



Impacts of Covid-19 in Maryland

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Contents

- [Key Insights](#)
- [Overview of analysis method](#)
- [Volume Impacts](#)
- [MDOT-SHA Volume Trend Analysis](#)
- [UMD COVID-19 Impact Analysis Platform](#)

Key Insights

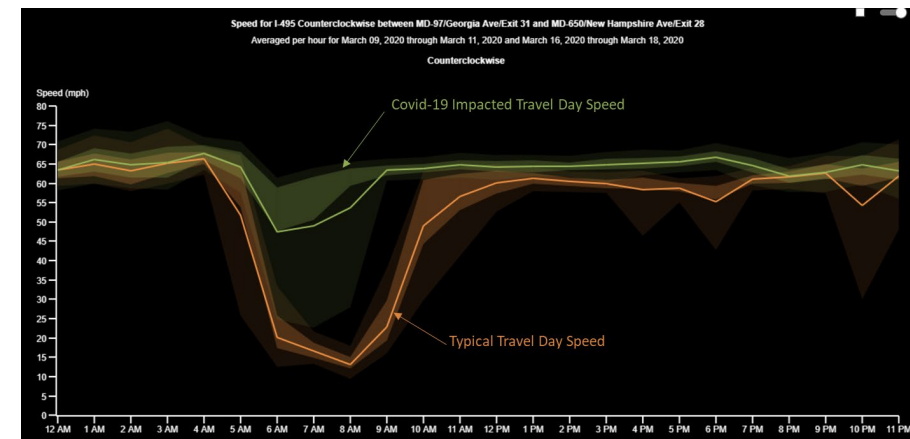
Key Insights

- Volumes generally **decreased by 19%** between typical travel days (3/9-3/11) and after implementing Covid-19 travel restriction days (3/16-3/18)
 - 45 out of 46 ATR stations showed **decreased volumes**
 - However, heavy commercial vehicle volumes **increased by 14%**
- Travel times consistently **decreased** on freeways and arterials
- User delay cost **decreased by 43%**
- CHART Events/Incidents **decreased by 49%**



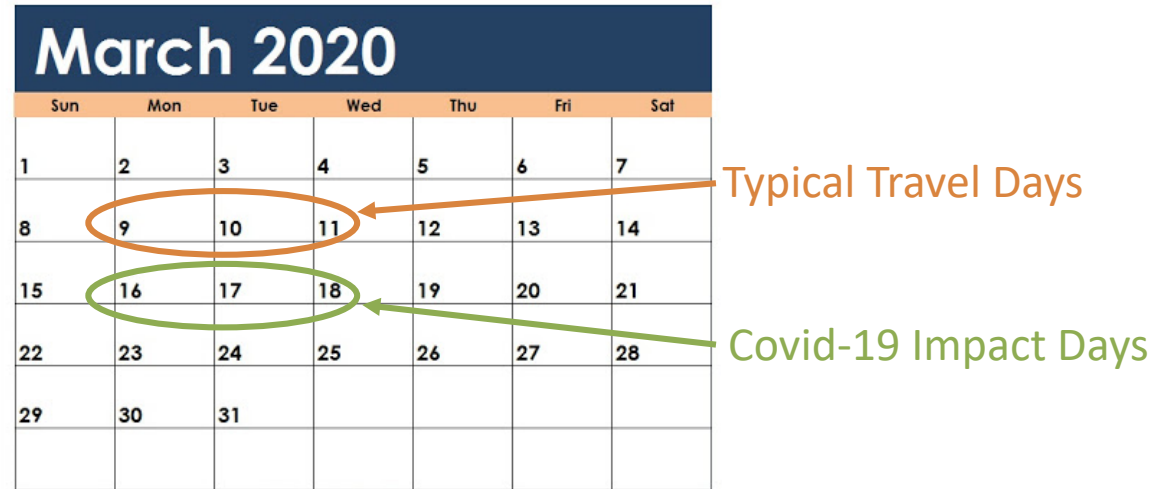
Typical Travel Days

Covid-19 Impact Days



Overview of analysis method

Typical Day vs Covid-19 Travel Impact Day



- Compared metrics on a **Typical Travel Days** vs **Covid-19 Impact Days**
 1. Typical Monday (3/9/2020) vs Covid-19 Travel Impact Monday (3/16/2020)
 2. Typical Tuesday (3/10/2020) vs Covid-19 Travel Impact Tuesday (3/17/2020)
 3. Typical Wednesday (3/11/2020) vs Covid-19 Travel Impact Wednesday (3/18/2020)

