



PALM BEACH
Transportation
Planning Agency

COVID-19 IMPACTS ON TRANSPORTATION IN PALM BEACH COUNTY



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INTRODUCTION

The COVID-19 pandemic has disrupted lives worldwide since the Spring of 2020, with impacts rippling through most, if not all, systems. At the time of publication of this summary, the world is still battling COVID-19 and its disruptions. Some of the forced changes are likely temporary; others may be permanent. Though tragic, the pandemic offers potential efficiencies to be gained from changes in daily routines. Looking at travel trends, the magnitude and nature of how people use transportation systems changed dramatically, but in many cases, patterns have largely returned to pre-pandemic levels.

This report examines the transportation, safety, and economic trends during the pandemic, citing data between February 2020 and February 2021, representing Year Over Year (YOY) changes. In some cases, data as recent as April 2021 is included to represent the ongoing recovery. The conclusion section of the report includes policy recommendations informed by the trends and strategies pursued by other metropolitan areas.

In the first month of the pandemic, the magnitude of daily travel, measured in Vehicle Miles Traveled (VMT), shrank by more than 40% nationwide.¹ However, since April 2020, VMT has steadily rebounded. By February 2021, VMT returned to within 12% of pre-pandemic levels (see Figure 1). In March 2021, VMT surpassed pre-pandemic, February 2020 levels by 2%.

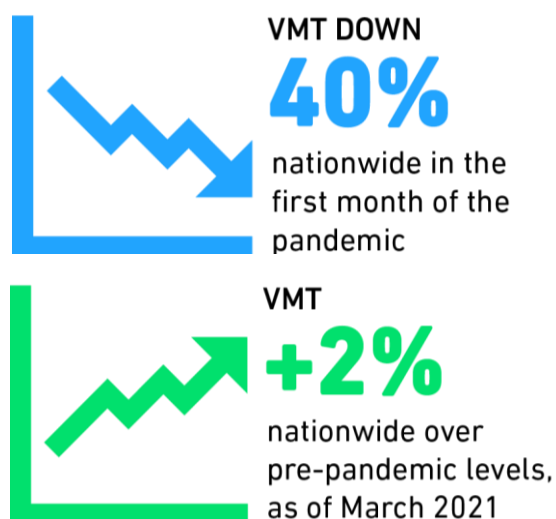
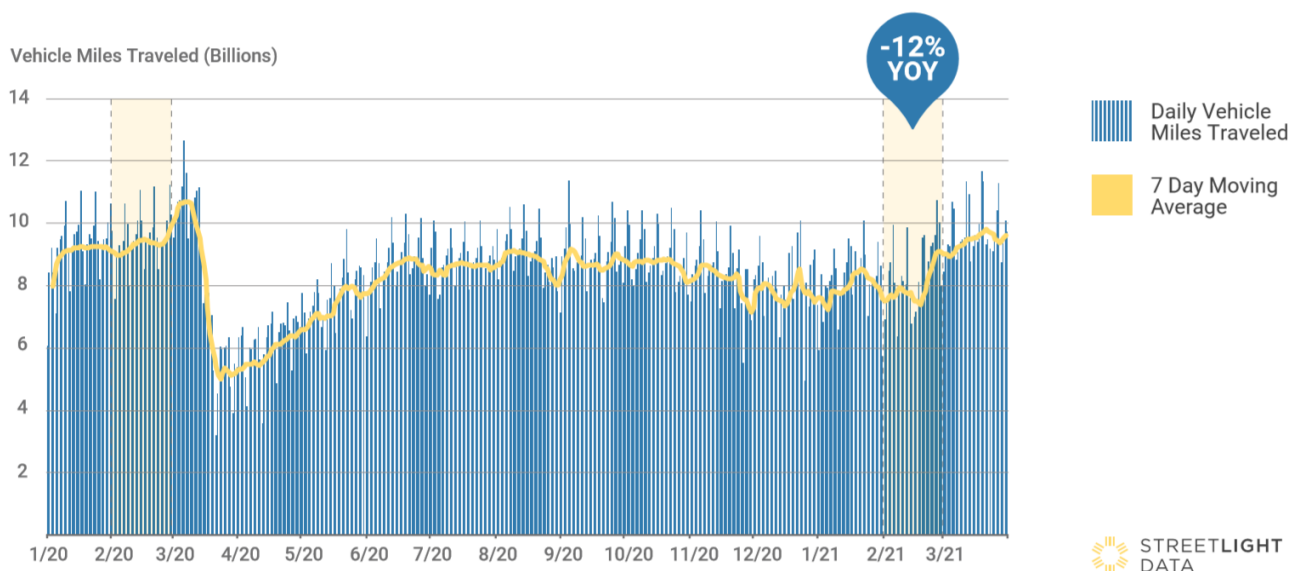


Figure 1. National VMT Trend Reported by Streetlight Data

US TOTAL VMT JAN 2020 - MAR 2021



¹ According to probe data collected and processed by StreetLight Data and reported in *Measuring a Year of Pandemic Travel: Where Next?*

IN FLORIDA, THERE IS NO SUBSTANTIAL DIFFERENCE BETWEEN PRE-PANDEMIC VMT AND CURRENT VMT LEVELS

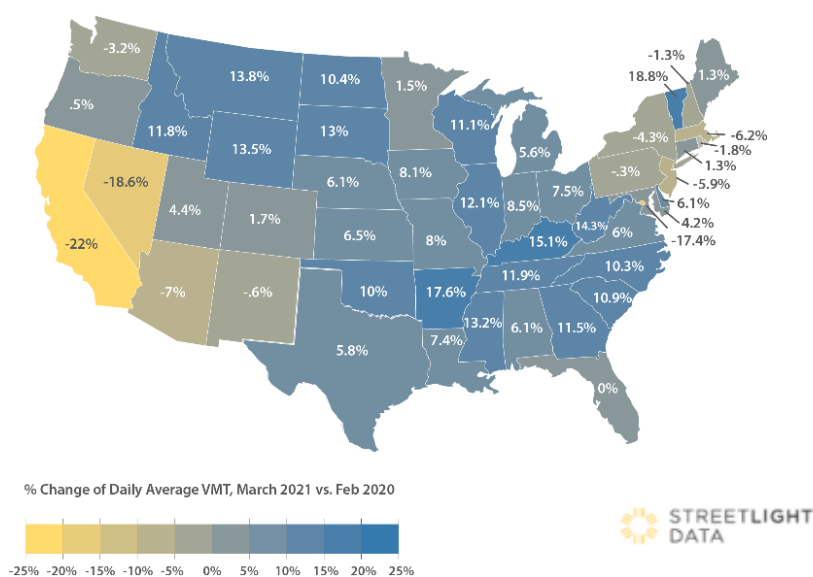
State-level data compares changes in overall VMT between February 2020 and February 2021. In California, the 2021 VMT is still more than 20% lower than it was in 2020. Most heartland states surpassed pre-pandemic VMT levels by February 2021. In Florida, VMT has returned to pre-pandemic levels (see Figure 2).

COVID-19/TRAVEL TRENDS

The COVID-19 pandemic began to affect large portions of the United States in March 2020 and has since spiked several times in Palm Beach County.² New COVID-19 case spikes occurred in July 2020 and January 2021 (see Figure 3). In addition, local, state and national guidelines, statewide business closures and Palm Beach County's reduced levels of transit services profoundly affected the local economy and transportation safety. The COVID-19 case count has declined steadily since April 2021, reflecting the growing rate of vaccination against the virus. The transportation and economic impacts of the pandemic, which closely mirror the pandemic case count trend, are described in the following sections.

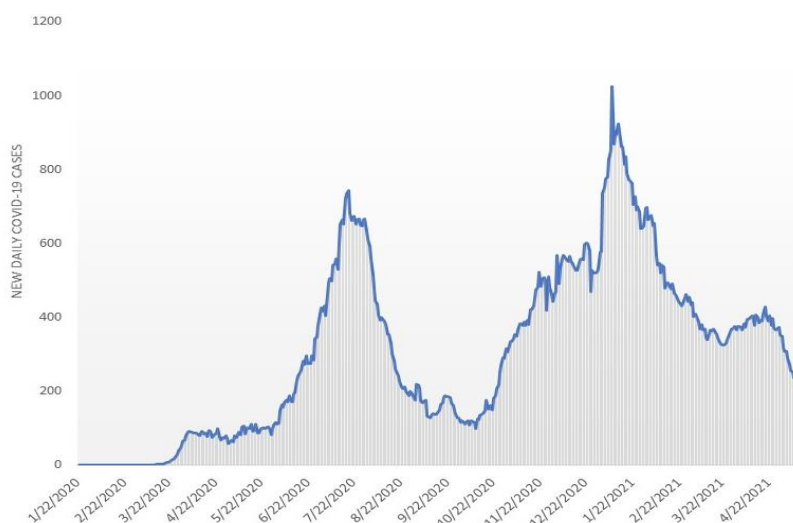
PALM BEACH COUNTY COVID-19 CASES SPIKED IN JULY 2020 AND JANUARY 2021

Figure 2. Change in VMT, March 2021 vs February 2020



Source: Measuring a Year of Pandemic Travel: Where Next? published by StreetLight Insight Data

