

A Partnership Among Geisinger Commonwealth School of Medicine, Johnson College, Keystone College, Lackawanna College, Luzerne County Community College, Marywood University, Misericordia University, Penn State Scranton, Penn State Wilkes-Barre, The Wright Center for Graduate Medical Education, University of Scranton & Wilkes University



THE INSTITUTE FOR PUBLIC POLICY & ECONOMIC DEVELOPMENT



Transportation & Municipal Services After COVID-19

March 2021

The Institute

Turning Information into Insight

The Institute is a non-profit economic and social innovation research and policy organization dedicated to empowering business and community leaders with research based strategies for informed decision making. We conduct independent, non-biased research to identify the opportunities, issues and challenges unique to the region and to find innovative solutions to help solve the problems facing our communities. The Institute also offers a wide array of research, consulting and support services to help organizations boost productivity, increase profitability and be successful in their missions. The Institute is a partnership of 13 colleges and universities and the business community. The Institute has served clients in a number of states including the federal government.

Planning, Land Use, Transportation & Infrastructure Task Force

Dr. Marleen Troy, Professor, Wilkes University - Chair

Carl Beardsley, Wilkes-Barre/Scranton International Airport

Joe Glynn, WVIA

Robert Luciani, Prudential Retirement Services

Lawrence Malski, Pennsylvania Northeast Regional Railroad Authority

Lexi Langan, The Milnes Co., Inc.

Amanda Modrovsky, Wilkes University

Jill Murray, Ph.D., Lackawanna College

Kevin O'Donnell

Steve Pitoniak, Lackawanna County Planning Commission

Sofia Vidalis, Ph.D., Penn State University

Vivian Williams, NEPA Moves

The Institute Team

Teri Ooms, Executive Director

Andrew Chew, Research & Policy Analyst

Megan Stachowiak, Research Analyst

Kara McGrane, Research Assistant

Joe Gallo, Research Assistant

Jill Avery-Stoss, Data, Research, Administrative & Internship Coordinator

Tommy Marmolejo, Research Intern

Signature Underwriters

Andrew J. Sordoni

Foundation

Luzerne County

PPL Electric Utilities

Sordoni Family Foundation

Contributing Underwriters

Borton-Lawson

Geisinger Health System

WVIA

Supporting Underwriters

Berkshire Asset Management

BlackOut Design

FNCB

Greater Hazleton CANDO

Highmark Blue Cross Blue

Shield

M&T Bank

McCarthy Tire

Navient

PNC

Prudential

The Luzerne Foundation

The Wright Center for

Community Health

Topp Business Solutions

UGI Utilities

Contents

Introduction	3
Current Employment Dynamics & Transportation	4
Impact on Transit Ridership	5
COVID-19 Impacts on Air & Rail Transportation	9
Impact on Roads, Bridges & Congestion	10
Long-Term Uncertainties in Land Use & Transportation	11
Municipal Services Impacts	12
Summary & Conclusions	12
Endnotes	14

Introduction

This report's purpose is to explore various ways that the COVID-19 pandemic has impacted transportation and infrastructure, from March 2020 to March 2021. This event, unprecedented in living memory, has touched virtual all aspects of everyday life in the region, including how and where individuals work, how and when they take trips, and how goods are moved. This research has uncovered a number of trends in how elements of our region's transportation systems (including mass transit, roads and bridges, and freight) have been impacted, as well as several unresolved questions to consider as the region gradually resumes normalcy.