Volume Impacts

Analysis of volumes by vehicle class at 46 ATR stations across MD

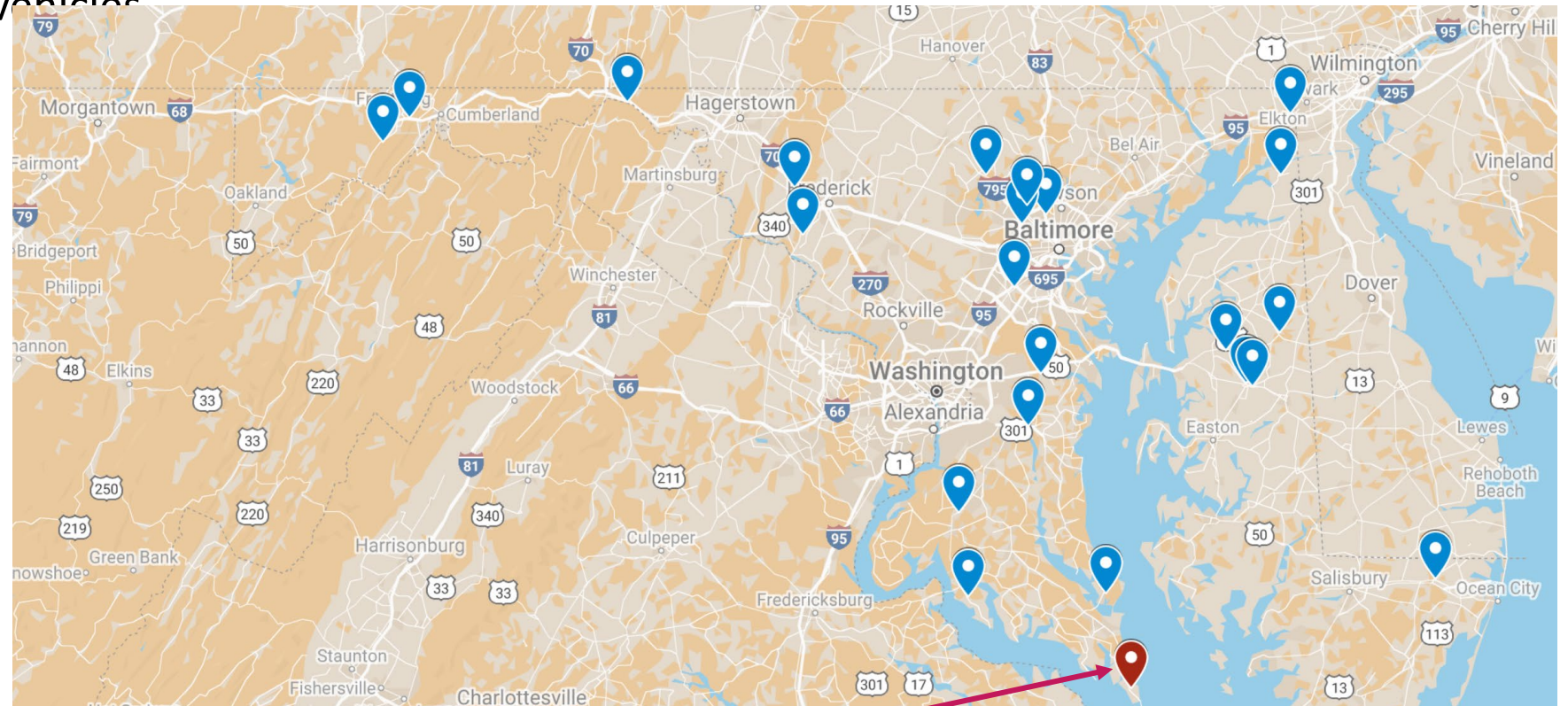
Key Insights of Volume Analysis

1. On average, after implementing Covid-19 travel restrictions:
 1. Total volumes **decreased by 19%**
 - Passenger vehicles volumes **decreased by 23%**
 - Bus volumes **decreased by 30%**
 - Single unit truck volumes **decreased by 10%**
 - Heavy commercial vehicle volumes **increased by 14%**
 2. 45 of 46 volume count stations showed **decreased volumes** after implementing Covid-19 travel restrictions
 - Less than 1% volume increase at the MD 5 near Fresh Pond Neck Rd (St. Mary's County)
 - Weekday volumes ~725 vehicles/day (rural area)
 - Provides access to Point Lookout
3. Volumes of passenger vehicles, buses, and single unit trucks have a **decreasing trend** by day of week after implementing Covid-19 travel restrictions

Maryland Volume Data

- 46 permanent count stations throughout the state
 - Included vehicle classification information
 - Passenger vehicles, buses, single unit trucks, and heavy commercial vehicles

County	# of Count Stations
Allegany	4
Anne Arundel	2
Baltimore	6
Calvert	2
Caroline	4
Carroll	2
Cecil	4
Charles	4
Frederick	4
Howard	2
Prince Georges	2
Queen Annes	4
St Marys	2
Washington	2
Worcester	2
TOTAL	46



Location of site with <1% volume increase

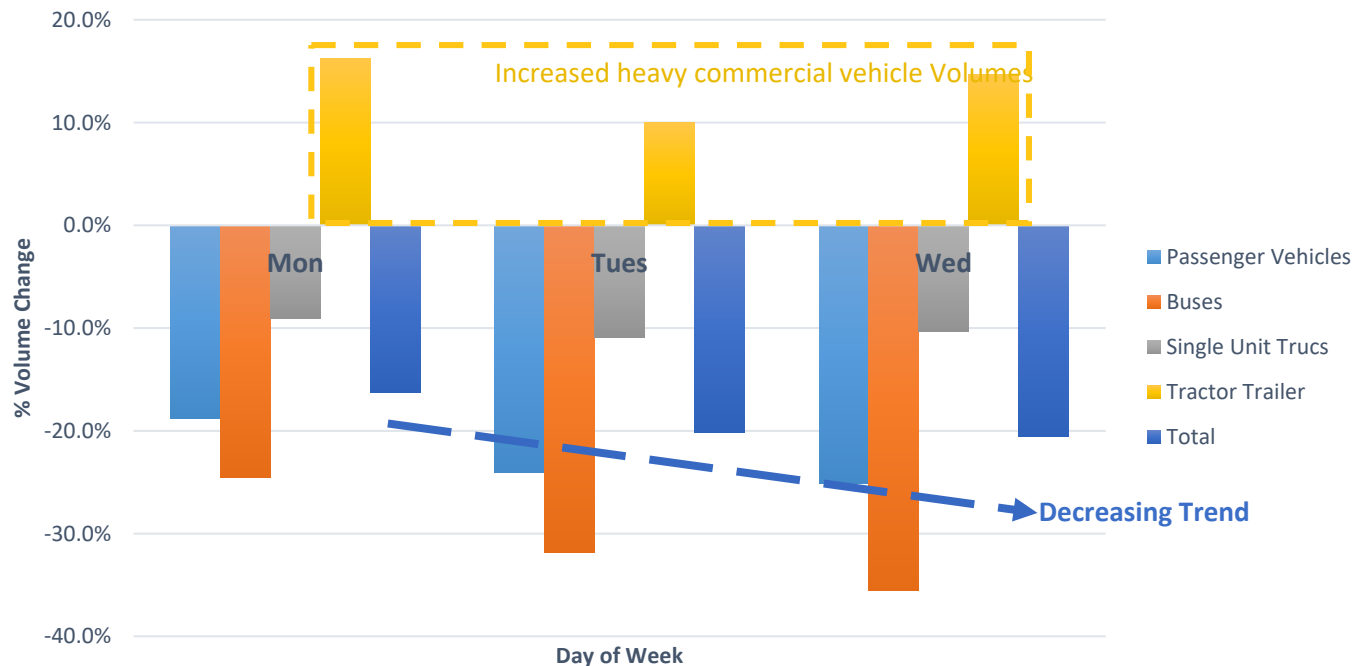
Volume Analysis: Typical Day vs Covid-19 Travel Impact Day

- Compared the volumes within each vehicle class at each count station
- Averaged the change in volume across each vehicle class, across all count stations

Results: Average Volume Change by Vehicle Class and Day of Week

Day of Week	Passenger Vehicles	Buses	Single Unit Trucks	heavy commercial vehicle	Total (All vehicle classes)
Mon (3/9 vs 3/16)	-18.8%	-24.5%	-9.0%	16.2%	-16.2%
Tues (3/10 vs 3/17)	-24.1%	-31.8%	-10.9%	10.0%	-20.2%
Wed (3/11 vs 3/18)	-25.2%	-35.5%	-10.3%	14.7%	-20.6%

