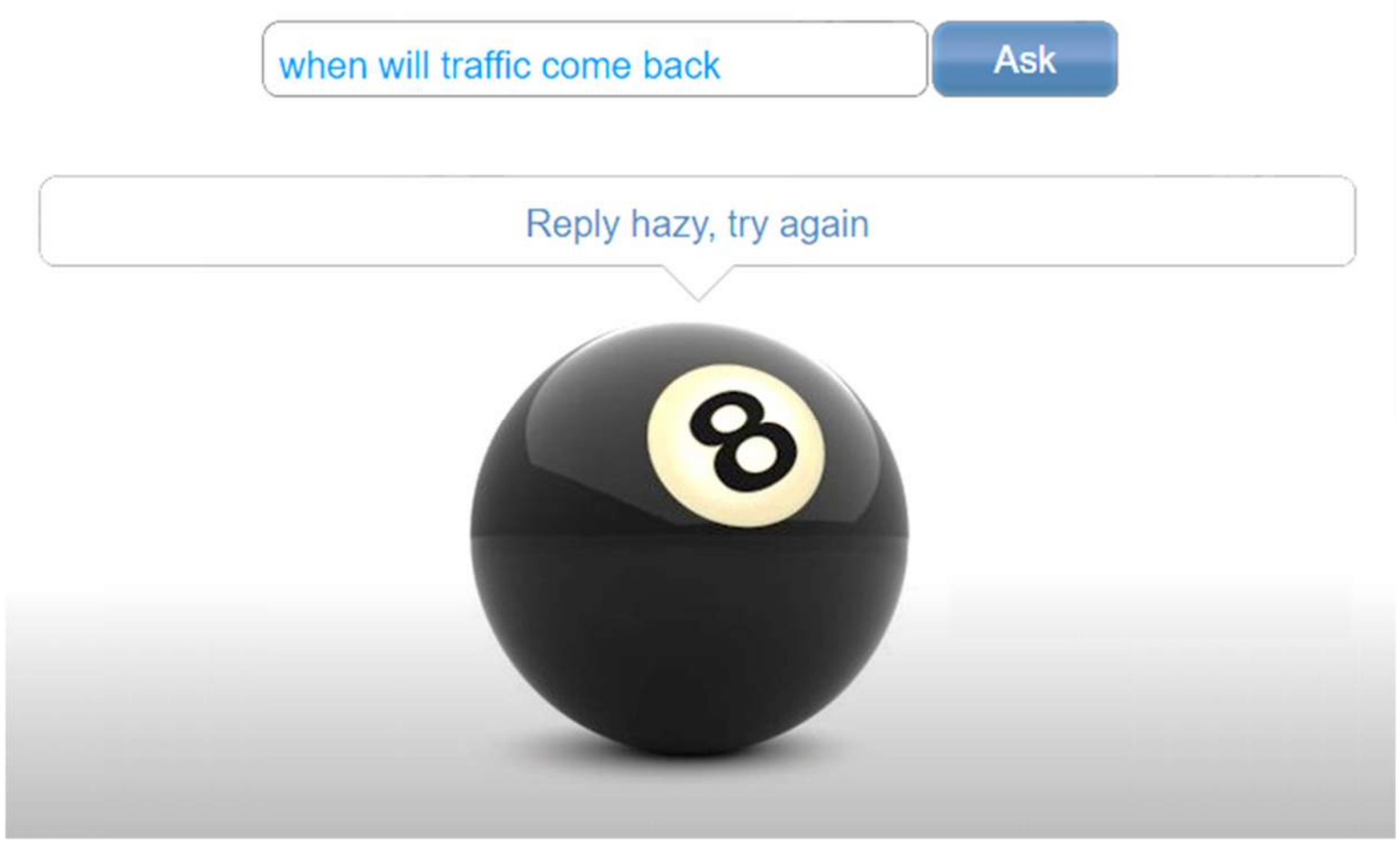
COVID-19 Traffic Impacts

Observations and Considerations for
a Path Forward

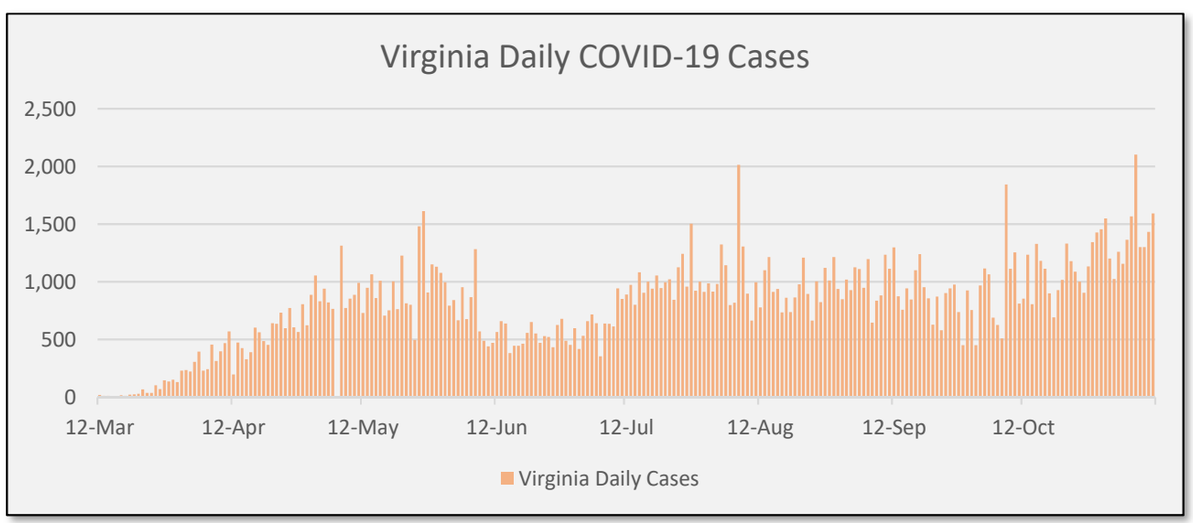
Uncertainty



Source: www.ask8ball.net

Summary

- COVID-19-related lockdowns have had a dramatic impact on vehicle travel
- As states have begun to reopen, traffic has returned to the nation's roadways
- While overall traffic totals may be close to pre-COVID-19 levels, a detailed look at traffic data indicates that travel characteristics are not yet back to normal
- This presentation takes a closer look at the data, observations and possible implications going forward

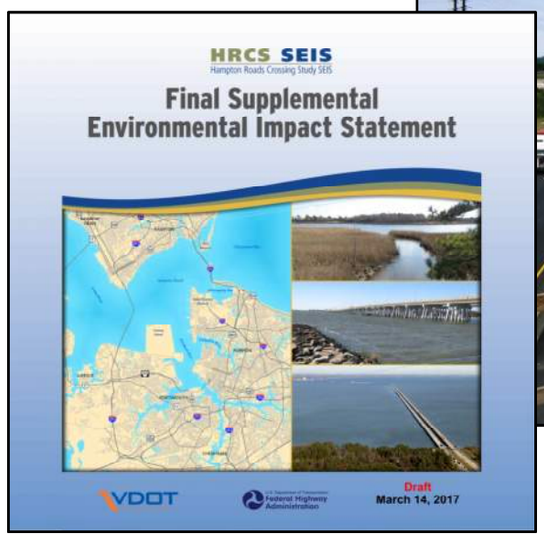


Source: USAFacts.org

Image source: CBS Baltimore

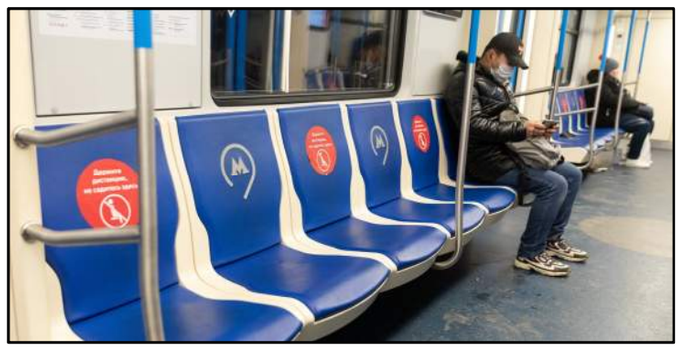
Why Is This Important?

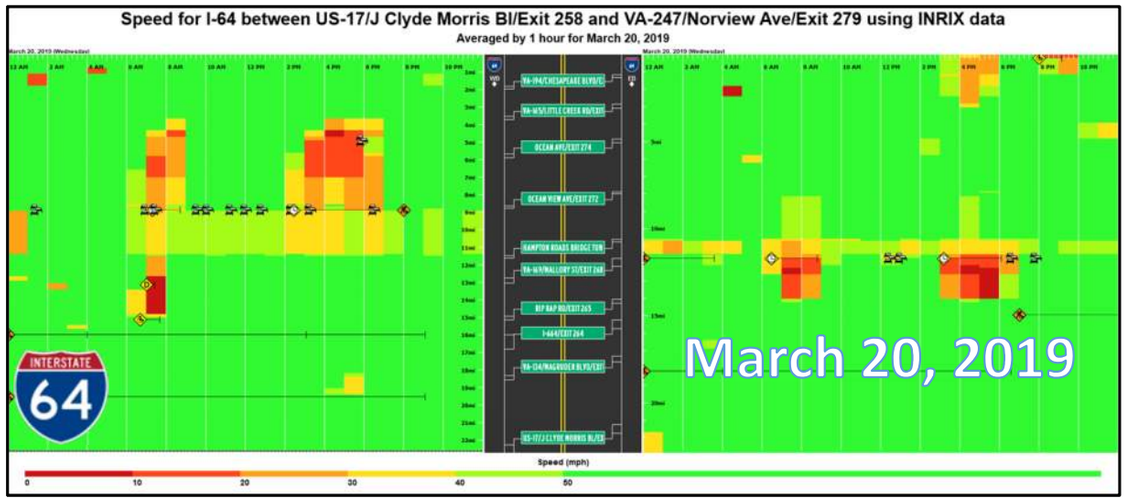
- Declining travel impacts transportation funding
  - Fuel taxes
  - Toll revenue
  - Transit farebox recovery
- Long Term Planning
  - Is there still a need for capacity improvements?
  - Transit viability?
  - Change in travel demand models if work from home shift is permanent?
  - Changes in traditional work week/ leisure weekend pattern?
- Legal
  - Environmental Studies/Purpose and Need

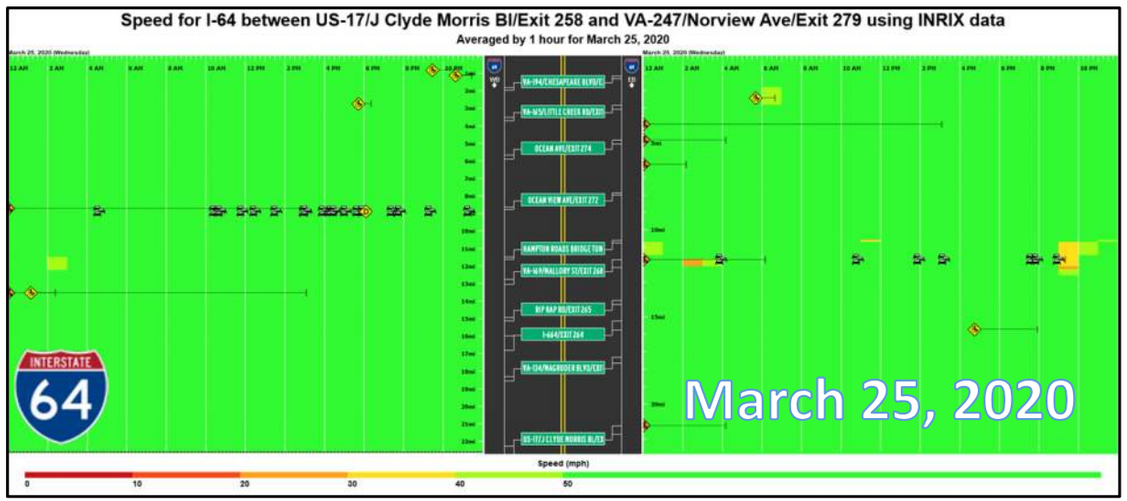


Approach

- Review historic traffic trends in light of the COVID-19 pandemic
  - Daily traffic
  - Diurnal patterns
  - Crash trends
- Compare rural vs. urban areas
- Big Data
  - Vehicle vs. transit/other modes travel
  - Trip purpose (work vs. non-work trips)