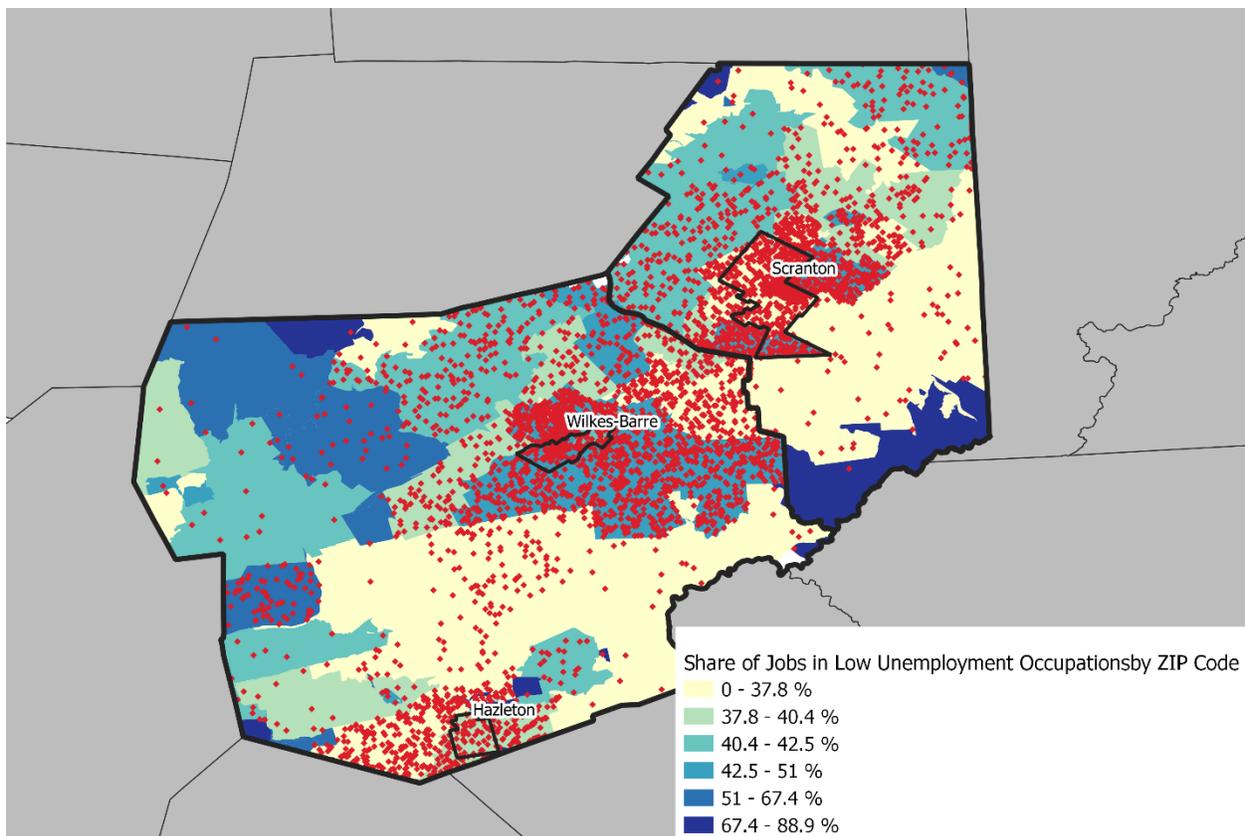
The study was conducted through a review of current literature and reports on transportation, inclusive of various modes, including private cars, mass transit, freight rail, and air. Employment dynamics were also examined, as the spatial patterns of employment, unemployment, and remote work during the pandemic are important factors shaping transportation. Data was collected from several sources including JobsEQ (a proprietary labor market information system), the Bureau of Transportation Statistics, and the Federal Highway Administration.

Current Employment Dynamics & Transportation

The pandemic's impacts on unemployment have been highly uneven across occupations and industries. While some occupations still have a large number of displaced workers, others continue to have strong employment, either in-person or through telework.

The map below shows occupations with recent unemployment rates (Q4 2020) at least 25 percent lower than the overall regional unemployment rate — at the time of the analysis, unemployment lower than 7.5 percent compared to 10 percent unemployment regionally, with the total number of jobs in those occupations shown by density of markers on the map, and the share of jobs within each ZIP code in low unemployment occupations shown in color categories. These may include jobs that are being done fully or partially remotely, or those being done in-person.

Distribution of Occupations with Lower Than Average Unemployment Rates, by ZIP Code



Data Source: JobsEQ

The highest density of occupations with lower unemployment rates during the pandemic are in and around the three largest cities in the region. There are also significant clusters of occupations with relatively low unemployment rates around Hazle Township, Wilkes-Barre Township and surrounding areas, Kingston and surrounding areas, Pittston, Moosic, and Dickson City. Furthermore, some of the ZIP codes with a larger share of their total jobs in less pandemic-impacted occupations are those in more suburban or rural parts of the region.

Anecdotal reports also suggest that many employers, especially those in essential industries, still have large numbers of workers reporting to work in-person in employment centers around the region, including business and industrial parks in Humboldt, Hanover Township, Pittston Township, and along the Casey Highway. Workers in industries such as logistics, manufacturing, construction, and health care are among those largely returning to in-person work around the region.

This evidence demonstrates that the pandemic labor market, while substantially changed from pre-pandemic conditions, still necessitates an emphasis on transportation to work. As many jobs in essential industries or where workers have continued to work in-person are located in industrial and business parks or shopping centers and scattered throughout the two county region, various commuting modes, including mass transit, have remained critically important through the pandemic.

