



TRANSPORTATION

Summary

Central Ohio has been experiencing a trend of growth and urbanization, fueled by strong economic diversity, expanding resources for efficient logistics and transportation, and public-private partnerships driving investments in amenities to enhance quality of life for workforce attraction and retention. The Mid-Ohio Regional Planning Commission (MORPC), along with partners in transportation (e.g., transit, aviation, and active transportation) play a key role in monitoring how the growing region leverages transportation resources and infrastructure, balancing goals around congestion reduction, reduced climate impact, expanded opportunities to bike and walk for work or leisure, and encouraging focused growth to support enhanced transit options.

The pandemic agitated transportation dynamics across modes and has left an indelible mark on the balance of the transportation system of the future. Shutdowns of businesses and services, as well as individuals' personal health concerns provoked changes in transportation behavior across the board – residents, students, workers, businesses, and institutions. Many of these behavior shifts may stick, at least to a degree. In some cases, these lasting shifts may relieve pressure on the transportation system and in other cases they may create new challenges; either way presents an opportunity to explore innovations and reconsider priorities for investment.

Key Issues

Central Ohio experienced a dramatic pause in **traffic congestion** as communities shut down to slow the spread of COVID-19. While traffic will inevitably return as the pandemic is managed, some behavior shifts – how people work, attend school, and where they choose to live – may have lasting effects on traffic patterns and infrastructure demands.

Public transit experienced large reductions in ridership. While permanent shifts to remote work and health precautions may have changed behavior for some, others will rely on transit now more than ever as an economical transportation option as more residents experience financial hardship.

Bike and pedestrian activity increased as more residents turned to outdoor recreation and residents sought alternatives to transit during the pandemic. Overall, fewer crashes involving people bicycling or walking points to improved safety; however, these crashes in majority Black or brown neighborhoods have persisted, punctuating the need for infrastructure safety improvements in historically disinvested communities.

Widespread consumer behavior changes altered **freight and last-mile logistics** in the region. To the extent that these changes endure, there will be lasting pressure created by the increase in direct-to-consumer delivery of goods.

Intercity travel and tourism came to a standstill with the onset of the pandemic. While vaccination and continued health and safety protocols will restore leisure travel and conferences, there will be some permanent shifts to remote meetings which will reduce revenue from business travel.

TRAFFIC CONGESTION

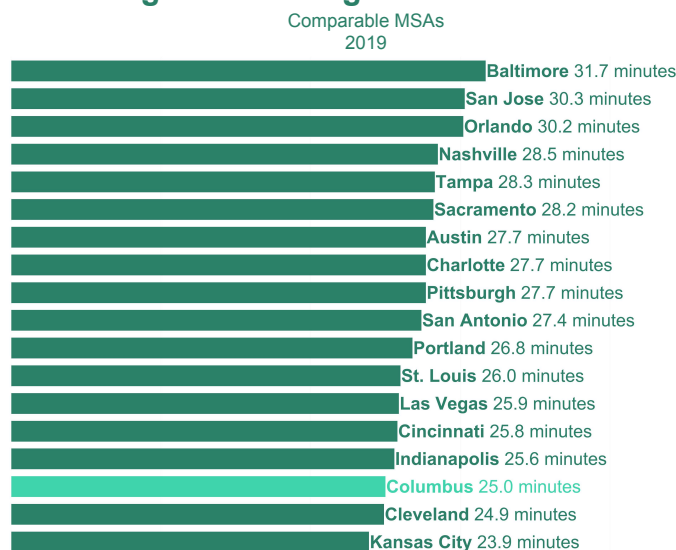
Central Ohio has enjoyed relatively short commute times compared to other, similarly sized metros in the United States (Figure 1). The region has, however, experienced high population growth over about the last decade, which led to an increase in commute times on par with other fast-growing metros like Charlotte and Nashville (Figure 2). This has resulted in increased roadway congestion, and uncertainty for commuters' trip times especially during peak commute hours.

When the first Ohio stay-at-home order was issued on March 24, 2020, traffic congestion decreased significantly. Slowdowns in traffic speed, an indicator of traffic congestion, remained less frequent through late summer 2020 when compared to early March levels. By autumn 2020, severe slowdowns (speed reductions of 25 mph or more) remained rare on Central Ohio freeways, but moderate slowdowns (speed reductions between 10 and 24 mph) became more frequent as some returned to school and offices, and some businesses reopened (Figure 3).

As a catalyst for widespread shifts to remote alternatives to work and school, the pandemic presents an opportunity for sustained congestion reduction. Whether this benefit translates to overall reduction in the number of trips and distance traveled will depend on the degree to which land use patterns are altered by resident behavior.

