed Clean Energy (PACE) financing is a common option property owners can use to afford upgrades, without utilizing capital expenditure funds. More funding was available for PACE financed projects in 2018.	Rickenbacker Energy Consortium	Columbus Franklin County Finance Authority	Low		
Alternative Energy Zone	The Franklin County portion of the Rickenbacker Study Area can be classified as an Alternative Energy Zone, exempting qualified energy facilities from certain real and property taxes. An energy consortium could work with County Commissioners to adopt a resolution to designate an Alternative Energy Zone and through this process they would agree to approve all applications for energy projects seeking tax exemptions under S.B. 232. This endeavor would require the support of the jurisdictions within the Rickenbacker Area, which could be facilitated through the Energy Consortium.	Rickenbacker Energy Consortium	Franklin County	Low		1 year

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Local Generation						
Solar and Storage Opportunities	With significant square footage of rooftops in the Rickenbacker Study Area, it is recommended to conduct a full potential study of the costs and benefits of commercial solar in the study area. Many issues which would impede solar development exist, and should be identified by the study. This study, as well as recommendations based upon them, should be pursued by a group of stakeholders with both local and regional perspectives (such as the Rickenbacker Area Energy Consortium or through MORPC's Local Government Energy Partnership).	Rickenbacker Energy Consortium	Utilities Private organizations	TBD		1-3 years
Combined Heat and Power	Combined Heat and Power technology has shown exceptional energy and dollar savings for commercial and industrial businesses. This study recommends stakeholders consider doing a full study of the costs and benefits of combined heat and power technology deployed within the study area, in the same manner as the solar potential recommendation above.	Rickenbacker Energy Consortium	Utilities Private organizations	TBD		1-3 years
Microgrids	Microgrids are a relatively new approach to providing energy resources to large businesses or a smaller area of multiple businesses. Not only do microgrids improve resiliency and ensure up-time of an energy network, they have the ability to monetize energy capacity as another source of income for owners. The Ohio State University, Engie Services, and AEP Ohio are currently investigating microgrid opportunities in the region. This study recommend that Rickenbacker area jurisdictions consider microgrids as one of the tools to increase the area's energy efficiency.	Rickenbacker Energy Consortium	MORPC Utilities Local governments	TBD		
Public broadband network expansion						1-3 years
MORPC Smart Region Task Force	By the end of 2019, the MORPC Smart Region Task Force will complete its work on several deliverables. Included in these is a Smart Region Resource Guide that provides local governments with guidance on building digital infrastructure through best practices, policies, and funding opportunities. The Task Force will also produce a Smart Region Playbook consisting of recommended projects and initiatives for MORPC staff and committees to undertake over the next several years to support smart region efforts in Central Ohio. Rickenbacker presents a great opportunity to pilot creative, ambitious infrastructure agreements that contribute to expanded fiber/broadband networks and access. This study recommends that jurisdictions within the Rickenbacker Study Area look for such opportunities, and continue to participate in MORPC's Smart Region Task Force.	MORPC	Local jurisdictions	Low		Ongoing
MORPC Smart Streets Policies	Through its new Smart Streets Policy, MORPC is ensuring that projects receiving transportation funding through the MORPC attributable funding process are considering the inclusion of digital infrastructure components, such as fiber, wireless communications, or conduit to support future installations, as are appropriate for the circumstances. It also encourages local governments to develop similar policies of their own. This study recommends that Rickenbacker area jurisdictions use this and other policy tools to incorporate needed digital infrastructure in future infrastructure improvement projects.	MORPC	Local jurisdictions	Low		Ongoing

RICKENBACKER AREA STUDY RECOMMENDATIONS

RECOMMENDATION	DESCRIPTION	AGENCY LEAD	PARTNER AGENCIES	COST ESTIMATE	POTENTIAL FUNDING SOURCES	TIME-FRAME
Placemaking corridors - community strengthening	<p>Community Strengthening corridors have some existing amenities and are already destinations for residents and workers in the area. However, opportunities exist to provide even more amenities along these corridors, therefore they are identified for mixed-use infill development. This study recommends that Rickenbacker jurisdictions consider targeting construction of diverse housing options and residential-supportive amenities in proximity to these corridors. Connectivity to these corridors should be considered for new residential and commercial development. This includes inclusion of complete streets to connect and foster sustainable, livable neighborhoods. Community Strengthening Corridors include:</p> <ul style="list-style-type: none"> - Williams Road from US 23 (High Street) to Hamilton Road - US 23 (High Street), from SR 104 to I-270 - Lockbourne Road, from SR 104 to Groveport Road - Parsons Avenue, from SR 104 to Rathmell Road - Alum Creek Drive, from SR 104 to I-270 - S. Hamilton Road, from SR 317 to Rail line/College Street - Groveport Road, from SR 104 to West Street (Canal Winchester) 	Local jurisdictions	MORPC	n/a		Ongoing
Placemaking corridors - Recreational Greenways & Blueways	<p>Focusing on recreation as a quality of life factor, these corridors provide connections to green space, water access, and other proposed Low-stress Network facilities within the study area, as well as the regional Central Ohio Greenways network. Promotion of these corridors include: Developing more access points in conjunction with public property owners such as local municipalities and regional (Metro Parks) and state parks (ODNR) districts; promoting safe and legal use of the rivers and environmental stewardship to maintain and improve water quality for drinking and wildlife; and, creating a River Towns Program as an inspiration for civic, economic, and tourism development. Blueway corridors in the Rickenbacker study area are proposed along the Scioto River, Big Walnut Creek, and Alum Creek. Recreational trails connecting the blueway corridors are proposed along Walnut Creek between the Scioto River and SR 317.</p>	Local jurisdictions	ODNR MORPC/Central Ohio Greenways	n/a		Ongoing
Placemaking corridors - Business Core	<p>Providing a “sense of place” or branding for the Rickenbacker business core corridors is a tool that would improve the identity of this employment area, as well as improve the aesthetic marketability for potential new businesses. Adding signage, lighting, and common site design requirements with a branded theme will provide gateways, identity, and sense of place to the logistics core. Easily identifiable way-finding will support additional efforts to route commercial vehicles on desired facilities. Business Core Placemaking Corridors include:</p> <ul style="list-style-type: none"> - SR 665/SR 317 (London-Groveport Road/S. Hamilton Road), between I-71 and US 33 - Alum Creek Drive, between I-270 and Port Road/Rickenbacker Parkway - Shook Road, between SR 317 and Rohr Road - Rohr Road, between Norfolk Southern rail line and Sharps Landing Drive - Rickenbacker Parkway (existing and future extension) - SR 762, between Rickenbacker Parkway and Duvall Road - Airbase Road 	Stakeholder Oversight Committee	Local jurisdictions CRAA Intermodal facilities	n/a		Ongoing

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For more information about this study please contact:

Dina López
Strategic Projects Manager
614-233-4149
dlopez@morpc.org