Percent Change in Traffic Volume by Vehicle Class

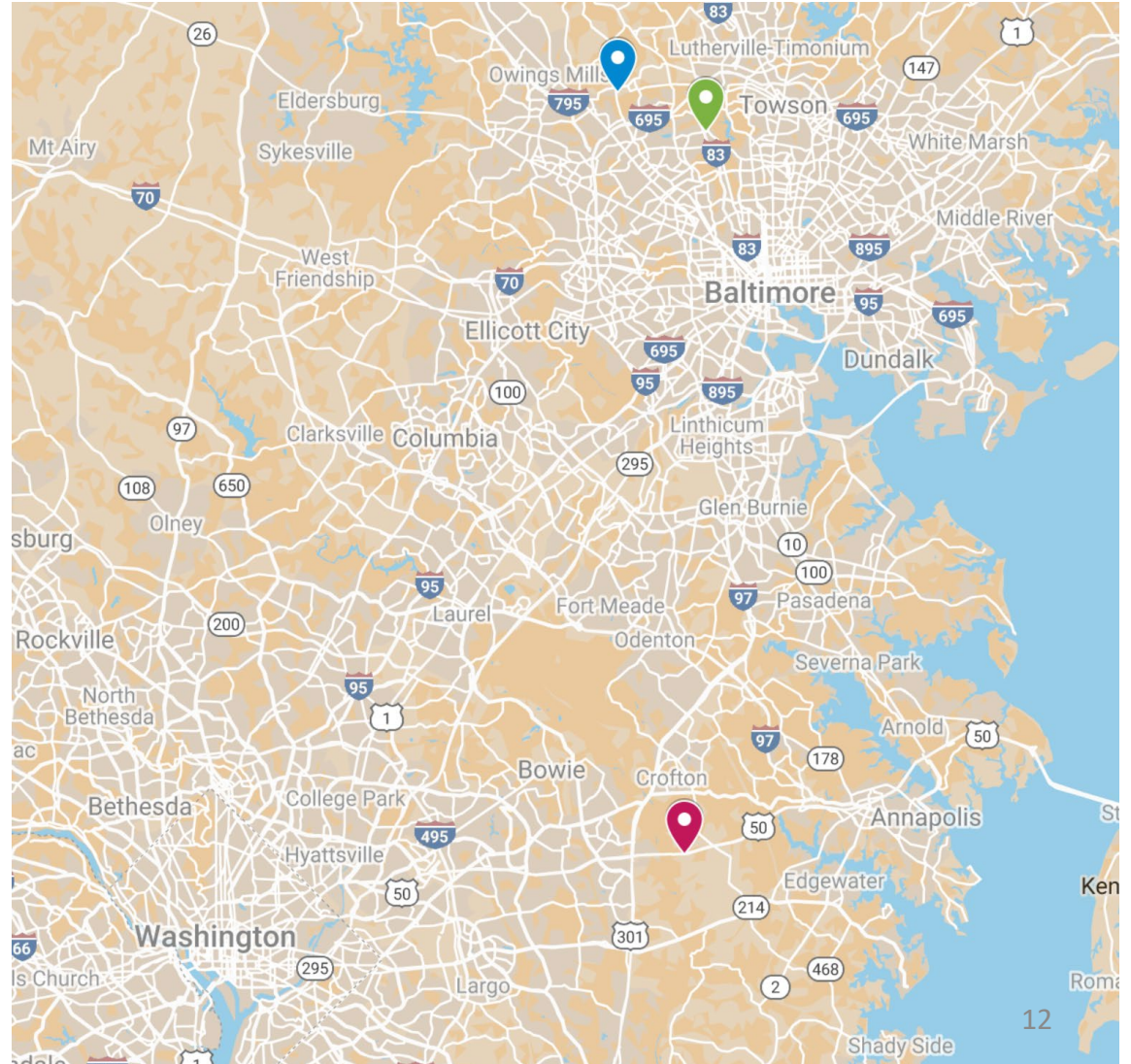


Key Insights

1. 45 of 46 count stations showed **decreased volumes**
2. Passenger vehicles, buses, and single unit trucks **decreased by 9-35%** after implementing Covid-19 travel restrictions
3. Volumes of passenger vehicles, buses, and single unit trucks have a **decreasing trend** by day of week after implementing Covid-19 travel restrictions
4. Heavy commercial vehicle volumes **increased by 10-16%** after implementing Covid-19 travel restrictions

Top 3 Count Stations with Largest Percent Total Volume Decrease

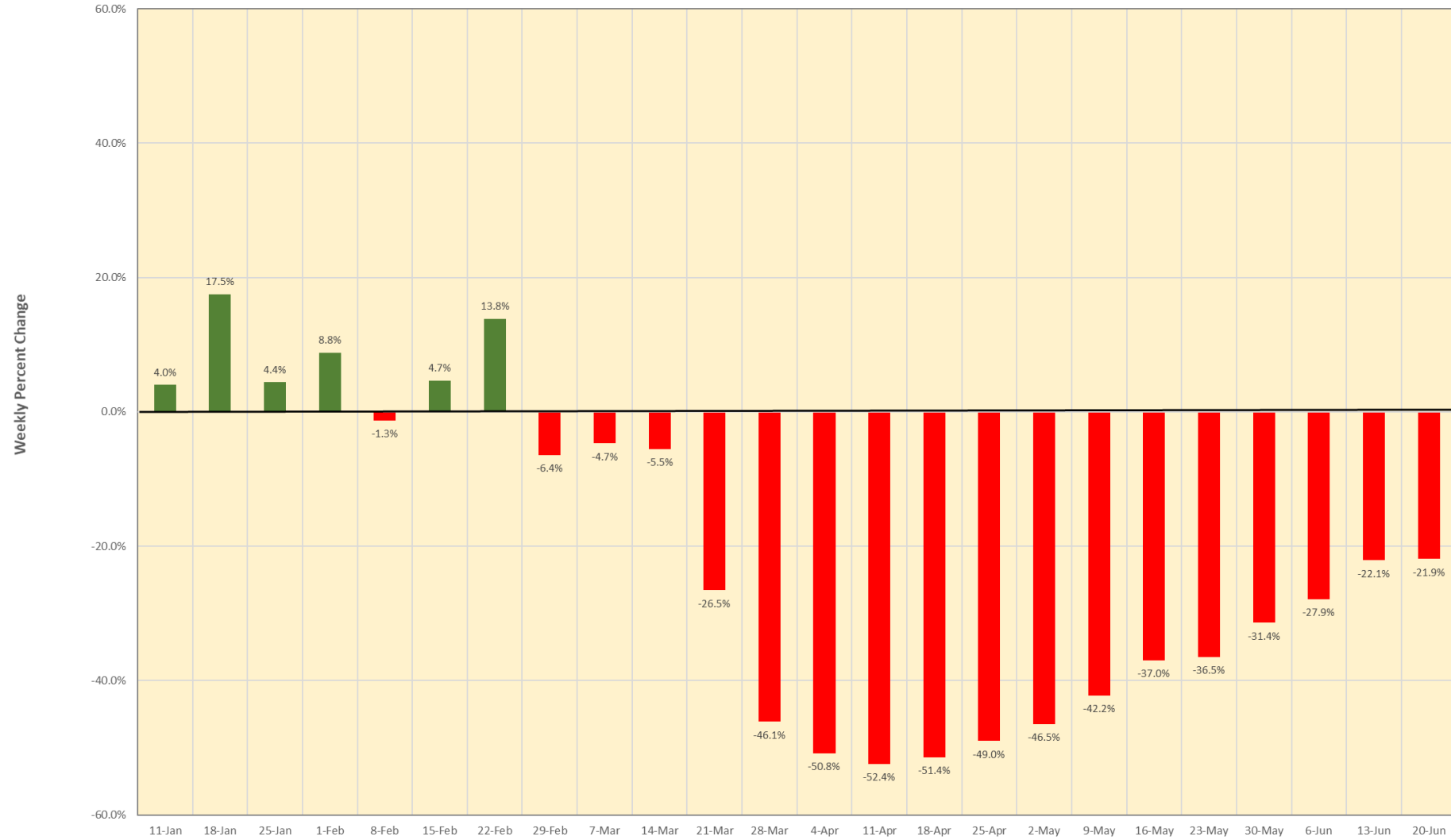
LOCATION DESC	% Change
US 50/IS 595 - 1.34 Miles West of MD 424	-30%
I 83 - 0.04 Mile North of Old Pimlico Rd	-32%
MD 129 - 0.18 Mile South of MD 130	-38%



