Transportation Trends in VA: COVID and the Recovery

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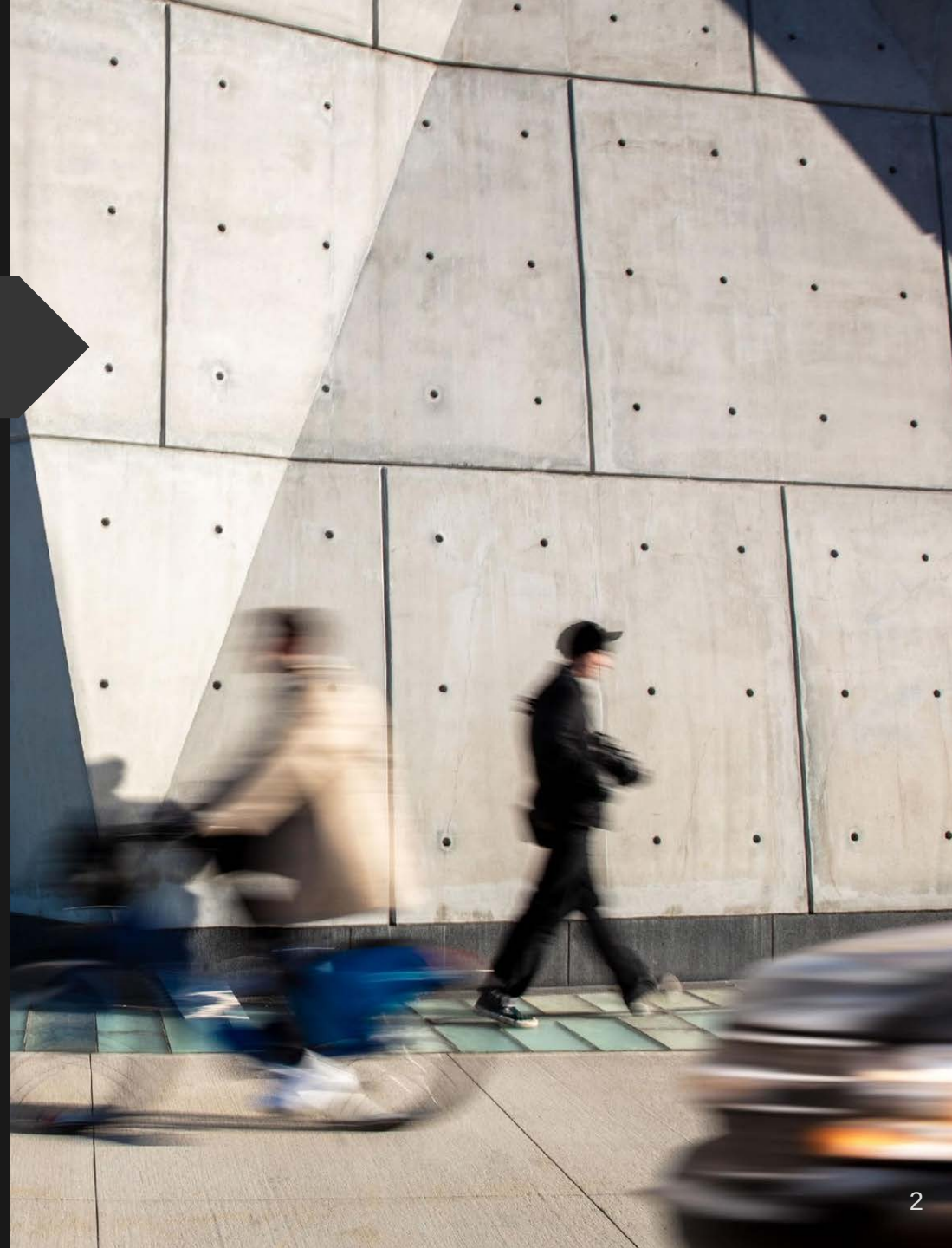
CTB Meeting June 2021

Agenda

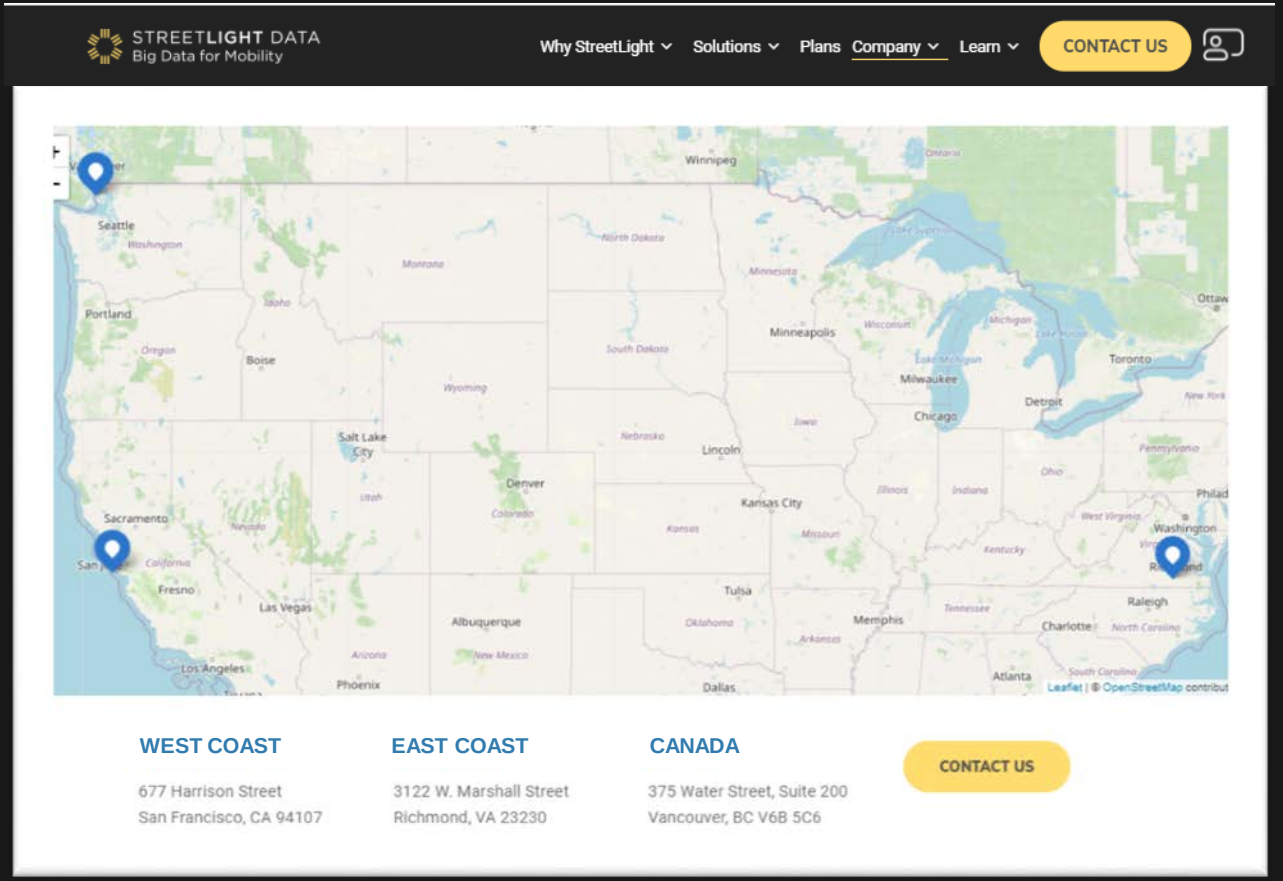
1. Nationwide and VA VMT trends through the COVID crisis
   - Urban and non-urban
   - Demographics / jobs
   - Active and Vehicular Modes

2. Emerging Trends
   - Shifts in time of day
   - Shifts in geography of trips
   - Planning / staff adaptiveness



Who is StreetLight?

1. Transportation analytic software vendor with offices in Richmond VA, San Francisco and Vancouver BC. 100 Employees.
2. Virginia has been a customer since 2015.
3. In the past 12 months, VDOT/OIPI/ MPO/RPT users have run 2,482 analyses in our tool (average of 1 every working hour of the year).
4. Research and course development partnerships with UVA, VPI and ODU
5. Use cases range from corridor planning, Smart Scale input, transit and bike infrastructure, port truck analytics, and more.

