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COVID-19's Impact on Freight:

An Analysis of Long-Haul Freight Movement During a Pandemic

By: Bob Pishue, Transportation Analyst, INRIX
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KEY FINDINGS

Personal travel is down 46 percent nationwide, while truck travel is down 13 percent – may indicate consumer demand is still strong.

Regional differences in freight travel are dramatic – from six to 17 percent reduction (Western and Southern Gulf regions, respectively).

Manufacturing and oil states have seen the largest drops, led by Michigan (-37%), Kentucky (-20%) and Texas (-20%).

Freight-heavy corridors in urban areas have seen dramatic travel speed increases, reducing barriers to move goods faster.

ABOUT INRIX RESEARCH

Launched in 2016, INRIX Research uses big data, analysis and economics to add insight into the movement of people and goods.

Leveraging billions of anonymous data points every day all over the world, our insights provide a rich and fertile picture of mobility for policy makers, transport professionals, automakers and drivers. INRIX Research also develops original, relevant and global insights for journalists, researchers and policymakers. We assist with data, analysis and expert commentary on all aspects of urban mobility and smart cities.

Using INRIX Trip Analytics, INRIX Research analyzed freight movement trends before and during the COVID-19 pandemic. This analysis identifies national freight movement trends, then breaks down commercial truck movement by region and by state.

EXECUTIVE SUMMARY

With the onset of the Novel Coronavirus (COVID or COVID-19), city, county, state, regional and national officials implemented various measures to assist in limiting the spread of the virus. Schools, factories, construction sites, shopping malls, restaurants and others have – either voluntarily or involuntarily – scaled back production, services and/or offerings to the public and other businesses. As a result, traffic – and traffic congestion – plummeted across the United States.[i]

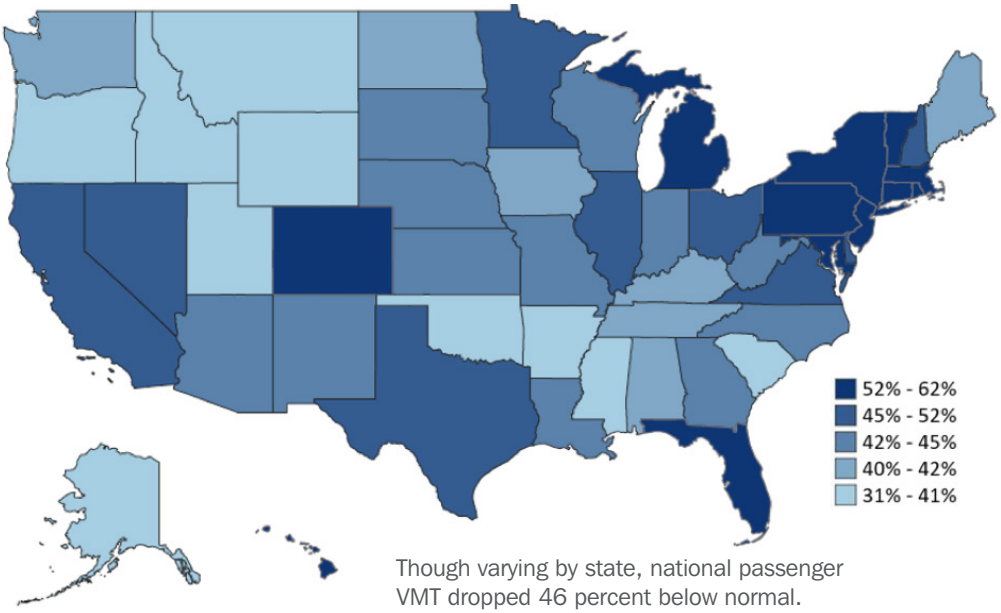
Relative to the 46 percent drop in national personal vehicle-miles traveled (VMT), freight movement has fallen a modest 13 percent, proving commercial trucking is resilient during COVID-19; and a key part of the country's efforts to recover from the pandemic. Though regional differences in freight travel are apparent, interstates and highways in the Southern Gulf region were most impacted. As the situation continues to unfold, expect further changes in personal and commercial trips.

Freight corridors should be top of mind as the public and private sectors work toward investing in a federal infrastructure package. Ensuring these vital arteries are preserved and maintained will be a welcome sight to drivers and consumers across the country. Amongst the country's busiest freight corridors, these time savings enable the rapid delivery of goods throughout the country – especially in this time of need.

NATIONWIDE TRENDS

Though this study focuses on freight movement during the response to COVID-19, it is important to note that passenger vehicles account for the overwhelming majority of VMT and have a direct impact on the movement of goods and services throughout the country. Personal VMT substantially impacts the movement of freight through congested corridors, increasing freight delays and incidents on the roadway. However, it should be noted that much of the roadway is funded and financed by drivers through fuel taxes, license fees, tolls and other taxes and fees that drivers pay to benefit freight.

FIGURE 1:
Passenger/Personal VMT (change from normal)



Though varying by state, national passenger VMT dropped 46 percent below normal.

Timeline

The first state-wide "stay at home" order was issued in California on March 19. Since the beginning of March, INRIX Research has tracked travel trends as it pertains to personal and freight movement, including VMT, Trips[iii] and travel speeds to understand how the efforts to limit the spread of COVID-19 have impacted the movement of goods, travel behavior and retail and consumer behavior.

Whereas nationwide personal VMT have dropped 46 percent, travel associated with freight and trucking remains at approximately 13 percent below normal. A timeline of events and related impacts to travel are outlined as follows:

March 14: No official "stay at home" order issued by any state. Many employers implement work from home policies and certain businesses types were affected by targeted policies. Personal VMT begins to drop.

Week 1 (March 14-20): Personal VMT decreased 20 percent. Freight VMT increased one percent. Just one state, California, implements "stay at home" order for entire state.

Week 2 (March 21-27): Personal VMT decreased 27 percent from the prior week and 42 percent below normal. Freight VMT fell seven percent from prior week, to six percent below the baseline. Twenty-one states issue official "stay at home" orders.[iv]

Week 3 (March 28-April 3): Personal VMT showed signs of stabilizing, despite dropping nine percent from the previous week – to 47 percent of normal levels. Freight VMT dropped 0.5 percent nationwide from the prior week, six percent below normal levels. Seventeen additional states implement "stay at home" orders, with none removing or lightening restrictions.

Week 4 (April 4 – 10): Personal VMT generally flatlined for a second consecutive week with a two percent reduction from the prior week, 48 percent lower than normal levels. Freight VMT, however, falls more than three percent from the prior week, 10 percent below normal levels. Six additional states issue "stay at home" orders, with none removing or relaxing restrictions.

Week 5 (April 11-17): While personal VMT increased by two percent, freight VMT fell nationwide by three percent, to 13 percent below the baseline week, likely due in part to the Easter holiday. About 95 percent of the country's population lives in an area where a "stay at home" order is in place. Some state officials begin talks about easing restrictions on residents.