Impact on Transit Ridership

Travel on mass transit has been impacted by measures to prevent the spread of COVID-19. The nature of travel on buses means enclosed spaces and potential for close contact with other individuals. Experts have identified several factors driving the spread of COVID – closed and/or poorly ventilated spaces, overcrowded areas, and contact with other individuals. Given this knowledge, vehicle transportation is one public venue in which virus transmission can occur. In response to coronavirus, transit agencies have implemented the following:

- Administrative Controls: Training, plans, policies, and procedures that articulate and enforce infection-reduction efforts
- Personal Protective Equipment: Gloves, masks, and shields
- Hand Hygiene: Handwashing, waterless hand sanitizer, prohibited sharing of office supplies and other items
- Environmental Hygiene: Cleaning of stations, vehicles, and workplaces to minimize surface contamination
- Social Distancing: Spacing of at least 3-6 feet between persons to minimize contamination from droplets (sneezing and coughing)
- Ventilation: Control of indoor temperature and air flow to reduce contamination

In some cases, prevention measures may be difficult to enforce, and type and degree of risk varies with context and environment. For example, air travel requires idle time in security and airport terminals, which brings people in relatively close proximity. Most pathogens do not spread quickly on flights due to air circulation and filters in airplanes; however, the lack of social distancing on aircrafts, coupled with long durations of flights, may increase the likelihood of passengers contracting the disease. Similar circumstances complicate bus and train travel. Car travel, along with RV and truck travel, offer more opportunity for isolation. Nonetheless, even those circumstances require stops for food, fuel, and restroom use.

However, places such as Hong Kong have continued to combat coronavirus by retaining the use of mass transit. According to Hong Kong MTR lines, February 2020 had 39 percent lower rideshare than December in 2019; however, it has risen by 18 percent as of July 2020. While in the United States,

transit systems have seen a rideshare decrease in several states, 74 percent in New York, 79 percent in Washington, D.C., 83 percent in Boston, from pre-pandemic levels.ⁱ

Public transportation has continued in the Wilkes-Barre and the Scranton area through the COVID-19 pandemic, although services have sometimes been limited. The most acute impacts on transit ridership, and trips on other modes, correlate with the varying permissiveness of federal, state, and local restrictions, particularly the statewide stay-at-home order in effect in Spring 2020 and phased out by mid-summer. Transit operators' recent public meeting minutes in Northeastern Pennsylvania have suggested that local fixed route service in late 2020 stood at about 50 to 75 percent of pre-COVID ridership, and 55 to 65 percent for shared ride service.

As the region recovers from the disruptions of the pandemic, several factors could impact public transit demand and ridership. Potential sources negatively impacting transit trips could be changing behaviors due to coronavirus – both a reduction in total trips due to the pandemic itself and remaining restrictions on activities, and a shift in mode choice away from transit due to perceptions about COVID safety in transit vehicles.

Evidence gathered so far does not suggest that mass transit is particularly likely to facilitate the spread of COVID-19. Studies conducted in European cities failed to find a significant link between mass transit and infection clusters, though those systems were already operating at reduced ridership levels when this data was collected. Transit has also not appeared to drive spread of COVID in Asia, though Japan and South Korea have an established culture of mask usage on crowded transit systems. Moreover, many known epicenters of the spread of coronavirus in the United States have been congregate care settings as well as certain types of workplaces and indoor gathering “super spreader” events. Some of the regions hardest hit by COVID-19 in 2020 have been rural and low-density, such as North Dakota, South Dakota, and the Navajo Nation.ⁱⁱ

While it is ultimately rider perception of safety that will drive a return of ridership to pre-pandemic levels, the continuing rollout of the COVID-19 vaccine and gradual return to pre-pandemic behaviors supports the assumption that this factor depressing ridership will be short-term, especially as many mass transit riders in Northeastern Pennsylvania have cost or vehicle availability constraining their transportation mode choice. In the meantime, effective communication of safety measures being taken is likely to be important in keeping the confidence of riders who do have a choice of whether or not to use public transportation.