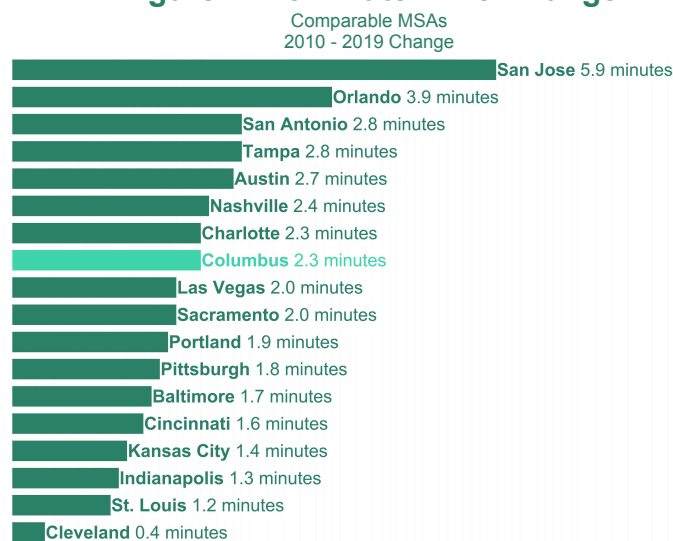
The pandemic brought a large and sudden shift to remote education. Throughout the 2020 – 2021 school year, most school districts and universities in Central Ohio implemented health and safety protocols to allow for a “hybrid” (mix of some remote and some in-person school days) approach. The persistence of hybrid learning is largely dependent upon vaccine distribution and effectiveness. Even as many districts and universities may formally return to in-person learning, they have also made large initial investments in technology to support remote learning, which they are likely to find ways to utilize.

Figure 1. Average Commute Time



SOURCE : U.S. Census Bureau American Community Survey

Figure 2. Commute Time Change



SOURCE : U.S. Census Bureau 1-year American Community Survey

Figure 3. Traffic Congestion

7-County Central Ohio Region
March 2, 2020 - December 18, 2020, Weekly

SOURCE: INRIX (via MORPC)

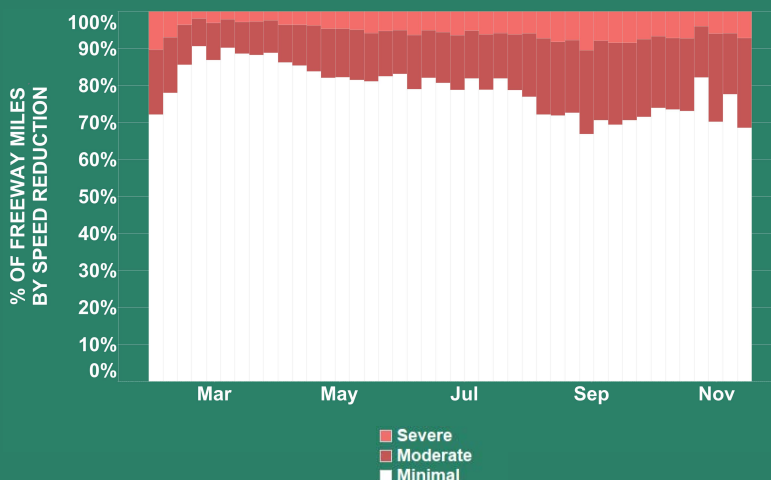
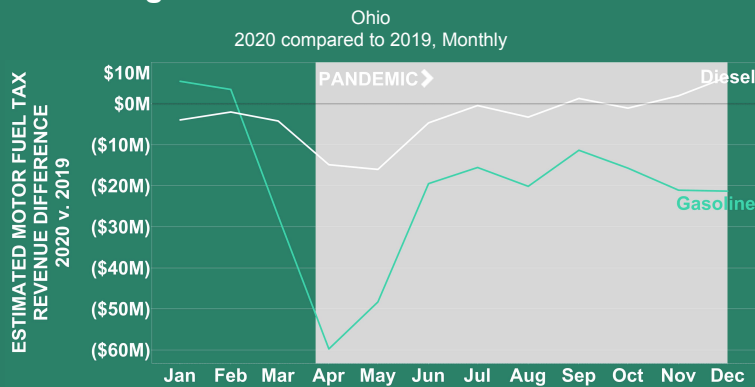
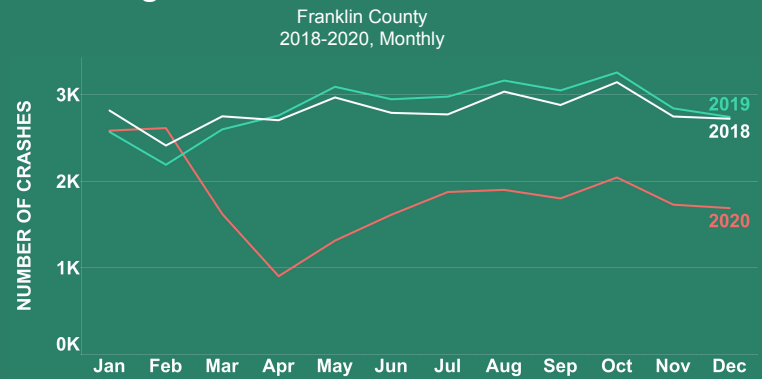


Figure 4. Motor Fuel Tax Revenue

SOURCE : Ohio Department of Taxation

Figure 5. Traffic-Related Crashes

SOURCE : Ohio Department of Transportation, final (2018 and 2019) and preliminary (2020) crash data

When shutdowns began, employees who could work remotely began working from home. Some employees later returned to some or all in-person work as employers implemented health and safety protocols and stay-at-home orders lifted. By early 2021, however, over 250,000 workers in Central Ohio continued to work from home (up from just 60,000 in 2019). There will be some permanent shifts to remote work and school (discussed in greater detail in the Economic & Community Development brief), which would translate to a reduction of work trips paired with greater flexibility for non-work trips within workers' residential communities.

