

WCTR SIG F1 & AUM Webinars on “Impact of COVID-19 on Transport and Spatial Development”

March 11, 2021

Exploring the Relationship between COVID-19 and Crash Patterns

Anson Gock

Planner at Delaware Department of Transportation

Dr. Baloka Belezamo

Senior Manager at Arizona Department of Transportation

Delaware: First State



Map of the United States with Delaware highlighted

Land Area

- Total: 1,982 sq mi (5,130/sq km)
- Rank: 49th

Population (2019)

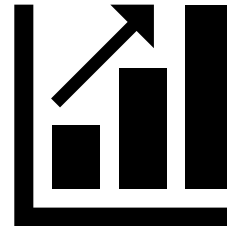
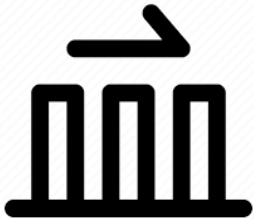
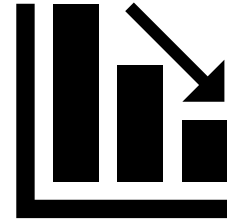
- Total: 973,764
- Rank: 46th

Population Density (2019)

- Population Density: 469/sq mi (179/sq km)
- Rank: 6th

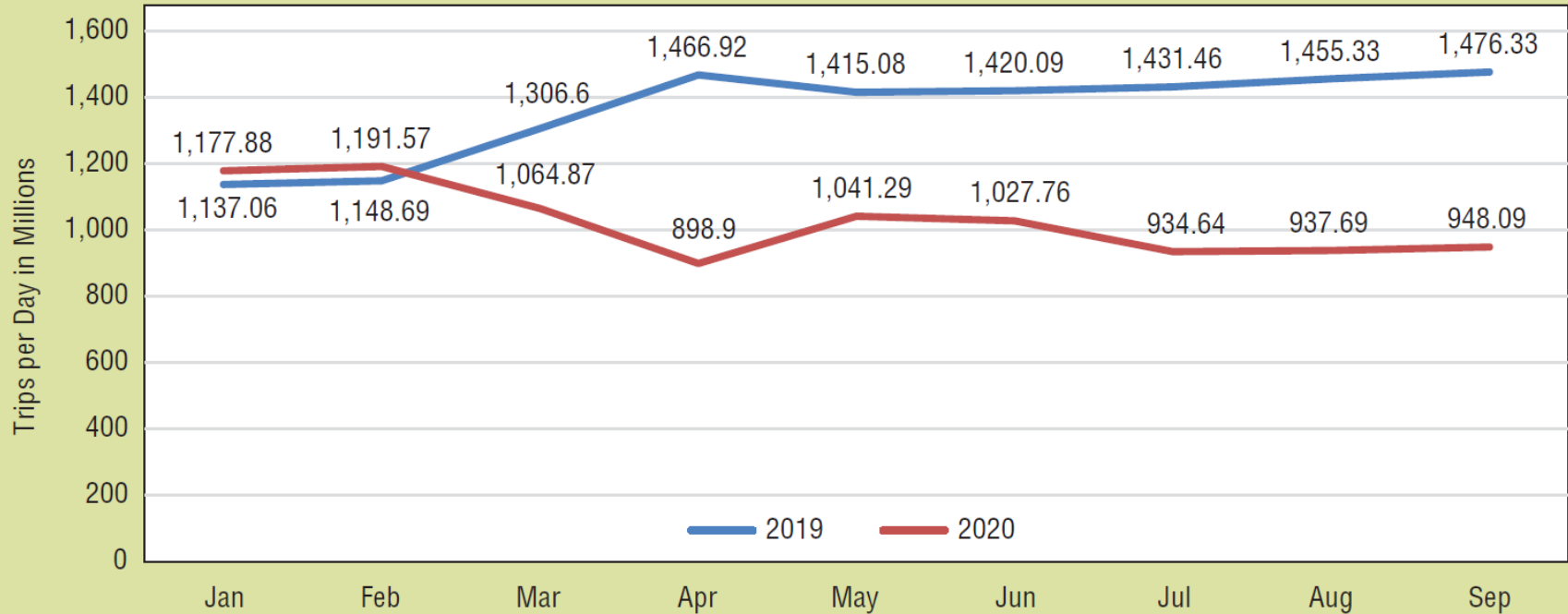
Source: Wikipedia

COVID-19 *Traffic*



Vehicle Trips Down

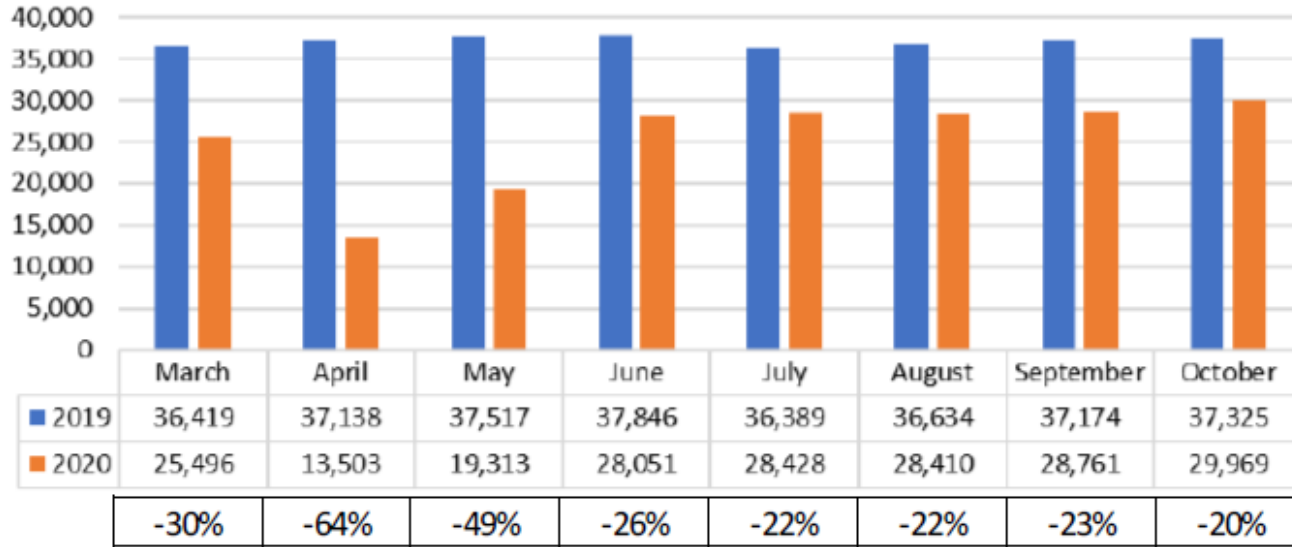
Trips per day (millions), January – September, 2019 and 2020



Source: www.bts.gov/daily-travel

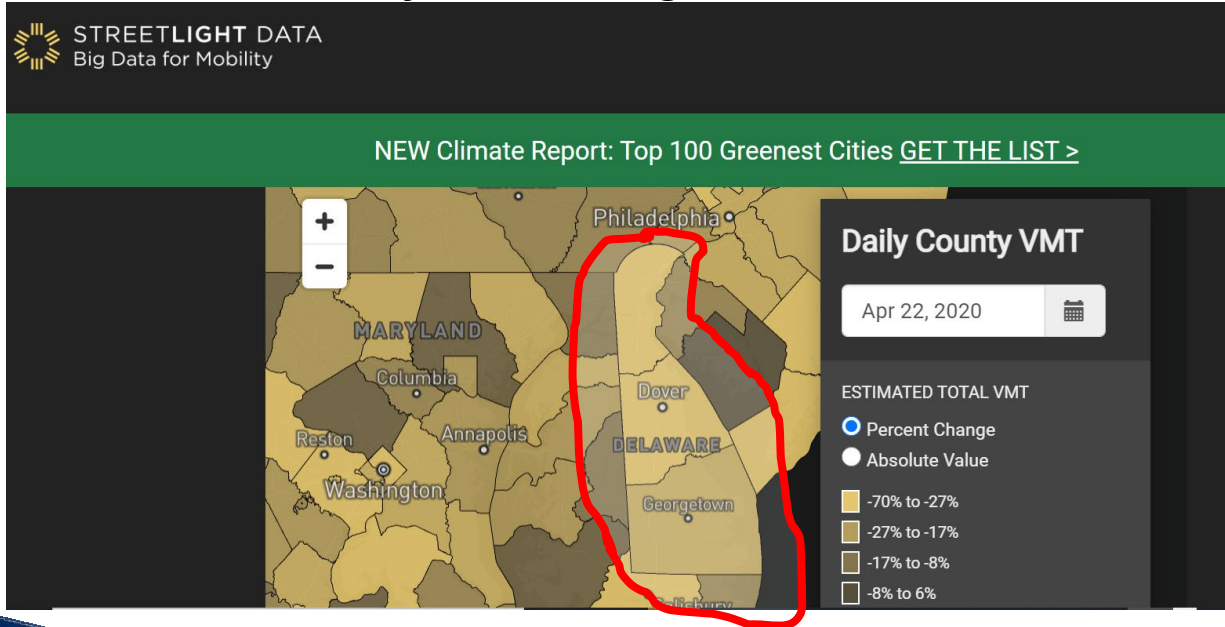
Selected Delaware 2019 vs 2020 Traffic Data