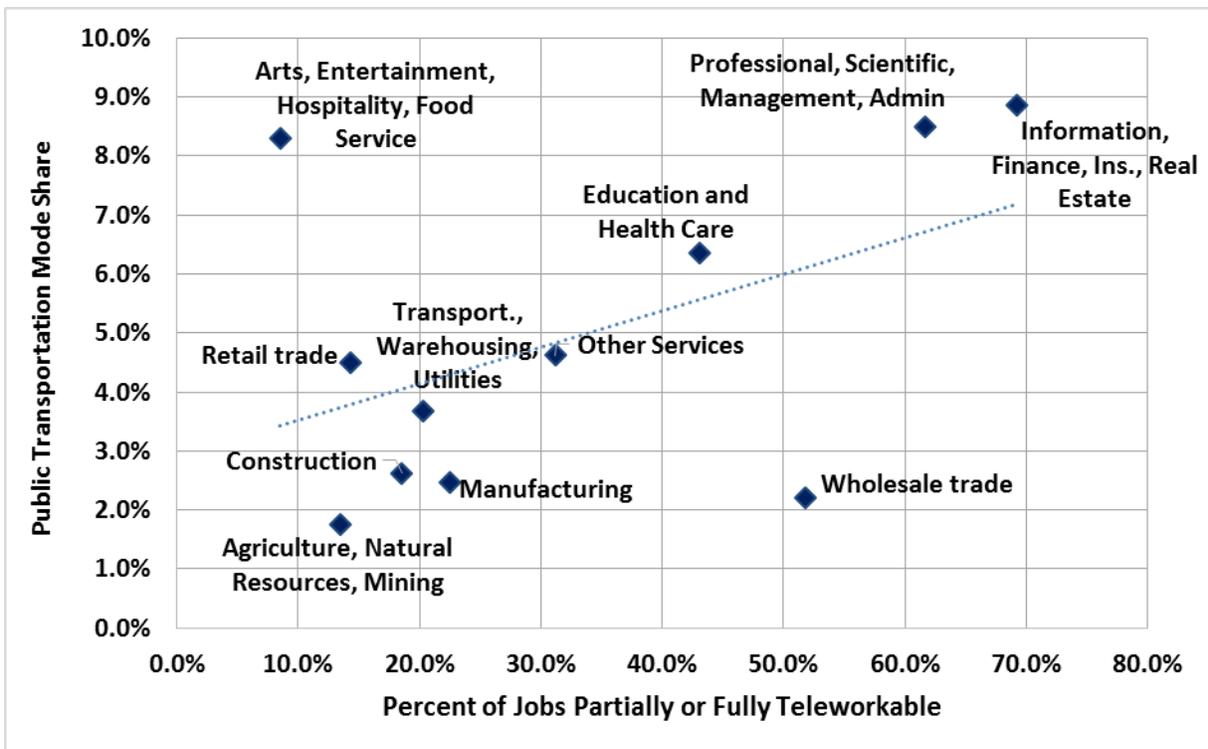
However, there are factors that may be longer-term sources of downward pressure of mass transit ridership. Telework, partially or fully, has become far more common, and many employers report investing in new remote work technologies and some have begun to rethink their physical space needs. However, telework is not uniformly available to workers in all industries and occupations. Research from earlier in the pandemic found that workers who could work remotely (partially or fully) tended to have higher incomes than those who could not.ⁱⁱⁱ In Pennsylvania, the public transportation (excluding taxi) mode share for traveling to work was 5.6 percent in the 2019 5-year American Community Survey estimates. However, this share was higher among lower wage workers, particularly those with annual earnings less than \$25,000. Those with annual earnings greater than \$35,000 commuted via public transportation less frequently. This would suggest that the impact on mass transit ridership from shifts

to telework will be limited, as lower income workers, who more frequently utilize public transit, are generally less able to work remotely.

There are some variations to this trend, as shown in the industry breakdown comparing the share of jobs by industry group that can be done remotely to the statewide public transportation mode share of workers in that industry.

Industry Group	Teleworkable Employment	Public Transportation Mode Share
Agriculture, Natural Resources, Mining	13.4%	1.8%
Construction	18.6%	2.6%
Manufacturing	22.5%	2.5%
Wholesale trade	51.8%	2.2%
Retail trade	14.3%	4.5%
Transport., Warehousing, Utilities	20.3%	3.7%
Information, Finance, Ins., Real Estate	69.2%	8.9%
Professional, Scientific, Management, Admin	61.6%	8.5%
Education and Health Care	43.0%	6.4%
Arts, Entertainment, Hospitality, Food Service	8.5%	8.3%
Other Services	31.2%	4.6%

Two industry groups that represent many white-collar jobs in professional services, management, administration, information, finance, insurance, and real estate, had the highest ability to be done remotely, but also ranked high in public transportation mode share in Pennsylvania. This trend could be driven mostly by the concentration of these jobs in Pennsylvania’s two largest cities and availability of regional rail and other transit services oriented to suburban commuters in those regions. Notably, arts, entertainment, hospitality, and food service, had the lowest share of teleworkable jobs as well as a high public transportation mode share.



In addition to travel for work, many public transit trips are related to obtaining healthcare. Early in the COVID-19 pandemic, telehealth usage skyrocketed regionally and nationwide. Before the pandemic, many private and government-provided insurance including Medicare and Medicaid did not generally cover telehealth visits, specifically those with specialists, social workers, or therapists. Since March 2020, waivers have been in place to allow for expanded use of telehealth. While telehealth usage peaked in April and declined as many health providers normalized operations in spring and summer of 2020, telehealth utilization remains far higher than at any point before the pandemic.^{iv} While the future trajectory of this trend is highly dependent on extension of these waivers (and potentially other policy changes), it is likely that telehealth will continue to play a larger role in the future than prior to the pandemic.