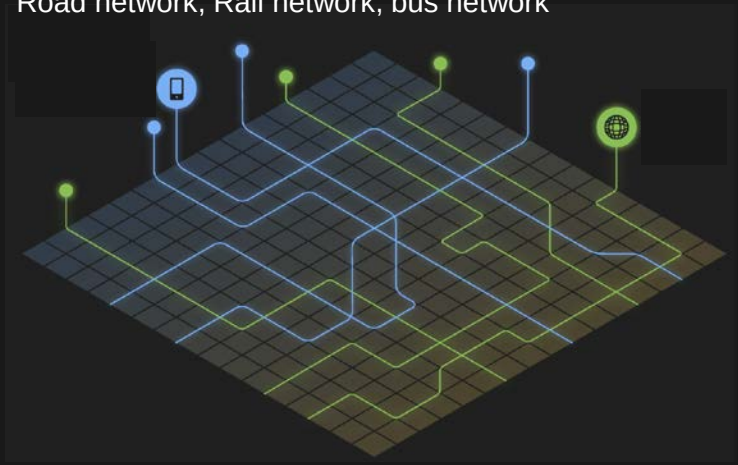


Where did this data come from?

Input: LBS and Contextual Data

DATA SOURCES:

Location-based Services Data
GPS Data
Contextual Data (Road, Census, etc.)
Road network, Rail network, bus network



Every month, StreetLight processes over ~40 billion anonymized location records from **smart phones** and **GPS navigation devices**.

Processing: Machine Learning + Algorithmic Processing

MODES:

Our proprietary data processing engine Route Science® transforms them into contextualized, normalized, aggregated, **multimode travel patterns**.

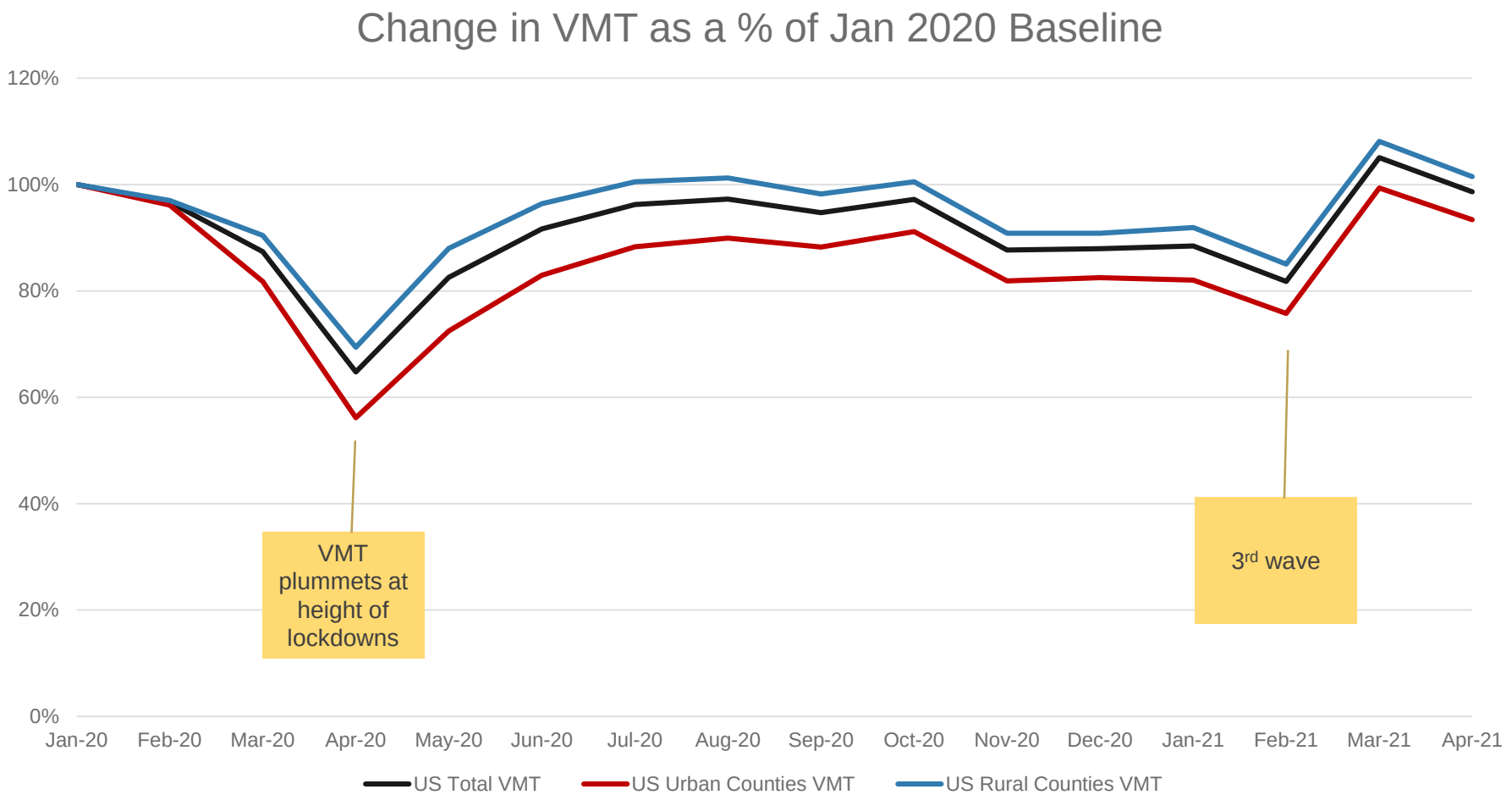
Output: StreetLight InSight® Metrics

StreetLight InSight® lets you analyze how **vehicles, bicycles, pedestrians, trucks, and bus and rail passengers** move across virtually every road and Census Block.

Section I

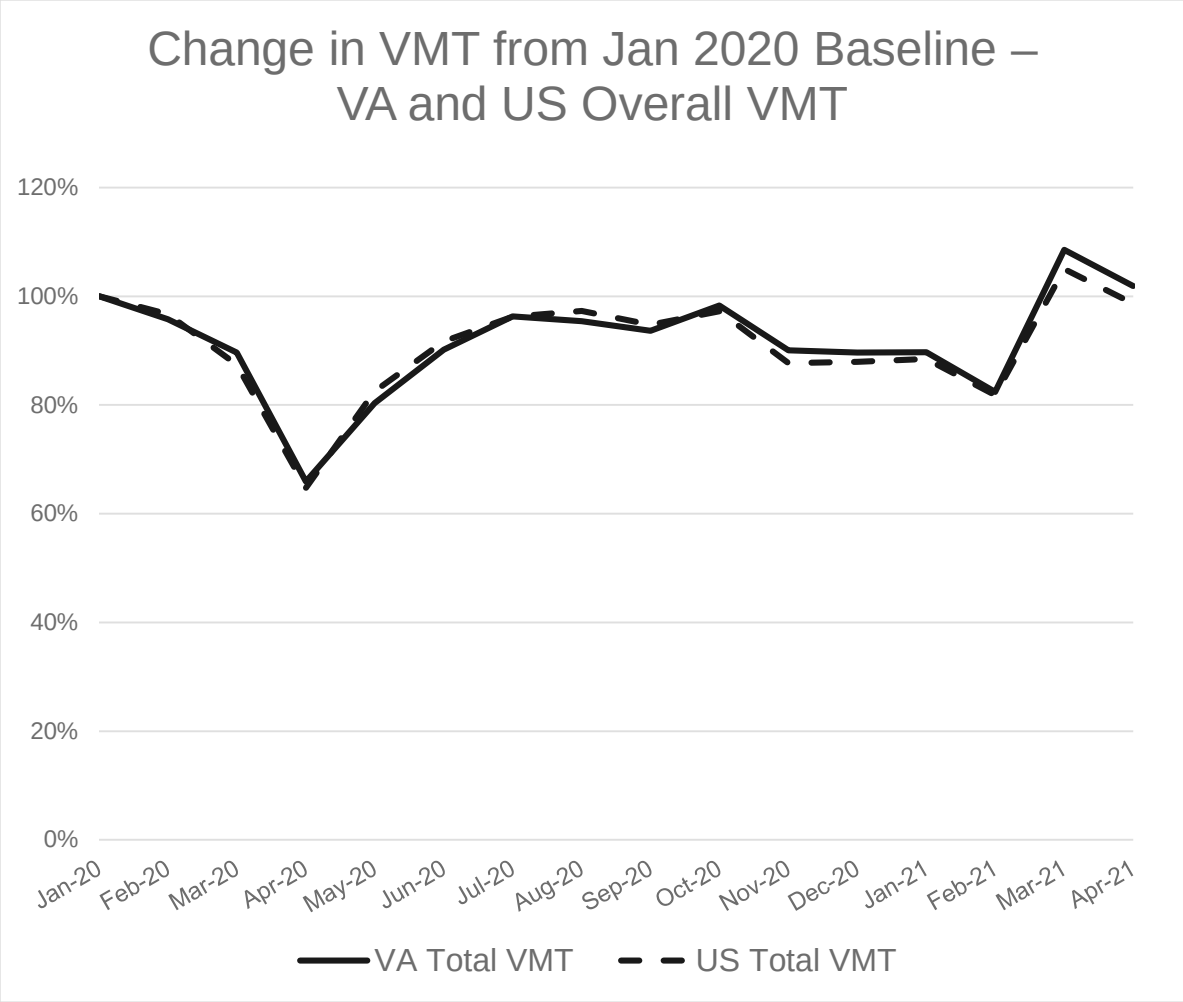
Nationwide and VA Trends in Transportation Through COVID