Shifts to remote work led to changing needs or preferences about where people live and in what type of housing. Spurred by low interest rates, increased personal savings, a need for more space to conduct remote work and school, and shifting lifestyle priorities, some Central Ohioans were purchasing homes in less dense areas of the region (discussed in greater detail in the Housing brief), creating an increase in non-work trips not only in number but in trip length. If residents choose to live farther from the urban core, this would be a shift of the trend toward more dense, urban growth in the 2010s. Insight2050 was an effort that built regional consensus around focused growth and compact development, rooted in an increased understanding of the impacts of past development trends, along with shifting demographics and housing preferences.

Traffic is tied directly to funding that supports roadway infrastructure maintenance, development, and safety through the motor fuel tax. Comparing gallons of gasoline and diesel fuel sold in 2020 to 2019, there was an estimated \$300 million reduction to Ohio fuel tax revenues in 2020 – about 10% less than expected. Nearly two-thirds of this revenue loss impacts the State transportation budget, while about one-third of the dollars would go directly to counties and municipalities. Based on prior year local distribution of tax revenues, Central Ohio will see a \$20 million reduction from expected fuel tax revenue for local roadway infrastructure spending.

Diesel fuel use reductions made up 14% of that revenue loss, and gasoline made up the other 86%. The greatest impact occurred in April and May during the initial stay-at-home orders. Diesel fuel, used primarily by freight vehicles, restored to 2019 levels by July 2020, and even surpassed 2019 levels by the end of year holiday season – likely a sign of increased parcel delivery driven by the surge in e-commerce. However, gasoline, used primarily by passenger vehicles did not recover to 2019 levels at any point during 2020 after the pandemic onset (Figure 4). This raises further questions about the long-term stability of fuel tax revenues, adding to other impacts on this source of funding like increases in electric vehicles and improved fuel efficiency.

Road safety is also impacted by traffic volume. On interstates, the number of crashes is known to correlate positively with traffic volume—more vehicles on the road means more opportunities for congestion-related crashes like fender-benders. Attributed to increased speeds, other roadways (arterials, collectors, and local roads) have more crashes as volume decreases.¹

Overall, the decrease in traffic during the pandemic brought about sustained reductions of about 40% in the total number of crashes on the roadways (Figure 5). The bulk of this decline stemmed from decreased traffic volumes on interstates and freeways. Declines also occurred on arterials, collectors, and local roads, but with a few exceptions. Possibly related to increased speeds, there was a notable increase in the number of fatal crashes on arterials, particularly fatalities involving people walking. Related to more local traffic and possibly increased speeds, there was also an increase in the number of serious injury crashes on collectors and local roads. Finally, there was an increase in the number of alcohol-related crashes on collectors and local roads.

TRANSIT RIDERSHIP

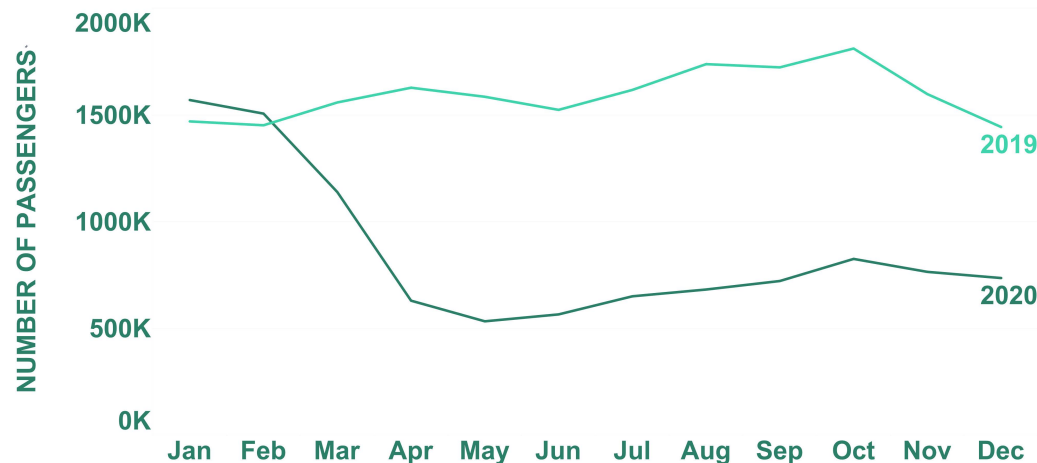
Central Ohio saw more public transit use in the 2010s, despite nationwide declines in bus passengers.² Growth in transit ridership was attributable to technology-driven system enhancements introduced by the Central Ohio Transit Authority (COTA) to improve customer experiences and provide greater access to mobility options.³ Among the many new and enhanced services were a comprehensive redesign of COTA's fixed service routes for improved speed and frequency of service (Transit System Redesign), release of the COTA Connector mobile application allowing for cashless fares, and technology-enhanced on-demand services for residents with mobility limitations and for first-mile/last-mile connections. Additional planned enhancements are centered around high-capacity transit corridors as COTA works in partnership with the City of Columbus, other local communities and MORPC on the LinkUS initiative.