There are also several long-term factors related to the pandemic that could be potential sources of growth for mass transit ridership. The region’s transportation and warehousing sector was already growing prior to the pandemic, and it is possible that further growth could result from new investments in eCommerce by businesses and long-term shifts towards online shopping by consumers. Accordingly, logistics has continued to grow in the region even despite the pandemic. As of the 3rd quarter of 2020, the Transportation & Warehousing industry employment in the two counties grew by over 1,300 jobs compared to the prior year, a time in which nearly all other industry groups saw employment decline.^v Several of the ZIP codes with the highest number and/or most significant growth of industry employment correspond with several geographic clusters of industrial and business parks in the region. These parks or groups of parks are centered on Hazleton and the surrounding areas, Hanover Township in Luzerne County, Pittston and Jenkins Townships in Luzerne County, and the Lackawanna Valley communities of Dunmore, Throop, Olyphant, and Jessup.^{vi} Further growth in these industries will necessitate sustaining and enhancing public transit links between population centers with these employment centers.

Another long-term outcome that warrants consideration is that increased telework could result in some households rethinking transportation mode choice. For example, households where one or more person works partially or fully remotely from home may decide to own fewer vehicles than if all workers in the household worked outside the home, and instead use more flexible and varied transportation modes that include a mix of private vehicle trips, mass transit, ride sharing apps, and/or active transportation.

The table below summarizes these potential areas of impact on mass transit ridership.

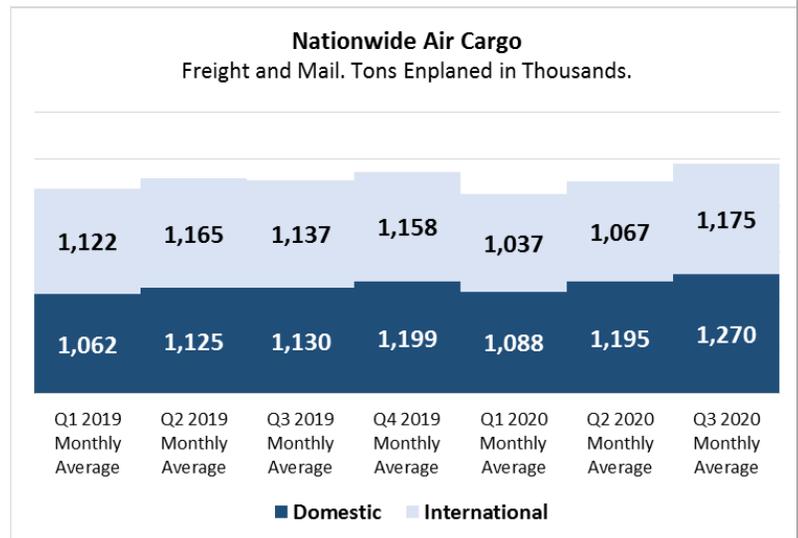
Short-Term/Temporary Inhibitors of Mass Transit Ridership	Potential Long-Term Inhibitors of Mass Transit Ridership	Potential Growth Opportunities for Mass Transit Ridership
<ul style="list-style-type: none"> • Ongoing restrictions on activities reducing total trips taken • Rider perceptions around safety causing shifts to other modes 	<ul style="list-style-type: none"> • Persistence of partial or full remote work arrangements decreases commuting, though many transit riders in NEPA work in jobs that cannot be done remotely • Increased adoption of telehealth (if current waivers allowing flexible use of telehealth are extended) 	<ul style="list-style-type: none"> • Continued growth in business parks driven by thriving logistics/distribution sector • Some households may rethink car ownership/mode choices in response to remote work schedules

COVID-19 Impacts on Air & Rail Transportation

Non-highway modes of transportation also have been acutely impacted by COVID-19. Operations of passenger and freight air and rail travel have been altered to promote social distancing, masking, more frequent cleaning, and other precautions. Additionally, air and rail freight volumes tend to correlate with economic activity, and as a result, freight activity dropped early in the pandemic. This sudden drop in demand caused significant disruption to the transportation industry.^{vii}

Nationwide, freight rail traffic was down over 25 percent in April and May 2020 compared with the same months the prior year. However, this gap gradually closed starting in June, and by December 2020, freight traffic was down about four percent compared with December 2019. In January 2021, traffic was down two percent compared to January 2020, indicating that freight rail traffic volumes have neared pre-pandemic levels.^{viii}

Nationwide volumes of air cargo, including air freight and mail, also dipped early in the pandemic before rebounding. The total tonnage of enplaned domestic air cargo in the first quarter of 2020 averaged two percent higher than the same quarter of the previous year but nine percent lower than the previous quarter. International air cargo saw a larger drop, with tonnage in the first quarter of 2020 eight percent lower than the same quarter of 2019 and ten percent below the preceding quarter. However, both international and domestic air cargo tonnage grew through 2020, reach higher averages in the third quarter than any quarter in either 2019 or 2020.^{ix}