Figure 3. Daily COVID-19 Cases in Palm Beach County



Source: Florida Department of Health

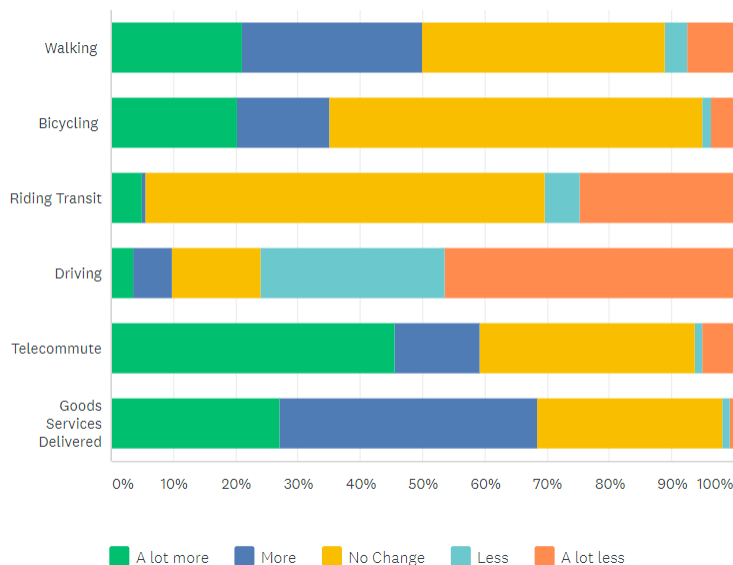
² According to Florida Department of Health case count data.

In a short, informal survey administered on social media in May/June 2020, the TPA asked local residents how their travel habits had changed during the pandemic and how they anticipate travel to change after the pandemic. Figure 4 illustrates the responses to those two questions. In May 2020, respondents noted large decreases in driving and riding transit while also noting increases in walking, bicycling, telecommuting and e-commerce deliveries. When COVID-19 restrictions are lifted, respondents expect to increase walking, bicycling, telecommuting, and goods delivery compared to their pre-COVID-19 patterns. However, the increases are expected to be smaller than in May 2020, when stay-at-home restrictions were in place.

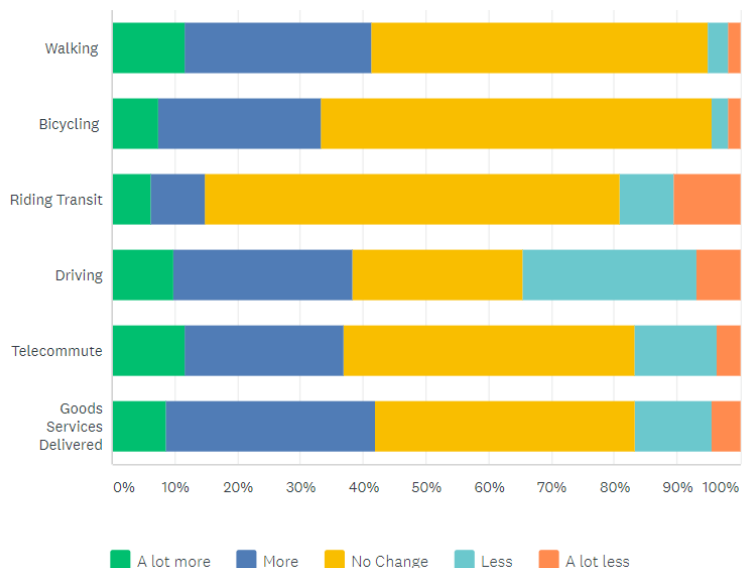
The general mode shift trend cited in the stated preference survey indicates a need to accommodate the increase demand for pedestrian and bicycle facilities. While numerous temporary improvements have been made in many communities to respond to this demand, there is clearly an opportunity to make some or all of them permanent, both to respond to the mode shift trend and to encourage it.

Figure 4. Palm Beach TPA Survey Results

How has COVID-19 impacted your personal travel right now (May 2020)?



How do you expect your personal pre-COVID-19 travel patterns to change when COVID-19 restrictions are lifted?



National Literature

A broad range of literature addresses the transportation impacts of the COVID-19 pandemic, including recovery scenario planning and transportation policy actions. While there are many commonalities, each region or area has unique circumstances and experiences. Three regions were selected for peer review based on data and COVID study availability and covering a wide geographical spectrum. A review of pandemic-induced impacts in the three regions, which include New York, New York; Hampton Roads, Virginia; and the six-county region in Southern California, illustrates some of the common trends and their magnitudes. These regions all saw dramatic initial reductions in traffic followed by robust recovery. They also saw significant sustained traffic reductions by up to 10%, experienced large and sustained reductions in transit ridership, and saw increased non-motorized activity.

In New York City, peak transit ridership declined by up to 94%, and vehicular traffic declined by as much as 74%. However, bicycle traffic observed on the Brooklyn, Manhattan, Williamsburg, and Queensboro bridges increased by 55% early in the pandemic (see Figure 5). While the majority of transit and auto declines could be attributed to an overall reduction in trips, there was likely some mode shift to non-motorized transportation.³

When comparing fall 2020 and fall 2019 in the Hampton Roads region of east Virginia, declines in air travel and regional rail ridership approached 56 and 45%, respectively. In September 2020, public transit ridership was down 44% in the Hampton Roads region. Automobile traffic, on the other hand, was only 10% lower over the same period of comparison (see Figure 6). In spring 2020, traffic rebounded from a low of 40% reduction. The Hampton Roads region's crash data indicates a 9% increase in crashes and 6% increase in injuries over the same period, despite traffic reductions. Between October 2019 and October 2020, use of multi-use trails in the region increased by more than 50%.⁴

Figure 5. New York City Trends March 2019 to March 2020

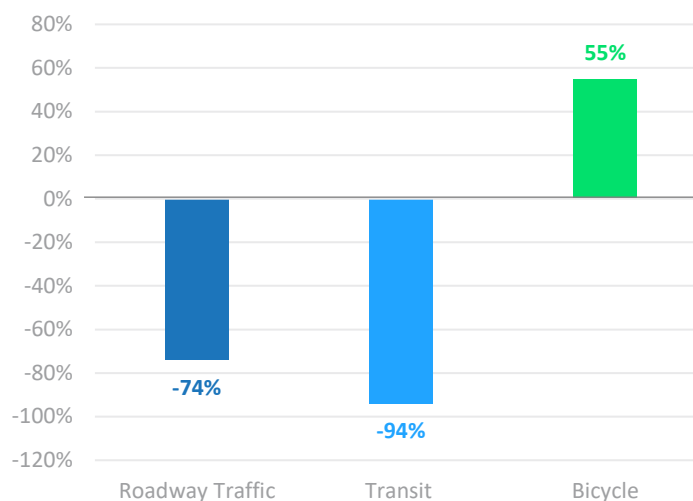
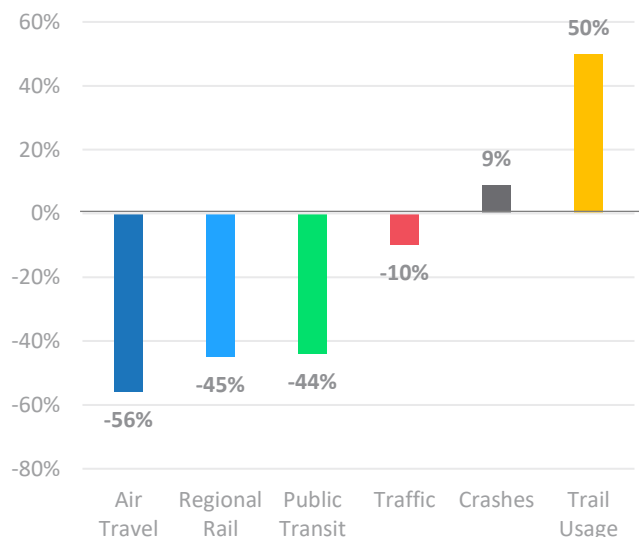


Figure 6. Hampton Roads Trends Fall 2019 to Fall 2020



³ https://c2smart.engineering.nyu.edu/wp-content/uploads/2020/04/C2SMART-COVID-19-Whitepaper_draft_v10_final.pdf

⁴ https://www.hrtpo.org/uploads/docs/T21-03_State%20of%20Transportation%202020%20-%20Final%20Report%20TPO%20Board.pdf

THE HAMPTON ROADS REGION SAW A 9% INCREASE IN CRASHES AND 6% INCREASE IN INJURIES DESPITE TRAFFIC REDUCTIONS

Southern California Association of Governments (SCAG) data indicates that Southern California's April 2020 freeway VMT decreased by as much as 45% relative to 2019 and that by June 2020, freeway VMT had recovered within 12% of 2019 traffic. Heavy truck VMT reductions were less pronounced: they hit a low of 30% in April and recovered to within 8% by June. In the SCAG region, bus ridership was down more than 71% in April 2020 and remained more than 66% lower than 2019 levels in May. This tells us that in Southern California, bus ridership experienced a slower recovery than traffic.⁵