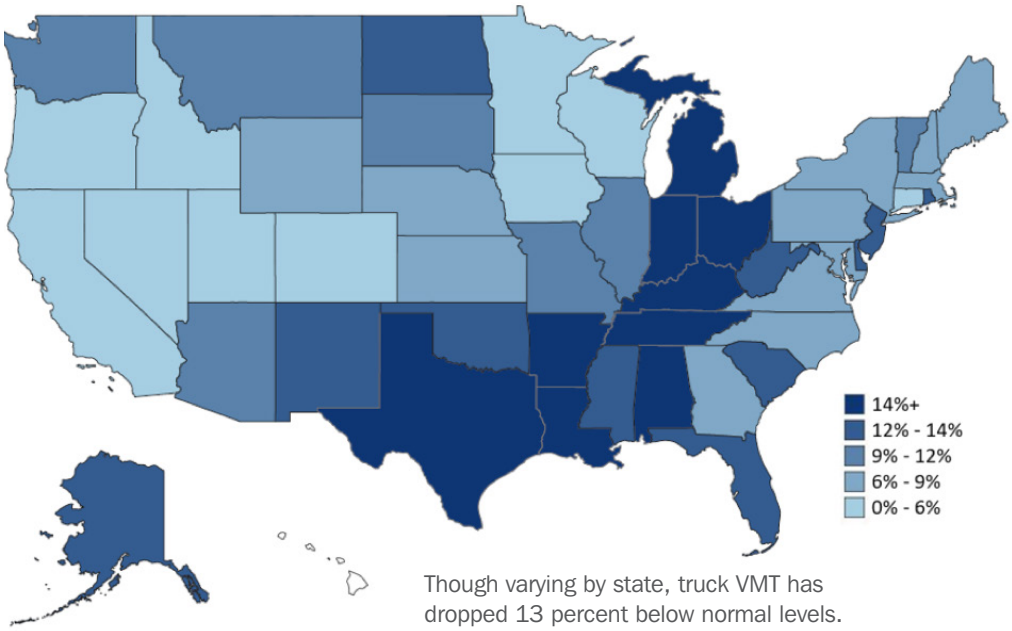
REGIONAL & STATE FREIGHT TRAVEL TRENDS

To assess the impact of COVID-19 related shutdowns regionally, INRIX Research analyzed regions based on the Federal Highway Administration definition used in the "Traffic Volume Trends" publication, issued monthly.

As Figure 2 reveals, regional freight VMT has varied dramatically between regions during the onset of COVID-19 related shutdowns and changes to consumer behavior. The Southern Gulf region, followed by the North Central region, have seen the largest decreases in freight VMT throughout the shutdown, while the North East and South Atlantic regions lagged until Week 4. In Week 5, all regions experienced reduced freight travel, with the Western region having the smallest decrease in freight VMT.

FIGURE 2:

Decrease in Freight VMT (reduction from normal)



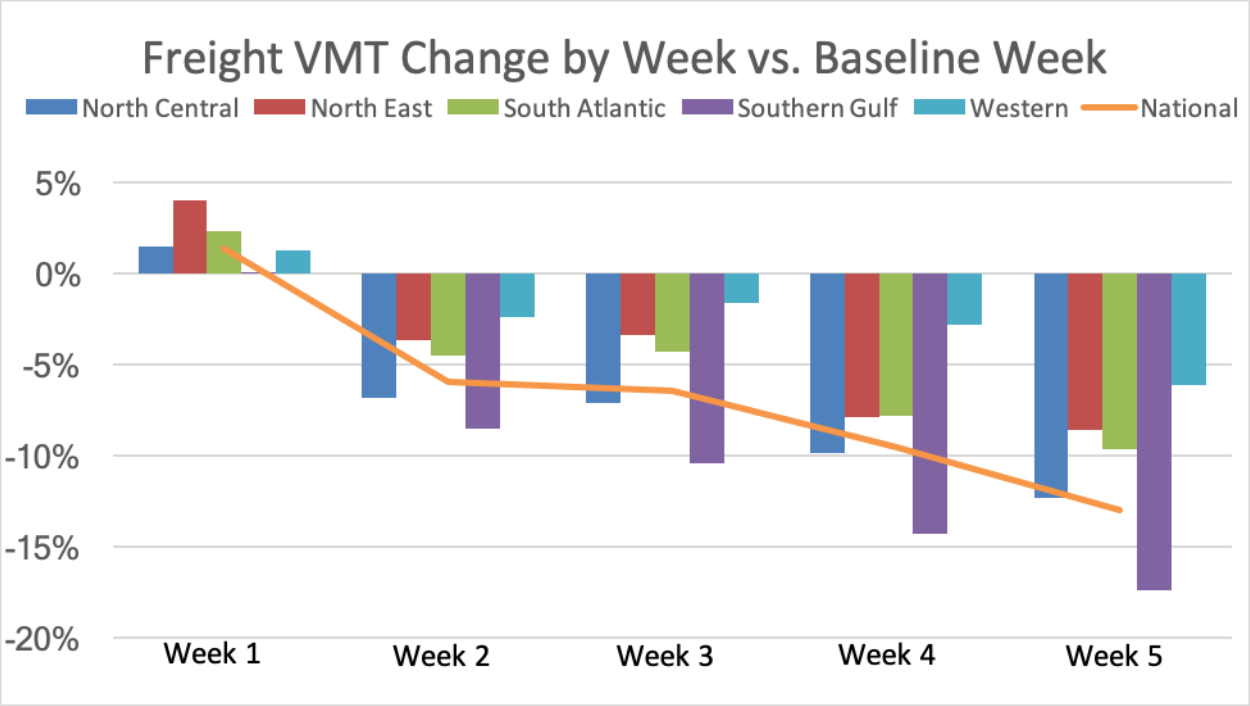
Though varying by state, truck VMT has dropped 13 percent below normal levels.

FIGURE 3:

Regional Definitions

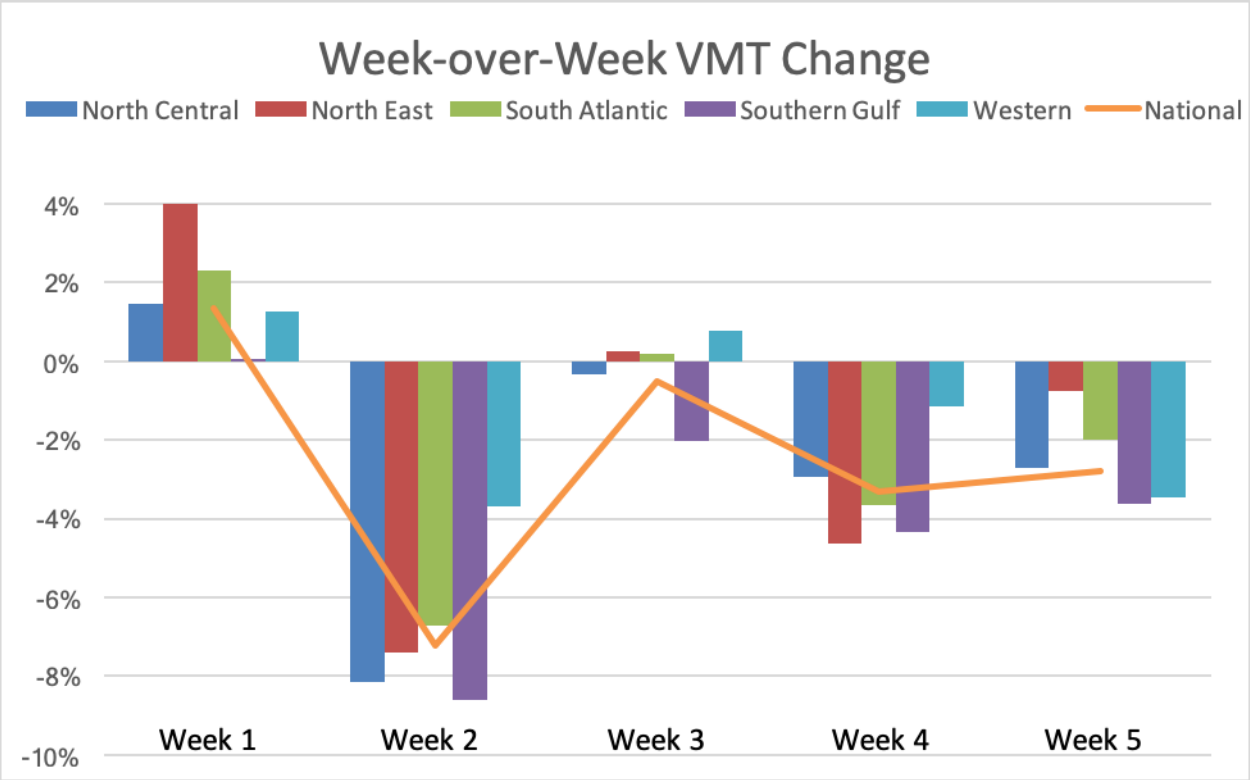
NORTH CENTRAL	NORTH EAST	SOUTH ATLANTIC	SOUTHERN GULF	WESTERN
Illinois	Connecticut	Delaware	Alabama	Alaska
Indiana	Maine	Florida	Arkansas	Arizona
Iowa	Massachusetts	Georgia	Kentucky	California
Kansas	New Hampshire	Maryland	Louisiana	Colorado
Michigan	New Jersey	North Carolina	Mississippi	Idaho
Minnesota	New York	South Carolina	Oklahoma	Montana
Missouri	Pennsylvania	Virginia	Tennessee	Nevada
Nebraska	Rhode Island	West Virginia	Texas	New Mexico
North Dakota	Vermont			Oregon
Ohio				Utah
South Dakota				Washington
Wisconsin				Wyoming