Passenger air travel has also been impacted. Passenger counts and departures at Wilkes-Barre Scranton International Airport (AVP) have fallen by about half from 2019 to 2020, ending an upward trajectory in passenger trends from the prior year. It appears that other international airports in similar sized regions have experienced similar declines in passenger traffic.^x

W-B/Scranton Int'l Airport Summary Data			
Passengers	2018**	2019**	2020**
Arrival	251,000	283,000	123,000
Departure	254,000	286,000	123,000
Scheduled Flights			
Departures	5,530	6,149	3,111

** 12 months ending November of each year

The near-term future trends in air travel will be driven by the pace of recovery of long-distance leisure travel, which may occur as virus caseloads improve amid the vaccine rollout, as well as business travel trends, which may depend on the extent to which business travel reverts to pre-pandemic levels or may be partially supplanted by increased adoption of teleconferencing and remote work technologies.

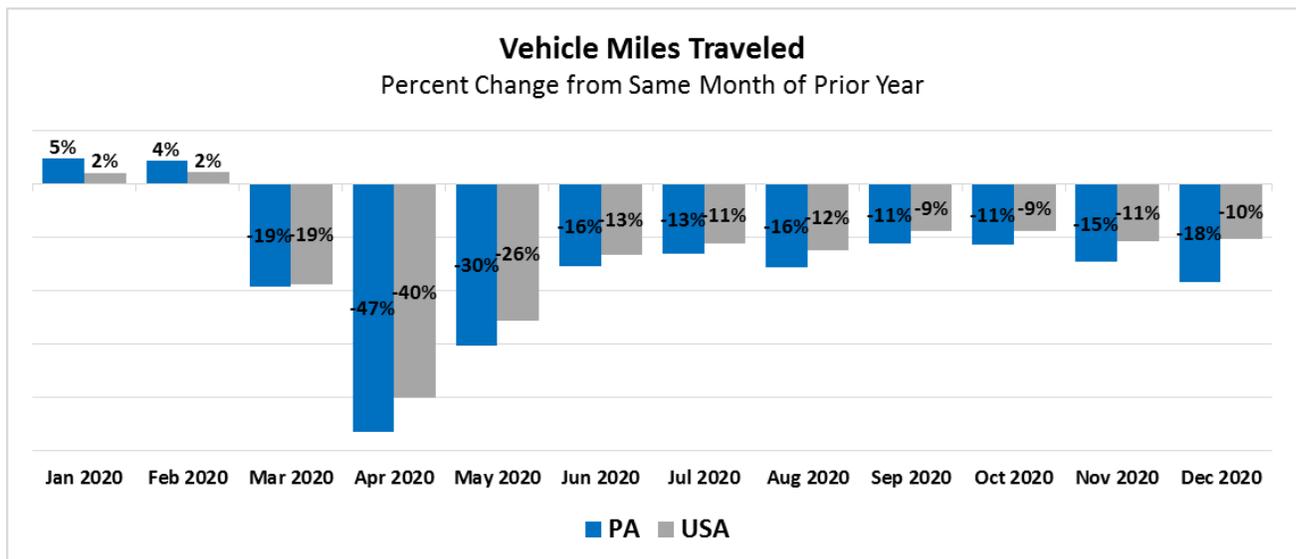
Impact on Roads, Bridges & Congestion

Federal data on estimated vehicle miles traveled show notable drop-offs in road travel associated with the pandemic. While January and February of 2020 estimates showed higher traffic volumes than the same months of the prior year, this reversed in March. In April 2020, nationwide vehicle miles traveled (VMT) were 40 percent lower than April 2019, while the statewide deficit was 47 percent. As restrictions eased, the shortfall in traffic volumes closed, but this trend has plateaued. In late 2020, nationwide traffic remained

	Vehicle Miles Traveled by Month					
	Pennsylvania			United States		
	2019	2020	% Change	2019	2020	% Change
January	7,172	7,512	5%	248,347	253,606	2%
February	6,646	6,943	4%	226,736	231,976	2%
March	8,119	6,561	-19%	271,568	220,732	-19%
April	8,686	4,647	-47%	281,526	168,264	-40%
May	9,020	6,287	-30%	286,135	212,623	-26%
June	8,893	7,514	-16%	280,938	243,893	-13%
July	9,774	8,497	-13%	295,584	262,380	-11%
August	9,852	8,307	-16%	286,531	251,183	-12%
September	9,559	8,485	-11%	271,691	247,888	-9%
October	9,393	8,324	-11%	284,036	258,719	-9%
November	8,201	7,001	-15%	261,735	233,773	-11%
December	8,450	6,896	-18%	272,191	244,136	-10%

December 2020 data is preliminary

about ten percent lower than the same months of 2019. Statewide, VMT was 11 percent lower in October 2020 compared to the previous year, 15 percent lower in November, and 18 percent lower in December.^{xi} Consistent with this data, a survey of regional traffic volume analyses around North America in April 2020 also found traffic count declines typically ranged from 35 to 65 percent from previous levels.^{xii}