The pandemic brought about obvious health concerns related to public transit, leading to 70% declines in fixed route ridership. Health and safety protocols were implemented on public busses (e.g., limited capacity for social distancing, rear door entry). Bus fares were also temporarily waived for all bus riders. Even with these strategies in place, fixed route ridership declines persisted throughout 2020 (50% lower from March to December compared to the previous year, on average) as the health emergency continued (Figure 6). According to interviews with COTA staff, the decline was not consistent. On some fixed routes serving low income neighborhoods, busses were filled to capacity (significantly reduced for safety). Some riders had to be turned away, and in some cases additional busses were added to these routes.

Despite fixed route service declines, there were opportunities to push technology-driven innovations as the change of circumstances catalyzed the adoption of new modes and ways of interacting with the public transit system. Cashless fare systems have been accelerated as a result of the pandemic, and so has adoption of on-demand services. Most notably, service tripled in the first five months of the pandemic for the Uber-style on-demand system for ordering paratransit service, Mainstream On-Demand (Figure 7). Even with the increase in passengers using this new service option, the number of passengers using Mainstream was down 10,000 by August 2020, which likely signals broader challenges accessing key goods and services for residents eligible for paratransit service. Other on-demand service offered through COTA's new COTA Plus program may see greater uptake, especially as employment rebounds.

Figure 6. COTA Fixed Route Passengers

COTA Service Area
2019-2020, Monthly



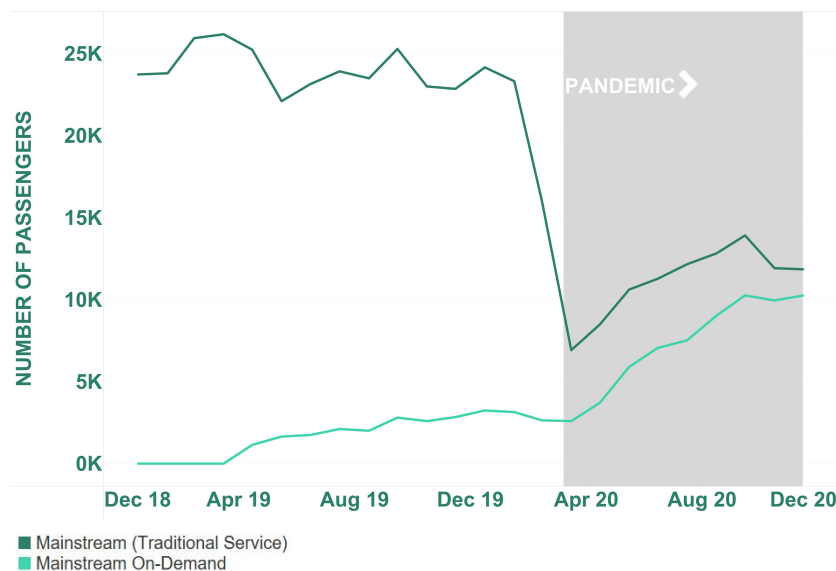
SOURCE : Central Ohio Transit Authority (COTA)

While health concerns will diminish as the pandemic is managed, some previous transit riders may permanently shift modes. Persistent remote work will have clear impacts on the number of transit commuters. Additionally, national data shows a surge in used car sales, which research suggests is in part attributable to transit users opting for personal vehicles as a safer mode of travel (Figure 8).⁴ People converting from transit to personal vehicles are not likely to switch back immediately, even when health concerns dissipate. Local data on used car sales are not available, so the extent of this mode shift in Central Ohio remains unclear but is something to consider as other data (e.g., ridership and car travel) are monitored going forward.

While there are questions about public transit use reductions, nationwide, it is imperative to consider that there have also been residents who experienced loss or reduction of employment. The need for reliable, efficient, and economical transit options may reach a new pinnacle of importance, as many Central Ohioans recover their personal finances.