MOBILE DEVICE DATA

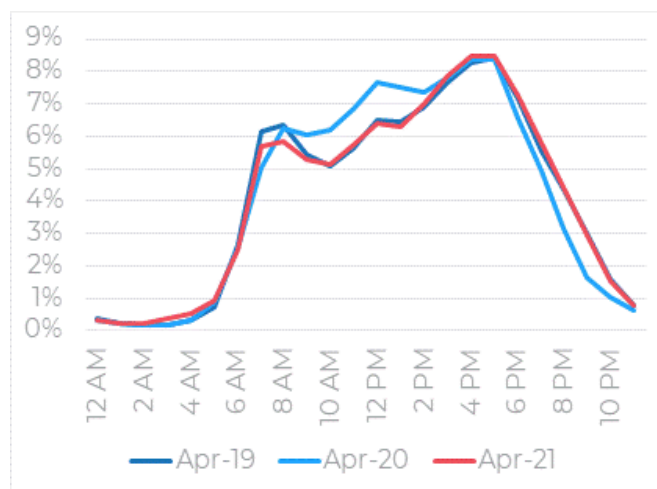
According to travel data collected by StreetLight and other data providers, the pandemic had varied impacts on VMT throughout a typical day. Although the overall VMT saw dramatic declines during the initial months of the pandemic, the morning and evening peak periods were impacted more heavily than the mid-day period. In the transportation industry, this trend is called **peak spreading**. Peak spreading refers to an overall sustaining of traffic levels but the traffic is spread out over a longer period than the typical morning and evening peaks. This trend that has been embraced by the Miami-Dade Transportation Planning Organization (TPO) in a set of policies designed to promote working from home—a likely cause of the peak spreading phenomenon. The TPO policies include a range of strategies, including public education, promotion of telecommunication infrastructure investments, and recognition of telecommuting as a mode of travel, legitimizing transportation revenue for various types of investments.⁶

Relating peak spreading to broader travel patterns sheds light on the general cause of the phenomenon. Typical work commutes often involve **trip chaining**, or the combination of multiple trip types during the work commute. A person who chains their trips combines shopping, recreation, school drop off, and other trip types during their work commute, resulting in trip making efficiencies and potentially less VMT in the off-peak period. Those who worked from home during the pandemic eliminated their work commute altogether. In many cases, the other trip types commonly chained with the work commute were not eliminated, resulting in less trip chaining and more off-peak trips. While the overall VMT may not have increased, it has been distributed throughout the day.

Figure 7 compares peak spreading in 2019, 2020, and 2021 in Palm Beach County. Even though peak spreading has reduced to pre-pandemic levels in 2021, it reached a pronounced peak during the outbreak's height. By understanding the pandemic effects on VMT, the TPA can take action to mitigate or react to those impacts.

IN THE INITIAL MONTHS OF THE PANDEMIC, OVERALL VMT DRAMATICALLY DECLINED; HOWEVER, VMT PEAKS WERE SPREAD OVER LONGER PERIODS

Figure 7. VMT by Time of Day in Palm Beach County



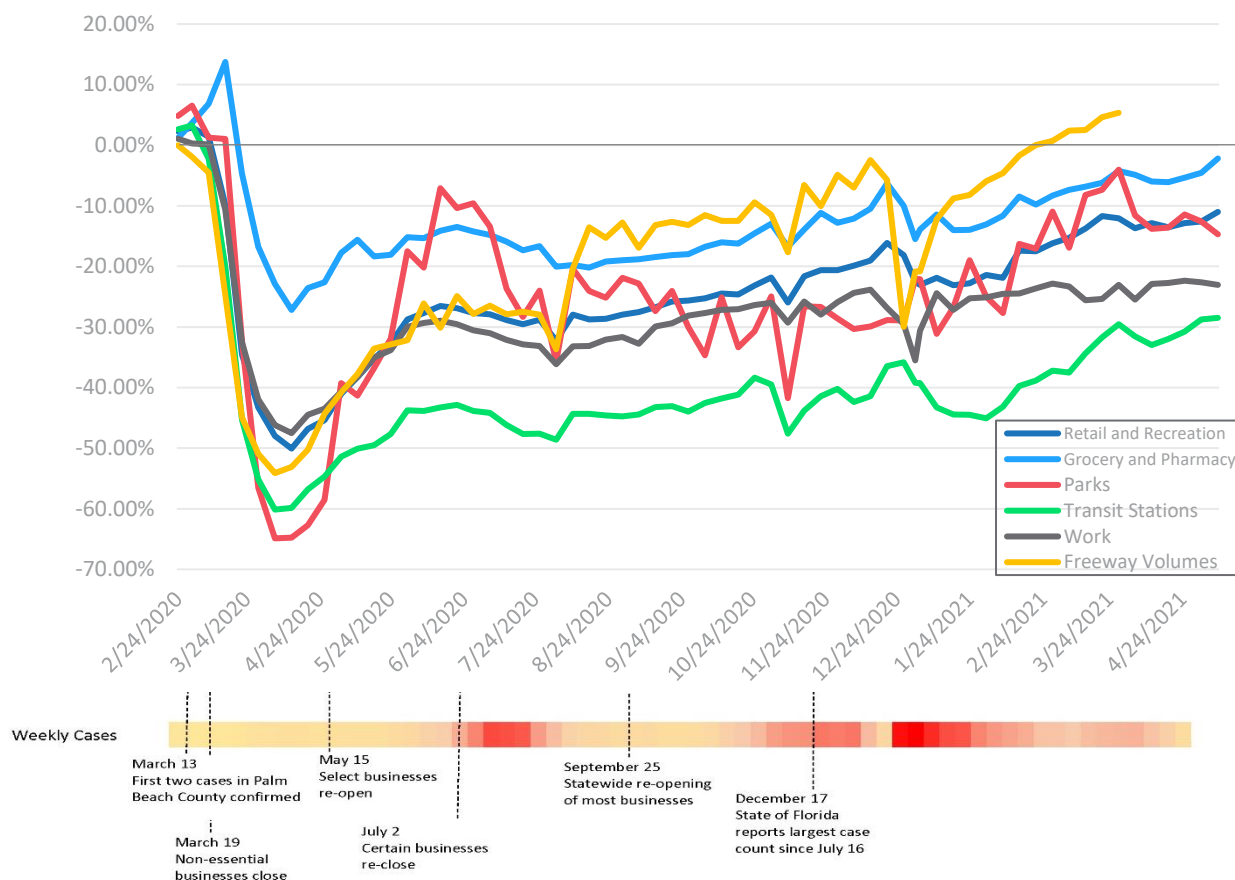
Source: StreetLight

⁵ https://scag.ca.gov/sites/main/files/file-attachments/scag-covid-19-transportation_impacts.pdf

⁶ <http://www.miamidadetpo.org/library/studies/mdtpo-telecommute-study-executive-summary-2021-01.pdf>

Mobile device data curated by Google Mobility directly compares trips by their purpose and illustrates how trip making changed over the course of the COVID-19 pandemic. Organized by trip purpose, Figure 8 summarizes changes in trip volumes relative to a pre-pandemic January 2020 baseline. The figure also includes changes in freeway traffic volumes in Palm Beach County, COVID-19 case data sourced from the Florida Department of Health, and policy changes related to business closures. Here, the correlation between travel data and pandemic/policy data is unmistakable, particularly at the beginning of the pandemic and during the two Palm Beach County COVID-19 spikes in July 2020 and January 2021.

Figure 8. Changes in Palm Beach County Trips



Sources: Google Mobility and Florida Department of Health

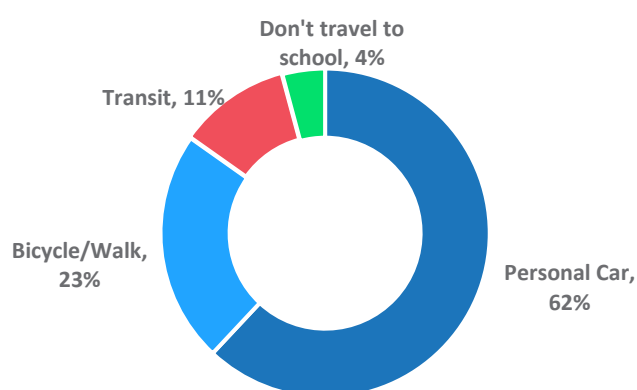
Google data shows that trips to parks and transit stations declined the most during the pandemic, followed closely by freeway volumes, retail, and work trips. Trips to grocery stores and pharmacies, on the other hand, declined the least. However, pharmacy and grocery trips were still more than 25% lower in March 2020 and remained down almost 10% in March 2021. The July and January COVID-19 spikes correspond with large drops in trip making for most purposes except grocery and pharmacy trips. Park trip reductions are likely the result of park closures in late March 2020. Data between the COVID-19 spikes indicates a clear upward trend and suggests a gradual return to pre-pandemic levels. The most recent trip data, from April 2021, reflects the highest point since the beginning of the pandemic. In April, freeway volumes and grocery/pharmacy trips were near or above baseline levels, whereas transit and work trips were still at least 25% below baseline.

DATA BETWEEN THE COVID-19 SPIKES INDICATES A CLEAR UPWARD TREND AND SUGGESTS A GRADUAL RETURN TO PRE-PANDEMIC LEVELS

FDOT SURVEY

Florida International University administered a statewide telecommuting survey on behalf of the Florida Department of Transportation (FDOT) in August 2020 to understand telecommuting trends before and during the pandemic and to plan for telecommuting in a post-pandemic reality. The survey sample included college students, employees, and employers in industries for which telecommuting is a viable option. While telecommuting trended long before the pandemic, the pandemic's dramatic effect on the practice of virtual work and education is an anomaly in terms of reduced commuting levels. However, the survey results estimate that many employees and students will continue to work and learn from home after the pandemic.