FIGURE 4:
TOTAL FREIGHT VMT CHANGE BY WEEK VS BASELINE WEEK



A closer look into week-to-week changes can be seen in Figure 4. Freight VMT fell dramatically across all regions in Week 2, while pulling back Week 3 and decreasing again the next. Week 5 saw another drop in freight across all regions, though at a lower rate than previous weeks. Both the Western and the Southern Gulf regions contracted more than the nation as a whole in Week 5.

FIGURE 5:
FREIGHT VMT RATE OF CHANGE (VERSUS PREVIOUS WEEK)

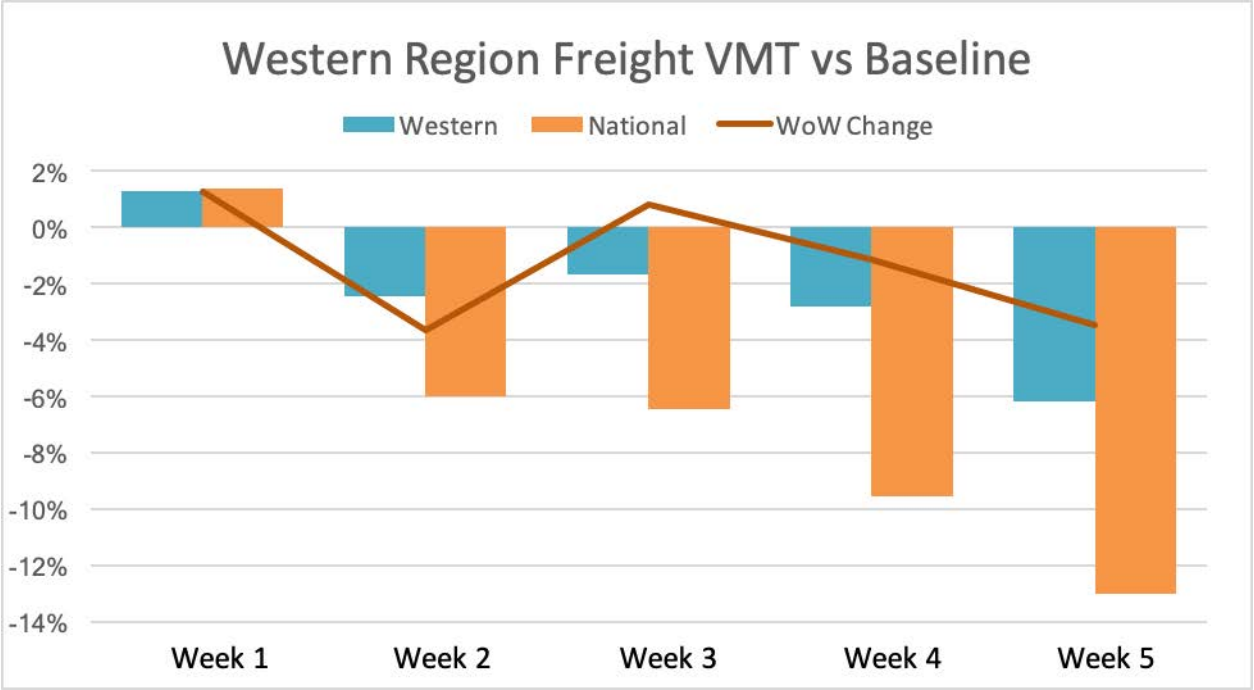


WESTERN REGION

Freight movement in the Western U.S. (including Alaska) has been the least impacted region since the closures of non-essential businesses and government services. As of April 17, freight VMT is down six percent compared to the baseline week.

During the second week of shutdown, freight VMT in the Western region dropped nearly four percent. However, the following two weeks held steady, with a week-to-week increase of 0.8% in Week 3, and a 1.2% decrease from Week 3 to Week 4. Figure 5, however, saw a week-to-week drop of three percent, pushing freight travel in the Western region six percent below the baseline week.

FIGURE 6:
FREIGHT VMT IN WESTERN REGION VS NATIONAL, VS BASELINE



STATE	CHANGE
Alaska	-12%
Arizona	-11%
California	-4%
Colorado	-5%
Idaho	-5%
Montana	-10%
Nevada	-3%
New Mexico	-13%
Oregon	-2%
Utah	0%
Washington	-10%
Wyoming	-6%

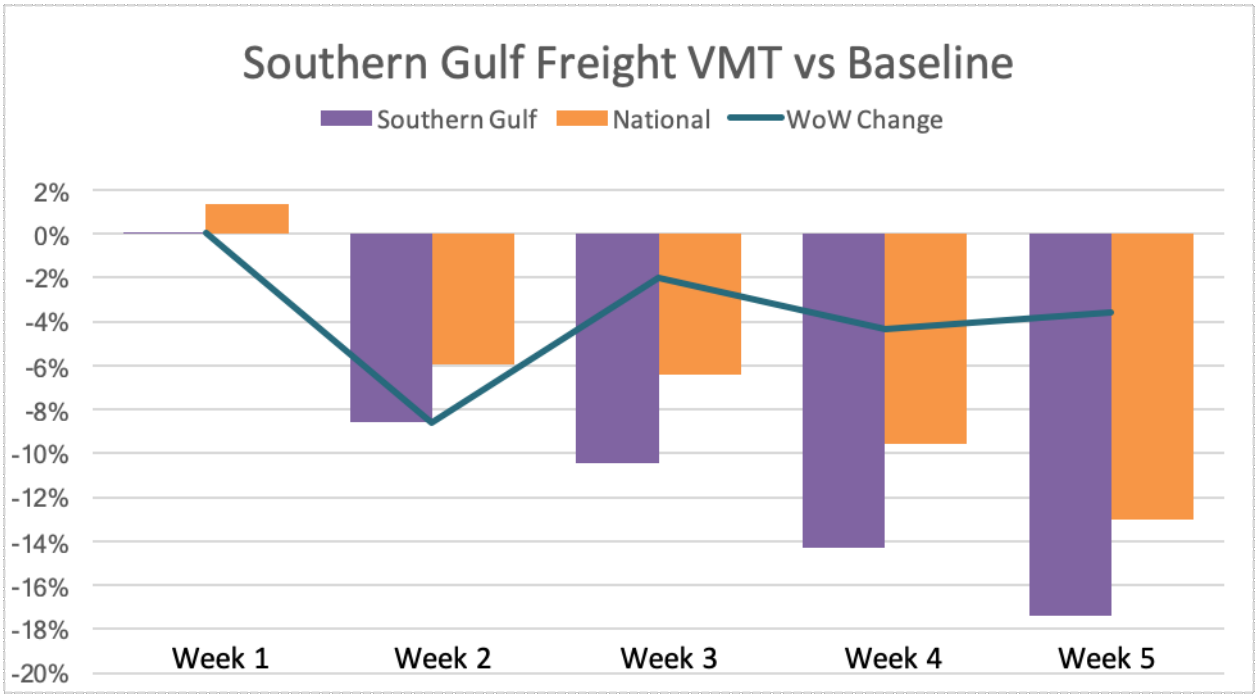
Every state, except Utah, has seen a drop in long-haul trucking, with New Mexico experiencing the largest drop of 13 percent. Alaska has been the biggest weekly mover, shedding increases in freight VMT in Weeks 1 to 4 with a 21 percent drop from Week 4 to 5. No state in the Western region increased freight travel in Week 5.