Figure 7. Paratransit Passengers

COTA Service Area
2019-2020, Monthly

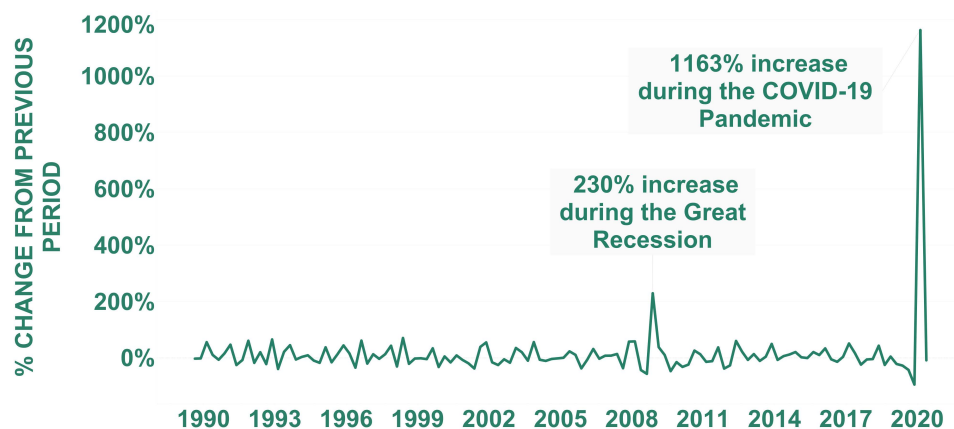


SOURCE : Central Ohio Transit Authority (COTA)



Figure 8. Net Purchases of Used Autos

United States
1990-2020, Quarterly



SOURCE : Bureau of Economic Analysis



BIKE & PEDESTRIAN ACTIVITY

Central Ohio has long invested in infrastructure for people walking and bicycling, and, as of 2020, the region's metropolitan transportation planning area had over 700 miles of dedicated multi-use trails and on-street bike facilities connecting neighborhoods, parks, and employment centers. The Central Ohio Greenways (COG) trail network is the backbone of this system, offering extensive options for recreation or active transportation for residents throughout the region. However, the existing infrastructure is not enough to encourage biking and walking for all residents. Based on a recent study of the COG trail network in Franklin County, only about 14% of the County's population can walk to a trail access point within a half-mile of their home using a pedestrian network, and only about 27% can bike to a trail access point within one mile of their home using a low-stress bike facility, such as a multi-use path or a neighborhood street.⁵

The pandemic brought along increased interest in outdoor activities, illustrating the overlooked value of open space like parks and trails in the region's communities. While most destinations, activities, and services were closed, parks, trails, and neighborhood streets provided needed opportunities for recreation and safe, physically distanced socializing. Columbus and Franklin County Metro Parks saw a 33% increase in park visitors in 2020 compared to 2019, and in some months during the pandemic, the region's trails experienced a 70% increase in average daily trail use year over year (Figure 9). Some experts are suggesting that the surge in interest in outdoor recreation included new users of open space, and that this will spur lasting increases in park and trail use.⁶

However, the benefits of increased opportunities to access community amenities like open space are not equally enjoyed. Lower income neighborhoods (particularly those with high concentrations of Black and brown residents) have experienced historic lack of investment in high-quality amenities like parks and trails. Only about 40% of neighborhoods in Franklin County experiencing disproportionately high rates of low-income populations are connected to a COG trail. The safety of people walking and bicycling in Central Ohio was becoming an increasing priority for local policymakers even before the pandemic. In Franklin County, crash data illustrates the vulnerability of people walking and bicycling. While they are involved in only about 3% of all crashes, they represent 29% of traffic deaths, and 18% of traffic-related serious injuries (Figure 10). The City of Columbus, with support from local and regional partners, launched a Vision Zero initiative in 2020 as an important step toward increasing mobility equity through safety improvements.⁷

The pandemic brought about steep declines in vehicle traffic, which correlated with a reduced number of crashes involving people walking and bicycling in Franklin County. From May through December 2020, these crashes were down by about 30% compared with previous years. Overall declines in crashes involving people bicycling and walking points to traffic reduction, at least in some neighborhoods, as an important contributor to improved safety for the most vulnerable roadway users.

While overall crashes were down, the number of fatalities resulting from crashes involving people walking in Franklin County was higher (33 in 2020, compared with 24 in 2019). It is not entirely clear whether this tragic increase in lost lives is related to the pandemic or other factors. However, it is notable that half of these fatal incidents occurred in majority Black and brown neighborhoods (only 30% of Census Block Groups are home to more than 50% people of color). Structural racism contributes to this disproportionate effect—these tend to be neighborhoods with higher speed roads, poorer infrastructure, and more people reliant on transit, biking, and walking, a condition created by a history of wealth deprivation.