MDOT-SHA Volume Trend Analysis

Special Thanks to the MDOT-SHA Traffic Monitoring System Team
Chris Sklar, Abhay Nigam and Anil Kumar

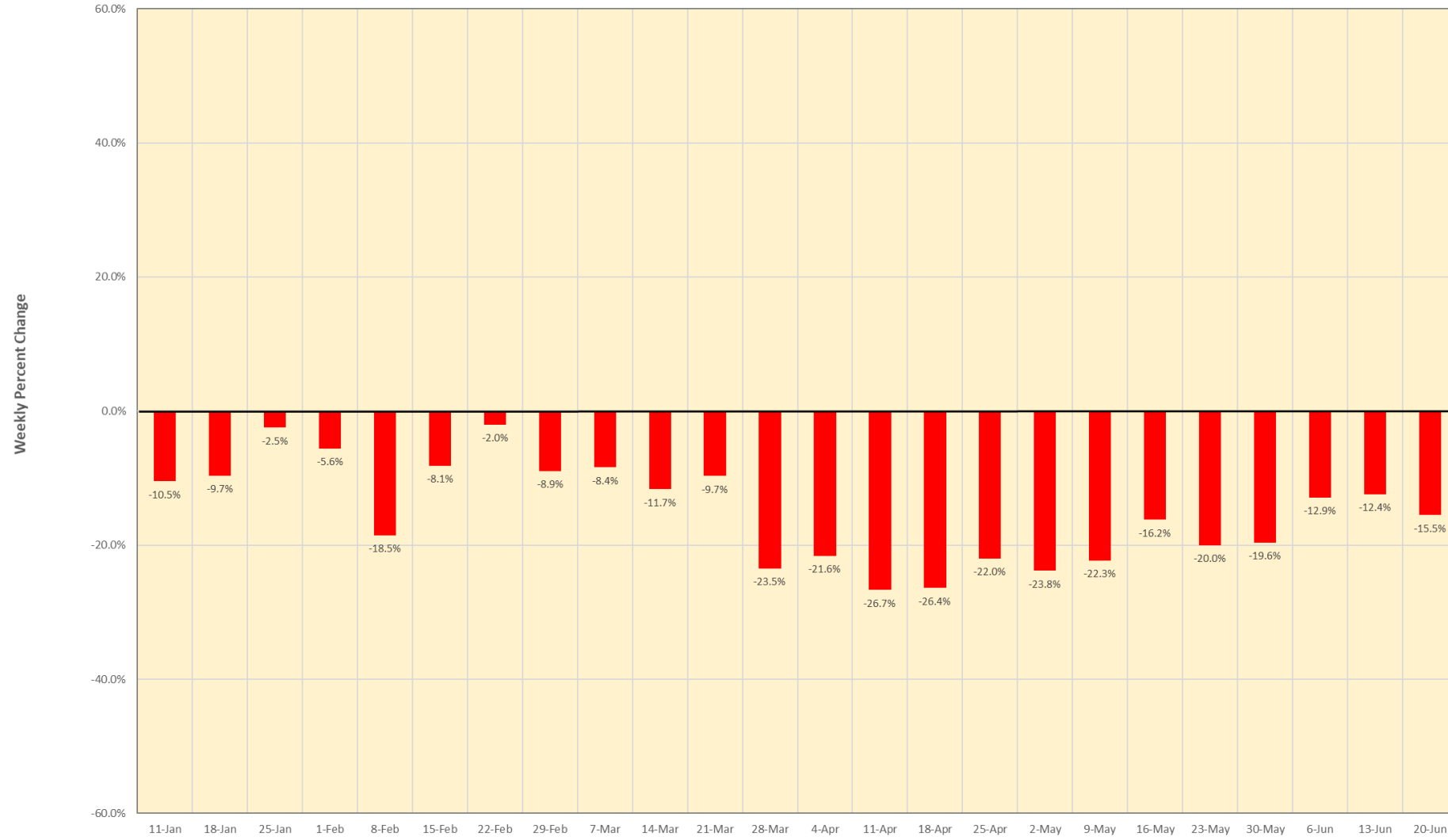
Weekly Changes at Permanent Counters (ATR) from 2019 to 2020



Week Ending

Data prepared by
 Data Services Division
 Office of Planning and Preliminary Engineering

Weekly Changes in Truck Volumes at Permanent Counters (ATR) from 2019 to 2020



Week Ending

Data prepared by
 Data Services Division
 Office of Planning and Preliminary Engineering

UMD COVID-19 Impact Analysis Platform

Developed by Maryland Transportation Institute and CATT Lab

<https://data.covid.umd.edu/>

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COVID-19 Impact Analysis Platform