Figure 9. Student Travel Mode Before COVID-19



STUDENTS

Before the pandemic, of the 444 college students who responded to the FDOT survey, 23% biked or walked to school, 11% rode public transit, 62% traveled in a personal automobile, and 4% did not commute (see Figure 9). These students also reported that during the pandemic,

DURING THE PANDEMIC

100%

of classes were moved to a virtual classroom



AFTER THE PANDEMIC

30%

of respondents showed interest in having courses online

100% of their classes were moved to a virtual classroom, eliminating the school commute entirely. However, 30% of respondents indicated that after the pandemic, they would like at least as many, if not more, online courses than they had before the pandemic. In terms of student preferences, this indicates a high potential for sustained virtualization of college classes.

EMPLOYEES AND EMPLOYERS

Of the 503 employees surveyed, 25% reported telecommuting at least a few times per month before the pandemic. During the pandemic, the percentage of employees who telecommuted weekly more than doubled to 53%. When asked to speculate how often they would telecommute post-pandemic, 36% reported they expected to telecommute at least monthly, and 23% reported they would telecommute a few times per week (see Figure 10).

The FDOT survey isolated employers—represented by 417 responses from directors, human resource managers, and project managers—to get the perspective of employment policies. The survey asked employers to estimate the percentage of their workforce that telecommuted before the pandemic, the portion telecommuting during the pandemic, and the expected portion who will telecommute after the pandemic. The results indicated a rate of 31% telecommuting before the pandemic and nearly double telecommuting during the pandemic. After COVID-19 subsides, employers expect a decrease in telecommuting, although

they anticipate telecommuting to remain significantly higher than before the pandemic. Relative to pre-pandemic telecommuting, this shift would result in a sustained increase of 16 marginal percentage points for a rate of just under 50% (see Figure 11).

Figure 10. Employee Survey Results

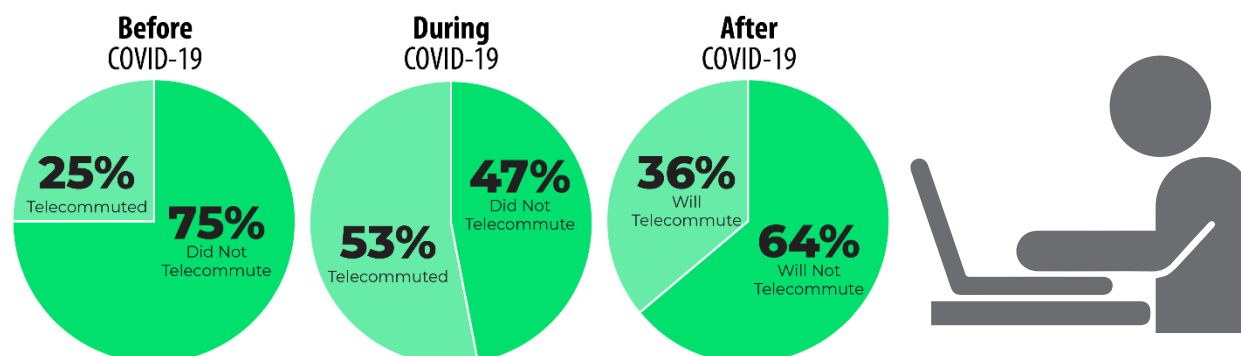
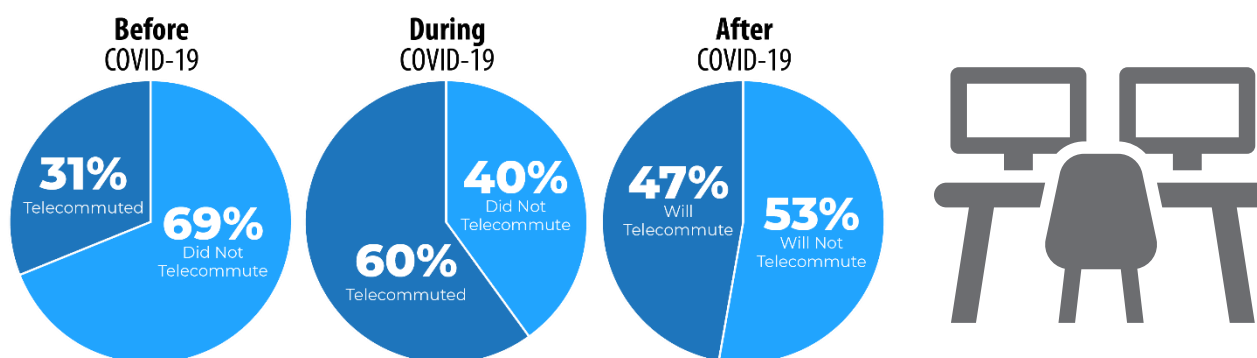


Figure 11. Employer Survey Results



ECONOMIC TRENDS

The economic damage from the COVID-19 pandemic rivals the Great Recession from the late 2000s. As with the transportation impacts described in the following section, initial economic impacts proved to be relatively short-lived, following the progression of the pandemic and associated business closures and other policies, but rebounding quickly as the pandemic has waned.

This study analyzed two general areas of COVID-19 economic data: employment and freight movement. These selected areas provide a comprehensive and directly relevant data sample to assess relationships between the economy, the pandemic, and transportation.

Employment

Employment metrics provide an important snapshot of the economic impacts of the pandemic. Levels of unemployed workers and job losses in absolute terms comprise fundamental metrics that together provide a reasonable assessment of the economy. Employment statistics also directly relate to the pandemic's transportation impacts and can inform policy actions to combat and mitigate some of the negative effects.

Unemployment is one of the most common variables used to measure the health of the economy at large. The number of unemployed workers in Palm Beach County almost quadrupled from January 2020 to May 2020, when most non-essential businesses were closed. In April 2021, the number of unemployed workers in the county had declined to 35,000 from a peak of just over 100,000 in May 2020. Unemployed workers in Palm Beach County before the pandemic numbered just under 27,000. The unemployment trend depicted in Figure 12, tells only part of the story, as it only accounts for those without work in the previous month.

As of April 2021,
the number of
unemployed workers
in Palm Beach County
grew by

23%

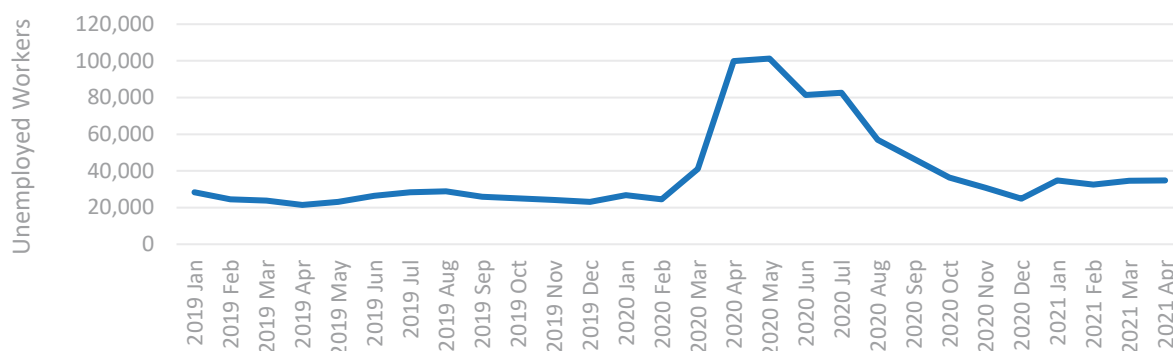


1.2 million

JOBS LOST initially in Florida

As of April 2021 there is a
**NET LOSS OF JUST OVER
500,000 JOBS**

Figure 12. Unemployment in Palm Beach County



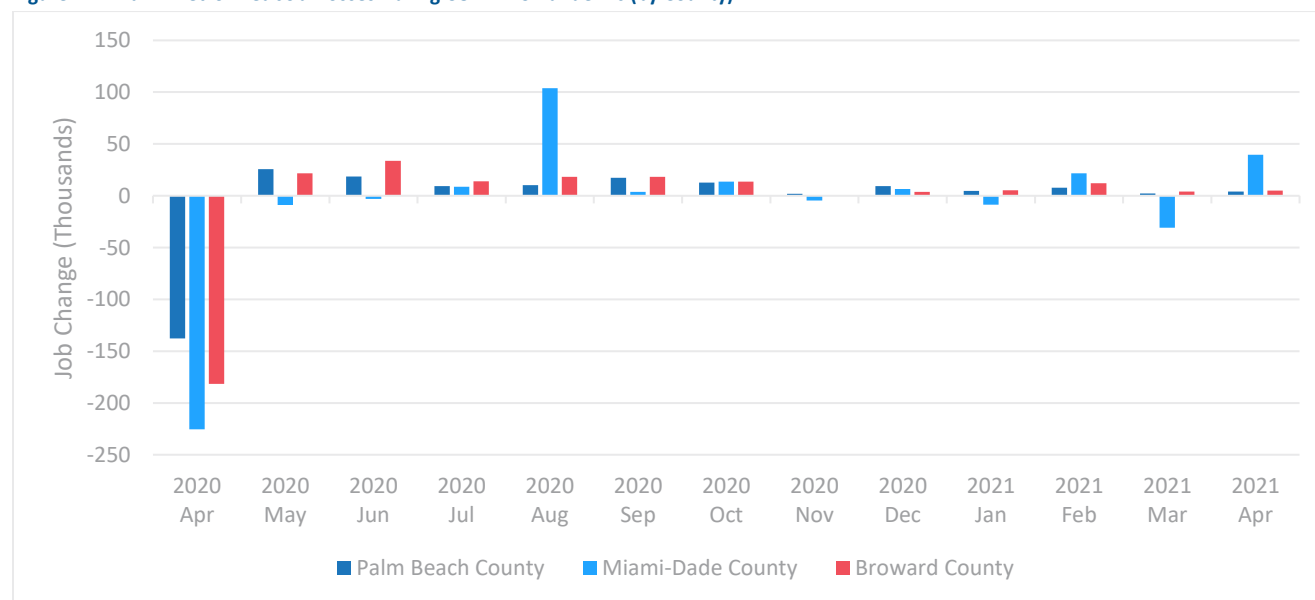
Source: United States Bureau of Labor Statistics