Figure 9. Change in Average Daily Trail Use
Central Ohio Trail System
2020 compared to 2018-19 average, Monthly

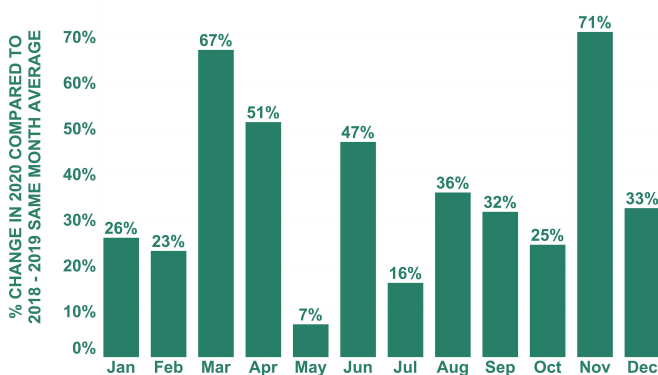
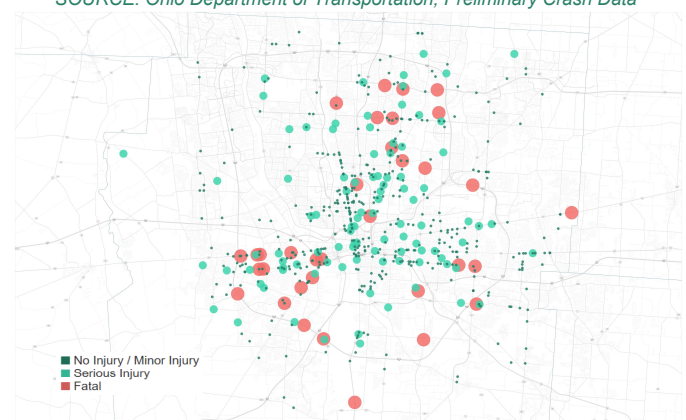


Figure 10. Bike & Pedestrian Crash Locations
Franklin County, 2020

SOURCE: Ohio Department of Transportation, Preliminary Crash Data



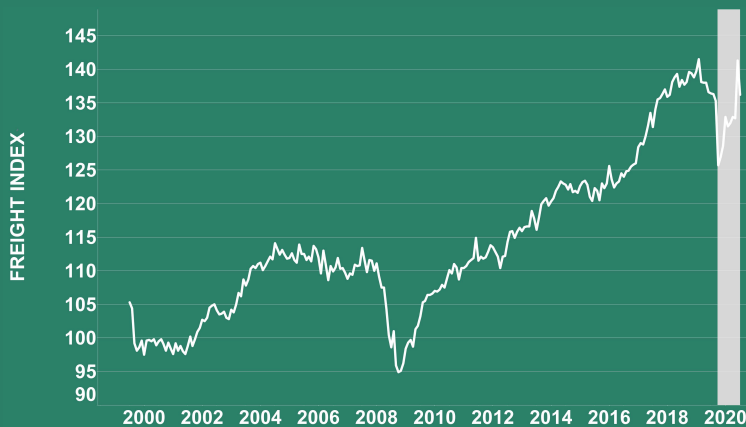
■ FREIGHT & LAST-MILE LOGISTICS

For decades, Central Ohio worked to establish a competitive advantage for economic development through investments in freight transportation and logistics, resulting in sustained growth of those industries, and positioning the region to capitalize on the growing e-commerce share of the retail market. Nationwide and regionally, freight transportation has been increasing since the Great Recession, driven by a combination of business supply chain delivery, and direct-to-consumer e-commerce.

Overall, freight traffic volumes were reduced by the pandemic. Supply chains were stalled as many international markets shut down their borders temporarily. Furthermore, production declined for some industries in response to abrupt shifts in consumer product demand. Even before widespread concern about COVID-19 became a reality in the U.S., freight activity (including trucks, rail, and air cargo) was slowing in response to international spread of the virus as early as December 2019. From November 2019 to April 2020 freight activity fell 12% (Figure 11). In Central Ohio, freight traffic volumes on the road network were down about 10% in 2020, compared with the same month in 2019 (Figure 12).

Figure 11. Freight Index (Truck, Rail, & Air)

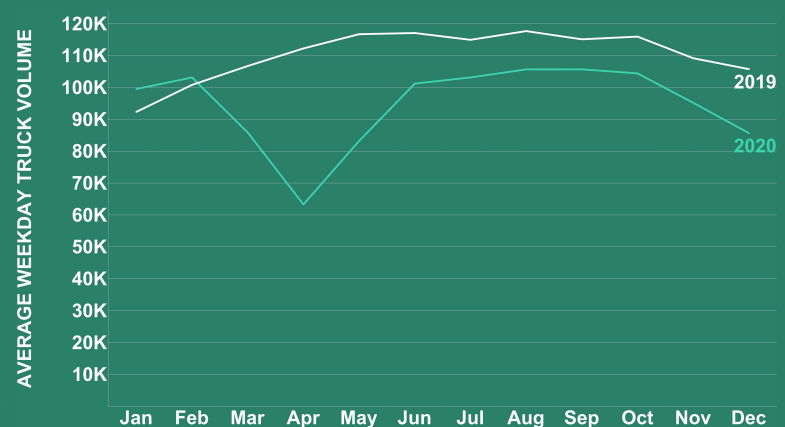
United States
2000-2021, Monthly



SOURCE : U.S. Bureau of Transportation Statistics

Figure 12. Truck Traffic Volume

15-County Central Ohio Region
2019-2020, Monthly



SOURCE : Ohio Department of Transportation, 26 Permanent Count Stations

Supply chains eventually stabilized as markets re-opened for production and shipment, and while some industries remained stunted by demand reductions, others surged. E-commerce spending was quickly accelerated as many consumers opted to avoid shopping in brick and mortar stores—increasing 30% in a single quarter. This new source of demand helped to offset reduced freight activity, returning closer to pre-pandemic levels by the holidays.