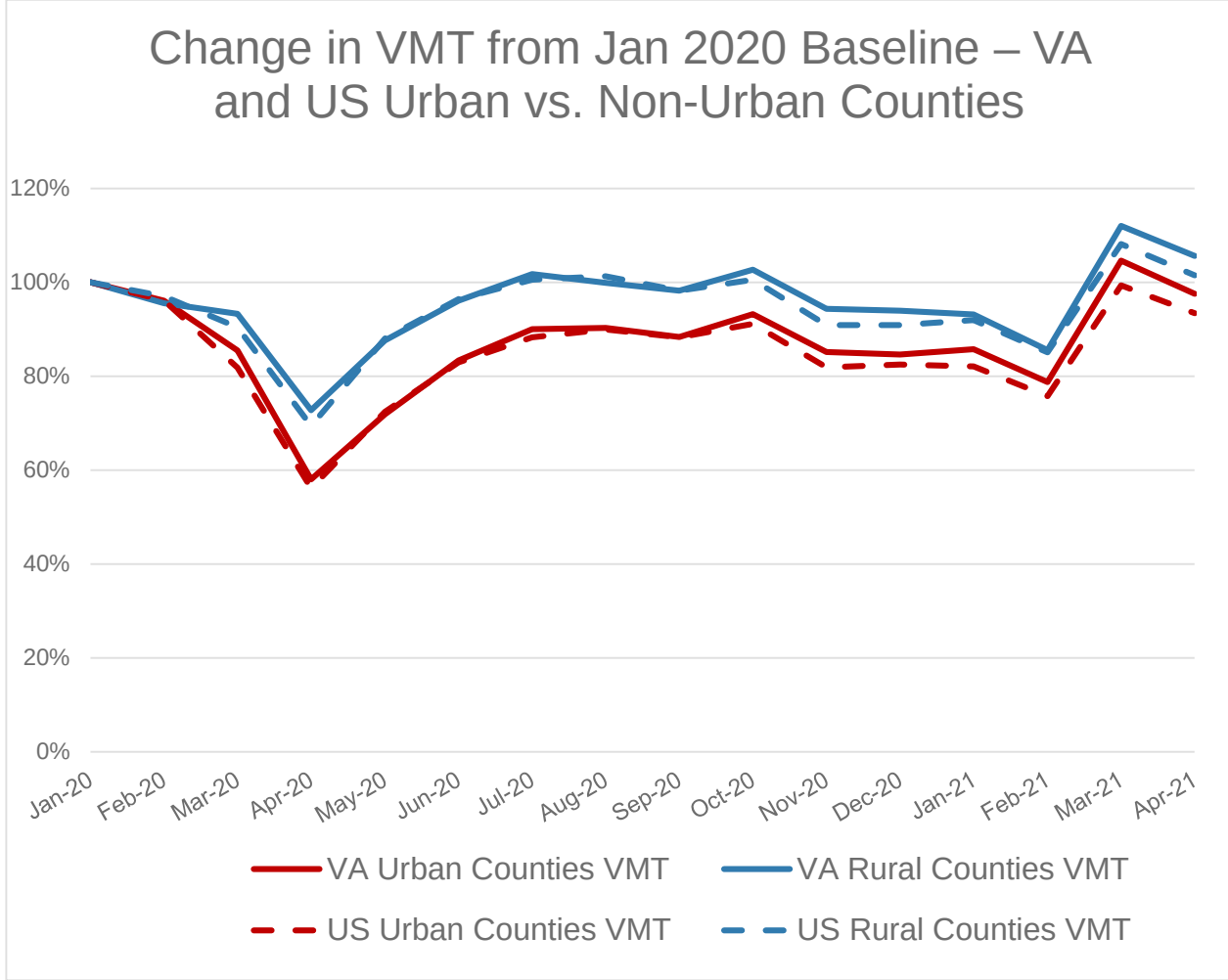
Nationwide Urban Versus Rural, Monthly, VMT



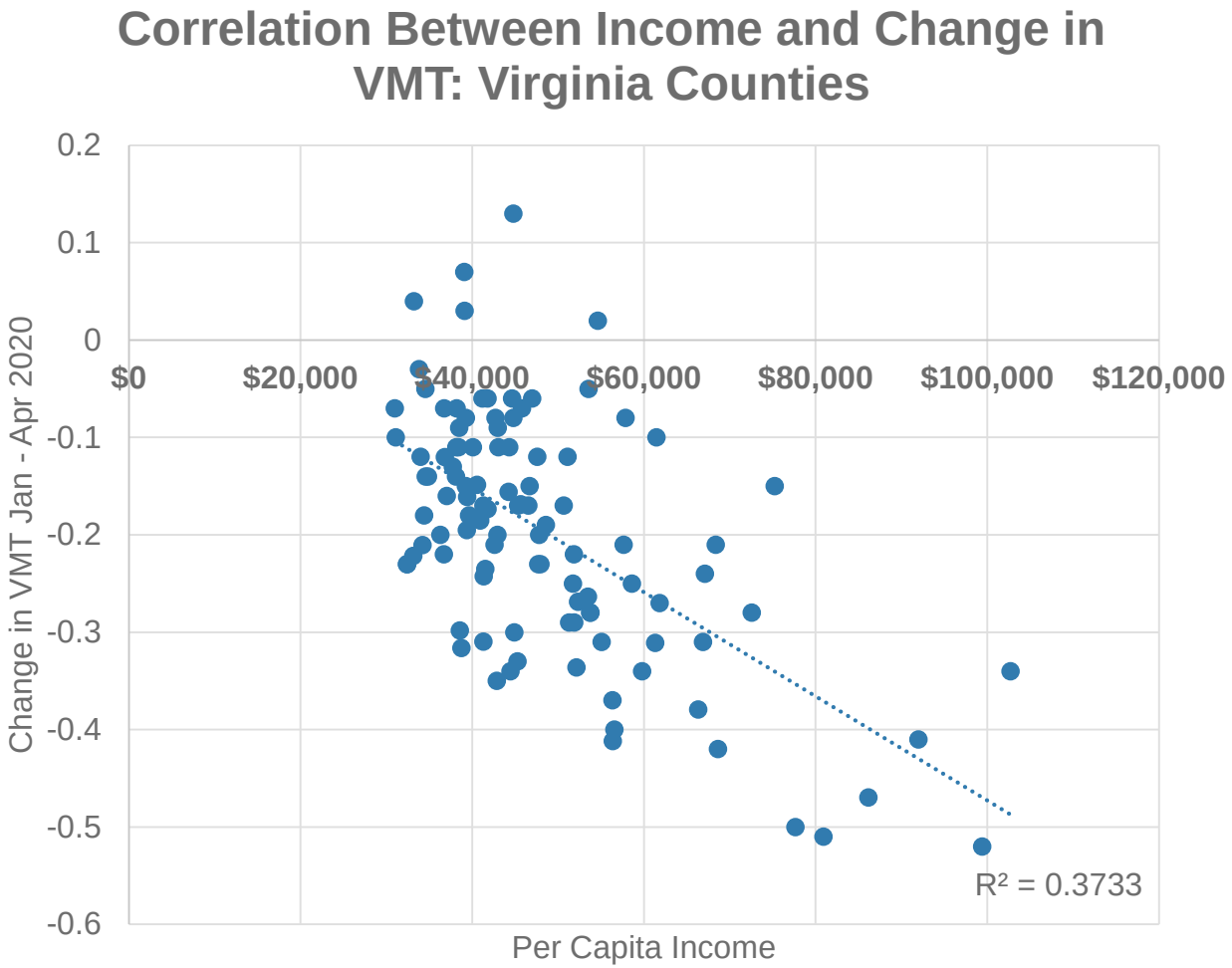
- Nationwide, urban counties showed sharper falloff in VMT than rural and have remained lower throughout 2020 and 2021.
- This split due to a mix of factors as will be discussed – job mix and income being key.
- Evan as VMT has recovered, the time and place in which those VMT occur is not the same as before.