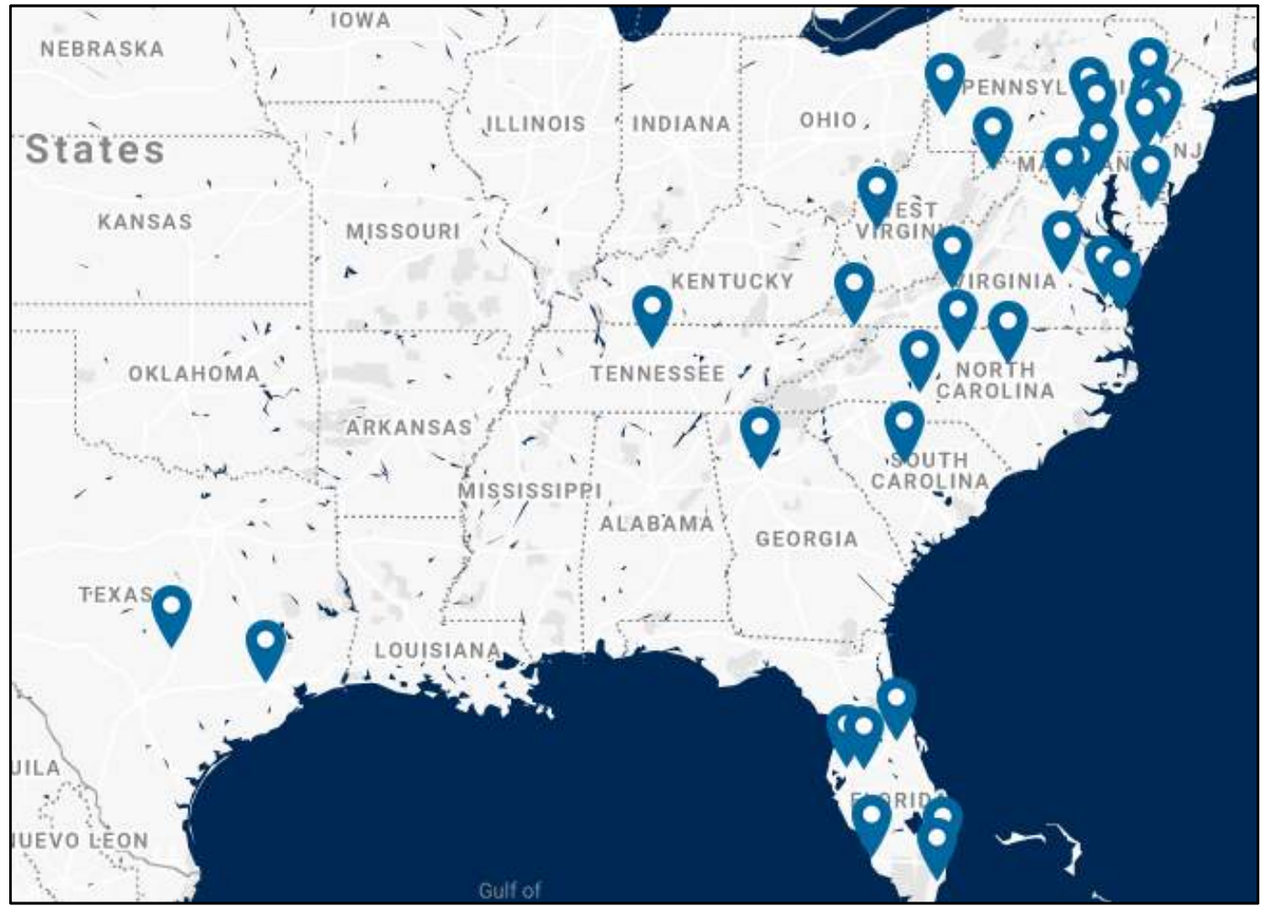






Traditional Traffic Data

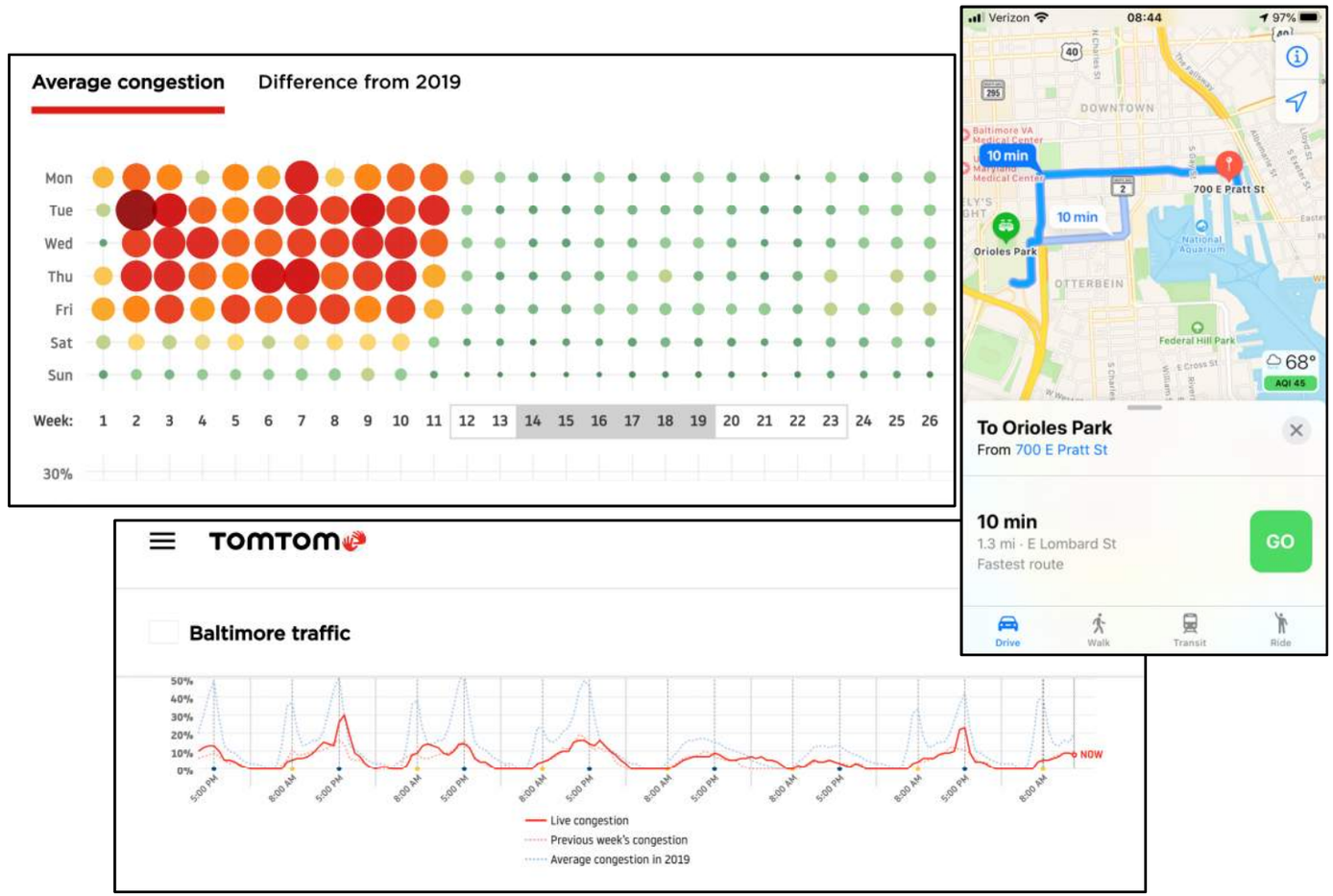
- Raw continuous traffic counts
  - Delaware
  - Maryland
  - Virginia
  - Florida*
  - Georgia*
- These states represent half (15) of RK&K's 30 business locations
- Crash Data
- FHWA VMT reporting



** Data not included in this presentation*

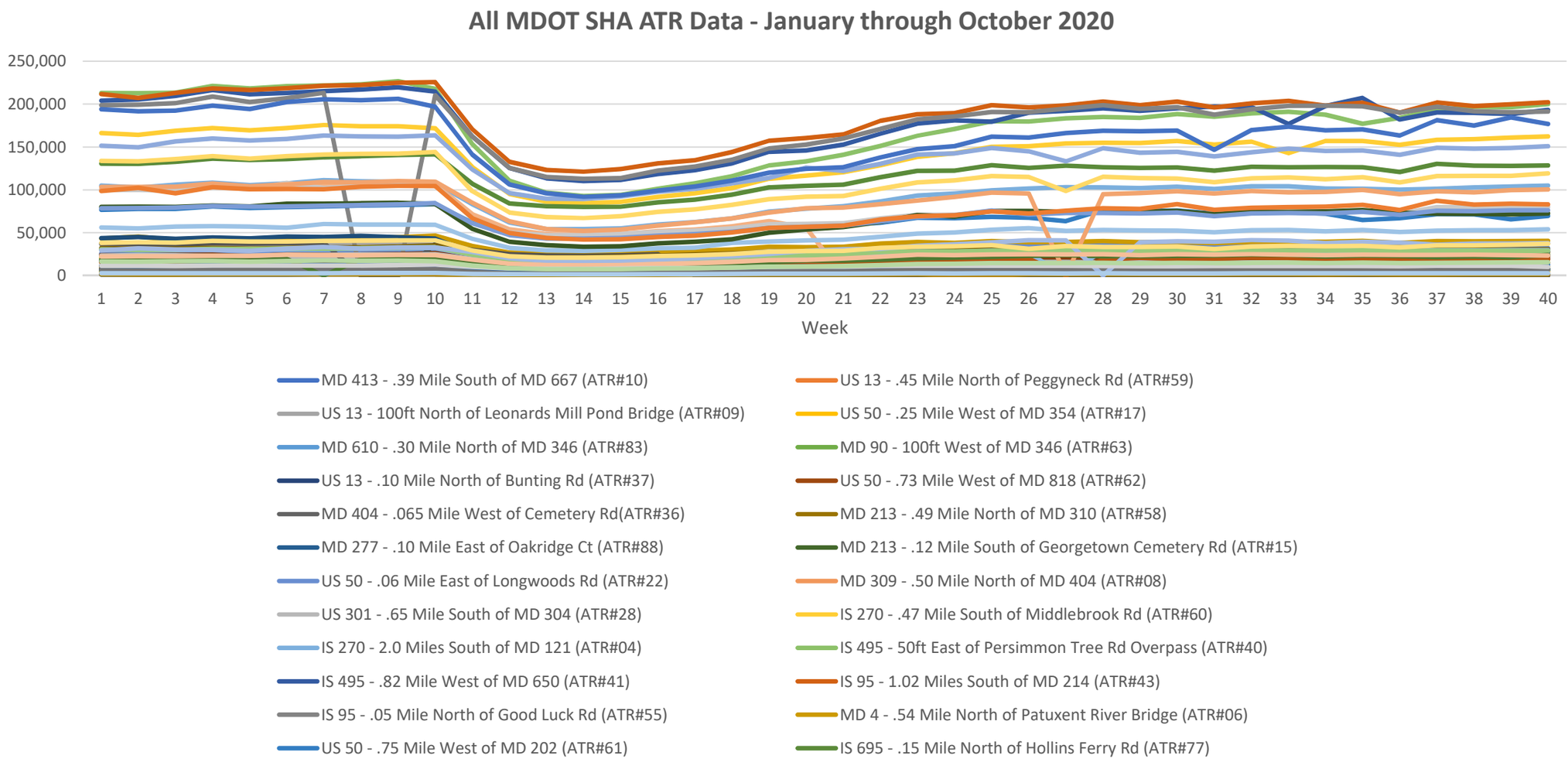
Big Data

- General mobility data
  - Apple worldwide route request data
  - TomTom weekly congestion reports
  - INRIX
  - Streetlight