US 202 Daily Traffic Volume at PA/DE State Line



Vehicle Miles Traveled (VMT) Down

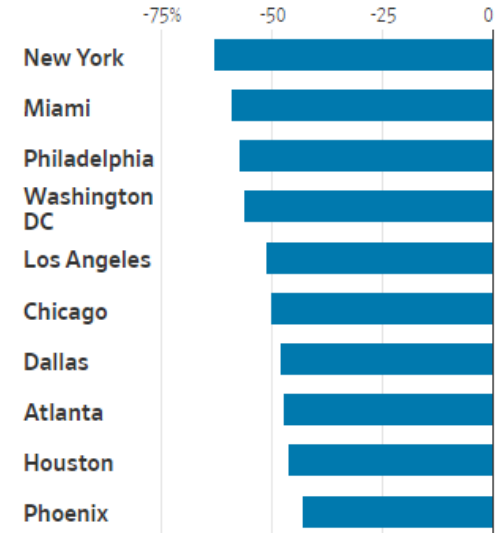
Delaware VMT Percentage Change on April 22, 2020 from Streetlight Data



US Top 10 Metro Areas VMT

Change in personal/passenger vehicle miles traveled

Top 10 metro areas by population



Note: For the week through Friday April 17, 2020 vs the baseline week ending Feb. 28, 2020.