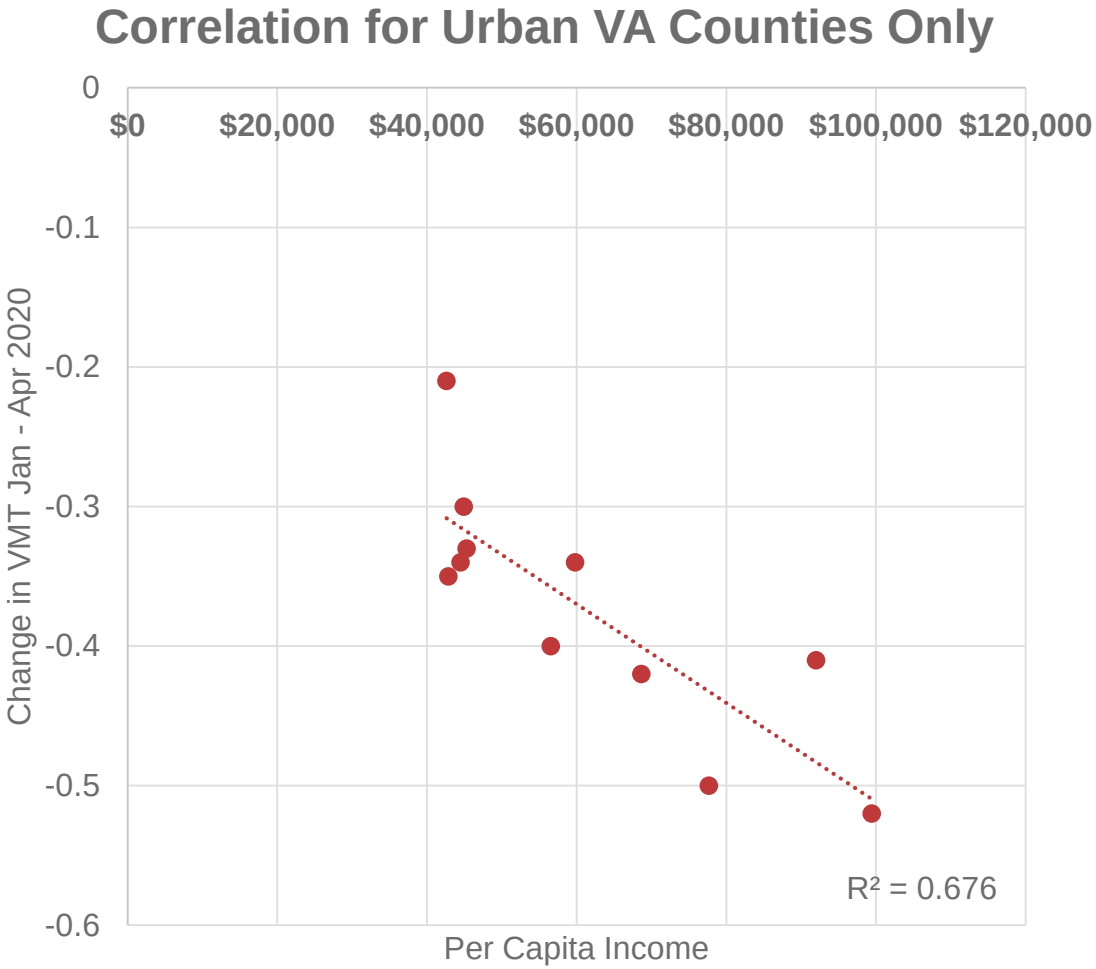
VA VMT Trends Mirror Nationwide Trends





In April 2020, Avg. County Income was Strongly Correlated with Reduced VMT





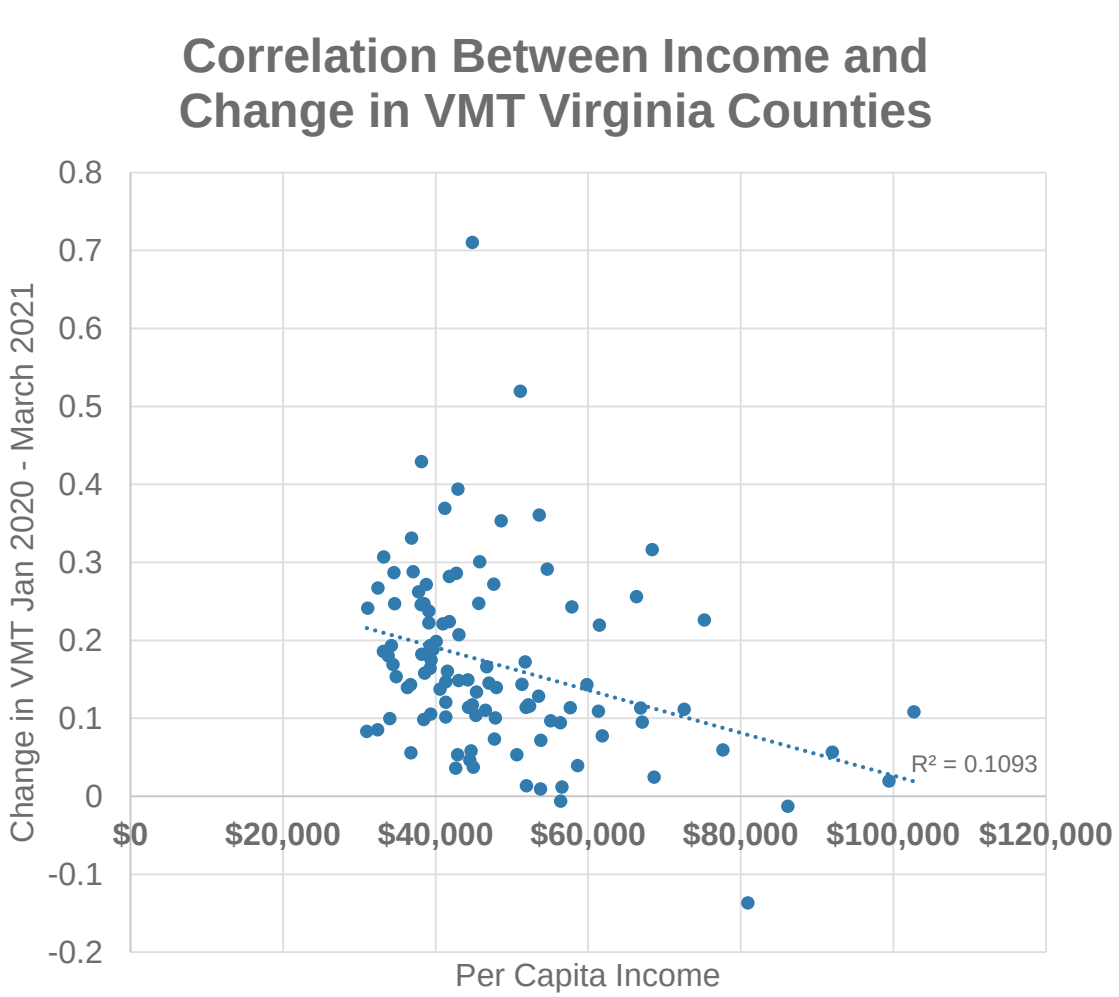
Overall VMT Impacts by Job Type

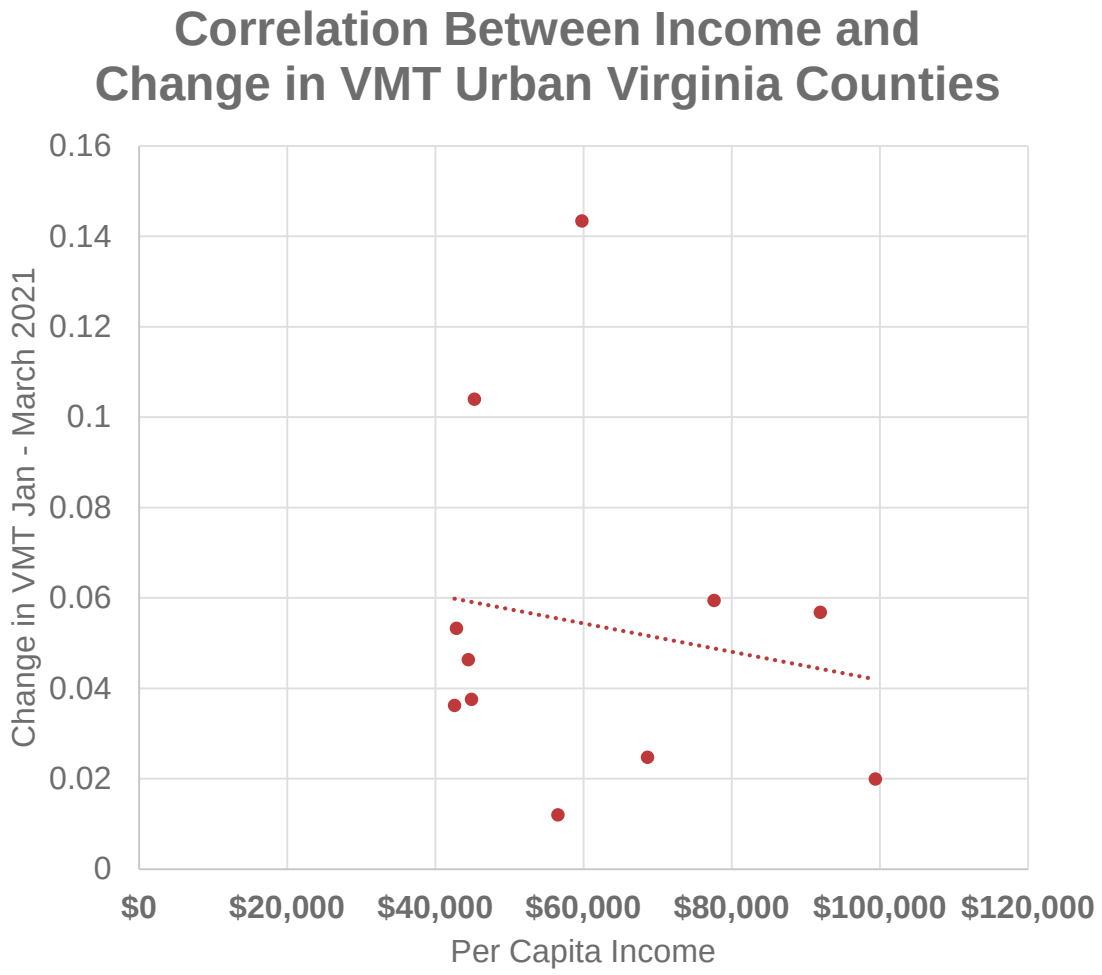
Strong Negative – More of these jobs means MORE VMT fall off		Strong Positive – More of these jobs means LESS VMT fall off
Information / IT		Forestry, fishing, and related activities
Finance and insurance		Construction
Real estate and rental and leasing		Manufacturing
Professional, scientific, and technical services		Other services (except government)
Management of companies and enterprises		
Health care and social assistance		
Accommodation and food services		

Source: Bureau of Economic Analysis: CAINC5N Personal Income by Major Component and Earnings by NAICS Industry