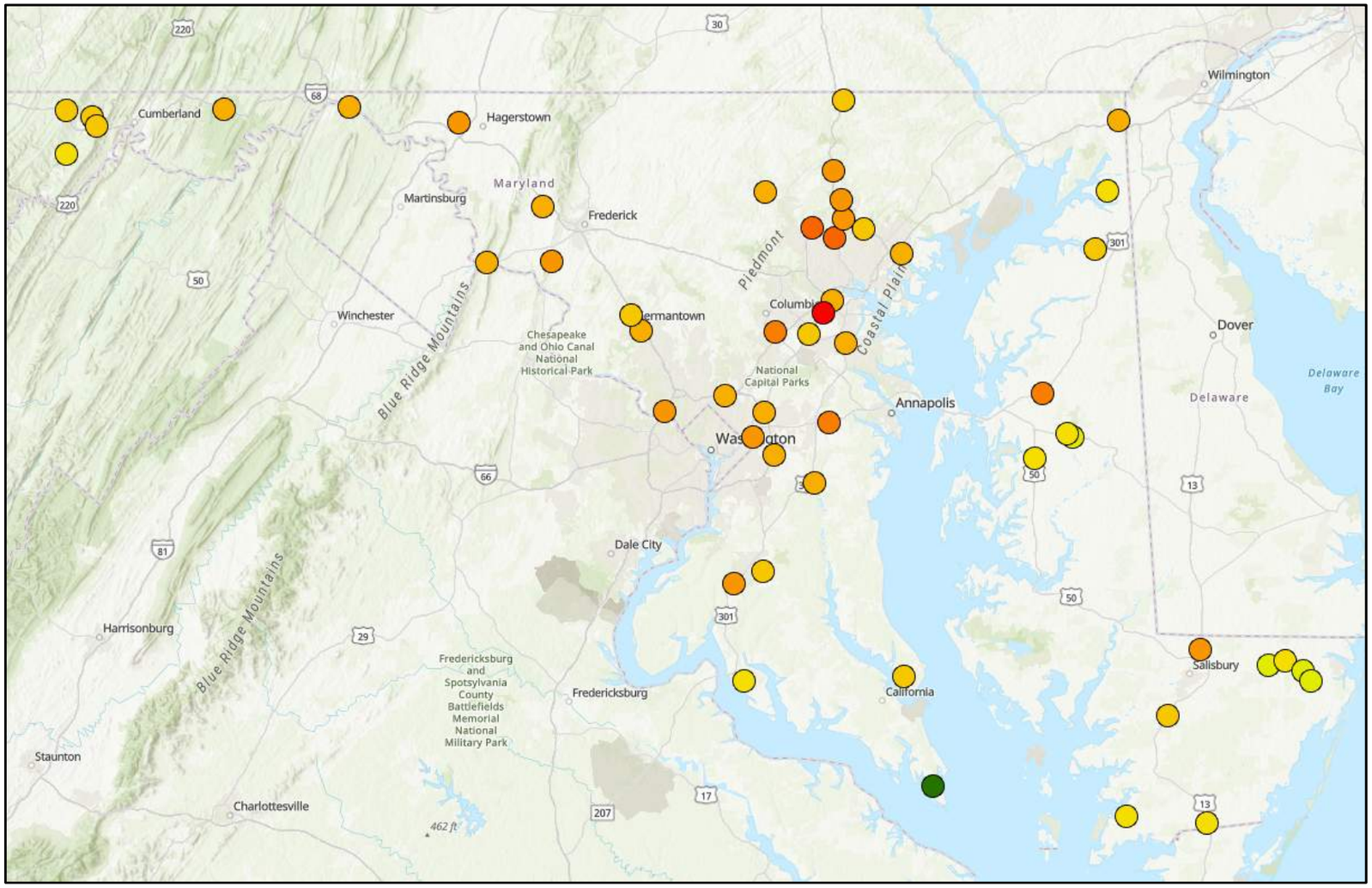


Source: tomtom.com

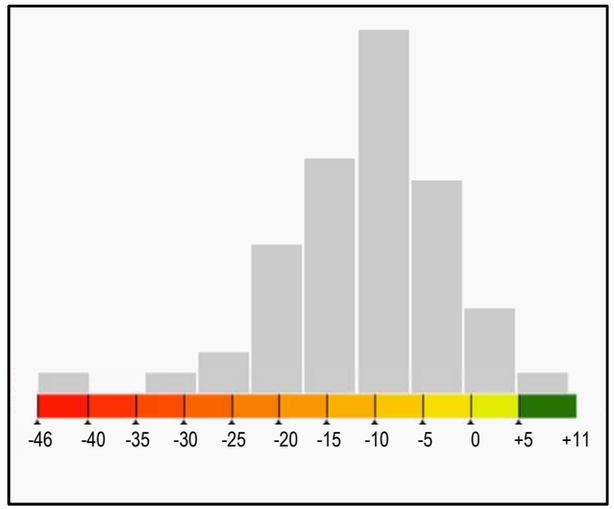
Traffic Volumes leveling off below pre-COVID levels



Regional Differences: Maryland

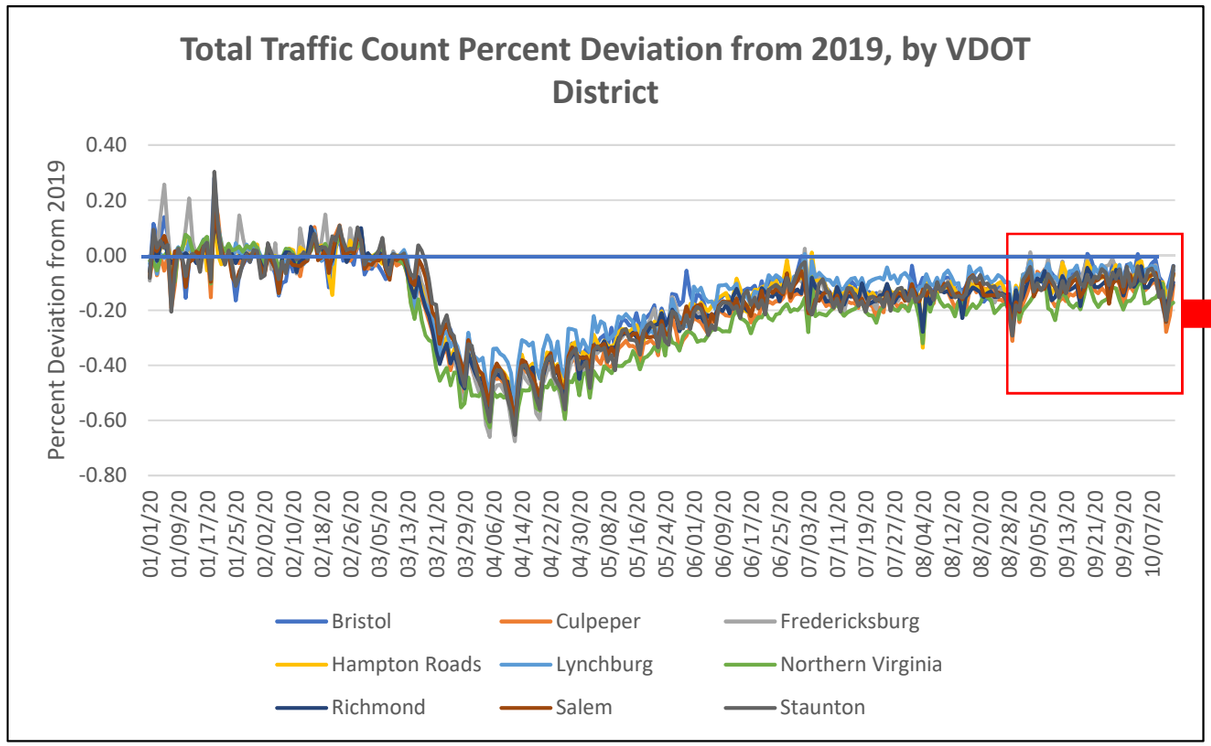


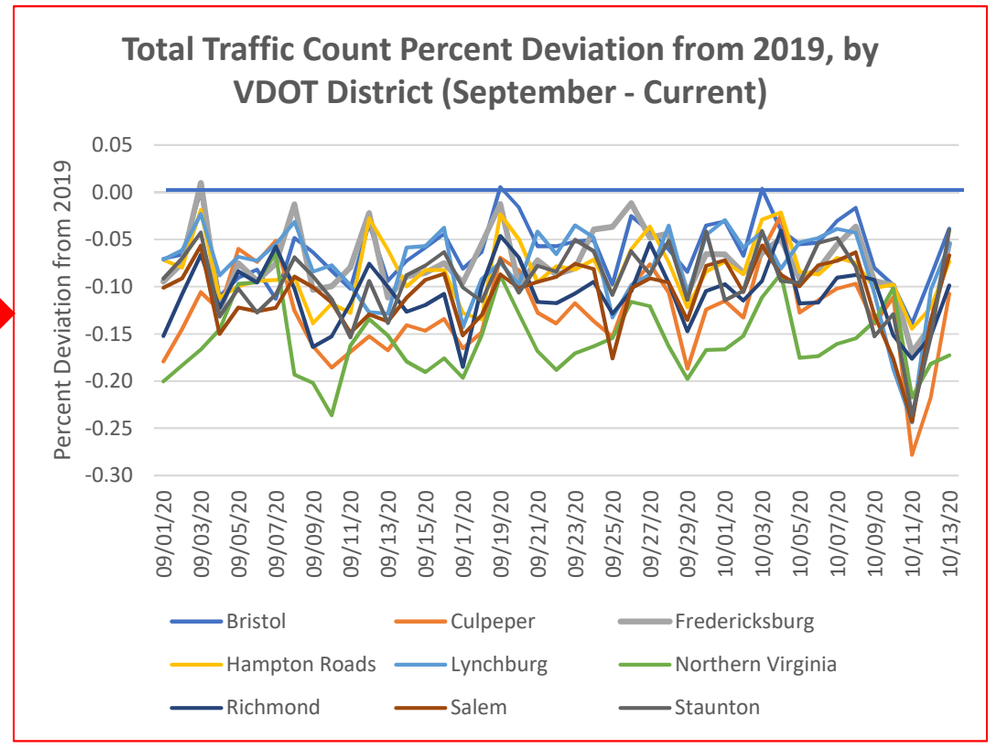
Percent Deviation from 2019 and total stations in range



Data indicates average weekly traffic volume deviations for the week ending October 10, 2020. Each circle indicates the location of an MDOT SHA permanent count station (ATR)

Regional Differences: Virginia

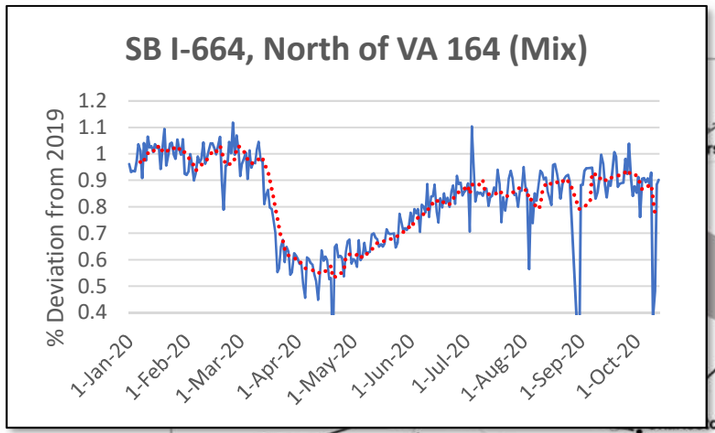


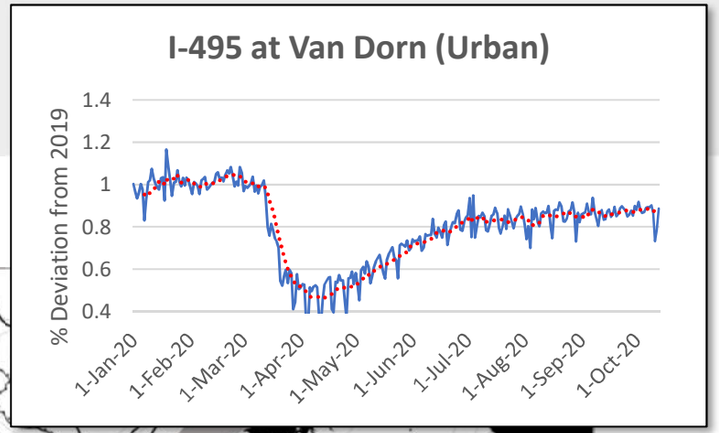


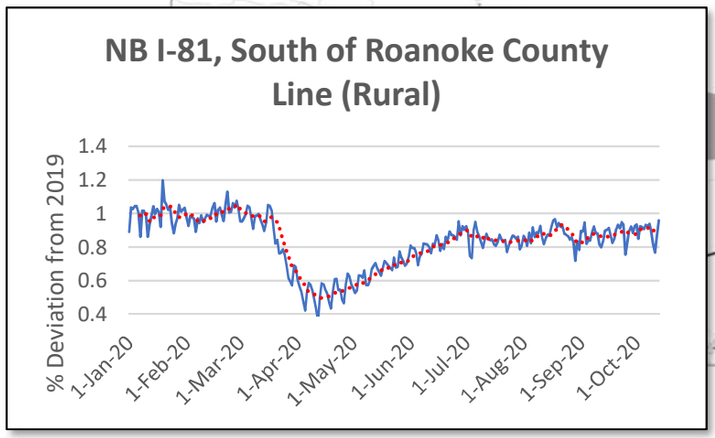
Source: Virginia Department of Transportation COVID Traffic Trend Tool