SOUTHERN GULF REGION

Freight movement in the Southern Gulf has decreased the most out of all regions analyzed (17 percent below normal). Commercial trucking VMT in the Southern Gulf region has continued to contract since Week 1, outpacing the weekly negative growth rate of the nation every week. The region continues to be hard hit by oil market volatility and manufacturing closures, which may continue to draw freight VMT down in the future.

Figure 7 provides a comparison between the Southern Gulf Region and the nation. In Week 3, all other regions analyzed had kept freight VMT flat from Week 2, except the Southern Gulf. In Week 3, freight movement went down a further two percent, ending 10 percent lower than the baseline level.

FIGURE 7:
FREIGHT VMT IN SOUTHERN GULF VS NATIONAL, VS BASELINE



STATE	WEEK 5 V BASELINE
Alabama	-14%
Arkansas	-18%
Kentucky	-20%
Louisiana	-15%
Mississippi	-13%
Oklahoma	-12%
Tennessee	-16%
Texas	-20%

Every state in the Southern Gulf region has seen a decline in trucking during the pandemic-related closing of restaurants, schools and other businesses and institutions. All states have seen double-digit drops in freight activity, with Texas and Kentucky 20 percent below normal levels. Along with drops in Arkansas, the Southern Gulf Region is home to three of the top five states in long-haul trucking contractions.

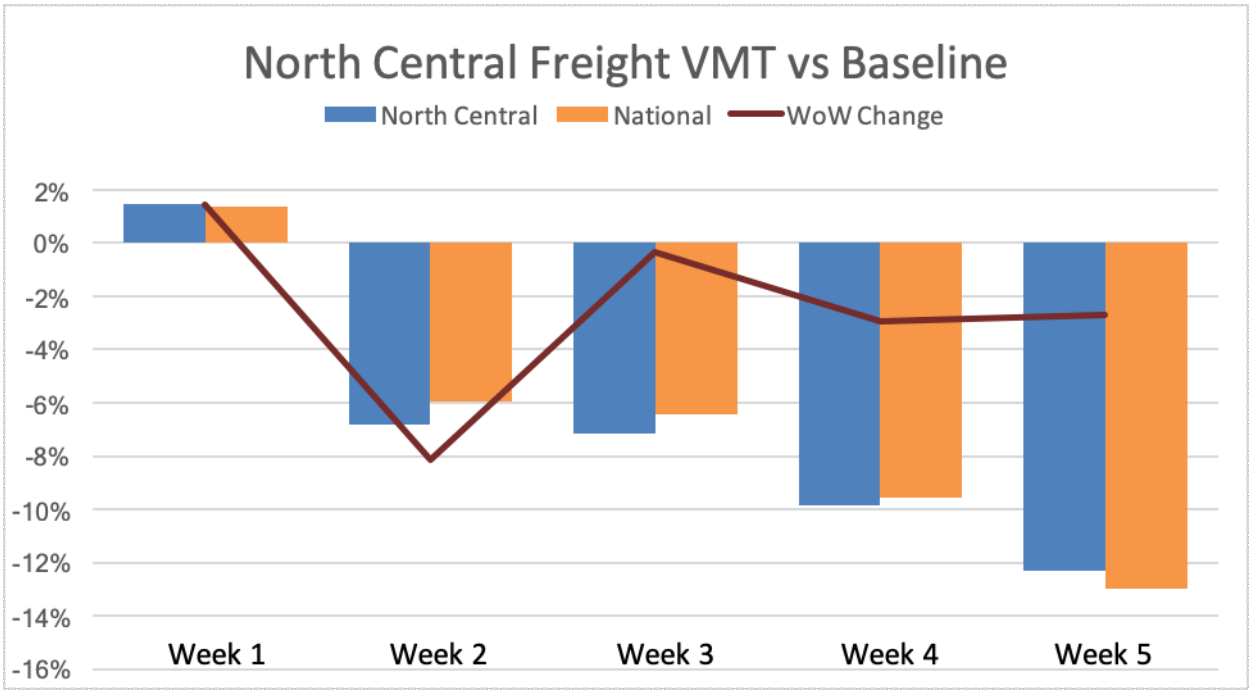
The reduction in freight movement may be partially due to hard goods manufacturing, as it represents a large portion of the Gross Domestic Product in these states. It is also important to recognize this area is also home to major freight corridors, like I-70, I-80 and I-90, and shutdown impacts in other states will weigh heavily on freight VMT throughout the North Central region.

NORTH CENTRAL REGION

Truck travel in the North Central region has changed alongside the national reduction, at 13 percent below normal levels.

However, within the region, there is a wide range in the severity of impact. For example, miles traveled by freight was 37 percent below the baseline week in Michigan, while freight travel in the neighboring states of Minnesota and Wisconsin are just four percent below normal.

FIGURE 8:
FREIGHT VMT IN NORTH CENTRAL VS NATIONAL, VS BASELINE



STATE	CHANGE
Illinois	-10%
Indiana	-16%
Iowa	-4%
Kansas	-6%
Michigan	-37%
Minnesota	-4%
Missouri	-10%
Nebraska	-6%
North Dakota	-12%
Ohio	-14%
South Dakota	-10%
Wisconsin	-4%

The contraction in VMT in Michigan was largely concentrated in Week 2, when the state saw VMT levels 28 percent below normal. Indiana and Ohio also saw large drops in Week 2 of 12 and 11 percent, respectively, but have largely stabilized. However, truck travel in other states, specifically Nebraska, increased

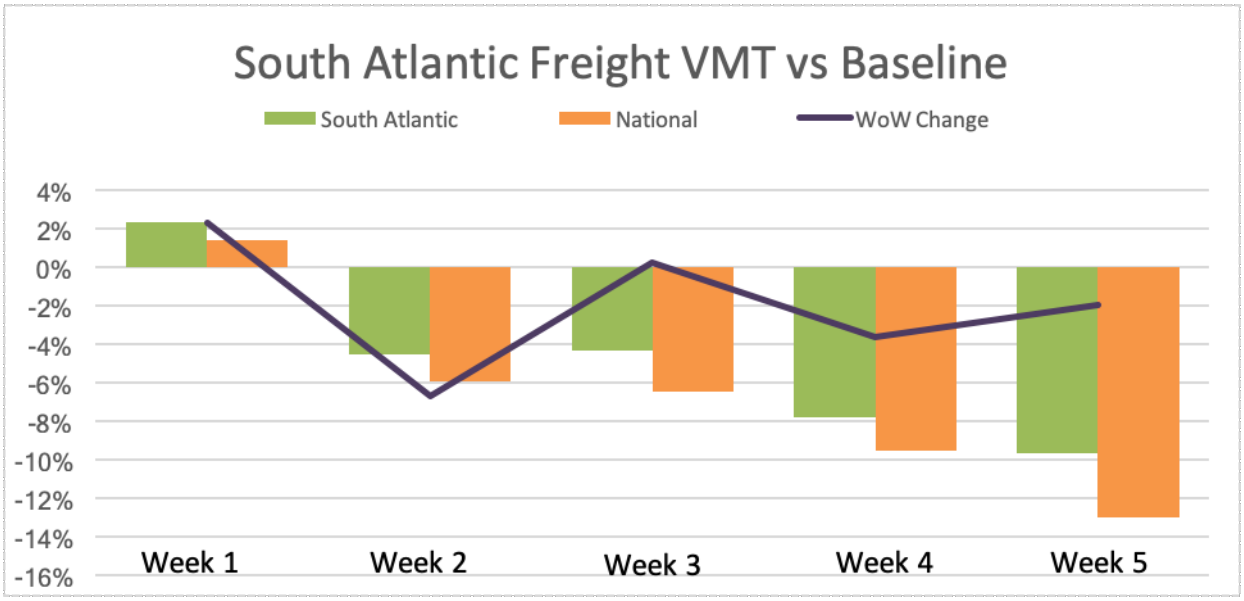
SOUTH ATLANTIC REGION

Freight VMT in the South Atlantic region has declined 10 percent since the COVID-19 related shutdowns. Though the decrease is lower than the nation as a whole, freight travel in West Virginia, Florida and South Carolina has fallen by double digits, with the Carolinas both down about nine percent.