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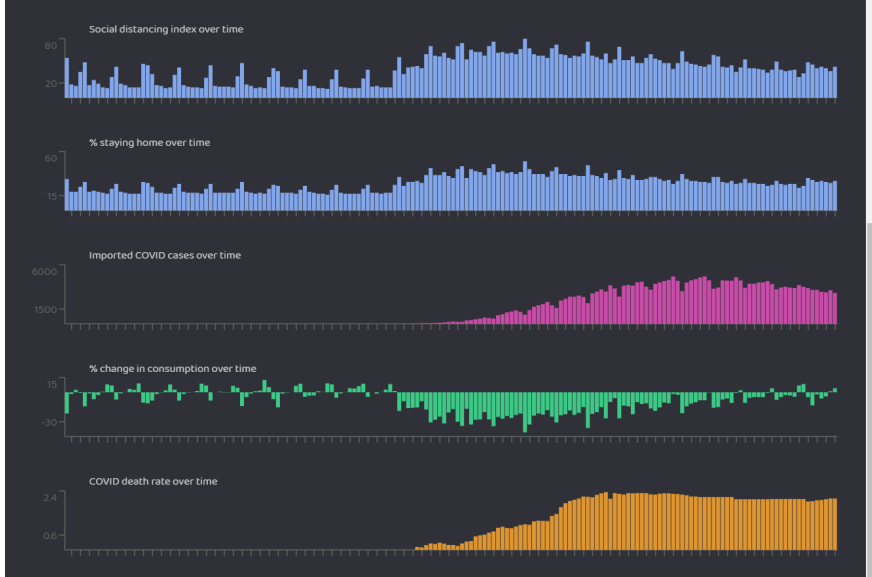


States Counties

From to

Select metrics: Mobility and Social Distancing COVID and Health Economic Impact Vulnerable Population

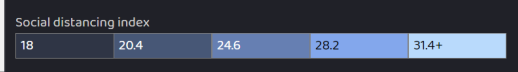
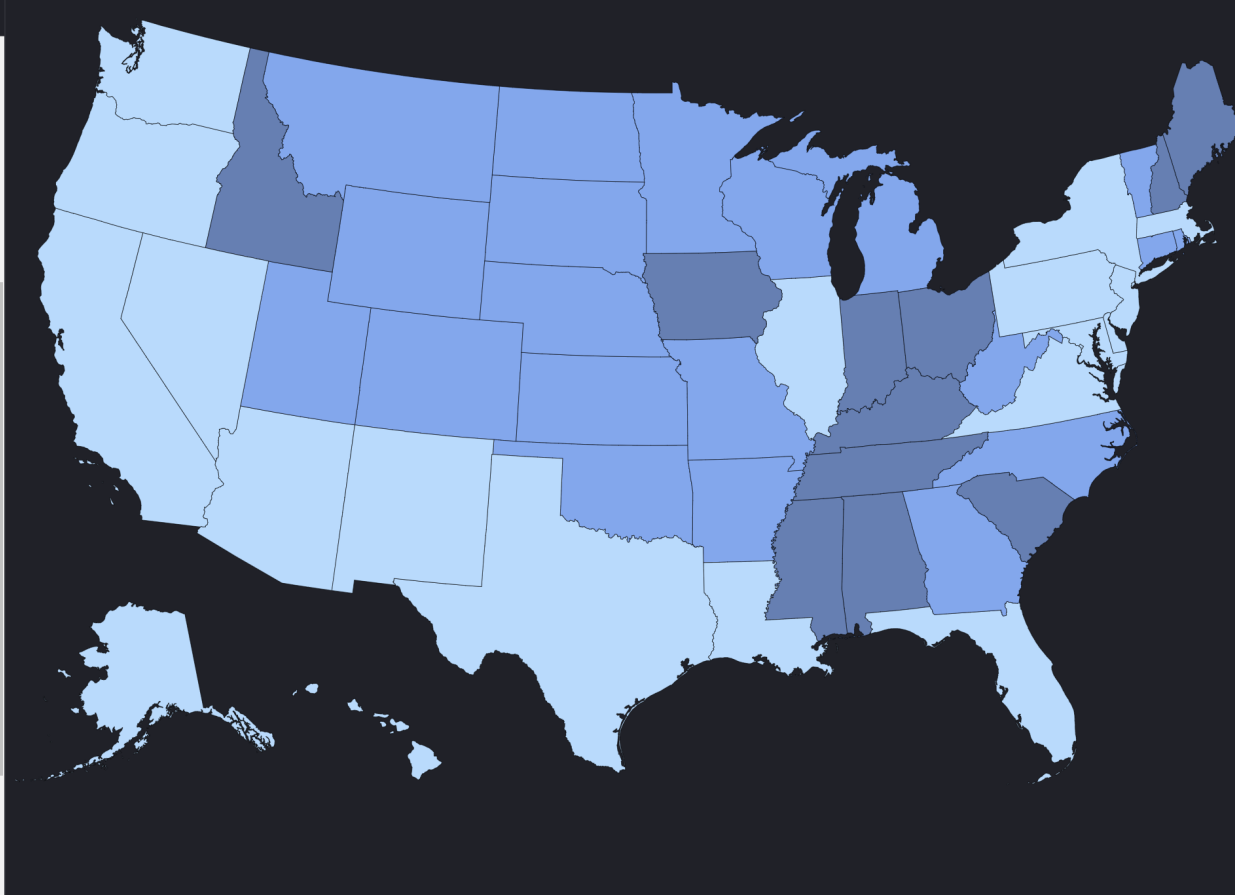
State ▲	Social distancing index	% staying home	Imported COVID cases	% change in consumption	COVID death rate
Maryland	42	30%	3,136	4.1%	2.09%



Massachusetts	35	28%	1,553	16.2%	3.23%
Michigan	29	24%	828	21%	4.63%
Minnesota	31	25%	932	21.3%	1.91%
Mississippi	27	21%	1,768	13.9%	1.98%
Missouri	29	24%	1,969	20.4%	2.65%
Montana	30	26%	95	20.1%	1.29%
Nebraska	29	24%	644	30.1%	0.61%
Nevada	36	28%	778	1.9%	1.67%
New Hampshire	27	22%	1,053	21.8%	2.65%
New Jersey	41	31%	2,083	11.4%	3.35%
New Mexico	32	25%	662	3.6%	2.13%
New York	45	36%	2,251	12.9%	3.53%
North Carolina	30	24%	3,247	11.2%	1.06%
North Dakota	30	25%	308	31%	1.02%
Ohio	28	23%	1,354	21.9%	2.67%

Zoom to Show

Showing data for June 20, 2020



Nationwide statistics

Date	June 20, 2020
Social distancing index	33
% staying home	26%
Trips/person	3.28
% out-of-county trips	30%
% out-of-state trips	5.2%
Miles/person	42.6
Work trips/person	0.12
Non-work trips/person	3.17
Transit mode share	4.83%
# days: decreasing COVID cases	0
# days: decreasing ILL cases	83
Testing capacity gap	8.4%
# contact tracing workers/1000 people	0.023
% hospital bed utilization	54.6
% ICU utilization	8.8
New COVID cases	30,895
New cases/1000 people	0.093
Active cases/1000 people	1.96
Imported COVID cases	66,724
Hospital beds/1000 people	2.86
ICUs/1000 people	0.28
Ventilator needs	6,339
Unemployment claims/1000 people	4.4
Unemployment rate	20%
% working from home	27.6%
Cumulative inflation rate	-0.2%
% change in consumption	11.5%
% people older than 60	21%
Median income	\$62,940
% African Americans	12.3%
% Hispanic Americans	17.9%
% male	49.24%
Population density	86
Employment density	40
# hot spots/1000 people	133
COVID death rate	2.38%
Population	327.17 M

Thank you!