- Northern Virginia and Culpepper District Daily Counts generally lag other districts
- Lynchburg and Bristol Districts generally lead return to Pre-COVID daily traffic levels

Regional Differences: Virginia

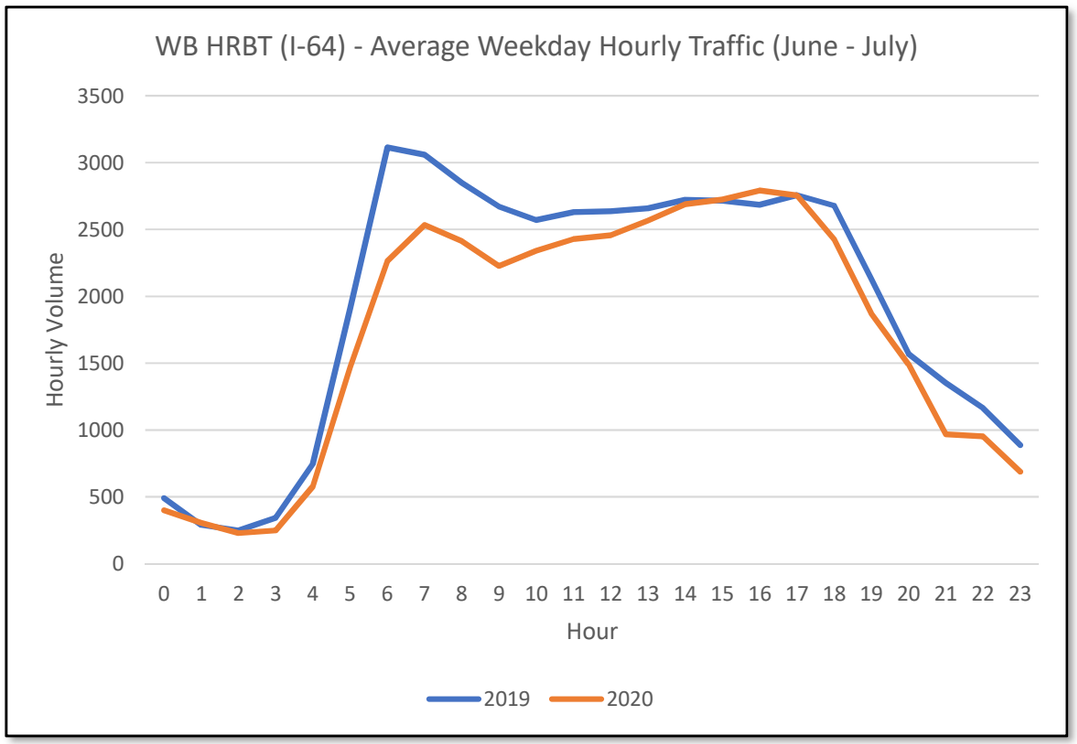


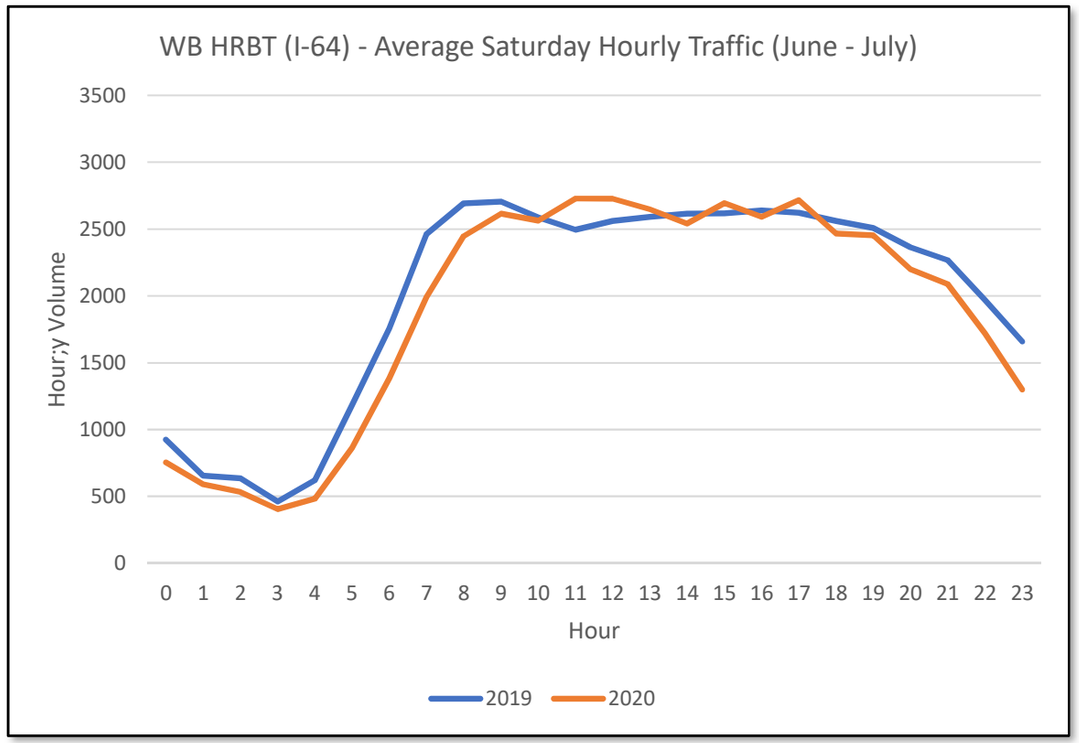




Source: Virginia Department of Transportation COVID Traffic Trend Tool

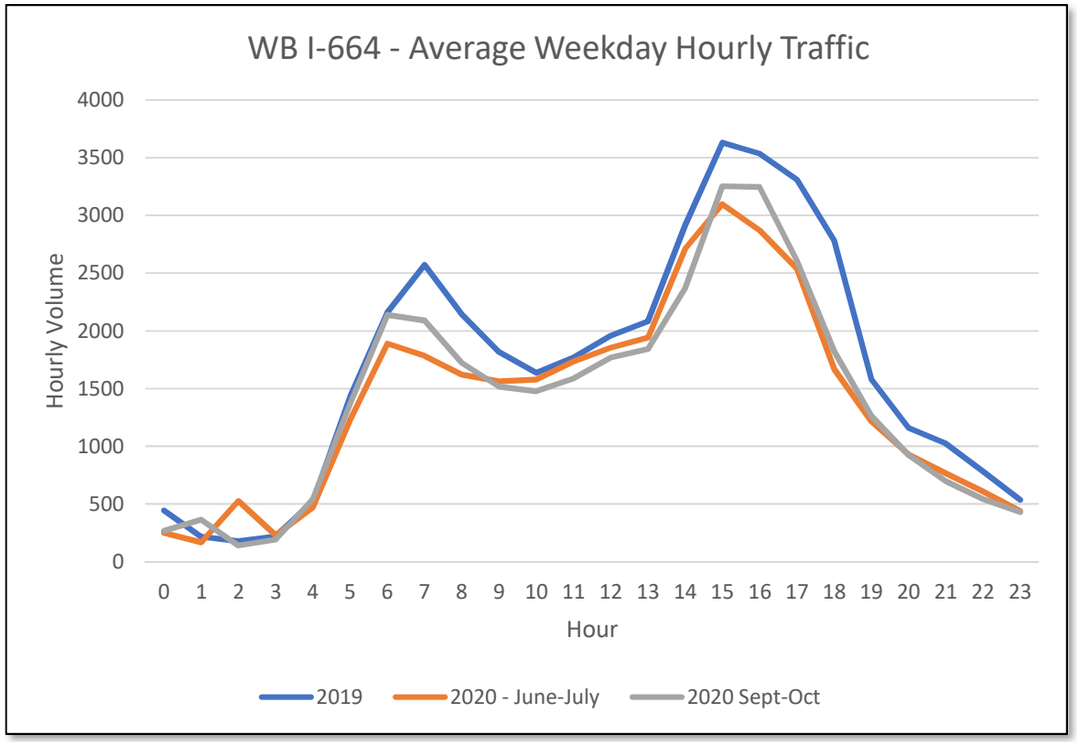
Diurnal Pattern Changes: Virginia (HRBT)

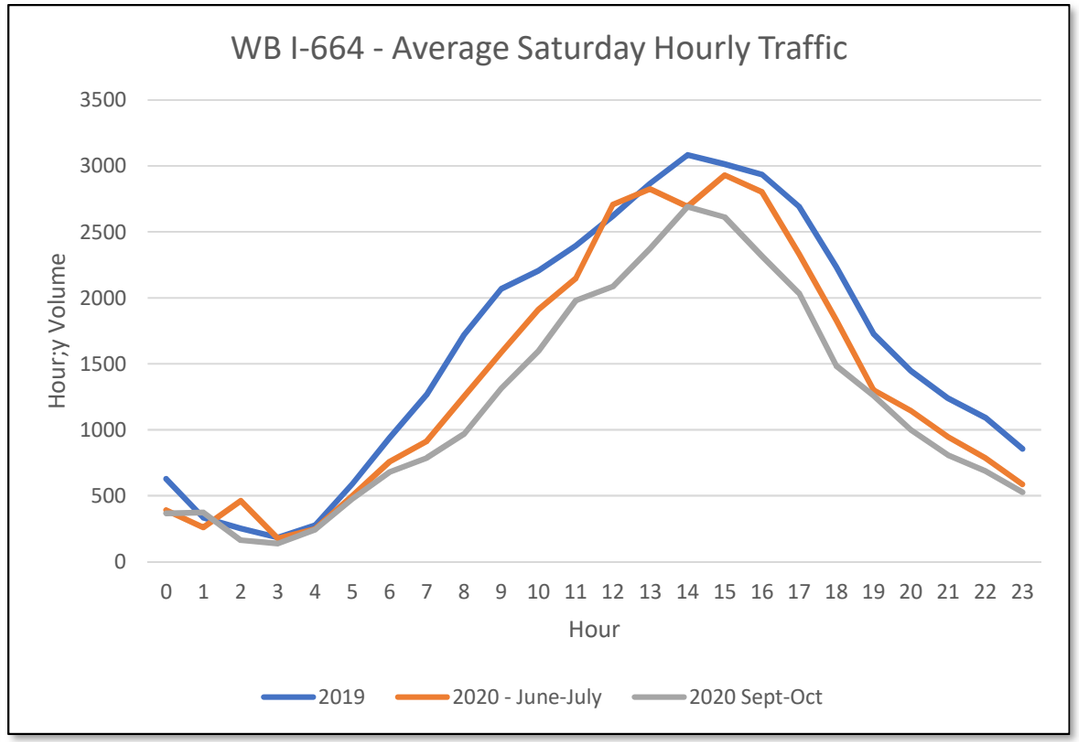




- Data at this location indicates weekday AM traffic is still depressed, but weekend has returned to pre-COVID levels (note: data are from a tourist-heavy location in Hampton Roads, VA)