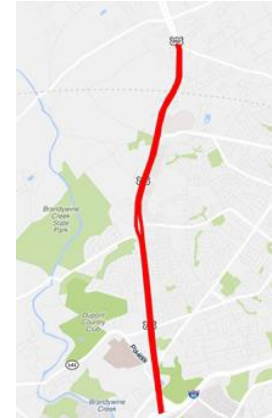
Regional
Systems
Planning

Selected Delaware Data

US 202: PA 491 to I-95

US 202 Departures in Travel Times: 2019 vs 2020 Peak Periods

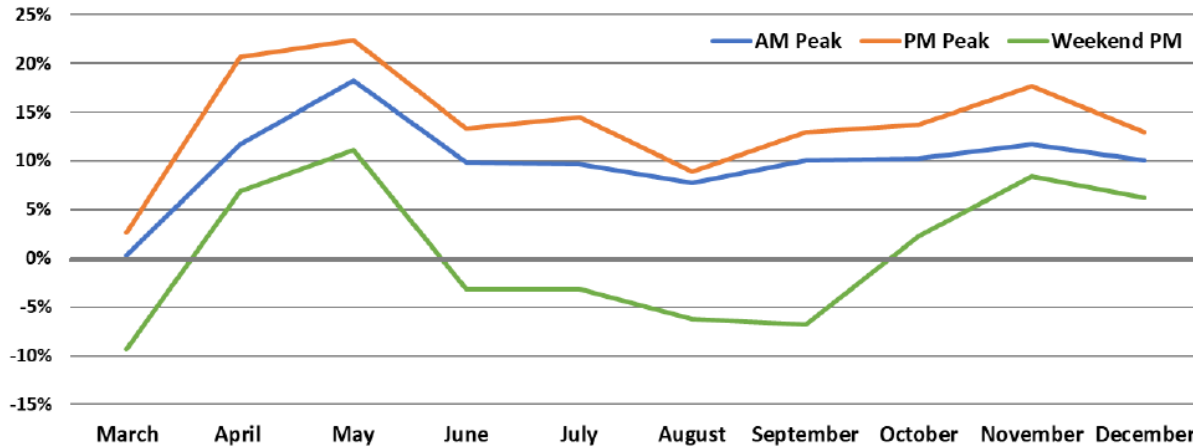
US 202	2019 AM Avg. Travel Time (min.)	2020 AM Avg. Travel Time (min.)	AM Diff.	2019 PM Avg. Travel Time (min.)	2020 PM Avg. Travel Time (min.)	PM Diff.	2019 Saturday Avg. Travel Time (min.)	2020 Saturday Avg. Travel Time (min.)	Diff.
January	11.0	12.1	-10%	12.8	13.3	-4%	11.1	13.3	-20%
February	11.3	12.2	-8%	13.1	13.0	1%	11.5	13.0	-13%
March	11.4	11.3	0%	13.0	12.6	3%	11.5	12.6	-9%
April	11.4	10.0	12%	13.7	10.9	21%	11.7	10.9	7%
May	12.3	10.1	18%	14.7	11.4	22%	12.8	11.4	11%
June	11.7	10.6	10%	14.2	12.3	13%	11.9	12.3	-3%
July	11.7	10.6	10%	14.4	12.3	15%	11.9	12.3	-3%
August	11.6	10.7	8%	13.8	12.6	9%	11.9	12.6	-6%
September	11.9	10.7	10%	14.2	12.4	13%	11.6	12.4	-7%
October	12.2	10.9	10%	14.3	12.3	14%	12.6	12.3	2%
November	12.4	11.0	12%	15.0	12.4	18%	13.5	12.4	8%
December	11.9	10.7	10%	15.0	13.0	13%	13.9	13.0	6%