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Backup Slides

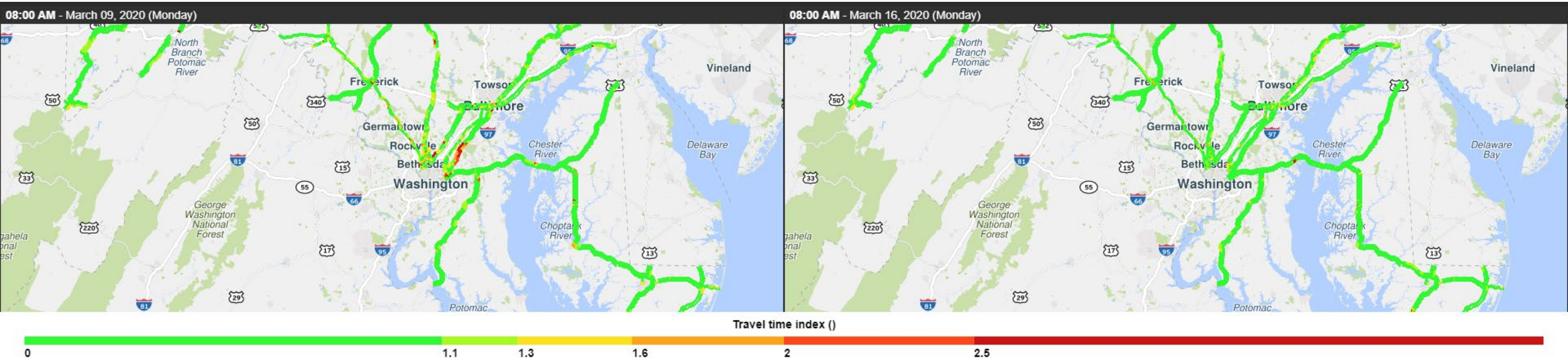
Trend Maps

Travel Time Index (TTI) Maps for Interstates and Non-Interstates
Time periods: 7:30AM, 8:00AM, 4:00PM, and 5:30PM

Non-Interstates 8:00 AM

Monday, March 9 @ 8:00am

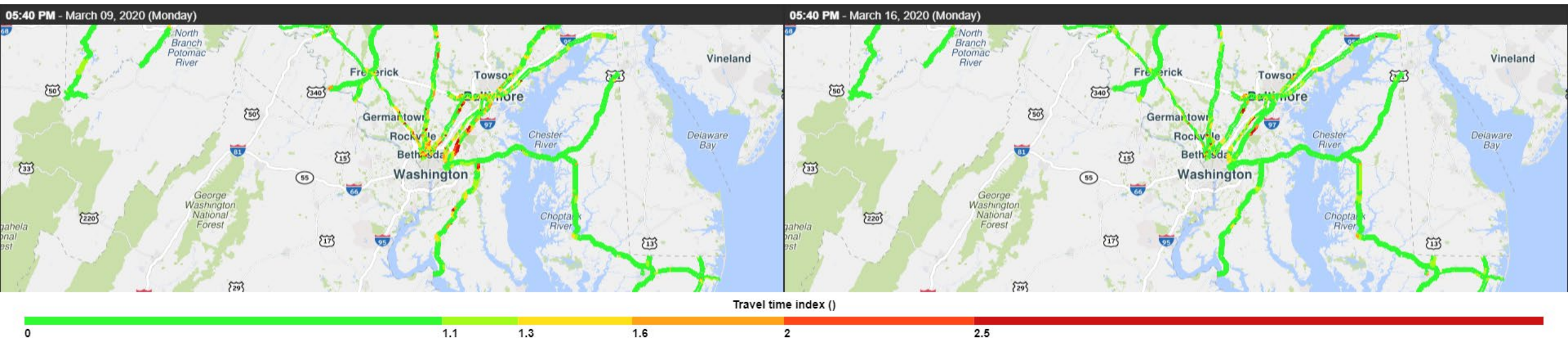
Monday, March 16 @ 8:00am



Non-Interstates 5:30 PM

Monday, March 9 @ 5:30pm

Monday, March 16 @ 5:30pm



User Delay Costs

Statewide User Delay Costs

User Delay Costs in Maryland on Interstates, US Routes, and State Routes

Typical UDC – March 9-11c

Total Cost																									
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	Daily Totals
3/09/20	\$15.1K	\$8.5K	\$9.9K	\$14K	\$24.3K	\$88.8K	\$257.5K	\$445.4K	\$511.9K	\$361.4K	\$283.4K	\$327.2K	\$386.6K	\$401K	\$529.8K	\$702K	\$881.3K	\$852.3K	\$451.6K	\$260.6K	\$170.7K	\$91.1K	\$43.7K	\$23.8K	\$7,141.9K
3/10/20	\$12.7K	\$8.9K	\$9.7K	\$13.5K	\$27.8K	\$82.4K	\$241.1K	\$481.6K	\$577.3K	\$416K	\$326.7K	\$334.3K	\$368.9K	\$399.6K	\$478K	\$646.3K	\$829.7K	\$849K	\$469.7K	\$288.3K	\$175.8K	\$101.8K	\$58.1K	\$31.2K	\$7,228.6K
3/11/20	\$14.7K	\$11.8K	\$9.5K	\$13.6K	\$35.7K	\$89K	\$277.1K	\$501.5K	\$532.1K	\$367.8K	\$332.9K	\$355.5K	\$400.1K	\$442.7K	\$548.9K	\$658.6K	\$838.5K	\$825.2K	\$466.7K	\$269.9K	\$164.4K	\$102K	\$49.9K	\$28K	\$7,336.1K