Job loss figures provide a different and more accurate view of COVID-19's economic impacts over a longer term. While unemployment figures are limited to workers filing for unemployment benefits, the total number of jobs provides a more direct measure of the economy itself. Figure 13 depicts job losses during the 2007-2009 Great Recession and job losses during the COVID-19 pandemic between March 2020 and April 2021 at the state level.⁷ Figure 14 makes the same comparison for Palm Beach County.

At approximately 454,000 during the pandemic, jobs lost in Florida approached levels seen during the Great Recession (705,000). Initially, Florida lost more than 1.2 million jobs during the first months of the pandemic. In the subsequent period from May 2020 to April 2021, more than 760,000 jobs were recovered, leaving a net loss of almost 500,000. The magnitude of the sustained job losses resulting from the pandemic suggests that the pandemic transformed the economy, thereby impacting transportation and a host of other areas.

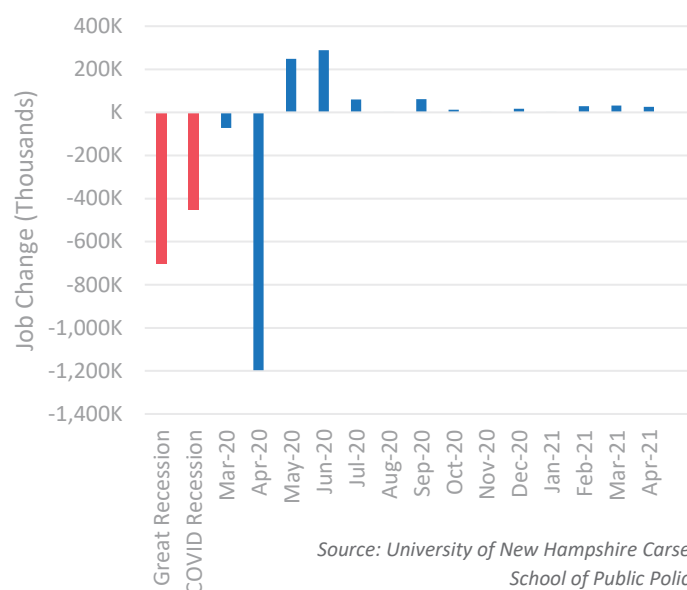
Figure 14 compares job losses in the twelve months between April 2020 and April 2021 for the three counties in the Miami Metropolitan area, inclusive of Palm Beach, Broward, and Miami-Dade counties. Palm Beach County's 2% net reduction in jobs amounts to a loss of 14,000 jobs after an initial loss of over 137,000 jobs in April 2020. In percentage terms, the three-county region saw double that, with a 4% job loss between April 2020 and April 2021.

Figure 14. Miami Metro Area Job Losses During COVID-19 Pandemic (by County)



Source: Bureau of Labor Statistics

Figure 13. Florida Job Losses During Great and COVID-19 Recessions, and Monthly Job Change March 2020 - April 2021

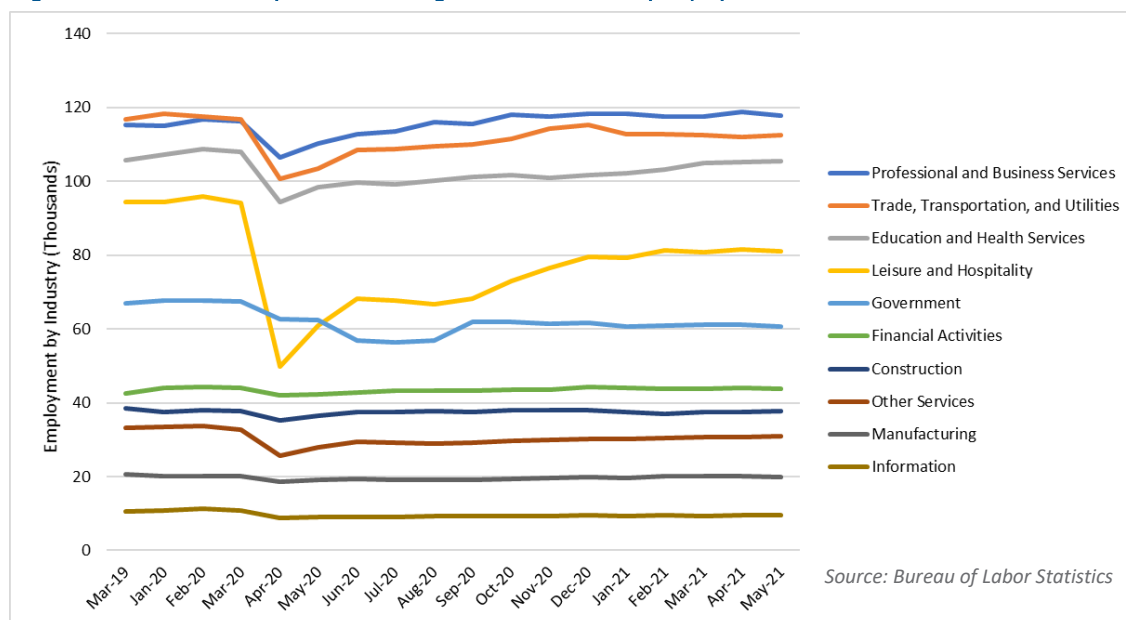


Source: University of New Hampshire Carsey School of Public Policy

⁷ <https://carsey.unh.edu/COVID-19-Economic-Impact-By-State>

Employment by sector in Palm Beach County reveals the disproportionate impact on the Leisure and Hospitality sector, which sustained a loss of 44,000 jobs in April 2020. In percentage terms, the job loss was greatest in that sector at 47%, followed by Other Services at 22% and Information at 18% loss in April 2020. By May 2021, only three sectors had recovered to 2019 levels, including Professional and Business Services, Education and Health Services, and Financial Activities. Hospitality and Leisure was still down 14% relative to March 2019, while the other sectors were down 6% on average (see Figure 15).

Figure 15. Palm Beach County Job Losses During COVID-19 Pandemic by Employment Sector



Freight Movement

A good economic measure that is more directly related to transportation, freight movement into and out of Palm Beach County helps illustrate the pandemic's economic effects. Port of Palm Beach data indicated that the monthly inbound and outbound tonnage moving through the port declined by almost 27% by May 2020, relative to May 2019 (see Figure 16). Another dip in August 2020 coincided with the July COVID-19 case spike, but by September 2020, the import and export tonnage temporarily reached 2019 levels. The recovery of 2019 freight tonnage was almost complete at the end of 2020, but in 2021, the rate again dropped to just over 20% below 2019 levels. In addition to the ongoing global supply chain disruptions resulting from the pandemic, the 2021 slowdown was exacerbated by the Suez Canal blockage that occurred in March. The rise and fall of imports and exports was more or less uniform across commodity types, according to Port officials. Heavy truck traffic, represented by the I-95 weigh-in-motion station data, reveals a different trend, with 2020 traffic consistently higher than 2019 truck traffic (see Figure 17). A likely reason for the seemingly unaffected truck traffic is the significant increase in e-commerce noted in the TPA stated preference survey.

Figure 16. Seaport Activity

SEAPORT:

Monthly tonnage imported and exported to/from Port of Palm Beach

Source: Port of Palm Beach PIERS data

2019 2020 2021

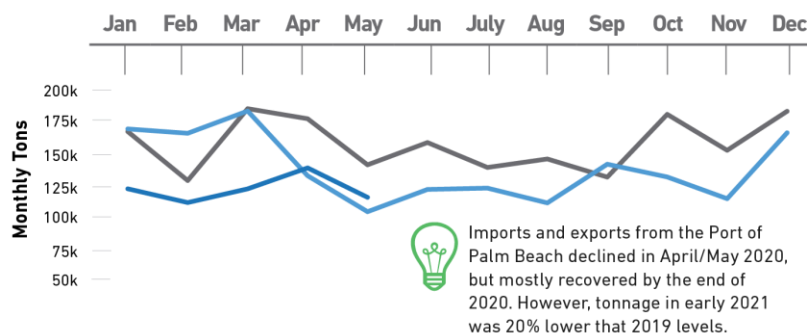


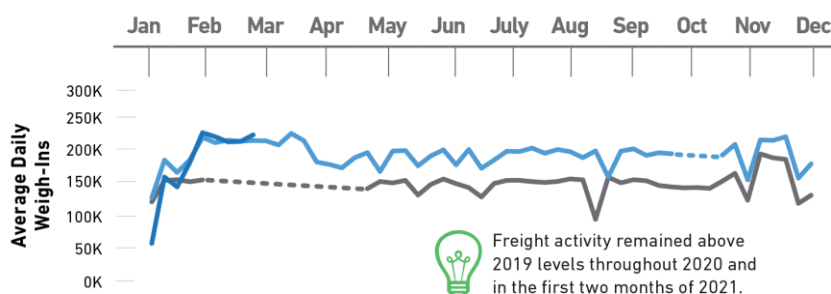
Figure 17. Freight Activity

FREIGHT ACTIVITY:

Average weekday daily trucks through all weigh-in-motion stations

Source: Weigh-in-motion data from FDOT Civil Transportation Data and Analytics Office. Dashed lines represent interpolated trends.