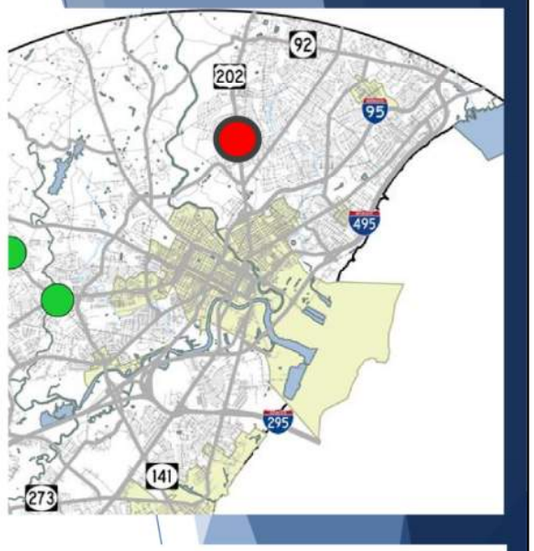
Diurnal Pattern Changes: Virginia (I-664 north of VA 164)



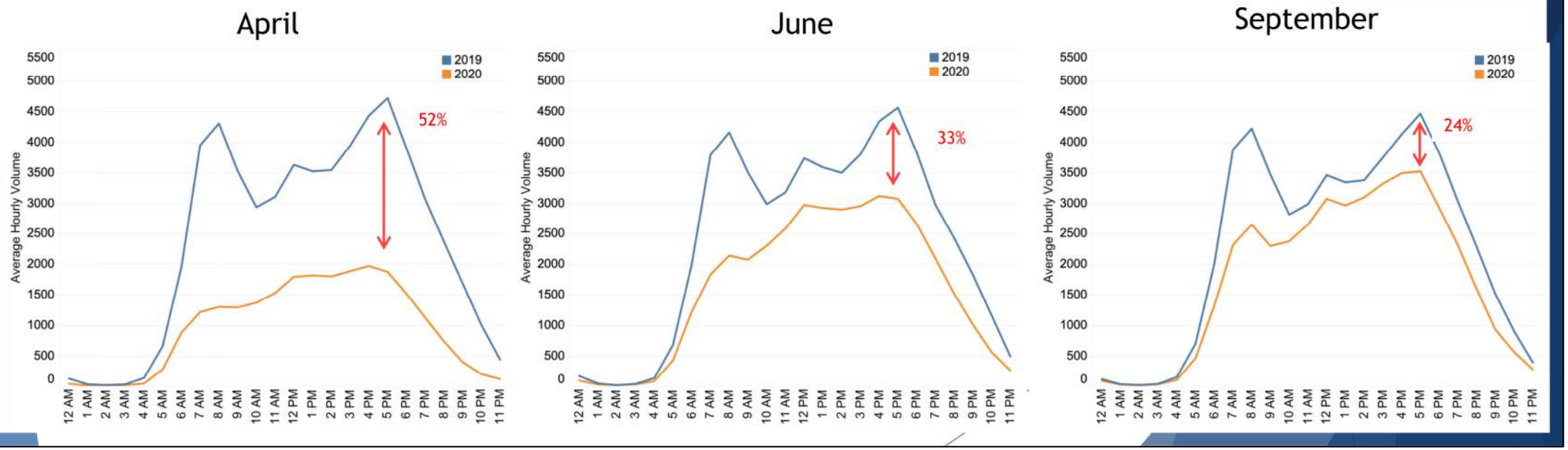


How is our diurnal travel changing?

Weekdays
- Peaks still lagging
- Mid-Day approaching 2019 levels
- Shorter peak periods???



US 202 & Sharpley Rd-Hourly Volumes WEEKDAYS

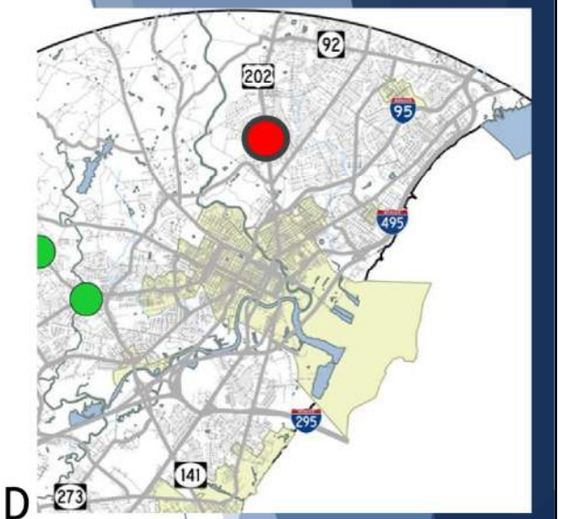


Data courtesy of

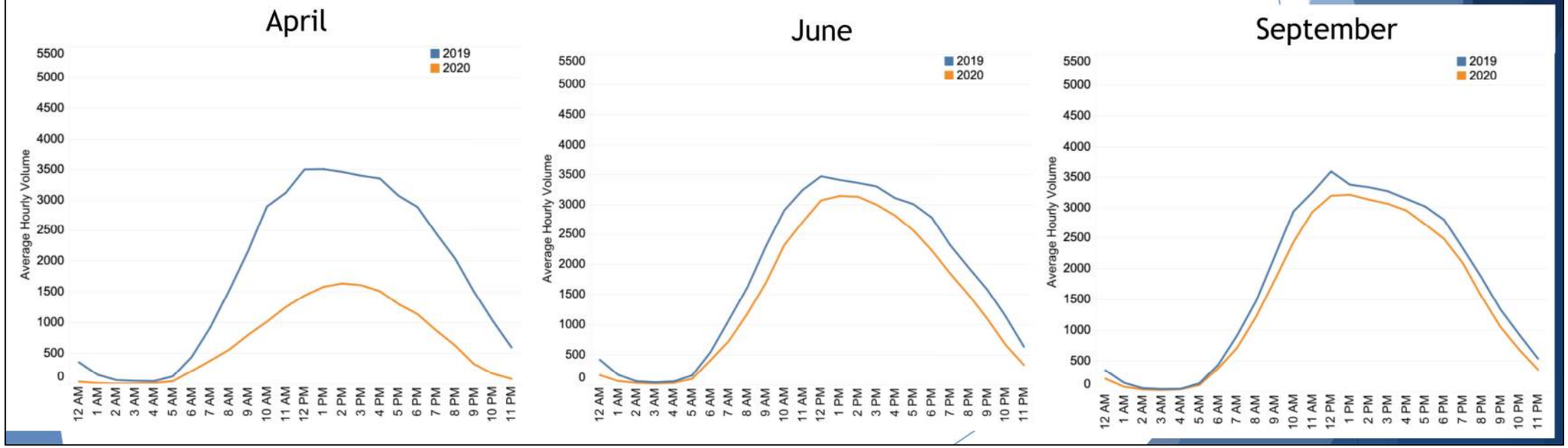
WILMAPCO
Wilmington Area Planning Council

How is our diurnal travel changing?

Weekends
- Very quick rebound
- Volume AND patterns approaching 2019 levels



US 202 & Sharpley Rd-Hourly Volumes WEEKEND



Data courtesy of

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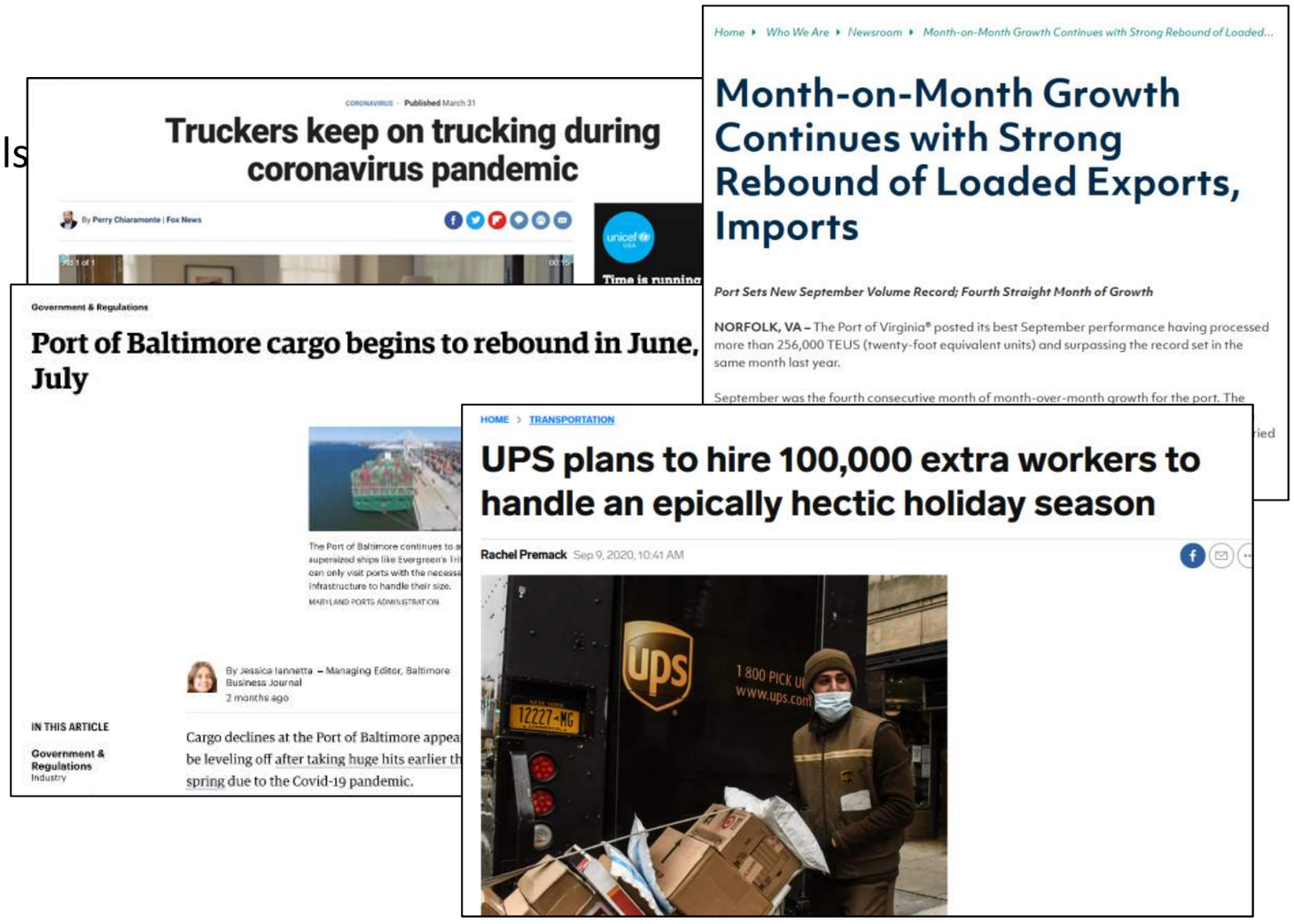
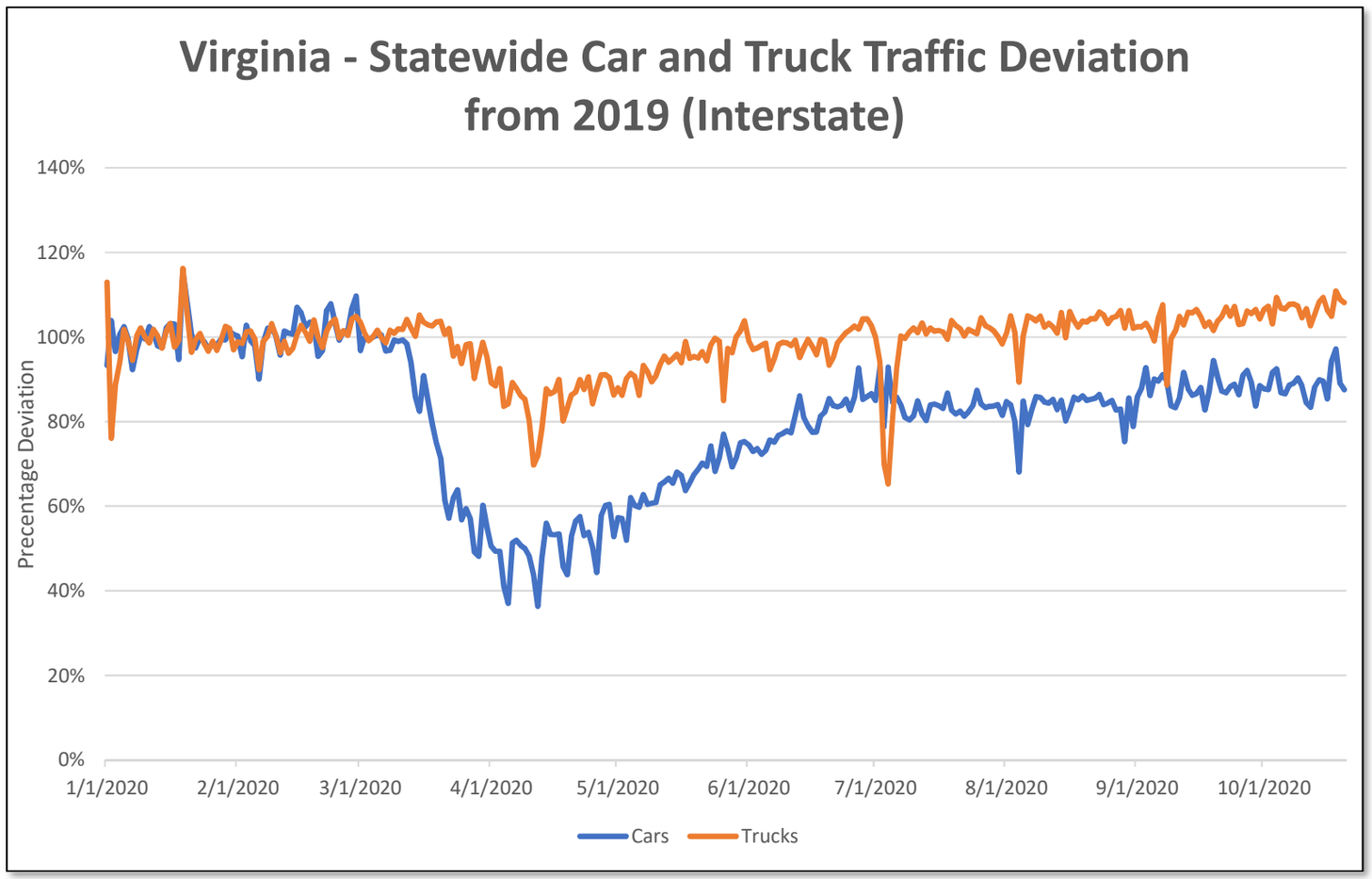
Truck Traffic Trends