Covid-19 Impacted UDC – March 16-18

3/16/20	\$12.7K	\$7.5K	\$8.7K	\$12.3K	\$21.8K	\$74.7K	\$149.1K	\$203.8K	\$214.1K	\$197.1K	\$237.7K	\$298.9K	\$328.8K	\$353.5K	\$388.4K	\$404.7K	\$432.2K	\$376.3K	\$241.4K	\$186.7K	\$108.1K	\$71.3K	\$38K	\$22.2K	\$4,389.9K
3/17/20	\$14.3K	\$9.8K	\$9K	\$12.3K	\$24.1K	\$78.8K	\$129.5K	\$177K	\$170.4K	\$182.5K	\$212.4K	\$269.1K	\$271.8K	\$292.2K	\$319.9K	\$333.6K	\$378.8K	\$304.7K	\$224.2K	\$192.4K	\$126.5K	\$79.2K	\$42.3K	\$23.1K	\$3,877.8K
3/18/20	\$14.6K	\$10.4K	\$10.6K	\$12.3K	\$25.5K	\$63.4K	\$144.4K	\$172.3K	\$200.8K	\$197.5K	\$261.3K	\$276.1K	\$300K	\$313K	\$329.5K	\$335.6K	\$366.2K	\$319.1K	\$228.7K	\$202.5K	\$136.2K	\$90K	\$49K	\$31.5K	\$4,090.7K

Typical Mon-Wed UDC = \$21.7M

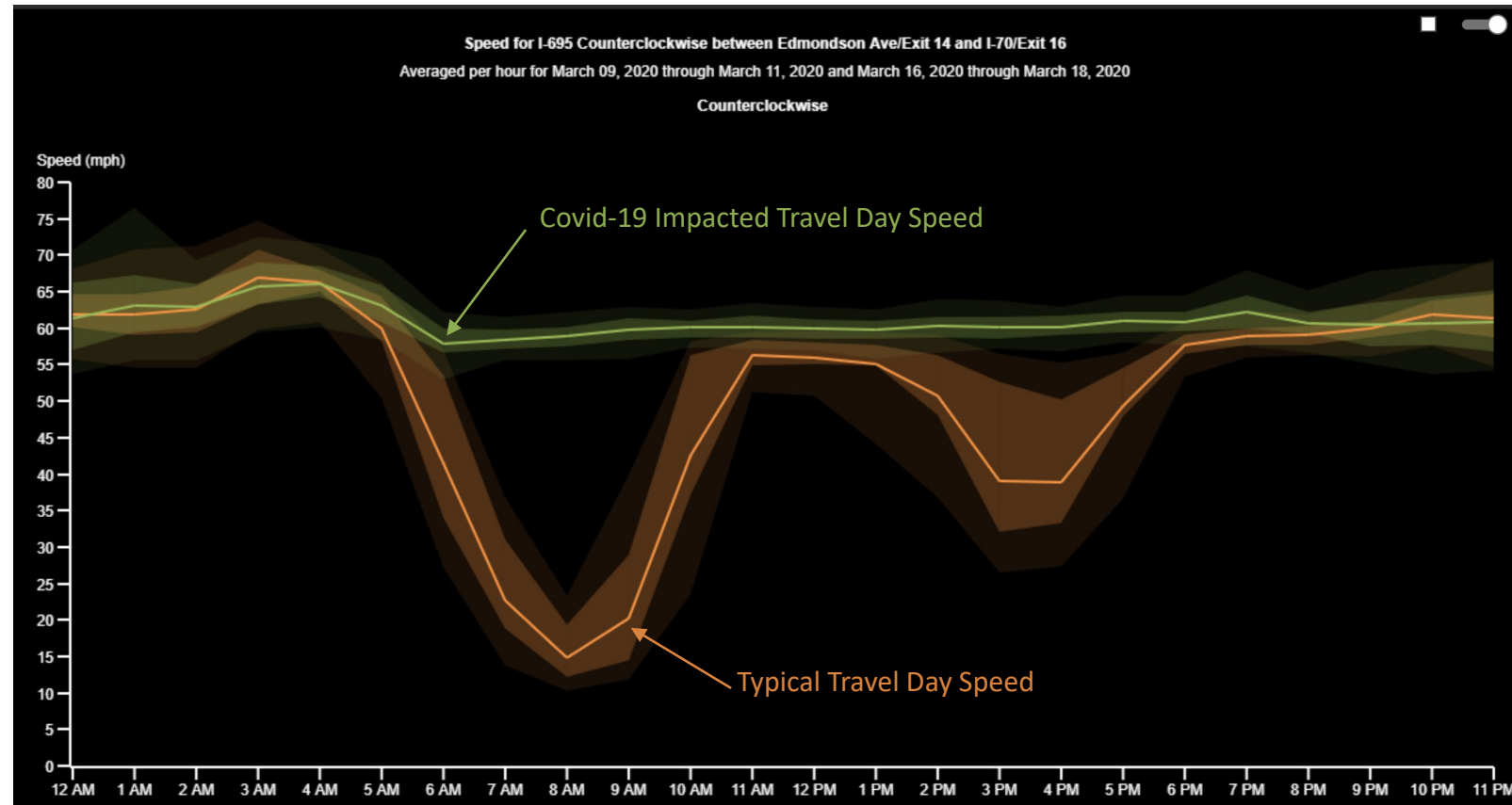
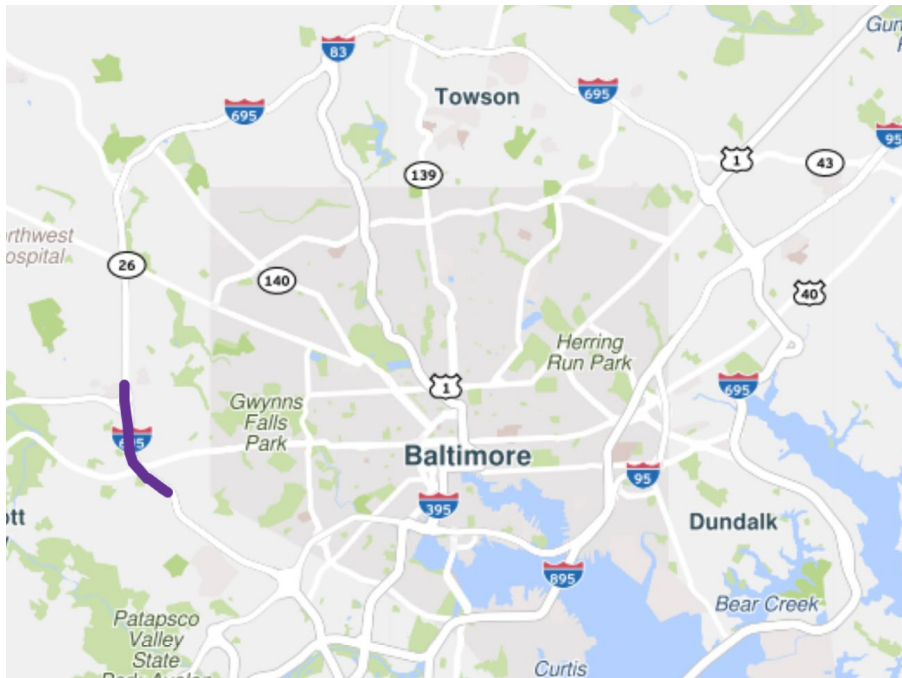
Covid-19 Mon-Wed UDC = \$12.4M