Like most regions, freight VMT in the South Atlantic region pulled back in Week 3 before dropping the following week, led by five percent in Florida, North Carolina and West Virginia. Every state still experienced a reduction in freight travel in Week 5, yet the drop in VMT was much smaller than in previous weeks, ranging from one (multiple) to four percent drop (Virginia).

FIGURE 9:

FREIGHT VMT IN SOUTH ATLANTIC VS NATIONAL, VS BASELINE



STATE	WEEK 5 V BASELINE
Delaware	-6%
Florida	-12%
Georgia	-8%
Maryland	-6%
North Carolina	-9%
South Carolina	-12%
Virginia	-9%
West Virginia	-13%

NORTHEAST REGION

The Northeast region saw a nine percent drop in freight VMT compared to the baseline week. Freight travel dropped 13 percent in New Jersey, the largest drop among the nine states in the region, New York followed closely with a reduction of nine percent.

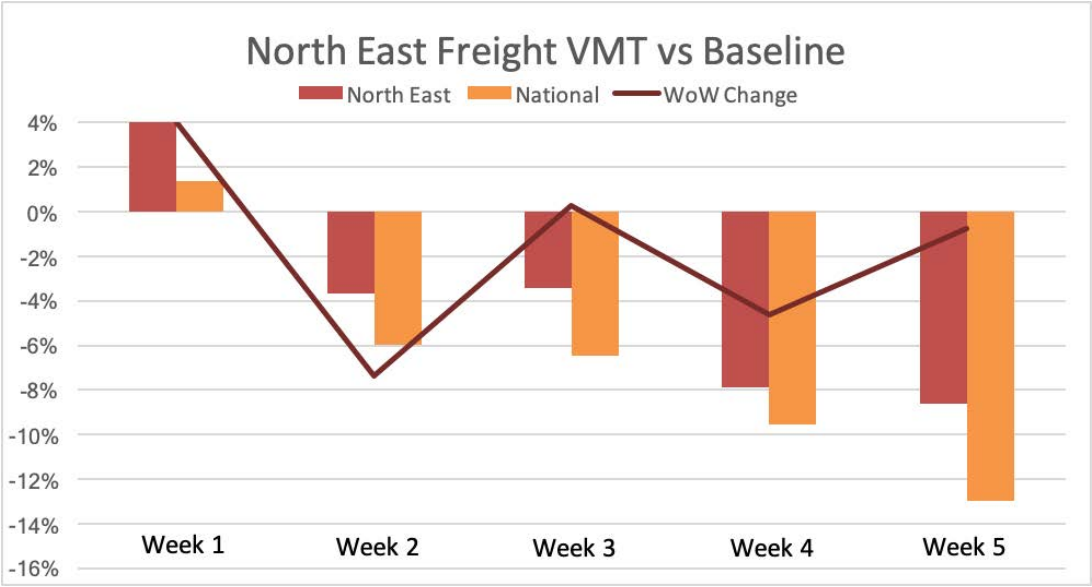
The Northeast Region had its biggest swing in Week 2, going from a four percent increase in Week 1 to a four percent decrease in Week 2, before pulling back a bit in Week 3.

Though regional freight travel kept steady from Week 2 to Week 3, due largely to Pennsylvania's two percent gains in freight VMT during that timeframe, Week 4 saw a continued drop off in six of the nine states in the Northeast region, resulting in a five percent drop for the region week-to-week, the largest drop in Week 4 of any region. Week 5, however, saw the lowest drop of any region, at a one percent drop.

Between Week 4 and Week 5, only two states in the country saw their freight VMT increase: Maine and New Jersey, both of which ticked up one percent week over week.

In sum, the largest drops in freight travel among the nine states in the region were in New Jersey and Rhode Island, where travel dropped 12 percent. Freight travel in New York, one of the hardest-hit states by COVID-19, saw freight travel nine percent below baseline.

FIGURE 10:
FREIGHT VMT IN NORTH EAST REGION VS NATIONAL, VS BASELINE



STATE	WEEK 5 V BASELINE
Connecticut	-3%
Maine	-7%
Massachusetts	-8%
New Hampshire	-6%
New Jersey	-12%
New York	-9%
Pennsylvania	-8%
Rhode Island	-12%
Vermont	-10%

GAINS IN TRAVEL SPEEDS

The reduction in personal VMT has returned many interstates and highways to near free flow speeds, even during periods of the morning and afternoon commute. These gains in travel speeds help employees and caretakers continue their essential work without delay and allow local fleets and commercial companies the ability to speed up delivery and achieve a higher number of deliveries.

Using INRIX Road Analytics, INRIX Research have identified the gains in average travel speeds on all national interstates and regional highways and expressways limited access around these major metropolitan areas.

FIGURE 11:
INCREASE IN TRAVEL SPEEDS BY METROPOLITAN STATISTICAL AREA

Increase Highway Travel Speeds[v]

METRO AREA	MORNING RUSH HOUR (8:00AM)	EVENING RUSH HOUR (5:00PM)
Atlanta	26%	33%
Baltimore	30%	32%
Boston	33%	29%
Charlotte	12%	24%
Chicago	11%	20%
Dallas	19%	34%
Denver	13%	24%
Detroit	11%	32%
Houston	26%	44%
Los Angeles	46%	59%
Miami	26%	38%
Minneapolis-St. Paul	6%	14%
New York	32%	40%
Orlando	12%	35%
Philadelphia	14%	21%
Phoenix	9%	15%
Portland	20%	32%
Sacramento	8%	19%
San Antonio	13%	31%
San Diego	20%	34%
San Francisco	51%	60%
Seattle	23%	31%
St. Louis	13%	13%
Tampa	11%	44%
Washington DC	22%	27%

CORRIDOR-LEVEL IMPACTS TO FREIGHT

Under pre-COVID conditions, traffic congestion resulted in billions of dollars and hundreds of hours lost per year for drivers commercial and personal travel across the country. Per the 2019 Global Traffic Scorecard, traffic congestion cost the United States $88 billion in lost time idling in traffic. However, shutdowns due to the coronavirus have freed up many of the nation's freeways, allowing trucks the opportunity to deliver goods and services across the country.

Though passenger travel has dropped 46 percent nationwide freight movers have been able to shed some of the costs of congestion, improving the movement of goods and services. To analyze what savings may be had on key trucking corridors, INRIX Research analyzed travel speeds before and during the COVID shutdowns, providing a window into freight movement without the extra cost of congestion.