This Trend Persists into March 2021

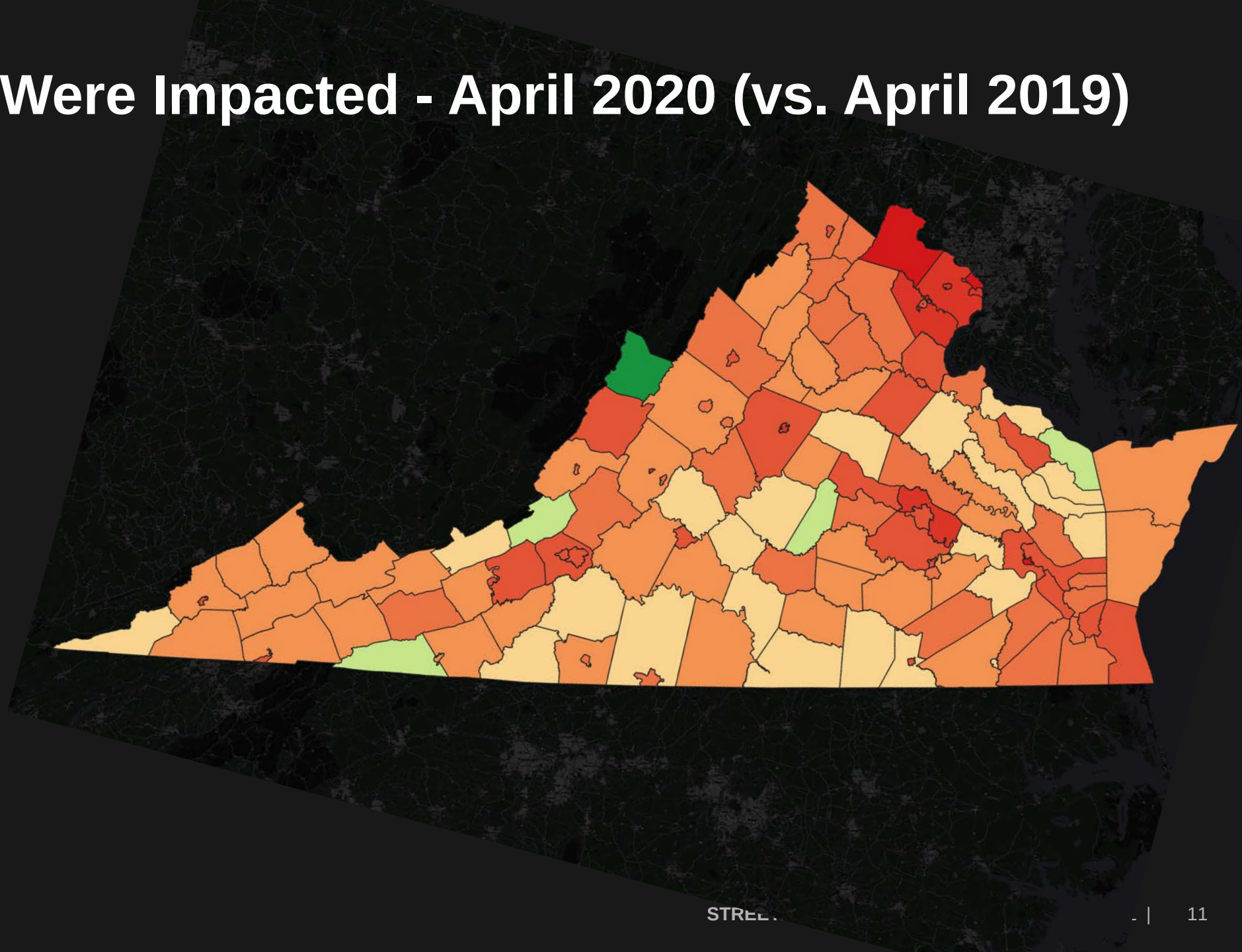
Less Marked in Urban Counties





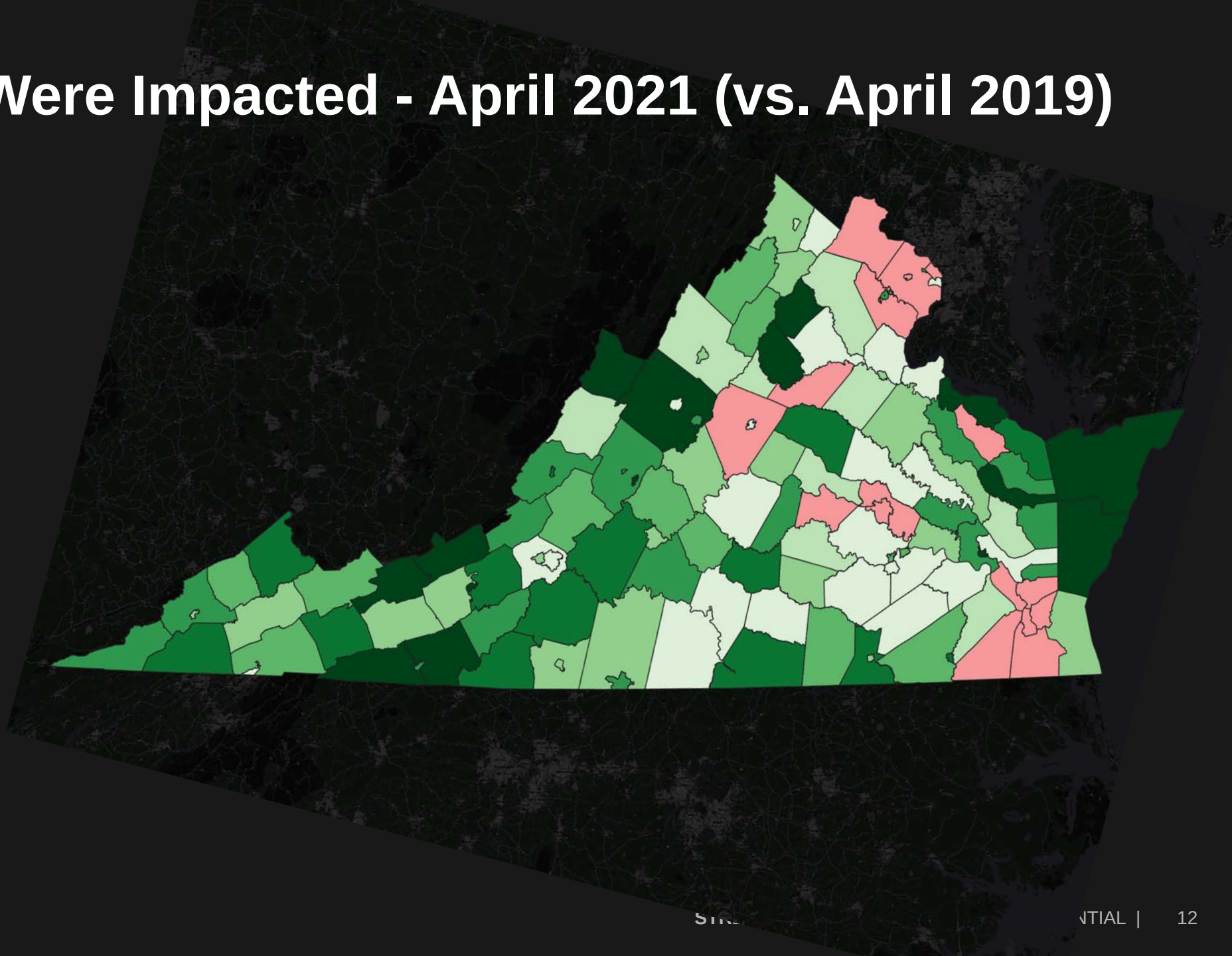
How Regions Were Impacted - April 2020 (vs. April 2019)