Change = \$9.3M (43% reduction)

Performance Charts

Average Speeds by time of day at top Interstate and Non-Interstate bottleneck locations

I-695 Outer Loop Between Edmondson Ave and I-270



E Lombard WB Between Charles St And President St

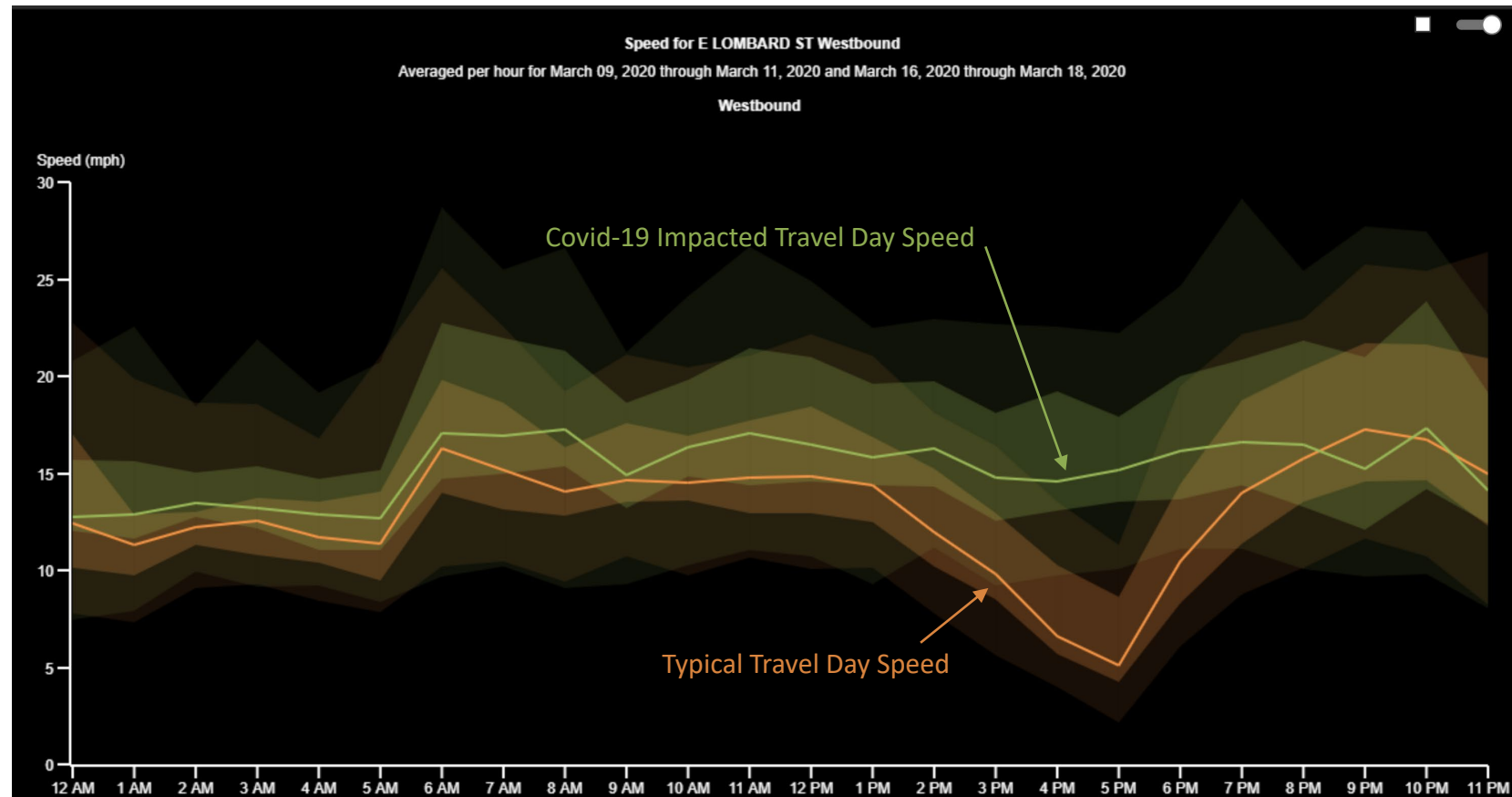
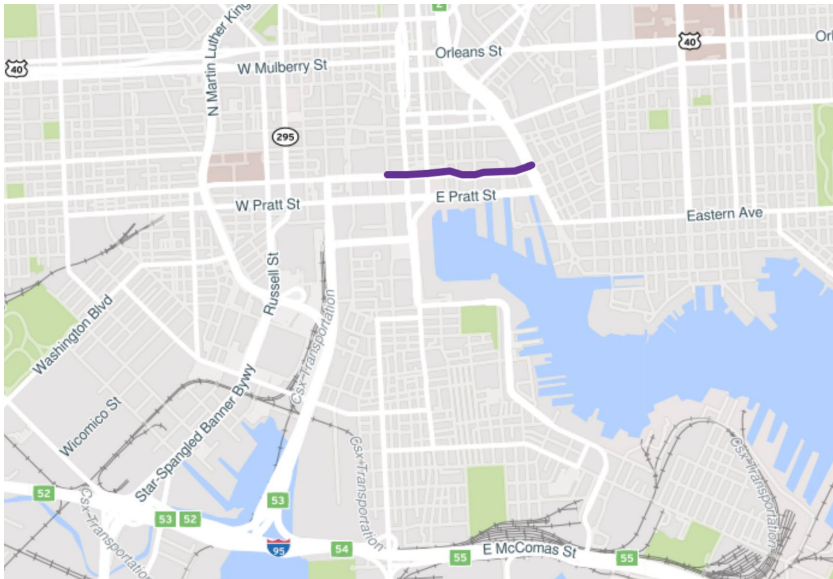


CHART Events/Incidents

Events Recorded in CHART ATMS

	Disabled Veh	Incident	Action Event	Total
Typical Days(3/9-3/11)	394	320	84	798
Covid-19 Days(3/16-3/18)	202	165	39	406
Change	-192	-155	-45	-392
% Change	-49%	-48%	-54%	-49%