One advantage for roadway freight was the reduction of passenger vehicle traffic volume in cities. City congestion creates bottlenecks for freight, and in Central Ohio, peak hour travel time uncertainty (a measure of the likelihood of travel delays during commute times) had been steadily increasing in the region as the population steadily grew. These delays increase direct-to-consumer transport of goods, or “last-mile logistics”, meaning increased costs for businesses shipping goods for production, and pressure added to the transportation network.

If the surge in consumer demand for e-commerce and other delivery services persists, then there will be a concurrent persistence in higher volumes of last-mile logistics trips within the local road network. As previously noted, continuing remote work has the potential to reduce commuting trips, but those reductions may be offset in-part by increased neighborhood delivery activity. These various increases in traffic on local roads may create new challenges around infrastructure, safety, parking, and mode equity.

This trend is putting new pressure on cities nationwide. Research by McKinsey and Company suggests that without intervention, e-commerce demand will increase delivery vehicles by 36%, increase emissions by 6 Million-tons of carbon dioxide, and increase average commute times 21%.⁸ The acceleration of e-commerce will likely mean an acceleration of local policy interventions to offset the impacts on climate, congestion, and neighborhood traffic safety for all modes.

■ INTERCITY TRAVEL & TOURISM

At the end of 2019, the Greater Columbus area had 42 million visitors, according to Experience Columbus, the city's tourism advocacy organization. Tourism is an important driver of the region's economy. Visitors spent \$7 billion annually, supported 78,000 jobs in Franklin County, and paid \$1.25 billion in taxes each year. Columbus was gaining attention as a destination city for domestic travelers, making headlines in major newspapers and travel magazines.⁹

Passenger air travel directly supports the tourism industry in Central Ohio, whether for business or leisure. Commercial passenger traffic in Columbus predominantly occurs at John Glenn International Airport (CMH), operated by the Columbus Regional Airport Authority (CRAA). 7.5 million passengers passed through CMH in 2017.¹⁰ Based on interviews with CRAA staff, those passengers were evenly split between business and leisure.

With the onset of the pandemic, passenger travel disappeared almost entirely. In mid-April 2020, passenger travel hit its lowest point in Columbus falling from 10,000 passengers per day to fewer than 500 passengers per day. Early 2021 has seen some recovery, but trips are still only at one-third of the volume seen before the pandemic. In early 2021, most passenger travel was for leisure, as many companies were not yet authorizing business travel at 2019 levels.

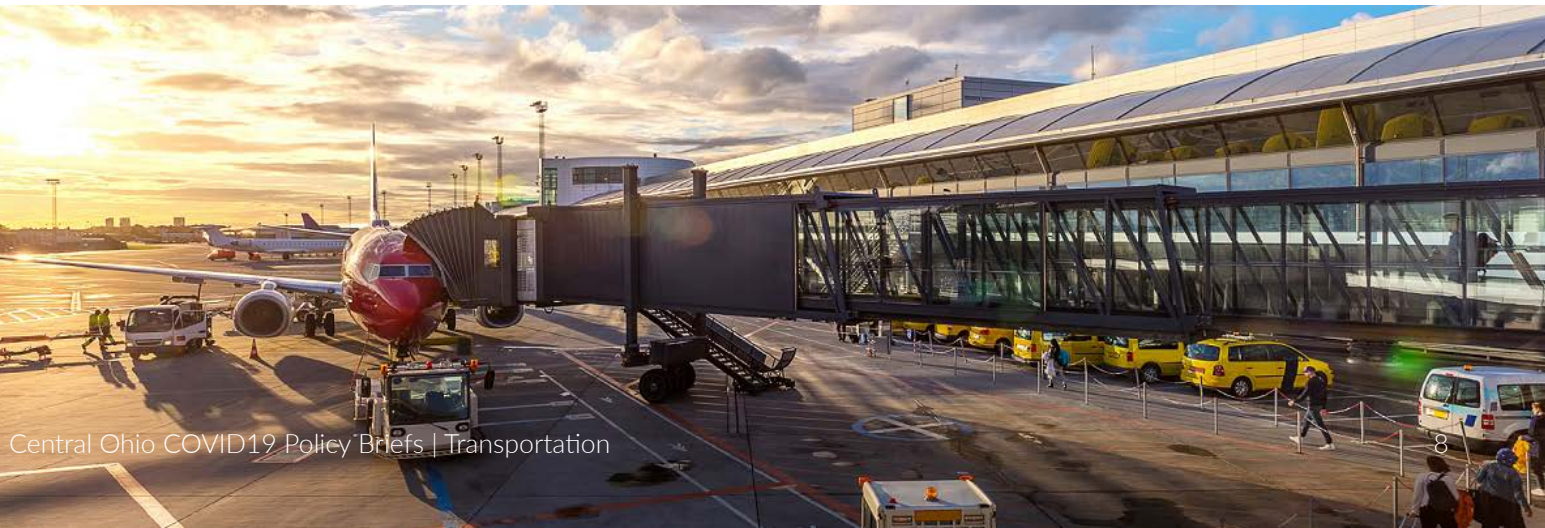
While leisure travel is expected to experience a surge of pent up demand as the pandemic is managed through vaccinations and established health protocols, sustained shifts toward remote meetings will have continued negative impacts on local revenues from business traveler spending for the foreseeable future. Some types of business, such as large meetings and conventions, are more difficult to replicate virtually and will likely return once it is safe to do so. According to interviews with CRAA staff, business travel has a higher economic impact than leisure travel. Smaller meetings and travel for individuals, such as employees attending meetings at a corporate headquarters, are the types of travel most likely to see permanent reductions due to remote work options.