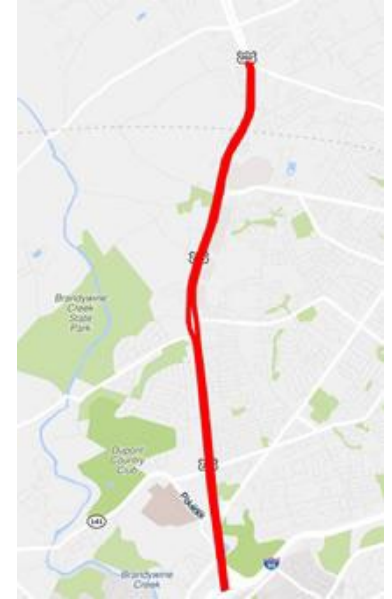
Selected Delaware Data

US 202: PA 491 to I-95

US 202 Departures in Travel Times: 2019 vs 2020 Peak Periods

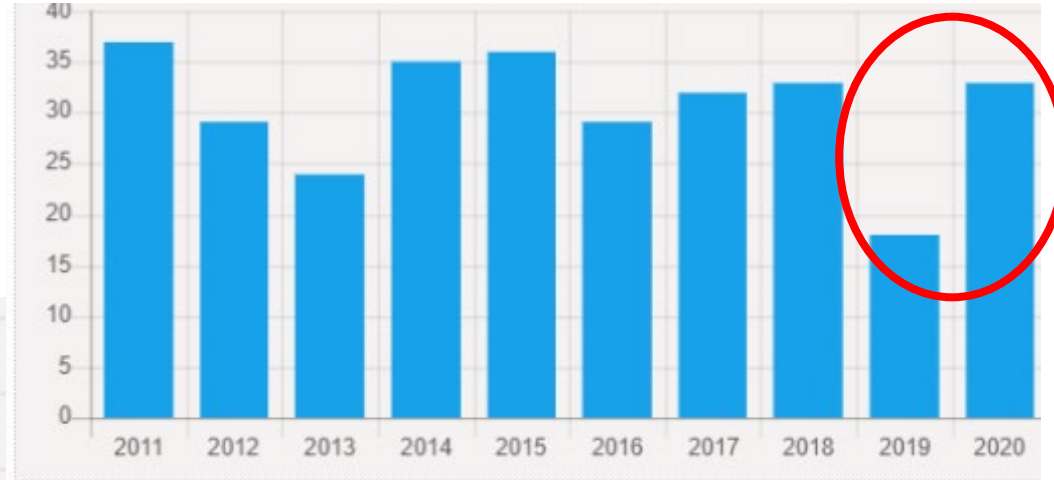


Weekdays measure travel on Mondays-Thursdays

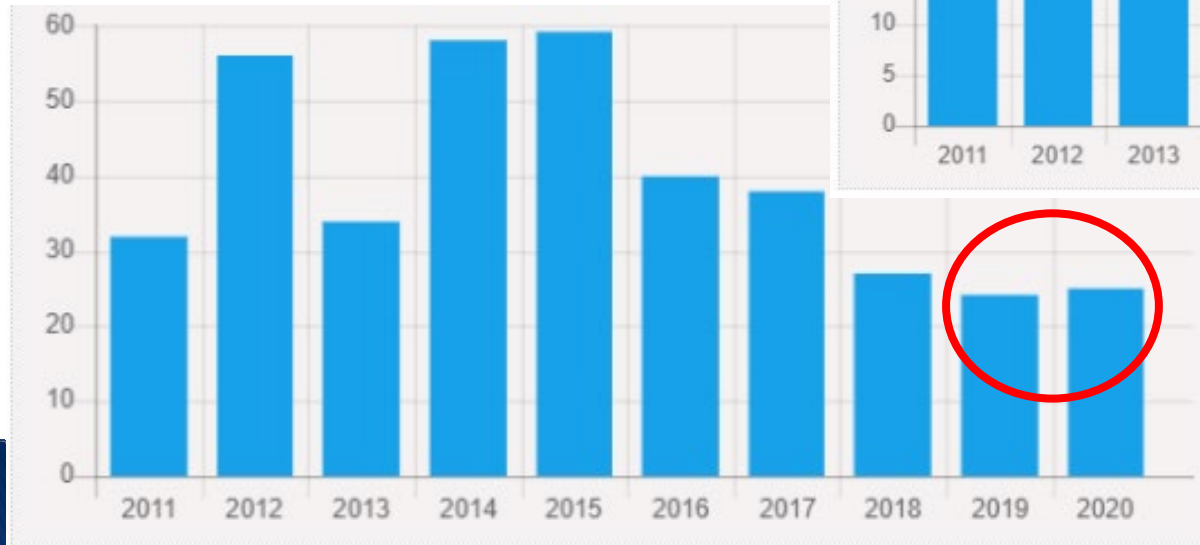


Selected Delaware Data

Seat Belts Not Used Fatalities - Historical



Alcohol Related Fatalities - Historical

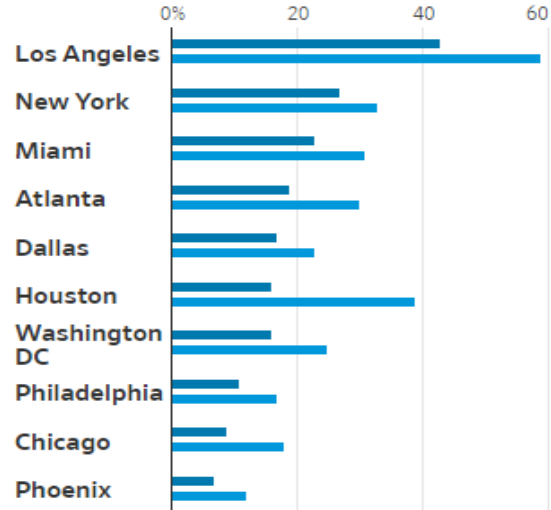


Other Selected Information

US TOP 10 Metro Urban Areas Est. Rush Hour Travel Speed

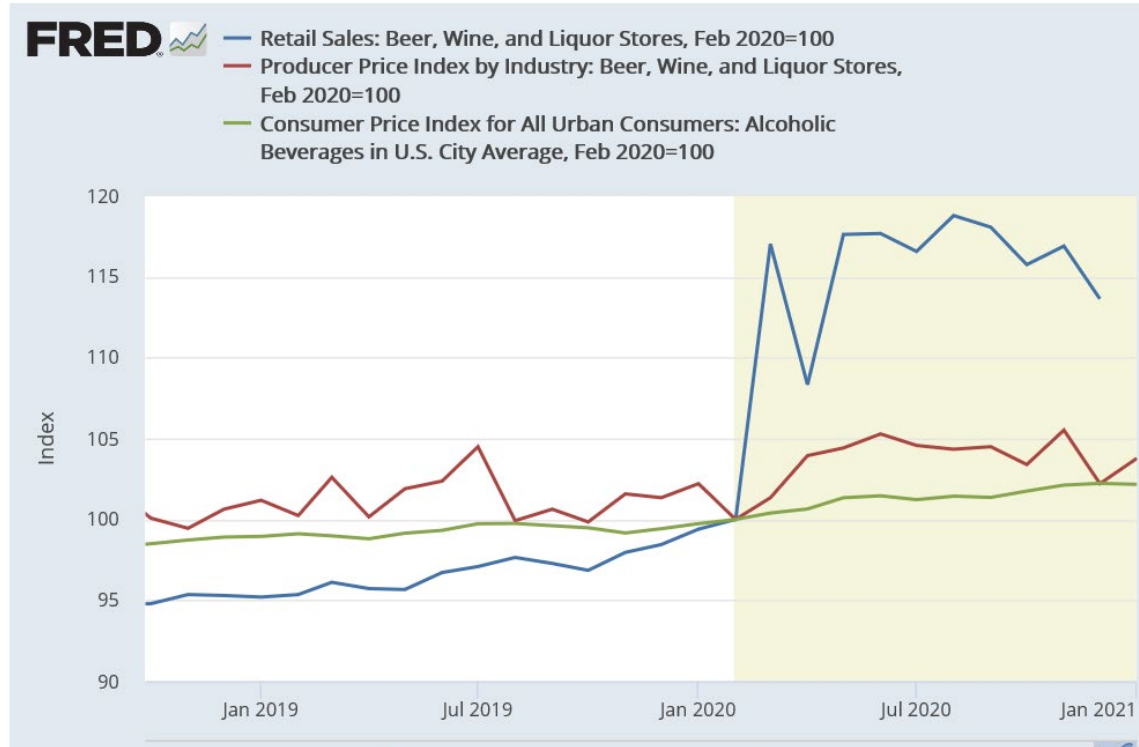
Change in average rush-hour speeds

■ 8:00 AM ■ 5:00 PM



Note: Data from April 13, 2020 through April 17, 2020 versus the baseline of weekdays between March 01, 2020 through March 14, 2020

Source: Inrix






Source: <https://fredblog.stlouisfed.org/2020/06/the-lockdowns-effect-on-the-alcoholic-beverage-market/>

Some Issues for Further Exploration



1) Better Understanding of the Crash Patterns

- **Geographic Location**
 - Urban ; Suburban ; Rural 
- **Roadway Classification**
 - Interstate, Arterial, Collector, and Local
- **Possible Causes and Other Factors**
 - Vehicle speed, Driving under the Influence, etc.



Source: <https://vatore.com>

Some Issues for Further Exploration (more)



2) Develop better plans and programs:



- Possible educational programs to address:

- Mental Health

- Driving Under the Influence



- Hospital



- Emergency Response Team



Summary

- COVID-19
 - Public Health
 - Mental Health
- Traffic Volume and Vehicle Miles Traveled Down

- Est. Fatalities Rates Up

	Jan – Mar	April – June
2019	1.05	1.08
2020	1.10	1.42

- What can we do to lower it?

Source: NHSTA

Thank You

Anson Gock

Planner at Delaware Department of Transportation

anson.gock@delaware.gov

Dr. Baloka Belezamo

Senior Manager at Arizona Department of Transportation

bbelezamo@azdot.gov