Legend	Change in VMT
	-55 to -30%
	-30 to -10%
	-10 to 0%
	0 to 10%
	10% +

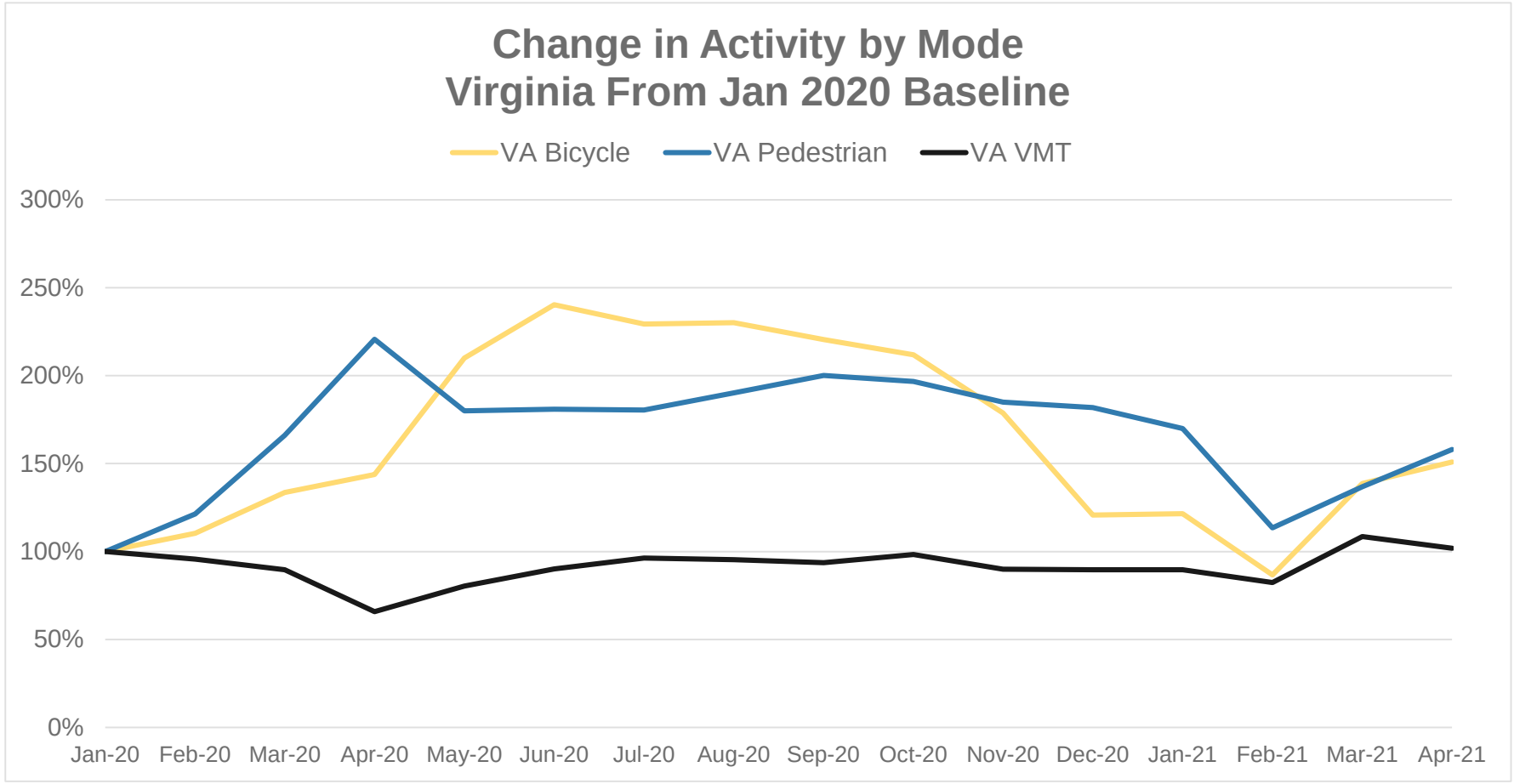


How Regions Were Impacted - April 2021 (vs. April 2019)