- Freight/Truck traffic experienced lower traffic declines compared to personal travel, and now exceeds pre-COVID levels in certain regions
- Rebounds in port traffic likely to affect truck traffic
- Change from in-person shopping to home delivery likely to continue

"...it's just kind of all hands on deck right now because we're seeing freight that we don't normally see. Some of the truckload carriers, they're running at capacity" -Nate McCarty, Freight Driver from Denver, Colo



Truck Traffic Trends: Virginia



Source: Virginia Department of Transportation COVID Traffic Trend Tool

Image source: The Roanoke Times

Apple Mobility Index: Modal Trends

- Apple's Mobility Index is based on number of user requests for directions (drive, walk, transit)
- January 13, 2020 is baseline; requests are indexed to January 13 date
- Sparklines represent 7-Day Moving Average of Change in Apple Driving Route Requests (January 13 – October 13)

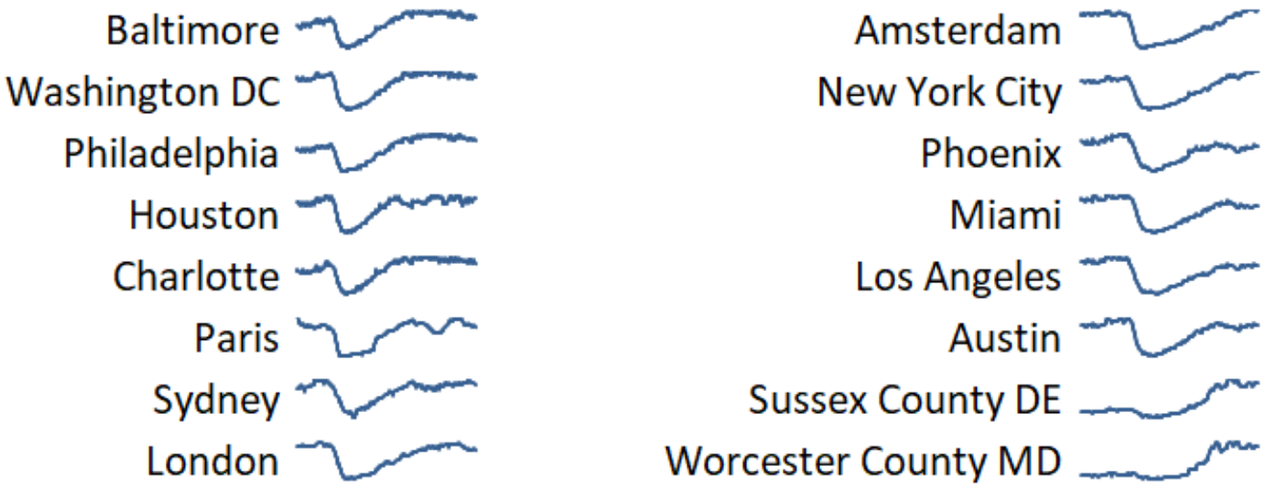
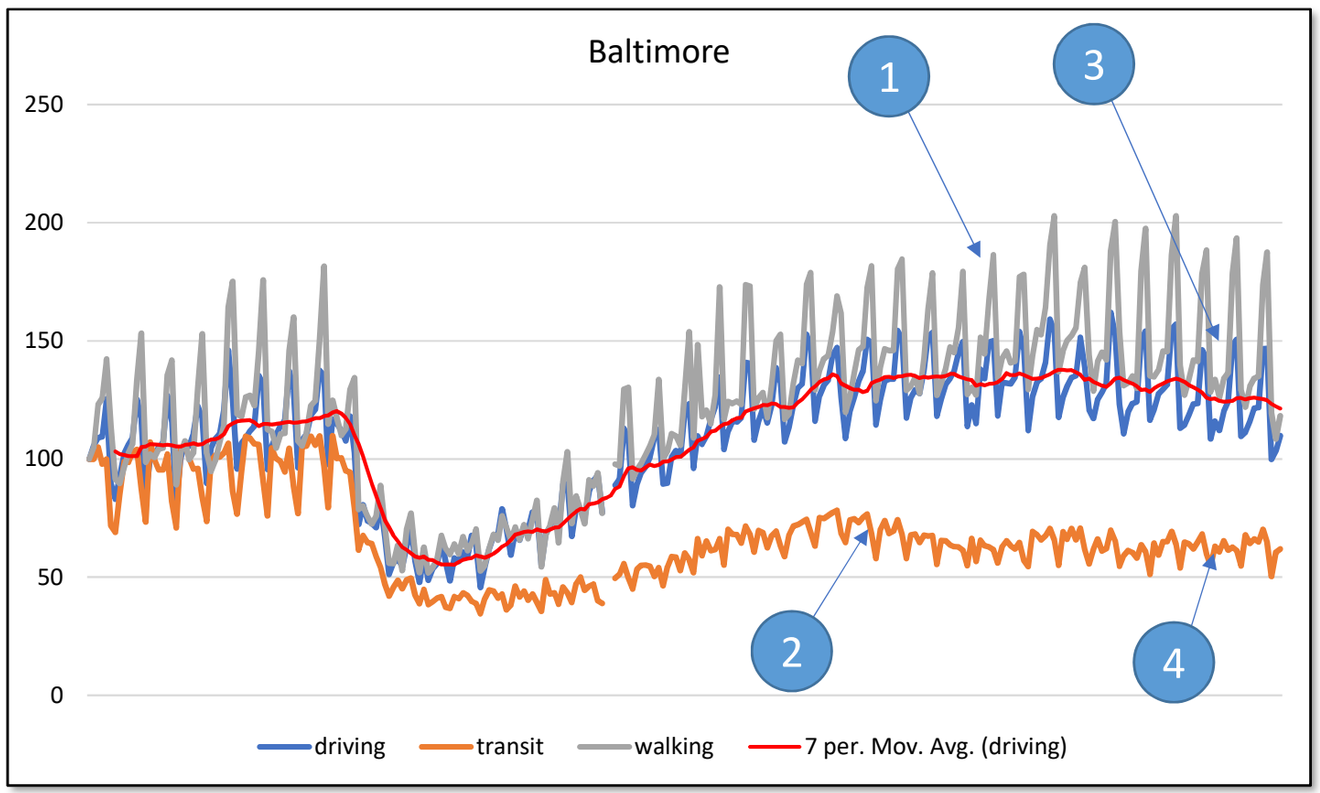