NEW YORK CITY: Brooklyn Queens Expressway (Interstate – 278)

FIGURE 12:
BQE STUDY ZONE

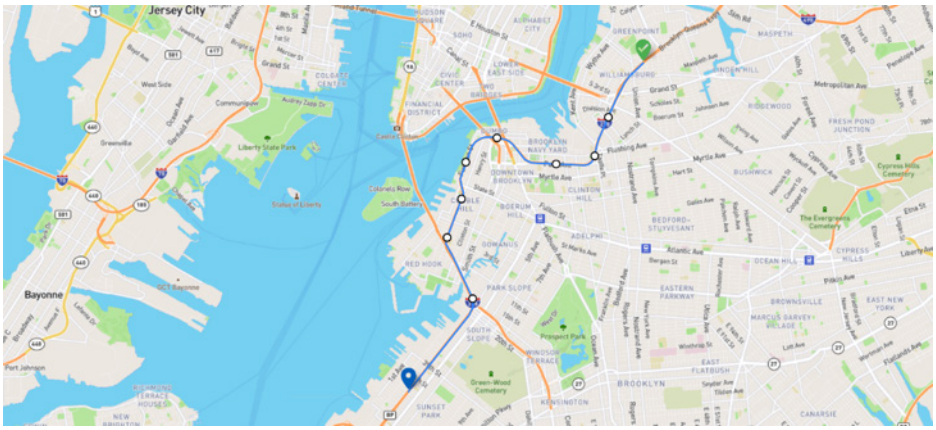
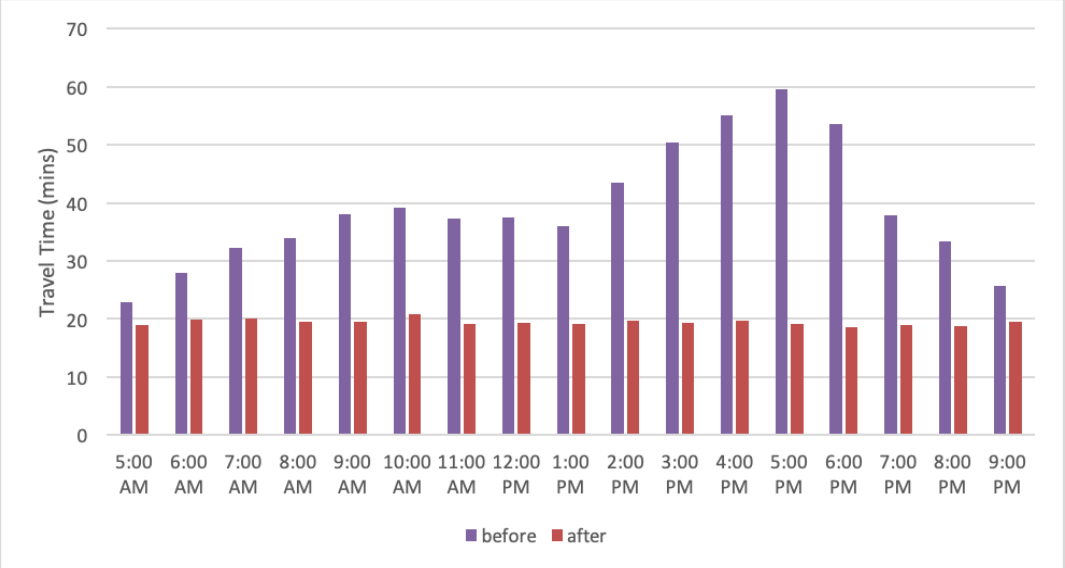


FIGURE 13:
BROOKLYN QUEENS EXPRESSWAY TRAVEL TIMES BEFORE & AFTER COVID SHUTDOWNS



The typically congested Brooklyn Queens Expressway (BQE) has shown remarkable time savings over the eight-mile stretch (15.93 miles, total) analyzed running from Sunset Park to Greenpoint. Travel times have declined in both directions by up to 68 percent at the 5:00PM rush hour. A trucking company using this facility would see more than 6.5 hours of savings per day per truck.

LOS ANGELES, CALIFORNIA: Interstate – 405

FIGURE 14:
I-405 STUDY ZONE

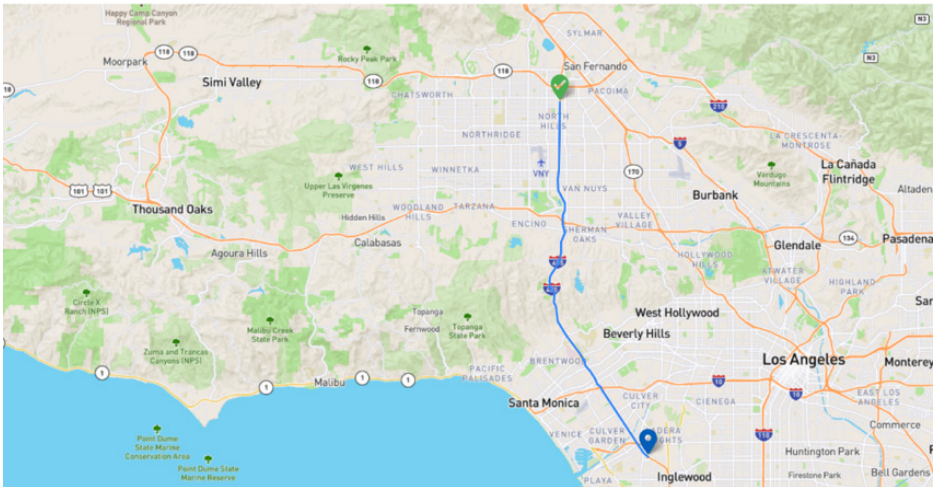
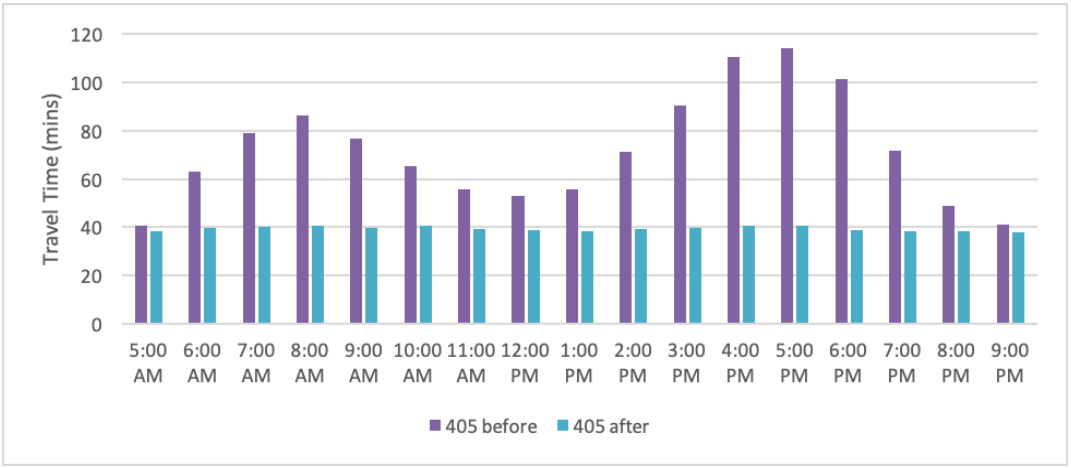


FIGURE 15:
I-405 TRAVEL TIMES BEFORE & AFTER COVID SHUTDOWNS



Trucks traversing Interstate 405 in Los Angeles, through Sepulveda Pass, experienced the greatest time savings in the morning and evening commute periods. Travel times are down more than 73 percent at the 5:00PM rush hour.