Figure 13. Air Travel Passengers

John Glenn International Airport
2019-2020, Weekly



SOURCE : Columbus Regional Airport Authority



REFERENCES

1. CHANG, G. & XIANG, H. (2003). THE RELATIONSHIP BETWEEN CONGESTION LEVELS AND ACCIDENTS (MD-03-SP 208B46). COLLEGE PARK, MD: UNIVERSITY OF MARYLAND. REPORT PREPARED FOR MARYLAND STATE HIGHWAY ADMINISTRATION. RETRIEVED FROM https://roads.maryland.gov/OPR_Research/MD-03-SP308B46-Congestion-Vs-Accidents-Report.pdf.
2. AMERICAN PUBLIC TRANSPORTATION ASSOCIATION. (2020). PUBLIC TRANSPORTATION RIDERSHIP REPORT: FOURTH QUARTER 2020. WASHINGTON, DISTRICT OF COLUMBIA. RETRIEVED FROM <https://www.apta.com/research-technical-resources/transit-statistics/ridership-report/>.
3. CENTRAL OHIO TRANSIT AUTHORITY. (2019). MOVING EVERY LIFE FORWARD: STRATEGIC PLAN 2019-2024. RETRIEVED FROM <https://www.cota.com/who-we-are/strategic-plan/>.
4. ROSENBAUM, E. (2020, OCTOBER 15). THE USED CAR BOOM IS ONE OF THE HOTTEST, AND TRICKIEST, CORONAVIRUS MARKETS FOR CONSUMERS. CNBC. RETRIEVED FROM <https://www.cnbc.com/2020/10/15/used-car-boom-is-one-of-hottest-coronavirus-markets-for-consumers.html>.
5. MID-OHIO REGIONAL PLANNING COMMISSION. (2021, JANUARY 20). CENTRAL OHIO GREENWAYS; REGIONAL TRAIL VISION PRIORITIZATION. RETRIEVED FROM <https://storymaps.arcgis.com/stories/2511b9e96c30435b9a272ec986de3f4d>.
6. GOLDBAUM, C. (2020, MAY 18). THINKING OF BUYING A BIKE? GET READY FOR A VERY LONG WAIT. THE NEW YORK TIMES. <https://www.nytimes.com/2020/05/18/nyregion/bike-shortage-coronavirus.html>.
7. VISION ZERO COLUMBUS. (2020). [GRAPH ILLUSTRATION OF FATAL, SERIOUS INJURY, AND VULNERABLE USER CRASH DATA: APRIL 1: 2021] VISION ZERO COLUMBUS – CRASH DATA. RETRIEVED FROM <https://vision-zero-columbus.hub.arcgis.com/>.
8. HANNON, E., HEID, B., HUBER, A., & KLINK, C. (2020, JUNE 9). RETHINKING LAST-MILE LOGISTICS, POST-COVID-19: FACING THE 'NEXT NORMAL'. AUTOMOTIVE WORLD. RETRIEVED FROM <https://www.automotiveworld.com/articles/rethinking-last-mile-logistics-post-covid-19-facing-the-next-normal/>.
9. EXPERIENCE COLUMBUS. (2019). OUR CITY. OUR TIME; 2019 ANNUAL REPORT. https://assets.simpleviewinc.com/simpleview/image/upload/v1/clients/columbus/19_Annual_Report_200305_1__bf22ddda-d61f-42ca-a818-bbfbf9fa39ef.pdf
10. ECONOMIC DEVELOPMENT RESEARCH GROUP. (2019). ECONOMIC IMPACTS OF THE COLUMBUS REGIONAL AIRPORT AUTHORITY IN 2017; EXECUTIVE SUMMARY. COLUMBUS, OH. PREPARED FOR COLUMBUS REGIONAL AIRPORT AUTHORITY. RETRIEVED FROM <https://columbusairports.com/storage/production/20190304094250-craa-economic-impact-study-executive-summary.pdf>

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