Legend	Change in VMT
	-15 to 5%
	5 to 15%
	15 to 25%
	25 to 30%
	30% +

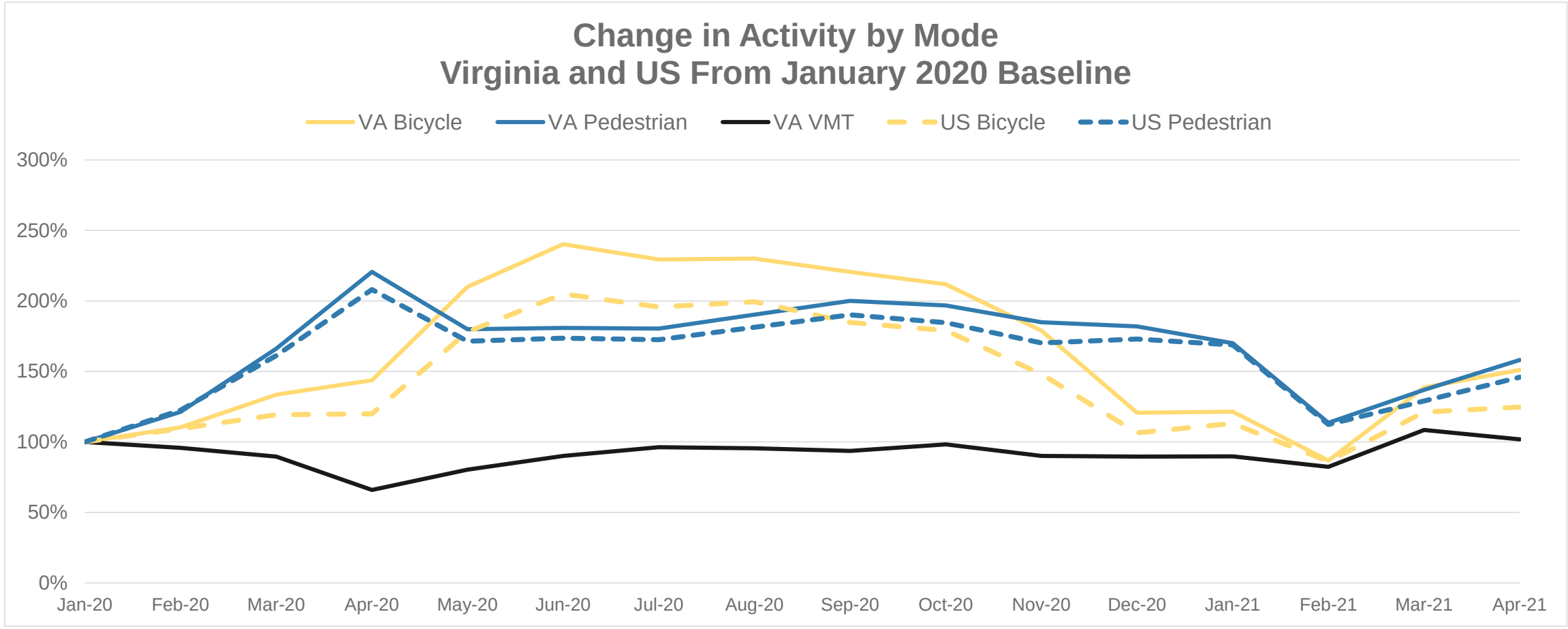


Pedestrian and Bike Activity Flourished in Virginia



- Bicycle and pedestrian trips soared and maintained high rates especially during the summer.
- Even in Jan 2021, pedestrian activity was up 7% compared to Jan 2020, and bicycling up 22%.
- In essence the mode share of trips shifted towards the active modes during the pandemic and some of this trend appears to still be sticking.

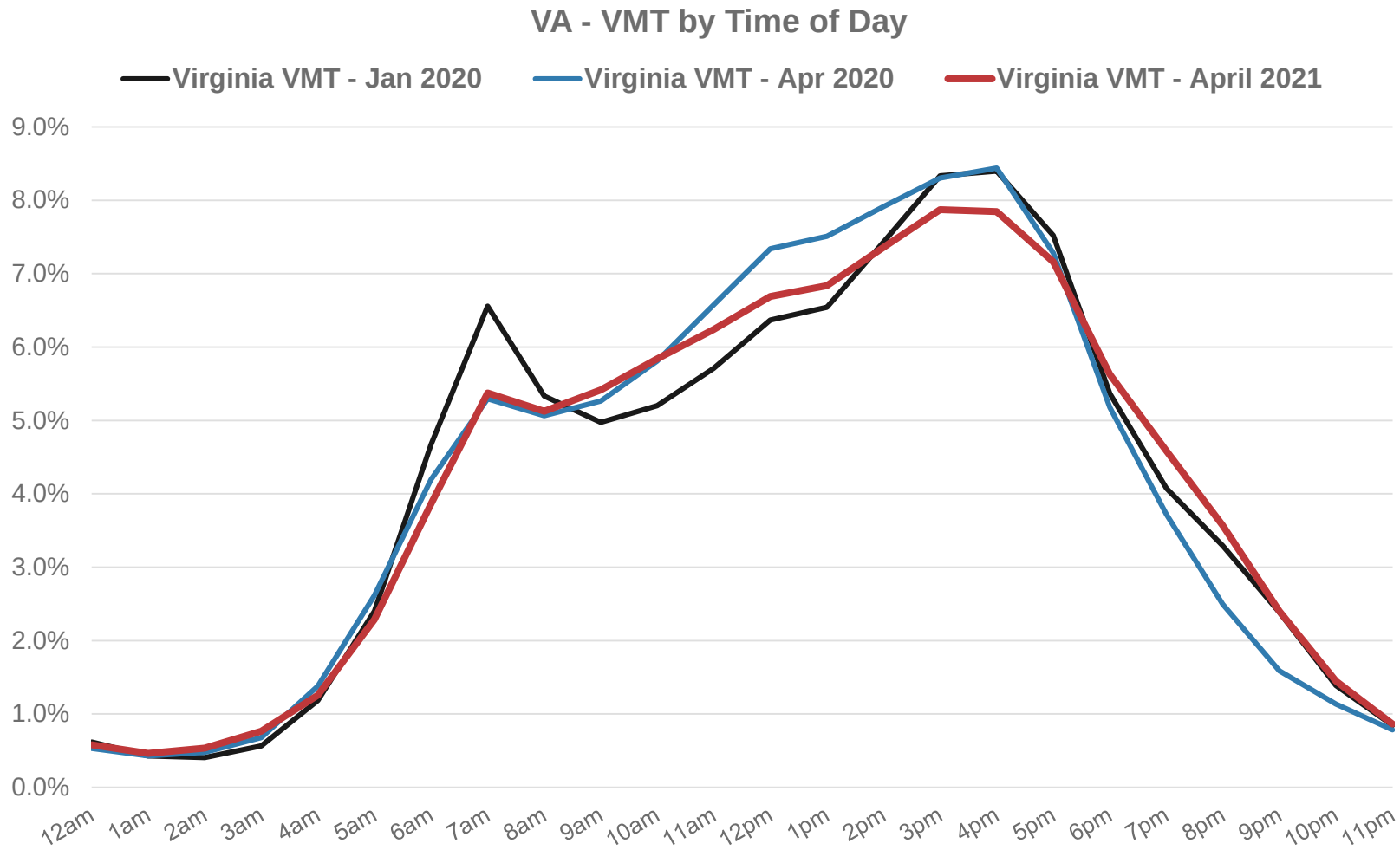
VA Move to More Active Transportation than the Nation (Especially Bicycle Trips)



Section II

Emerging Trends & The Future

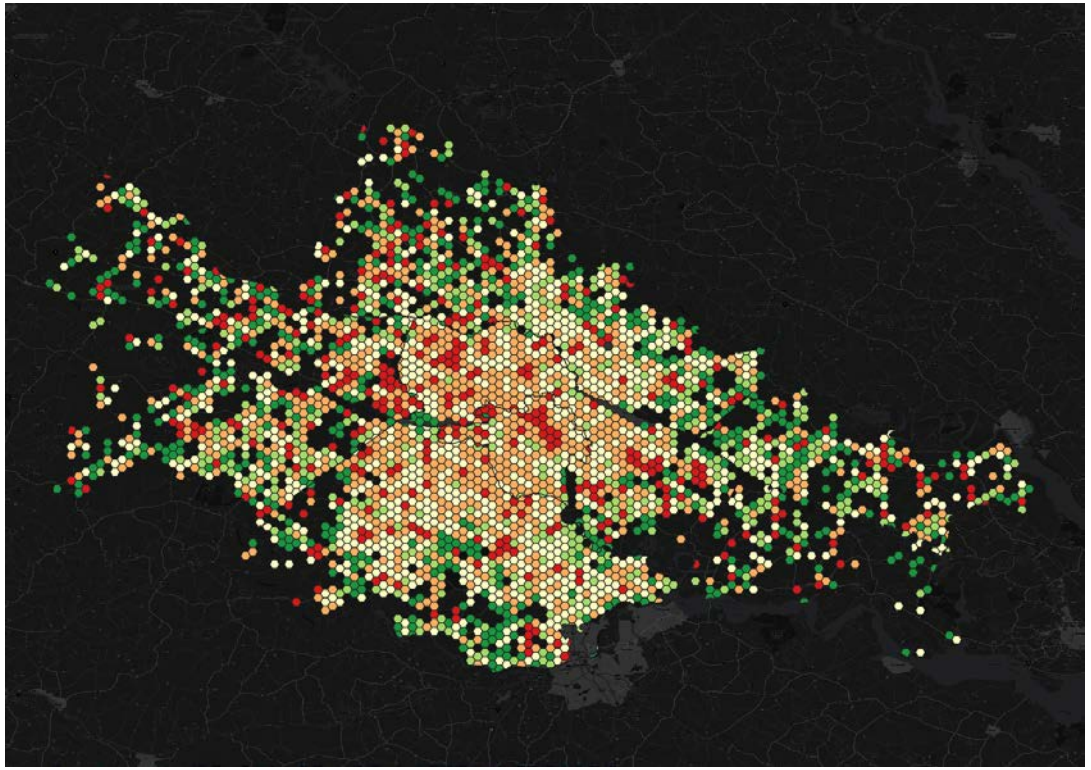
Trend 1: VMT Has Shifted Later in the Day



- In April 2020, the distribution of statewide VMT throughout the day shifted to midday and afternoon
- This trend persists even into April 2021, suggesting it will in some part stay. Both the AM and the PM peak significantly reduced in favor of midday and evening driving. Shaving a few points off peak volume can drastically reduce congestion.
- The trend is consistent in urban and non-urban counties.