2019 2020 2021



TRAFFIC IMPACTS

Traffic directly correlates to pandemic employment and telecommuting trends. These trends share an initial dramatic decline followed by a steady recovery just after the pandemic started in March 2020. Because different roadway types generally serve different types of travel, pandemic traffic impacts vary by roadway type. To account for these differences, freeways and non-freeway roadways are summarized separately. For both cases, traffic analysis includes monthly levels in 2019, in 2020, and during the first quarter of 2021. These periods provided a stable point of reference that reflected both typical annual traffic fluctuations and pandemic changes.

In April 2020, freeway volumes had declined more than 50% but rebounded to 2019 levels by September (see Figure 18). In September 2019, freeway volumes dipped when Hurricane Dorian made landfall in the Bahamas, disrupting travel in South Florida. From September 2020, freeway volumes continued to grow, maintaining levels above 2019 volumes for the remainder of the year. In 2021, however, freeway volumes started 15% lower than January 2019, indicating a less-than-complete recovery. Freeway travel speeds were up to 25 miles per hour faster in 2020, relative to 2019. In 2021, freeway speeds were still approximately 10 miles per hour faster than in 2019, corresponding to the 15% difference in traffic volume (see Figure 19).

Figure 18. Freeway Traffic Volumes in Palm Beach County

TRAFFIC VOLUMES:

Average weekday traffic volumes on freeways

Source: Telemetered traffic station data from FDOT Transportation Data and Analytics Office

2019 2020 2021

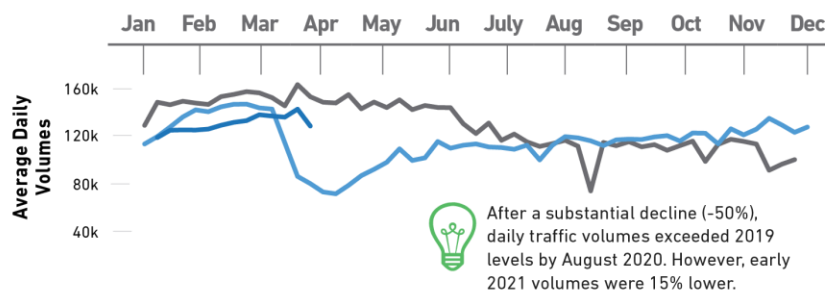


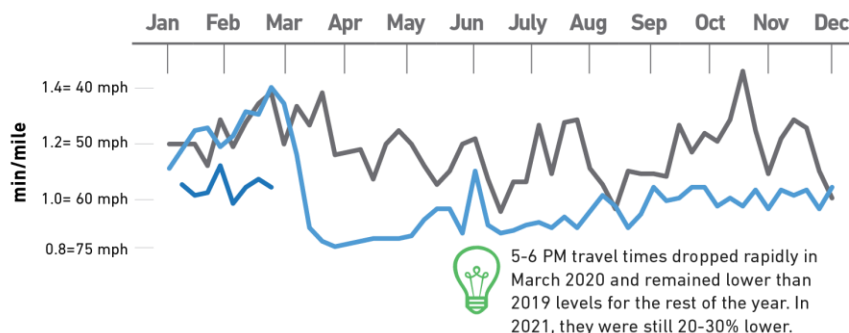
Figure 19. Freeway Travel Times in Palm Beach County

AUTO TRAVEL TIMES:

Weekday 5-6 PM travel times on freeways

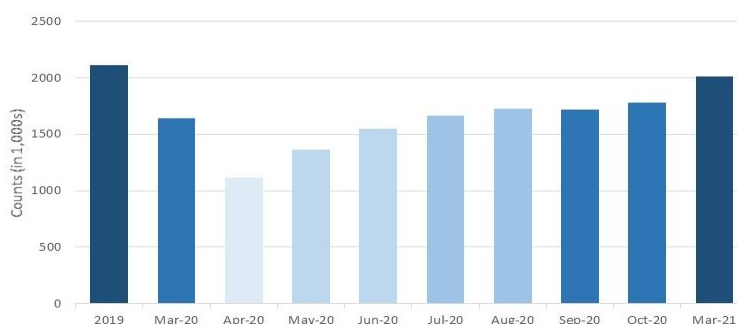
Source: HERE.com probe data from RITIS.org

2019 2020 2021



Non-freeway roadways in Palm Beach County saw a similar trend throughout the pandemic, hitting a low point in April 2020, 47% below 2019 traffic levels. As with freeway volumes, non-freeway traffic has steadily recovered since May 2020; by March 2021, county volumes grew to within 5% of 2019 volumes. Figure 20 reflects aggregate peak-season daily counts in 2019 across all monitored roadways in the county. The graph also shows aggregate counts for an average day each month between March and October 2020 as well as for March 2021. Non-freeway roads' more robust recovery, relative to freeways, may be explained in part by the fact that freeway facilities are used more frequently by commuters. Recall that during the pandemic, travel during the off-peak period increased significantly as a proportion of total daily travel. This indicates the outbreak had relatively less impact on non-work travel. At the current rate, local roadways will soon reach pre-pandemic levels, while freeway volumes may take longer to recover. The extent to which telecommuting reaches pre-pandemic levels may be a determining factor as to the extent and pace of the recovery.

Figure 20. Non-Freeway Roadways Traffic Volumes



Source: Palm Beach County Traffic Division

SAFETY IMPACTS

The pandemic has had mixed impacts on automobile crashes. Crashes in Palm Beach County decreased up to 65% at the beginning of the pandemic in March 2020, but despite the lower traffic volumes, little changed in the percentage of fatal and severe injuries. As traffic levels began to recover later in April 2020, crashes rose with a steady increase to within 15% of 2019 levels as of the beginning of 2021 (see Figure 21). The rate of crashes, in terms of crashes per vehicle miles traveled, remained generally consistent, indicating a relatively unchanged trend despite increases in travel speed associated with reduced volume. Crashes involving fatalities and serious injuries also remained relatively consistent with pre-pandemic levels, which could be due to increased auto travel speeds on the roadways (see Figure 22).

Figure 21. Total Vehicular Crashes

CRASHES:

Weekly crashes on all roads

Source: University of Florida's SignalFour.

2019 2020 2021

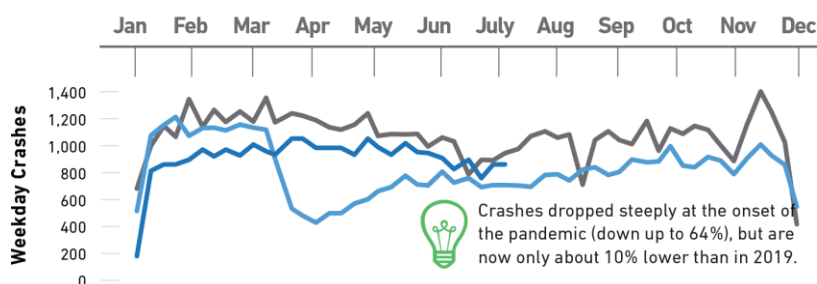
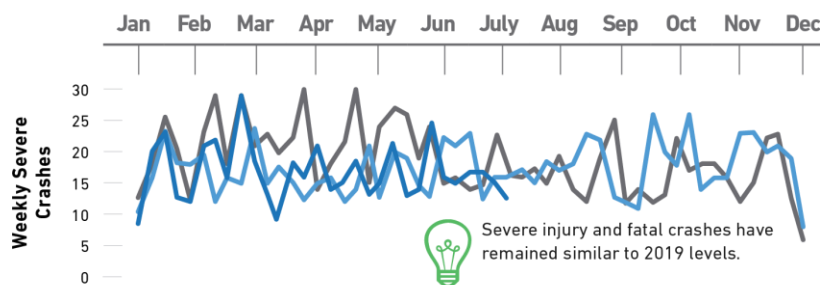


Figure 22. Crashes Involving Fatalities and Serious Injuries

SEVERE CRASHES:

Weekly severe injury or fatal crashes on all roads

Source: University of Florida's SignalFour.