This sustained drop in traffic may be associated with declines in factors related to traffic volumes and congestion, such as reductions in wear-and-tear on infrastructure and short-term improvement in air quality. One study found that air quality improvements occurred in some states but not others during

the early stages of the pandemic. Areas where a larger share of pollution was associated with vehicles saw improvements, while some cities saw worse air quality due to increases in other pollution sources.^{xiii}

Gasoline taxes revenues are also associated with VMT. With the drop in miles traveled, there was a corresponding decrease in liquid fuel demand, especially in the early months of the pandemic. Though vehicle traffic volumes have been lower, the cost of maintenance of road transportation infrastructure is largely fixed, posing a statewide challenge due to reduced revenue in the Motor License Fund. This also impacts local governments around the state through the Liquid Fuels fund allocation. Statewide, municipalities were allocated over \$486 million in March 2020 under the Municipal Liquid Fuels program for road and bridge maintenance. In March 2021, this allocation fell by over seven percent due to declining fuel tax revenue.

The continued lag in VMT compared to pre-pandemic levels even in late 2020 indicate that revenues from fuel taxes will continue to be a challenge in the coming year.

Total Net Allocation: Municipal Liquid Fuels Program			
	2020	2021	% Change
Lackawanna County	\$7,461,282	\$6,928,025	-7.1%
Luzerne County	\$11,508,074	\$10,696,377	-7.1%
Pennsylvania	\$486,390,583	\$451,356,186	-7.2%

Long-Term Uncertainties in Land Use & Transportation

The economic and social changes brought about by the pandemic also suggest several long-term areas of uncertainty that may impact transportation and land use in the future. First, there is uncertainty around the future of work, with many more jobs being done remotely. If jobs that transitioned to partial or fully virtual work make this change permanent, the reduction seen in VMT during the pandemic could be a long-term trend to at least some degree. As the jobs that are most likely to be teleworkable tend to be higher wage jobs in white-collar industries, private car trips are likely to be impacted by this trend than transit trips in Northeastern Pennsylvania, particularly during morning and evening weekday peak traffic hours.

The housing market in the region has experienced shifts since the start of the pandemic. Anecdotal reports suggest high market activity, and some reports have suggested a wave of migration out of dense population centers in large metropolitan areas early in the pandemic. A major factor that will shape land use, and by extension, transportation in the future is if the pandemic will result in a long-term shift in attitudes on urban density. If paired with regional population growth, such a shift could drive a new wave of suburban single-family home development and increase private vehicle trips.

Another area of uncertainty is how continued prominence of eCommerce and other consumer trends will persist or revert to pre-pandemic conditions. If eCommerce continues to supplant in-person shopping, distribution centers and associated transportation infrastructure will continue to be needed. The region's position along the Interstate 80 and 81 corridors and supply of suitable land has already facilitated a boom in distribution centers, and the region would be well-positioned to see further growth in this industry in a scenario where pandemic levels of online shopping persist. The Institute published research on the transportation impacts of this industry cluster in 2020.^{xiv}

Finally, the future of government funding of transportation is an important matter of public policy that must be considered. Even before the onset of the pandemic caused fuel demand to drop, impacting revenue for road and bridge repair, concerns were raised that increasing fuel economy and trends toward alternative fuel vehicles undermine the long-term financial sustainability of transportation funding. Continued interest in electric (or other alternative fuel) vehicles may also necessitate policy action to support the development of sufficient charging or fueling infrastructure.

Municipal Services Impacts

The issues raised here will also extend to other infrastructure-related public services. Many revenue sources that municipal governments rely upon are subject to varying degrees of risk due to COVID-19 and the associated widespread economic distress. The most acute impacts will be among elastic sources of revenue – those that are highly sensitive to changes in consumer behavior or business closures due to the virus. Earned Income Tax (EIT) is a large, elastic source of municipal revenue for many cities, boroughs, and townships in Pennsylvania. Other elastic sources of revenues will likely see revenue declines in the near-term as a result of COVID-19. These include real estate transfer taxes, amusement taxes, mechanical device taxes, local services taxes, and business gross receipts taxes, with the latter two being the most significant for the cities examined here. Inelastic sources of income, such as property taxes, may be affected to a lesser degree, but not immune to risk. Municipalities whose budgets are comprised of a greater share of elastic revenue sources are those most at risk of financial challenges due to the pandemic.^{xv}

These broad fiscal challenges will affect the provision of many municipal public services. Strained municipal funds could even adversely affect some external grant-funded projects or programs if municipal matching funds cannot be allocated. Furthermore, state allocations through the Liquid Fuels program, an important source of funds for local governments to maintain roads and bridges, have dropped by about seven percent in 2021 as a result of COVID-19.