Trend 2: VMT Has Shifted Away from Urban Cores

Change in Avg Weekday Trips, April 2020 vs. April 2019 in Richmond Metro



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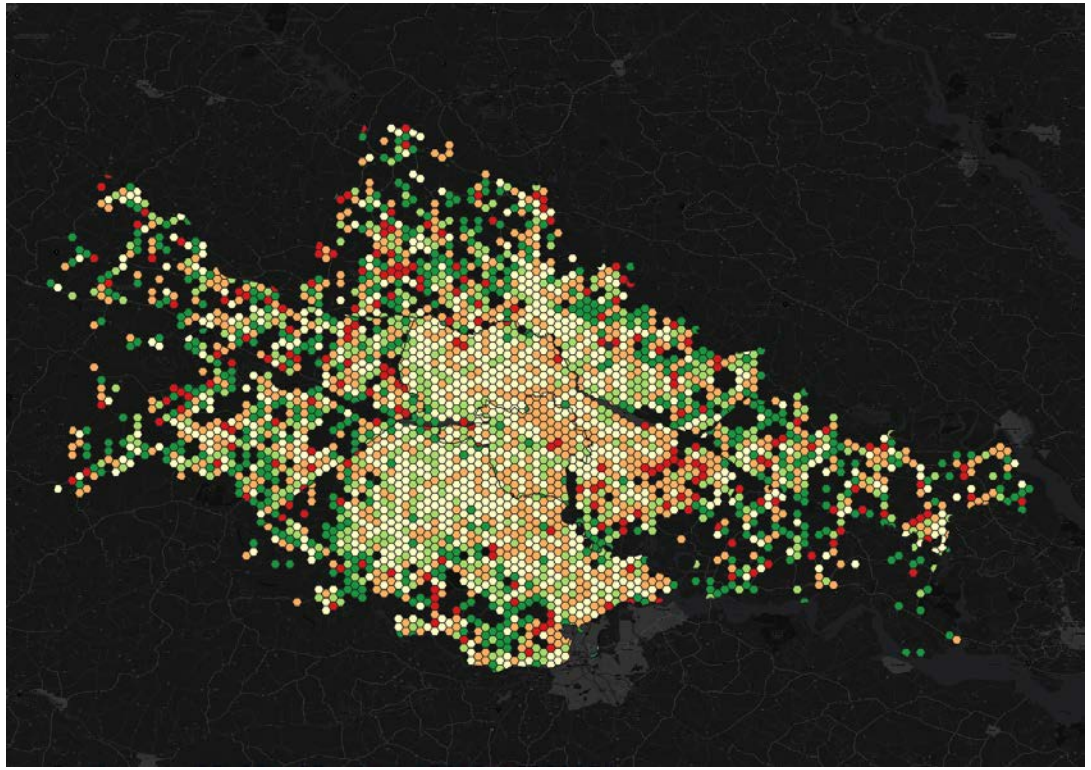


Legend					
	-100 to -50%	-50 to -35%	-35 to -10%	-10 to 10%	10%+

What do these trends, put together, mean?

Our roads are handling the same VMT as before COVID, but the VMT are distributed more evenly across time and space. From a pure engineering standpoint, this means our system is acting more efficiently.

Positive

- Better utilization of existing assets → reduced need for road expansion/build
- In general, cars are moving faster which is more convenient for citizens
- In general, people are still walking/biking more which is good for health and community and potential long term GHG/emissions goals

Neutral but Interesting

- Shift in road functional class VMT share may mean maintenance $ reallocation is needed
- Shift in road functional class VMT, time and location of travel means certain assumptions need revising:
  - Statewide total roll ups
  - Accessibility
  - Commercial planning
  - Modeling practices*

Negative

- In general, cars are moving faster which:
  - Is probably contributing to the fatality / VMT increase (notably car vs. bicyclist / pedestrian interactions)
  - Decreases incentives to ride transit, bike, carpool
- Low income people are spending disproportionately more on transportation, even more than before the pandemic

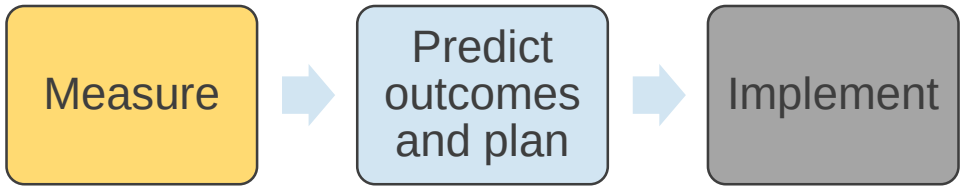
Emerging Trend 3 – Planning for a world in flux?

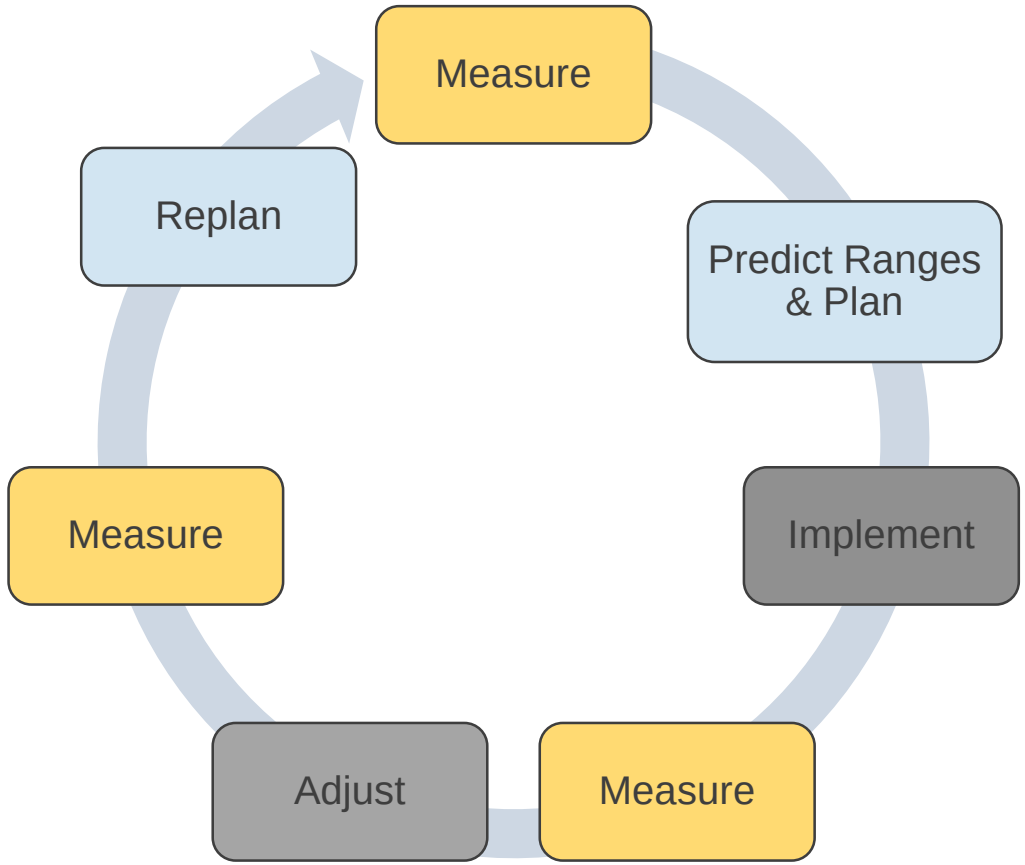
JANUARY 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

What would you have predicted?

Emerging Trend 3 – Planning for a world in flux?





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