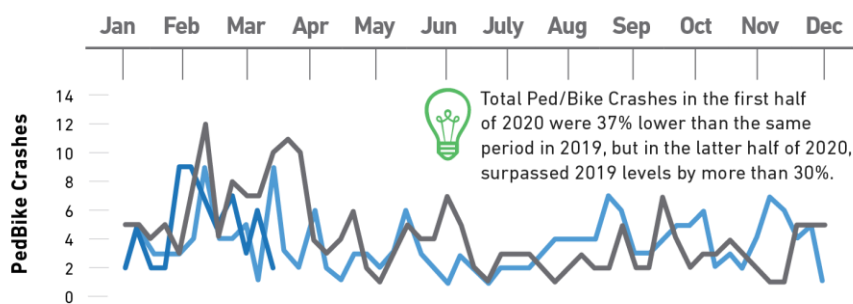
Crashes involving pedestrians and bicyclists were generally lower in the first half of 2020, relative to 2019, but that trend reversed in August 2020, after which pedestrian/bicycle crashes were consistently higher than 2019 on a monthly basis (see Figure 23). This coincides with recovered traffic levels in late 2020, which surpassed 2019 levels in August.

Figure 23. Crashes Involving Pedestrians and Bicyclists

PEDESTRIAN & BICYCLE CRASHES:

Weekly crashes involving pedestrians and bicyclists

Source: University of Florida's Signal Four



MULTIMODAL IMPACTS

Changes in multimodal activity vary by mode of travel. According to Google data portrayed in Figure 7, as well as Palm Tran and Tri-Rail boarding data, public transit saw large reductions in ridership during the pandemic (see Figure 24). Reduced travel and social distancing guidelines limiting passengers on transit vehicles helps explain the decline of transit ridership.

Palm Tran's service reductions, which decreased all route services to weekend levels in March 2020, also significantly affected ridership levels. Palm Tran has since reinstated pre-pandemic service. Palm Beach County's bus ridership dropped by 45% in March and April 2020 and rebounded to within 14% of pre-pandemic ridership as of July 2020. That July, COVID-19 cases spiked, prompting another plummet of 30% and wiping out the recovery that had occurred since the spring. As of April 2021, bus ridership is still down 35% relative to pre-pandemic levels.

Tri-Rail ridership also dropped precipitously in April 2020, falling by more than 80% and only recovering to within 55% of pre-pandemic levels by April 2021. The fact that Tri-Rail provides commuter service for many work trips can explain the larger drop and slower recovery.

Bus ridership is down

35%

relative to pre-pandemic levels as of April 2021

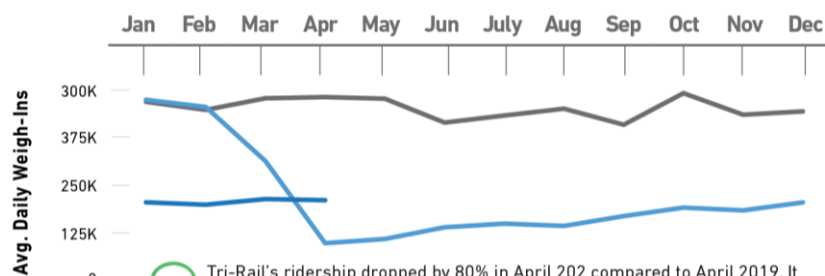


Figure 24. Transit Ridership

TRI-RAIL:

Monthly passenger boardings, also known as unlinked passenger trips

Source: National Transit Database

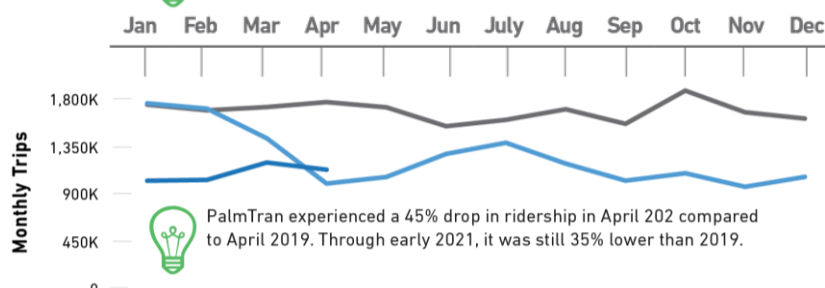


Tri-Rail's ridership dropped by 80% in April 202 compared to April 2019. It has since recovered slightly and was 55% lower in April 2021 vs. April 2019.

PALM TRAN:

Monthly passenger boardings, also known as unlinked passenger trips

Source: National Transit Database



PalmTran experienced a 45% drop in ridership in April 202 compared to April 2019. Through early 2021, it was still 35% lower than 2019.

Peer area and indirect data suggest bicycle and pedestrian mode share grew during the pandemic, likely due to the U.S. Center for Disease Control and Prevention's (CDC) advice against indoor activities in favor of well-ventilated areas and social distancing guidelines. During the pandemic, bicycle demand skyrocketed, causing a global bicycle shortage. According to Heather Mason, president of the National Bicycle Dealers Association, demand has exceeded the supply of bicycles on a global level. Bicycle industry experts estimate that bicycle inventories will not catch up with demand until 2023.⁸

AIR TRAVEL

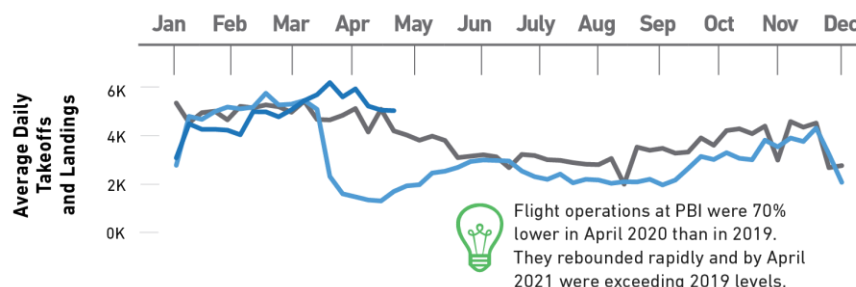
Like public transit ridership, air travel was initially especially vulnerable to the pandemic due to CDC social distancing guidelines. In April 2020, average weekday takeoffs and landings at Palm Beach International Airport plummeted more than 70% relative to the previous year. Air travel recovered rapidly, and by April 2021, it surpassed 2019 levels by a significant margin (see Figure 25).

Figure 25. Air Travel

AIR TRAVEL:

Average weekday takeoffs and landings at PBI

Source: Federal Aviation Administration



Flight operations at PBI were 70% lower in April 2020 than in 2019. They rebounded rapidly and by April 2021 were exceeding 2019 levels.

AIR TRAVEL RECOVERED RAPIDLY AND SURPASSED 2019 LEVELS BY APRIL 2021



⁸ <https://www.marketwatch.com/story/why-is-there-a-bicycle-shortage-its-got-a-lot-to-do-with-why-fireworks-are-scarce-11622751152>

CONCLUSION AND RECOMMENDATIONS

While the impacts of the COVID-19 pandemic on transportation in Palm Beach County have been dramatic, much has returned to near pre-pandemic conditions. Notable conclusions in the data analysis include the following:

- **Economy** – Palm Beach County had an initial loss of 137,000 jobs in April 2020, with the Leisure and Hospitality industry hit hardest. As of Spring 2021, the County is still recovering with 2% net reduction, or 14,000 jobs, compared to before the pandemic.
- **Freight** – Freight moving through the Port of Palm Beach declined by almost 27% at the beginning of the pandemic and is still down approximately 20% relative to 2019 levels. Heavy truck traffic on I-95 reveals a different trend, with 2020 traffic consistently higher than 2019 truck traffic.
- **Roadway traffic** – Reductions of up to 50% early in the pandemic have recovered to within 15% of pre-pandemic levels on freeways and within 5% on non-freeway roadways. Although 2021 traffic volumes recovered to near pre-pandemic levels, the lasting reductions are significant and impactful. On freeways, the 15% difference in traffic correlates to an increase in speed of travel up to 10 miles per hour.
- **Vehicular crashes** – Crashes declined by up to 65% in April 2020 but have since increased to within 15% of pre-pandemic levels, generally commensurate with traffic fluctuations. Crashes involving fatalities and serious injuries have not changed substantially during the pandemic, likely due to increased travel speeds associated with traffic volume reductions.
- **Transit ridership** – Bus ridership declines of 45% and Tri-Rail reductions of 80% at the beginning of the pandemic were still down 30% and 55%, respectively in Spring 2021. The relatively slow recovery of public transit ridership, is likely the result of social distancing guidelines and high telecommuting rates.
- **Ped/Bike and trail usage** – National data has shown a significant increase in pedestrian and bicycle activity during the pandemic. This is consistent with Palm Beach County survey data, which indicates a significant mode shift to non-motorized transportation and an expected continuance of that trend even after the pandemic.
- **Air travel** – Enplanements at Palm Beach International Airport declined by 70% early in the pandemic, but have recovered to surpass 2019 levels as of Spring 2021.

ACCORDING TO FDOT DISTRICT 6 SECRETARY JIM WOLFE, EVEN THOUGH IT IS A SMALL DECREASE, A 10% REDUCTION IN TRAVEL (IN MIAMI-DADE COUNTY) HAS MADE A BIG DIFFERENCE IN TERMS OF CONGESTION.

While there are still significant challenges associated with post-pandemic recovery, these challenges are accompanied by new efficiencies and other opportunities to improve the “new normal”. As Palm Beach County recovers, it is important to consider opportunities to mitigate negative impacts and embrace positive ones. To anticipate future disruptions, the Palm Beach TPA and its partner agencies can embrace strategies for data procurement for ongoing monitoring, land use policy, transportation infrastructure improvements, and scenario planning. Moving forward requires consideration of both reactive and proactive approaches.