CHICAGO, ILLINOIS: Interstate – 290

FIGURE 16:
I-290 STUDY ZONE

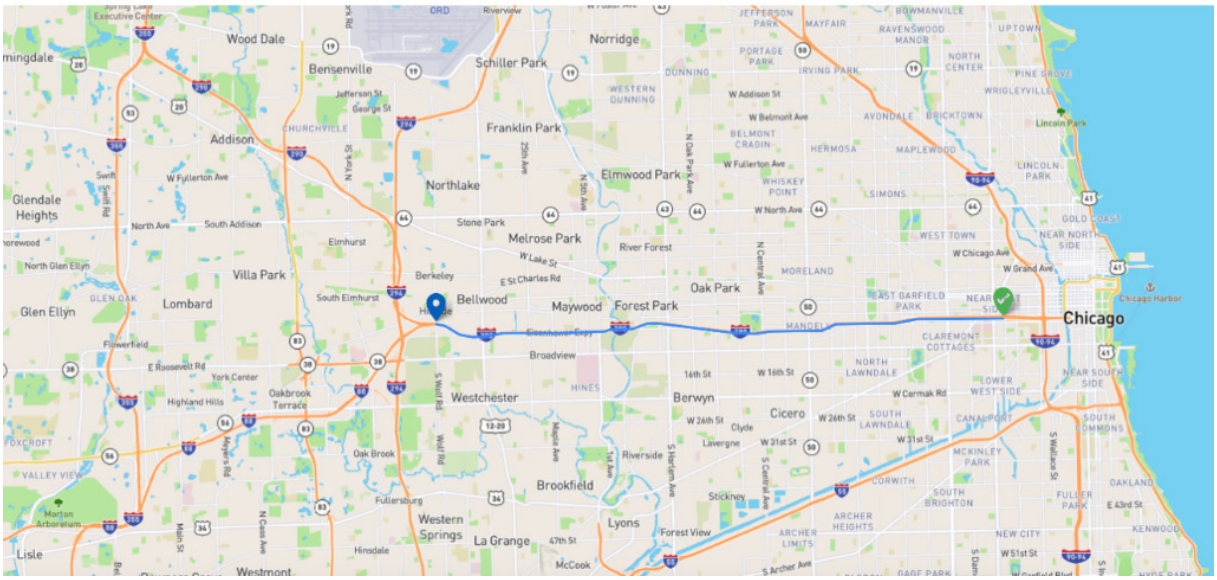
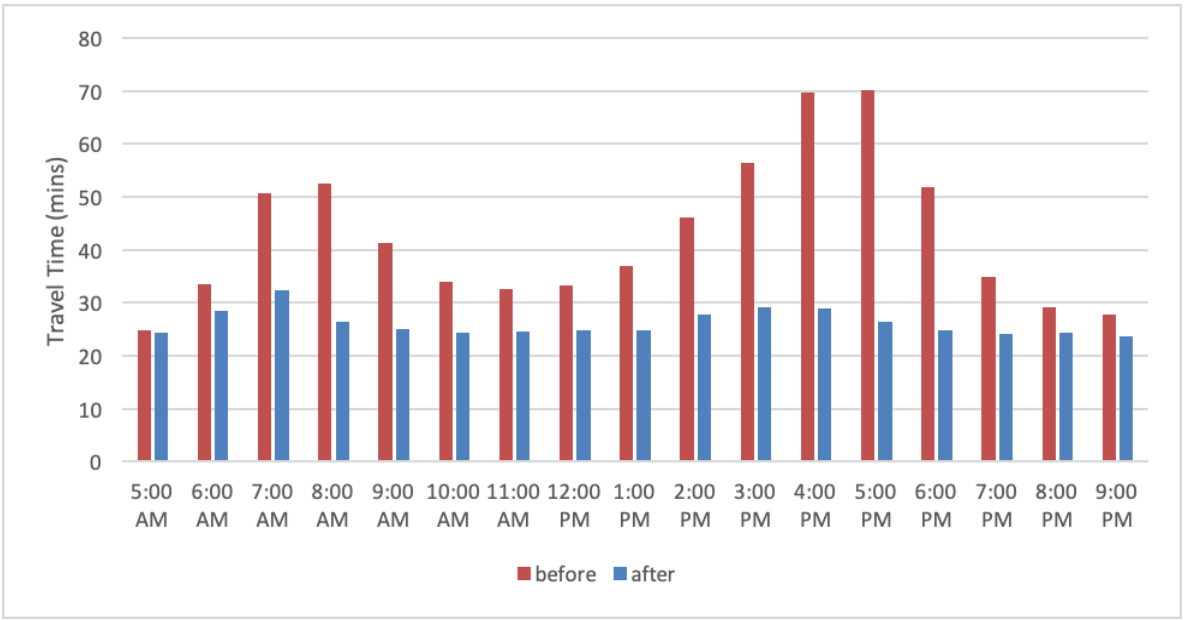


FIGURE 17:
I-290 TRAVEL TIMES BEFORE & AFTER COVID SHUTDOWNS



Interstate 290 in Chicago is another example of savings from congestion reduction. On this 12.5-mile stretch (25.1 miles in total), travel times improved more than 62 percent at 5:00PM rush hour.

Interstate – 90

FIGURE 18:
I-90 STUDY ZONE

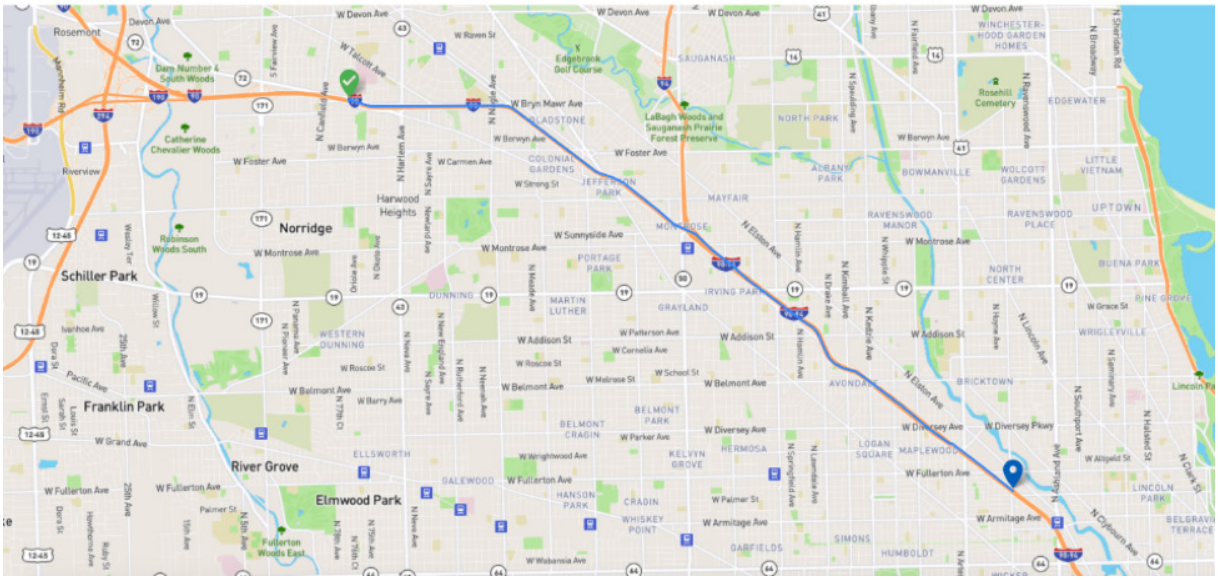
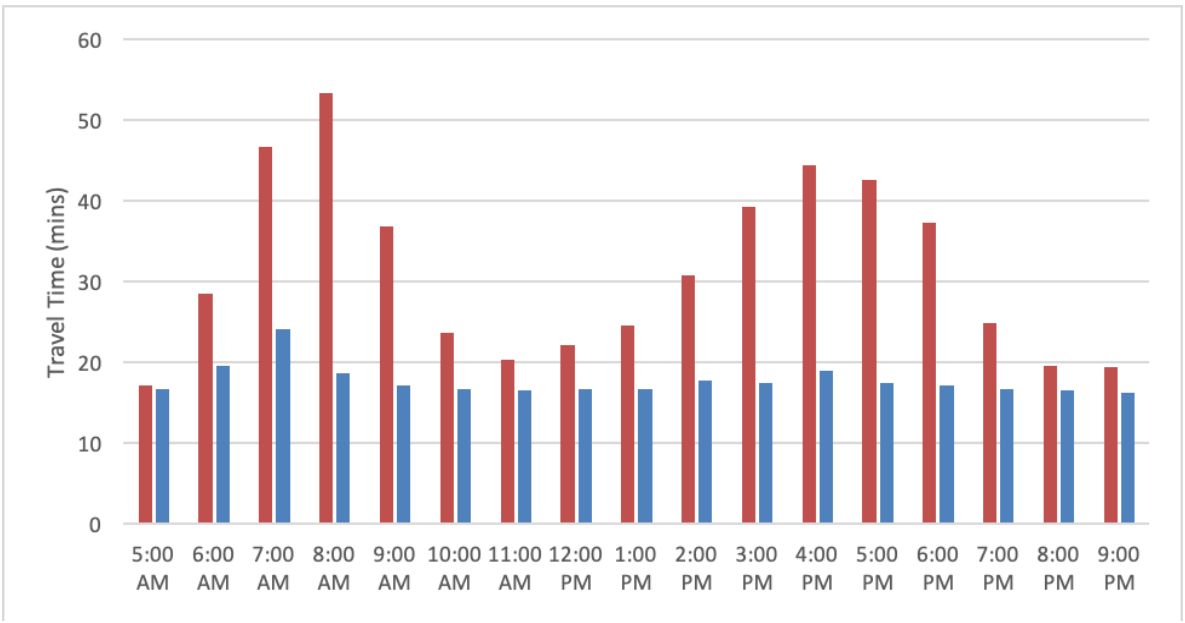


FIGURE 19:
I-90 TRAVEL TIMES BEFORE & AFTER COVID SHUTDOWNS



Unlike Interstate 290, Interstate 90 has the most dramatic performance increases during the morning commute, with travel times decreasing 65 percent.