Image Source: GPSTrackLog.com

Changes in Requests for Driving, Walking and Transit Directions

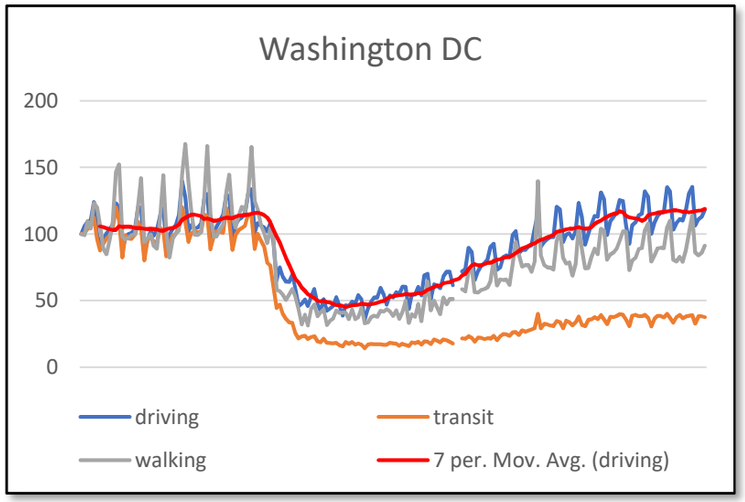


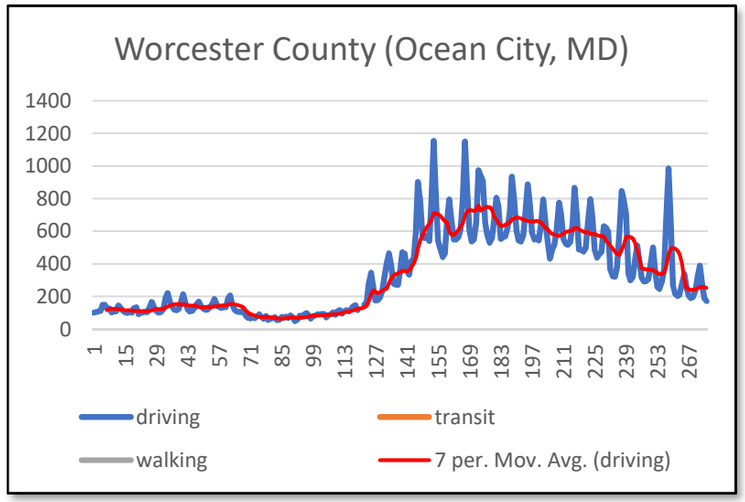
Source: Apple.com

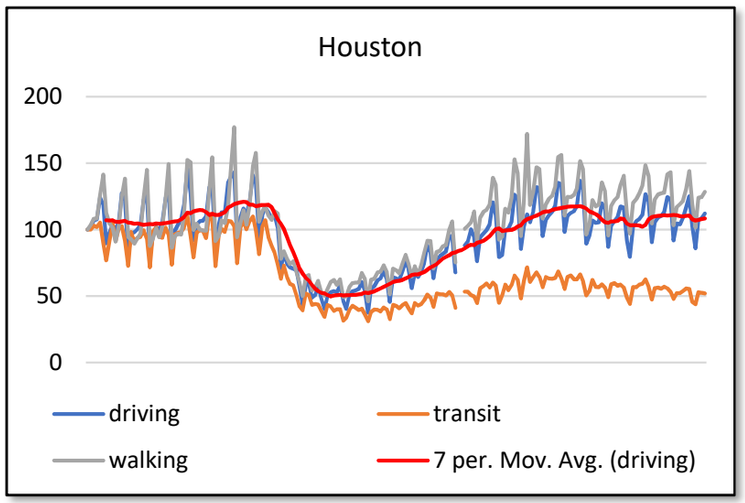
Baltimore Trends

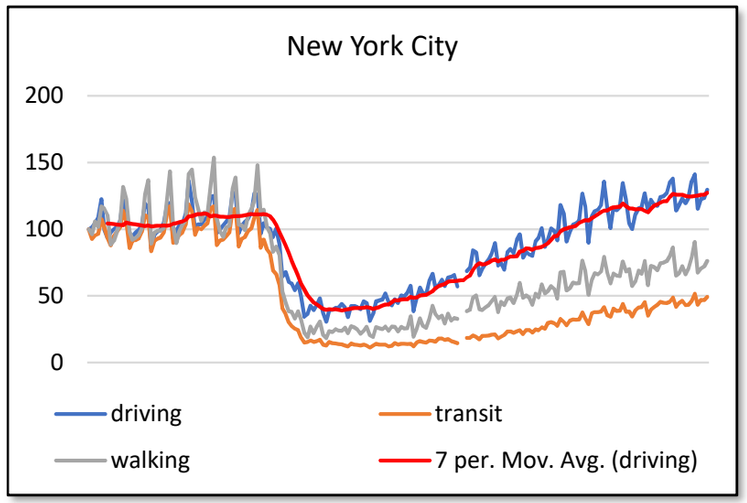
1. Driving and walking direction requests almost back to Pre-COVID-19 levels after a dramatic drop mid-March
2. Transit route requests never exceed 80 percent of Pre-COVID-19 levels and are decreasing again
3. Reduction in driving requests after summer peak:
   - Fewer recreational drivers?
   - More commuters familiar with route?
   - Fewer incidents requiring re-routing guidance?
4. Transit route requests appear to remain stable but below Pre-COVID levels

Other Locations and Mode Shifts (As of October 13, 2020)









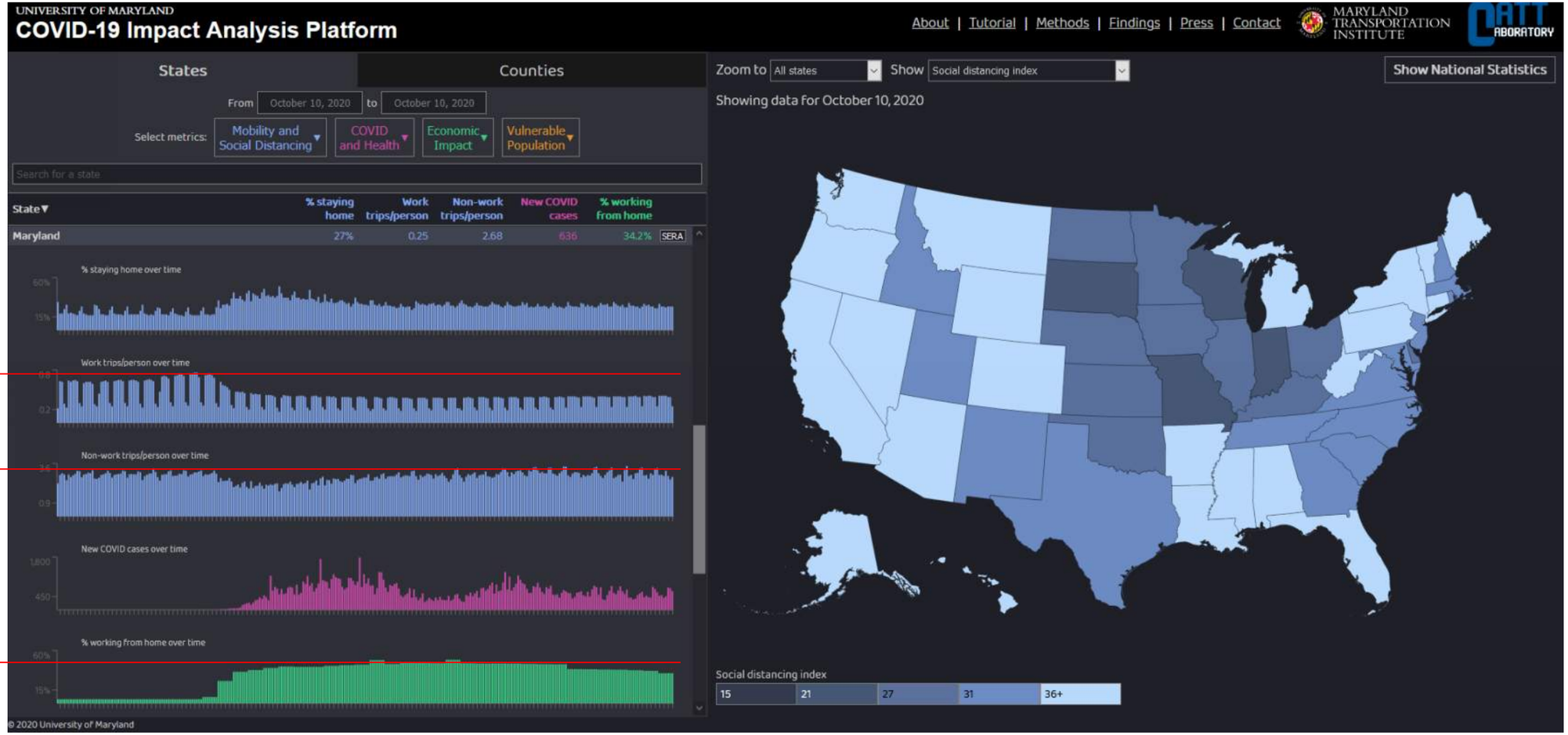
- Walking direction requests are lagging in certain large areas
  - Fewer tourists?
  - Fewer transit trips?
- Consistent trends in return to driving trips
- Cities with extensive transit system reliance seem to have driving requests to pre-COVID levels while transit lags
  - Permanent mode shift?