The following set of strategies summarizes potential actions that can be taken by the Palm Beach TPA and its partner agencies, some of which are already being pursued or implemented.



Ongoing monitoring – The pandemic’s ongoing effects on lifestyle and transportation must be continuously monitored to nimbly react to the pandemic’s temporary and lasting effects.

- Closely monitor traffic, mode share, and safety data to continue to track and assess the recovery from COVID-19.
- Track development patterns and associated changes in origin/destination travel patterns over time to assess long term impacts.
- Monitor levels of activity in major employment centers to assess potential activity shifts away from central business districts and other activity centers.



Resiliency/mitigation planning – Palm Beach County currently has a Local Mitigation Strategy (LMS) that is a coordinated county effort to reduce vulnerability to hazards like the pandemic. Continued coordination with partner agencies, including Palm Tran, to maintain coordinated resiliency or hazard mitigation plans is critical to preparedness. Palm Beach International Airport’s (PBI) COVID-19 Pandemic Preparedness and Response plan identifies a variety of strategies that provide a model for other agencies’ plans. PBI strategies include:

- Maintain safe and clean facilities and require employees and patrons to wear masks.
- Enhance space and social distancing guidance in all airport facilities.
- Maintain continuity of operations and fiscal responsibility, minimizing added costs to consumers.
- Identify future infrastructure needs and funding opportunities and take advantage of opportunities to advance improvements during periods of reduced demand.
- Maintain effective communications with patrons, using methods ranging from social media to signage in public facilities.

Scenario planning is a useful tool to test and assess a range of impacts and recovery, in terms of levels and timelines. Relevant dimensions of pandemic scenario planning might include the following:

- Timeline of the pandemic;
- Health department guidance/restrictions;
- Levels and timeline of economic recovery; and
- Range of private sector responses, like work from home policies, real estate decisions, and digital cybersecurity investments.



Land use policy actions – The widely documented increases in multimodal activity during the pandemic coincided with increased off-peak trip making. Shopping and recreation trips, typically occurring in the off-peak period, tend to be short (relative to typical work commutes) and local. Together, the increased multimodal activity and localized trip-making provide the right context and impetus to promote mixed use and transit-oriented development (TOD).

TOD has many systemwide benefits:

- Reduced VMT and traffic congestion;
- Increased potential for premium transit investments;
- Increased livability and safety; and
- Improved transportation resiliency.

Even with more telecommuters, travel patterns are likely to shift back to an automobile-focused context as the pandemic eases. In response, TOD land use policies can promote and maintain some of the pandemic-induced travel behavior changes.



Bicycle/pedestrian infrastructure improvements – Coupling land use policy actions with focused investment on bicycle and pedestrian infrastructure improvements would accommodate and promote interest in active transportation spurred by the pandemic.

- Prioritize investments in areas where telecommuting is likely to continue and/or grow, encouraging county residents to rely less on automobiles and more on walking and bicycling for short trips.
- Consider equity consequences as part of multimodal investments, as lower income jobs, particularly in the service and hospitality industries, are rarely conducive to telecommuting accommodations.
- Consider pop-up conversions of vehicle lanes and/or parking to pedestrian/bicycle facilities, delivery space, public outdoor seating space, etc.



Public transit efficiency improvements – The pandemic significantly reduced public transit ridership nationally and in Palm Beach County. Both permanent and temporary mitigation strategies can improve the efficiency of transit operations and incentivize ridership. Utilize available resources to evaluate and optimize transit services with a focus on maintaining high quality, efficient transit service. An example of a useful resource is the Institute for Transportation & Development Policy's The Scorecard tool.⁹ The example strategies listed below are most effective when coordinated and implemented as packages of improvements.

Cost efficiency improvements

- Collaborate with Palm Tran on their Route Performance Model (RPM 2.0), which is evaluating cost effective transit alternatives to fixed-route service in the less densely populated areas of Palm Beach County.
- Consolidate routes to reduce operating cost and improve service on high performing routes.

Performance improvements

- Add frequency to high performing routes to encourage ridership and minimize crowded buses.
- Consolidate stops by increasing stop spacing and effectively increasing transit operating speeds, building upon Palm Tran's Stop Consolidation Plan and ADA Transition Plan, efforts designed to improve bus efficiency and accessibility.
- Explore the conversion of roadway travel lanes to dedicated transit lanes as part of the TPA's 561 Plan multimodal studies.

User cost incentives

- Deploy Palm Tran's streamlined fare ticketing program enabling ticket purchase via mobile device, off-board ticket vending, and limiting small change for on board cash purchases.
- Continue Palm Tran's subsidized fare program for disenfranchised riders.
- Subsidize employer-provided fare subsidies or reimbursements.

Other transit improvements

- Continue ongoing efforts to improve cleaning procedures and install UV lighting to kill air-borne germs and viruses to promote a safe and clean environment for bus operators and patrons.
- Continue ongoing efforts to install automatic wheelchair securement stations on buses. These stations no longer require the bus operator to secure the wheelchair dependent rider, effectively reducing layover time at bus stops.
- Implement transit signal priority on key arterial routes to improve bus operating speed.
- Install level boarding platforms at some stops on key routes to facilitate easy access for all riders and reduce dwell times at stops. Stops with high levels of wheelchair boardings should be prioritized to maximize accessibility.

⁹ <https://www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/the-scorecard/>



Take advantage of increased telecommuting – Promote telecommuting and invest in telecommuting infrastructure (broadband) as a sustained mobility strategy to reduce peak period travel and traffic congestion. Palm Beach County can build upon the existing program that provides free internet for low-income students in a collaboration between the county Engineering Department and the Palm Beach County School District to expand wifi access in disadvantaged areas.

The following policies, adopted by the Miami-Dade TPO to promote telecommuting, provide a telecommuting policy model for the TPA.¹⁰

- Develop an outreach program that offers telecommuting training, marketing, and technical support to employers;
- Adopt a general telecommuting policy, promoting the practice as a long-term congestion management strategy;
- Adopt a telecommute mode of travel policy, qualifying broadband infrastructure for transportation infrastructure funding; and
- Adopt a broadband infrastructure investment policy, taking advantage of the precedent set by the State of Florida in 2020 with the passage of House Bill 969, allowing the Florida Turnpike Enterprise, a division of the FDOT, to allocate up to \$5 million annually to broadband infrastructure investments.

¹⁰ <http://www.miamidadetpo.org/library/studies/mdtpo-telecommute-study-executive-summary-2021-01.pdf>

APPENDIX – LITERATURE REVIEW TABLE

Title	Performing Agency/Authors	Source
Initial Impacts of COVID-19 on Transportation Systems: A Case Study of the U.S. Epicenter, the New York Metropolitan Area	Connected Cities with Smart Transportation, NYU	https://c2smart.engineering.nyu.edu/wp-content/uploads/2020/04/C2SMART-COVID-19-Whitepaper_draft_v10_final.pdf
Snapshot of COVID-19 Transportation Impacts in the SCAG Region	Southern California Association of Governments (SCAG)	https://scag.ca.gov/sites/main/files/file-attachments/scag-covid-19-transportation_impacts.pdf
Future of Public Transit and Shared Mobility: Scenario Planning for COVID-19 Recovery	The University of California Institute of Transportation Studies	https://escholarship.org/uc/item/15t657r2#page=24
Planning for Transit in the Post-COVID New Normal	WSP Global Inc	https://www.wsp.com/-/media/Insights/US/transit-in-the-new-normal/Planning-for-Transit-in-the-New-Normal_White-Paper.pdf?la=en-US&hash=12466988CFCD2C3B1FA6CBC83D4FCE3DA0901135
Miami-Dade TPO Telecommute Study	Miami-Dade TPO	http://www.miamidadetpo.org/library/studies/mdtpo-telecommute-study-final-report-2021-01.pdf
The state of transportation in Hampton roads 2020	Hampton Roads Transportation Planning Organization	https://www.hrtpo.org/uploads/docs/T21-03_State%20of%20Transportation%202020%20-%20Final%20Report%20TPO%20Board.pdf
Transportation Funding and Financing during COVID-19	National Governors Association	https://www.nga.org/wp-content/uploads/2020/12/COVID-Memo-Transportation-Funding.pdf
Travel Impacts of the COVID-19 Pandemic Preliminary Analysis	U.S. DOT	https://rosap.ntl.bts.gov/view/dot/53962
Effects of COVID-19-Related Telework Policies on the Transportation System	Caltrans Division of Research, Innovation and System Information	https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/preliminary-investigations/pi-0288-a11y.pdf
Transportation During Coronavirus in New York City (July 2020)	New York University, Rudin Center for Transportation & Sam Schwartz Engineering	https://wagner.nyu.edu/files/faculty/publications/Full%20Report.pdf
Impact of COVID-19 on Travel Behavior and Shared Mobility Systems	University of South Florida - Center for Urban Transportation Research	https://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1253&context=cutr_nctr
Mobility Optimization through Vision and Excellence (MOVE)	Jacksonville Transportation Authority (JTA)	https://www.jtafla.com/media/2752/jta_move_phaseone_final.pdf