As of March 2021, the American Rescue Plan was signed into law. The bill allocates \$350 billion in direct aid to state government, local government, and other public entities (like public transit operators) in the United States, including \$13.7 billion for state and local government in Pennsylvania. Aid dispersed under the bill can be used to cover costs or replace lost revenue during the pandemic.

Summary & Conclusions

Strong transportation networks, including roads, bridges, public transportation, airports, and freight rail, will be critical to the region's economic recovery going forward. In particular, continued rapid growth in logistics sector will shape transportation needs for both commuters and freight. Nationwide, freight has already rebounded as goods continue to move despite the pandemic.

Vehicle miles traveled saw a significant dip at the onset of the pandemic, with declines reaching 40 percent or more. Traffic has since rebounded and stabilized at ten to fifteen percent below pre-pandemic levels. With the drop in miles traveled, there was a corresponding decrease in fuel demand. As fuel taxes are a significant contributor to transportation funding in Pennsylvania, the continued lag in VMT compared to pre-pandemic levels even in late 2020 indicate that transportation funding will remain challenged.

Mass transit ridership has also been significantly affected by the pandemic, reporting substantial declines in trips that have persisted through 2020 even as unemployment rates fell from April peaks. There is no apparent evidence that mass transit is uniquely prone to COVID spread, especially as safety measures like universal masking have been implemented. Rider perceptions of safety still matter, but as vaccines help return a sense of normalcy, mass transit will remain an important part of the region's transportation infrastructure.

Telework and telehealth could be longer term factors affecting trips taken, impacting transit as well as other modes. The impact on mass transit ridership from shifts to telework may be somewhat limited, as lower income workers, who more frequently utilize public transit, are generally less able to work remotely, particularly workers in the arts, entertainment, accommodation, and food service industries.

Several areas of uncertainty remain that will affect land use, and by extension, transportation. It is unclear how the pandemic will shape consumer perception of urban density, drive migration into the region from larger metropolitan areas, or result in further interest in development of distribution center uses. Furthermore, the future of transportation, infrastructure, and public services funding is an overarching area of concern that must be addressed through sound public policy.

Endnotes

- ⁱ Sadik-Khan, J., & Solomonow, S. (2020, June 14). Fear of Public Transit Got Ahead of the Evidence. *The Atlantic*.
- ⁱⁱ Ibid.
- ⁱⁱⁱ Dingel, J.I & Neiman, B. (2020, April 6). How Many Jobs Can Be Done At Home? *National Bureau of Economic Research*.
- ^{iv} The Institute for Public Policy & Economic Development. (2020). *Institute Insights: Impact of COVID-19 on Telehealth Services*
- ^v Industry Snapshot (2020Q3). *JobsEQ*.
- ^{vi} The Institute for Public Policy & Economic Development. (2020). *The Impact of Transportation in the Logistics Industry*.
- ^{vii} Ashe, Ari (2020, April 23). "Facing grim intermodal forecasts, rails focus on costs, service" *Journal of Commerce*.
- ^{viii} Weekly Rail Traffic Data. *The Association of American Railroads*. (2021).
- ^{ix} Air Cargo Summary Data October 2002 – November 2020. *Bureau of Transportation Statistics*. (2021).
- ^x Airport Profiles. *Bureau of Transportation Statistics*. (2021).
- ^{xi} Traffic Volume Trends. *Federal Highway Administration*. (2021).
- ^{xii} COVID-19 Traffic Volume Trends. *Institute of Transportation Engineers*. (2020).
- ^{xiii} Elshorbany, Y.F, Kapper, H.C., Ziemke, J.R., & Parr, S.A. (2021). The Status of Air Quality in the United States During the COVID-19 Pandemic: A Remote Sensing Perspective. *Remote Sensing*, 13(3), 369.
- ^{xiv} The Institute for Public Policy & Economic Development. (2020). *The Impact of Transportation in the Logistics Industry*.
- ^{xv} The Institute for Public Policy & Economic Development. (2020). *Institute Insights: Fiscal Impact of COVID-19 on Municipalities*.

The Institute

Turning Information into Insight

THE INSTITUTE FOR PUBLIC POLICY & ECONOMIC DEVELOPMENT



ACADEMIC PARTNERS

Geisinger Commonwealth School of Medicine
Johnson College
Keystone College
King's College
Lackawanna College
Luzerne County Community College
Marywood University
Misericordia University
Penn State Scranton
Penn State Wilkes-Barre
The Wright Center for Graduate Medical Education
University of Scranton
Wilkes University - Managing Partner

OFFICES

85 South Main Street
Wilkes-Barre, PA 18701
570.408.9850

St. Thomas Hall
Suite 107
Scranton, PA 18503
570.408.9850

E-mail: info@institutepa.org
www.institutepa.org