ATLANTA, GEORGIA: Interstate – 285

FIGURE 20:
I-285 STUDY ZONE

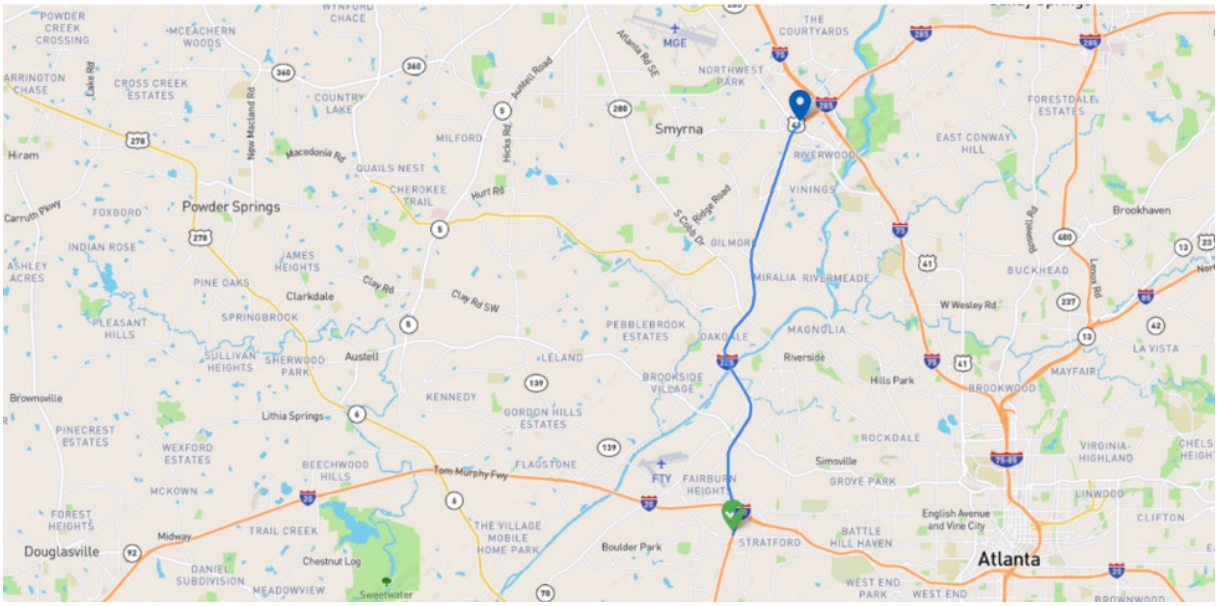
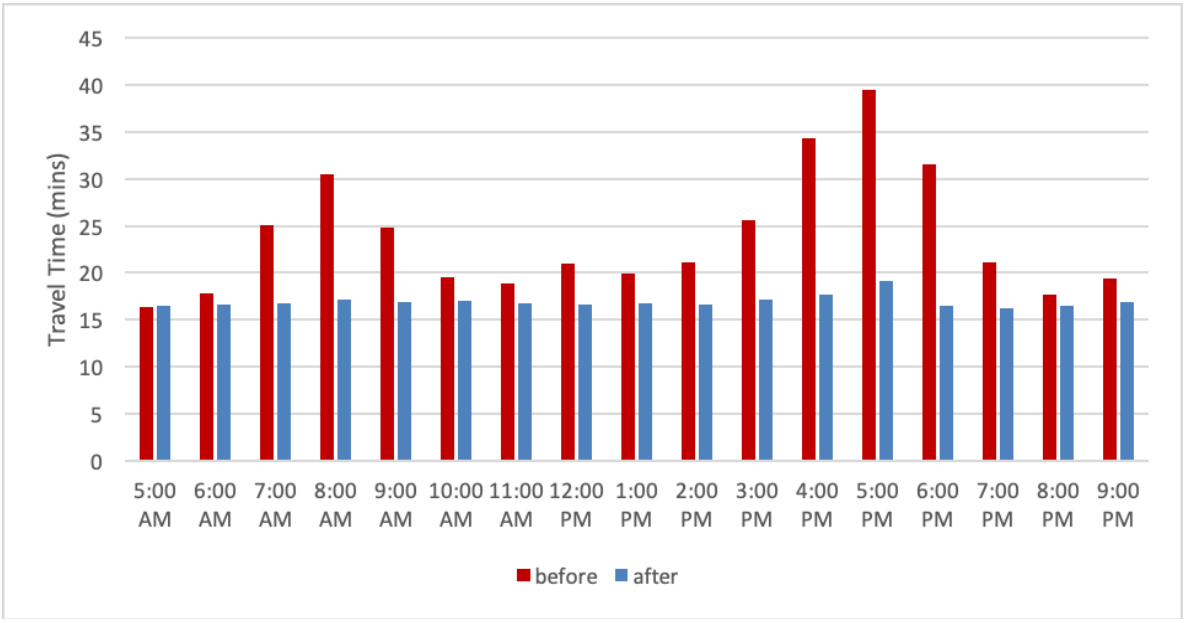


FIGURE 21:
I-285 TRAVEL TIMES BEFORE & AFTER COVID SHUTDOWNS



Interstate 285 in Atlanta achieved its greatest performance improvements in the evening commute period, with a 52 percent reduction in travel times at 5:00PM.

CONCLUSION

While the COVID-19 crisis continues to sweep the country, and the world, one rare bright spot is the vitality of the logistics network. Throughout the country, long-haul trucks continue to make their trips at nearly the same amount preceding the crisis, but don't have to contend with the congestion around urban areas that typically stifle productivity. Despite an unprecedented 46 percent drop in personal VMT, freight movement has fallen a modest 13 percent, highlighting how vital commercial freight is to the country's efforts to recover from the pandemic. Though regional differences in freight travel are apparent, interstates and highways in the Southern Gulf region were most impacted.

Freight corridors should be top of mind as the public and private sectors work toward investing in a federal infrastructure package. Ensuring these vital arteries are preserved and maintainedwill also be a welcome sight to drivers and consumers across the country as we recover from COVID-19. Looking at the country's busiest freight corridors, these time savings enable the rapid delivery of goods throughout the country - especially in this time of need.

i Featured on INRIX Blog at www.inrix.com/blog

iii INRIX Trip Analytics analyzes origin and destination data via anonymous GPS probes, see https://inrix.com/campaigns/inrix-trip-analytics/

iv "See Which States and Cities Have Told Residents to Stay at Home," by Sarah Mervosh, Denise Lu and Vanessa Swales," The New York Times, April 7,2020, at https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html.

v Comparison of FRC1 & FRC2 roads, 2/24/2020-2/28/2020 and 4/6/2020-4/10/2020

INRIX

NORTH AMERICA
10210 NE Points Drive
Suite 400
Kirkland
WA 98033
United States

+1 425-284-3800
info@inrix.com

EMEA
Station House
Stamford New Road
Altrincham
Cheshire
WA14 1EP
England

+44 161 927 3600
europe@inrix.com