Change in Work Trips vs. Non-Work Trips: Maryland

Work Trips/ Person

Non-Work Trips/Person

% Working from Home



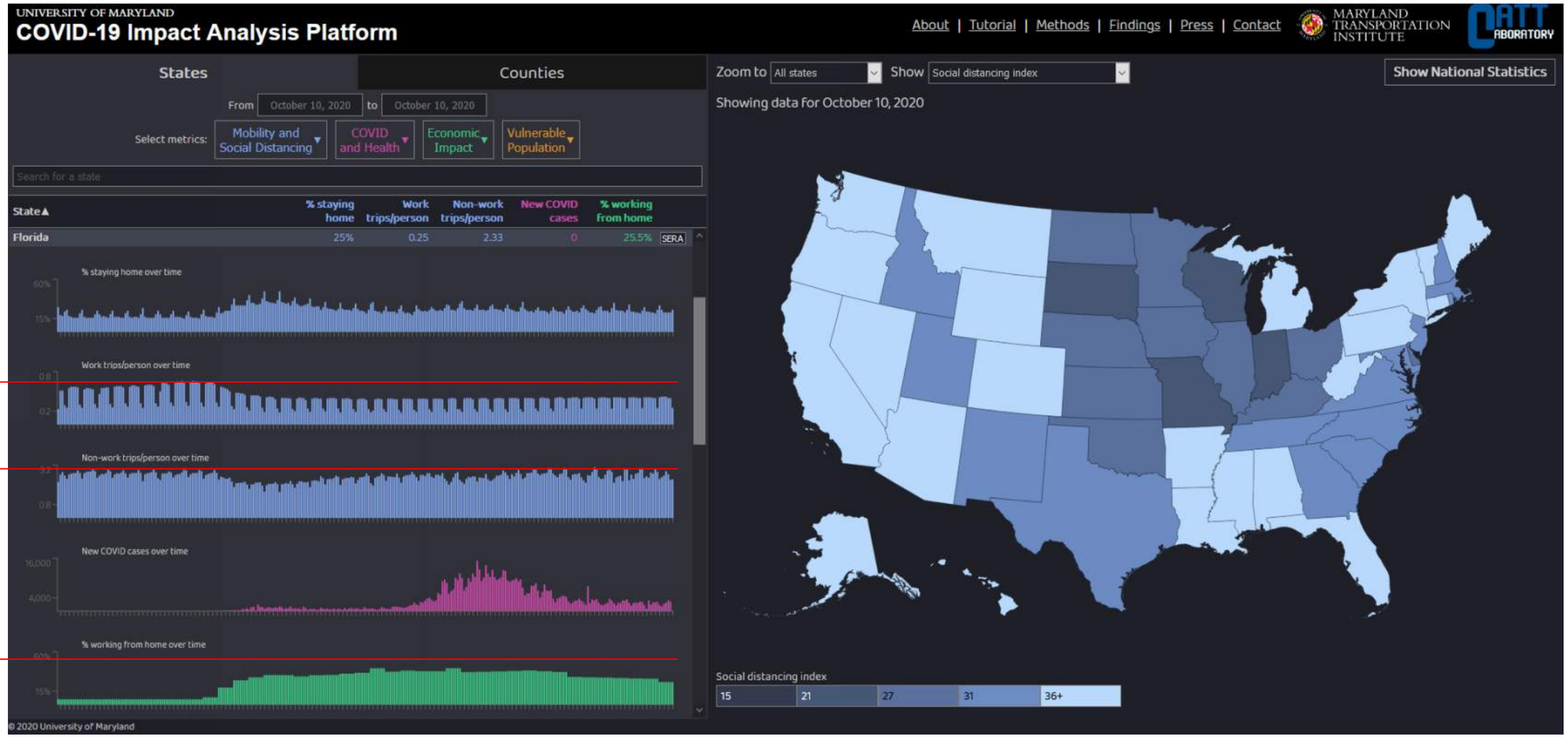
Source: https://data.covid.umd.edu/

Change in Work Trips vs. Non-Work Trips: Florida

Work Trips/ Person

Non-Work Trips/Person

% Working from Home



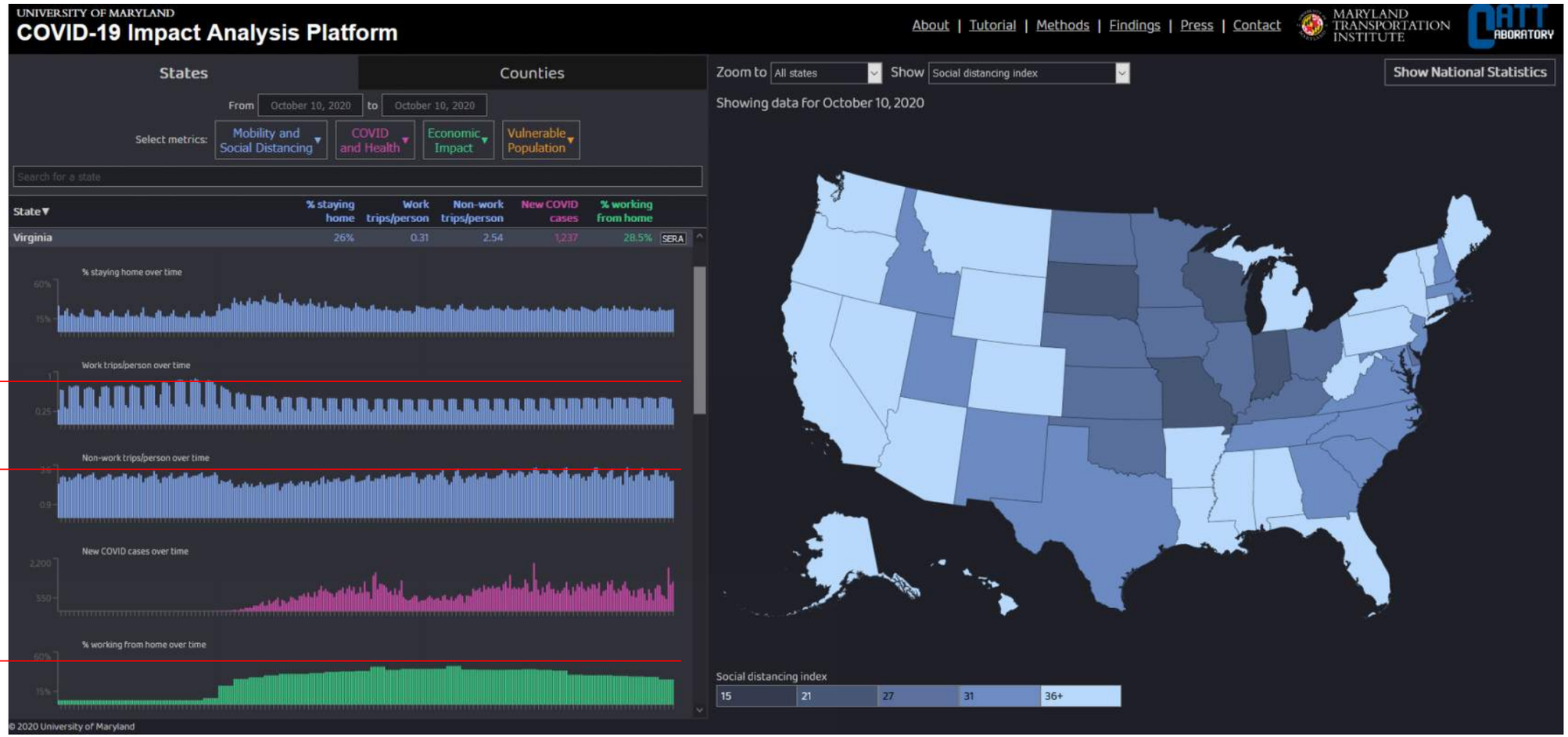
Source: https://data.covid.umd.edu/

Change in Work Trips vs. Non-Work Trips: Virginia

Work Trips/ Person

Non-Work Trips/Person

% Working from Home



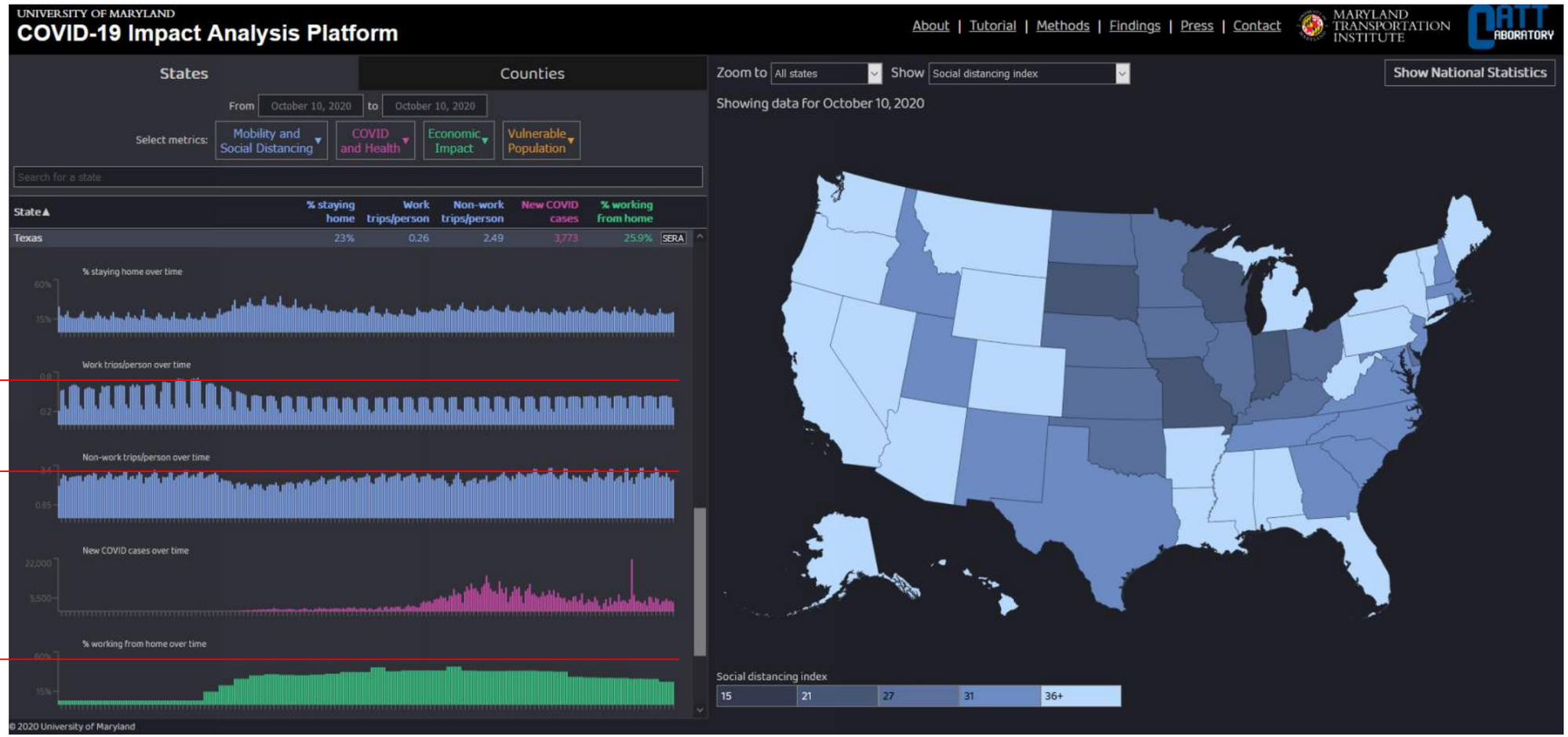
Source: https://data.covid.umd.edu/

Change in Work Trips vs. Non-Work Trips: Texas

Work Trips/ Person

Non-Work Trips/Person

% Working from Home



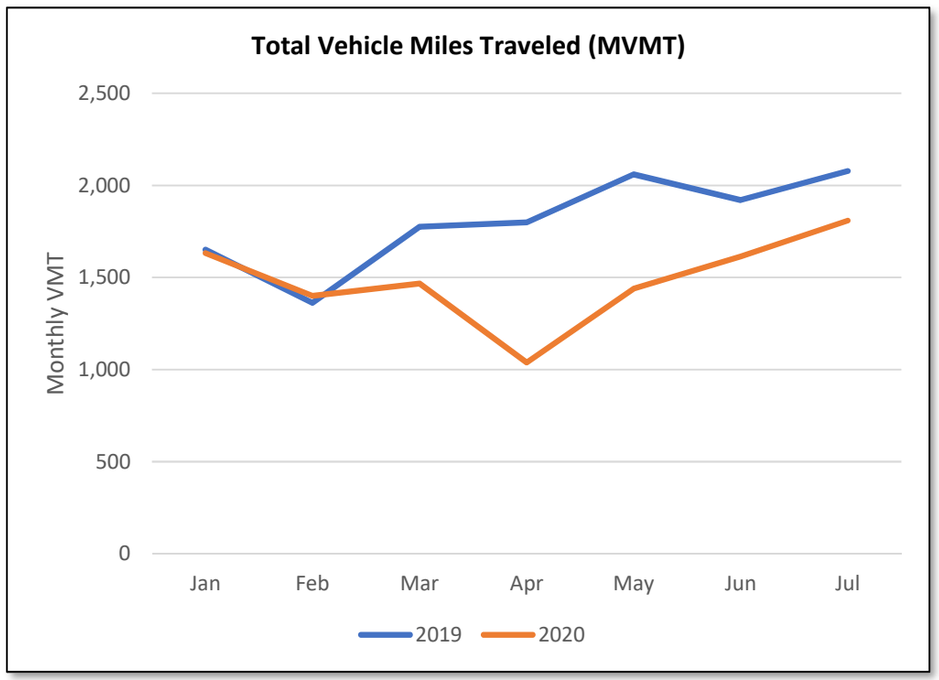
Source: https://data.covid.umd.edu/

Trip Pattern Changes

- Daily work trips have not returned to pre-COVID-19 levels
- Non-work trips have generally returned to “normal”
- Percentage or workers working from home remains consistently high
- Trends may not account for potential differences between urban and rural areas, which may be significant in large states with diverse economies such as Texas and Florida
- Trends may not account for potential differences between predominant employment types (office vs. manufacturing/industrial/hospitality)

Image Source: nytimes.com

Crash Severity: Statewide Fatal Crashes in Virginia, January through July



Source: FHWA

Total Crashes YTD

Year	2019	2020
Fatal	417	436
Injury	23,798	18,362
PDO	47,383	37,188

Crash Rates YTD

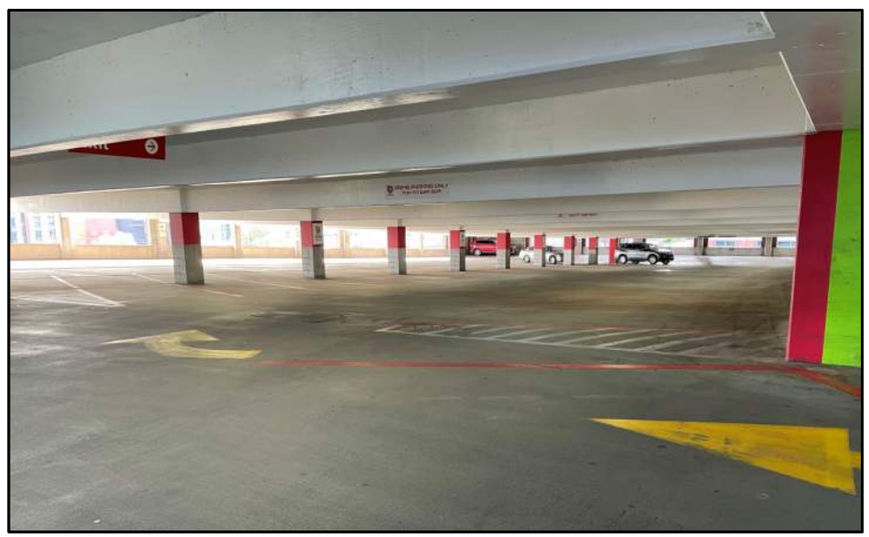
Year	2019	2020
Fatal	0.0330	0.0419
Injury	1.8817	1.7657
PDO	3.7466	3.5761

Source: VDOT Crash Tools Portal

- Fatal crashes in 2020 exceed 2019 crashes through the same time period

In Review...

- Severe drop in traffic volumes everywhere in mid-March, followed by gradual recovery
- Some data indicate weekend traffic is back but weekday traffic is still below pre-COVID levels
- The number of people working from home is still close to peak-highs but varies by state
- Non-work trips are at or even above pre-COVID levels
- Shift in daily patterns; weekday daily demand is compressed ("peak period compression")
- Urban and Rural regional VMT has plateaued after initial bounce-back
  - Urban VMT has generally plateaued well below pre-COVID levels
  - Rural VMT has generally plateaued close to pre-COVID levels
- Transit trips remain well below pre-COVID levels
- Truck traffic volumes experienced a lower decline but have returned above pre-COVID levels



Some Additional Speculative Thoughts…

- Trip-making in the immediate future may depend on land use:
  - Fewer trips to
    - Offices
    - Indoor hospitality-related business
  - Same number or more trips to
    - Grocery stores
    - Outdoor Recreational Facilities
      (Golf courses, Parks, Campgrounds, etc.)
  - Certain land uses (industrial/health care) will continue to require on-site staff
- Work trips + non-work trips + displaced transit trips = record vehicle traffic soon?
- Truck volumes likely to remain above pre-COVID levels in the immediate future
- Longer term, new commuting flexibility with more work from home may result in
  - Shorter peak durations?
  - Traffic being more spread out throughout the day
  - Less “shoulder” traffic (e.g., less traffic being pushed out of the traditional peak hour)

Image Source: MyCentralJersey.com

Path Forward

- No single COVID trajectory applies to the entire country or state; there appear to be regional differences
- Decision on when to collect data likely state-specific
- Future of trip characteristics remains uncertain
- For the immediate future, reemerging COVID hot spots could continue to affect traffic, fuel tax, toll revenue
- How should current projects with traffic data needs be addressed?
  - Continue monitoring State and Local health directives (schools, public gatherings, business restrictions, etc.)
  - Continue monitoring regional travel trends
  - Rely on historic data where possible
  - Consider data collection at select locations (e.g., where no historic data can be found) but adjust volumes based on historic trends/factors from nearby sources
  - Rely on big-data providers but be aware of differences in field counts vs. cell/probe data