

E-BOOK

COVID TRANSPORTATION TRENDS

What You Need to Know
About the “New Normal”



STREETLIGHT

The New Normal?

Remember the long-ago days of March, when hopes were high that the pandemic would last only a few months? As 2020 draws to a close, indeed some transportation indicators like vehicle miles traveled (VMT) are trending back to pre-COVID levels. But, spoiler alert: That's only a superficial takeaway.

Looking closer, we are seeing a shift to an entire "new normal" for transportation. Analyzing travel metrics at a granular level with rich data overlays reveals deeper upheavals that transportation professionals should be monitoring closely through the end of 2020 and beyond. Because it's all going to keep changing.

This research report takes advantage of StreetLight Data's transportation metrics to provide data-driven insights on vehicular and bicycle travel so far in 2020. Our analysis sheds light on emerging trends that will continue to influence agencies' efforts to manage transportation amid sweeping behavioral changes in our communities.

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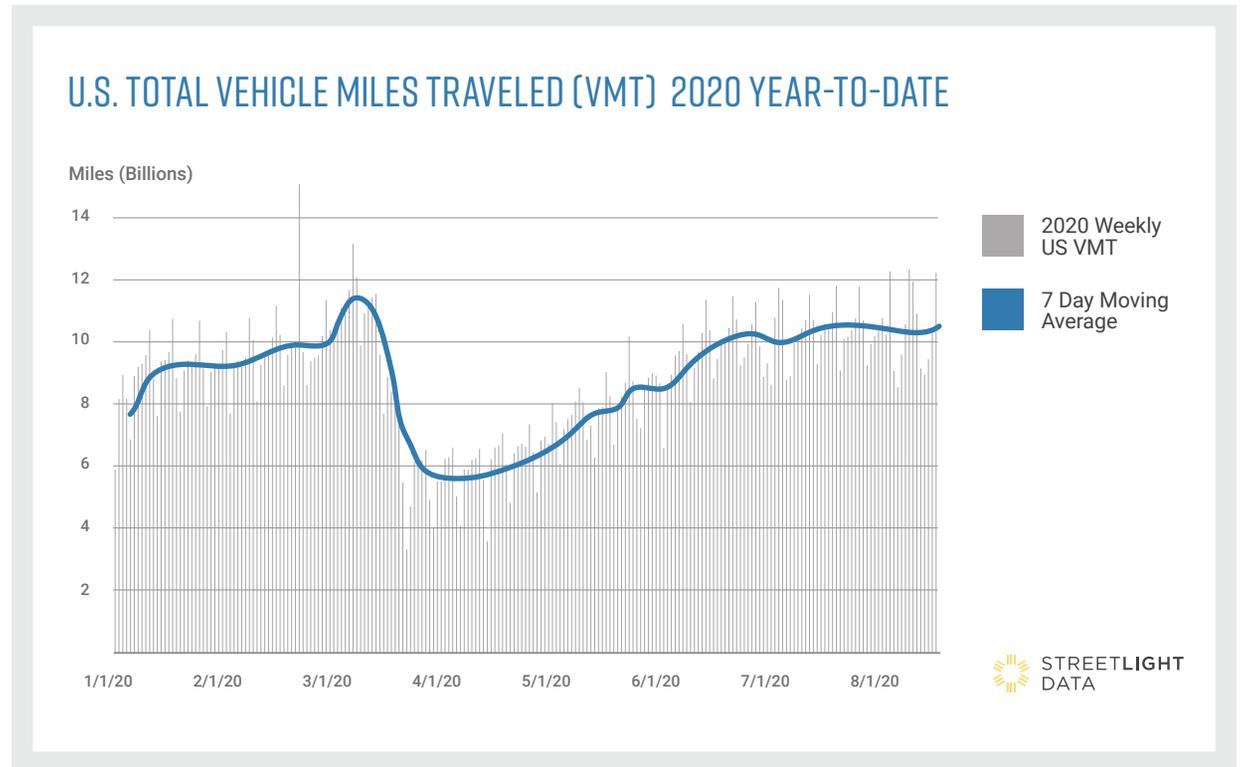
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I. VEHICLE TRAVEL STILL VOLATILE

Over the last few months, COVID-induced stay-at-home orders have changed how we shop, how we learn, how we get health care — and have introduced a period of unprecedented volatility for transportation planning and use.

In any given year, U.S. VMT rises or falls only about 1 to 2%. Even during the “great recession” of 2008 (our most recent major dip), VMT declined only 3.5%. By April 2020, however, VMT dropped an unprecedented 40.2% compared to 2019.

At StreetLight, we’ve been watching VMT closely, using our daily [VMT Monitor](#). After bottoming on Easter Sunday of this year, VMT has been steadily climbing, with a post-June plateau suggesting that vehicle travel is stabilizing. The trendline may look like a return to normal, but it’s not.



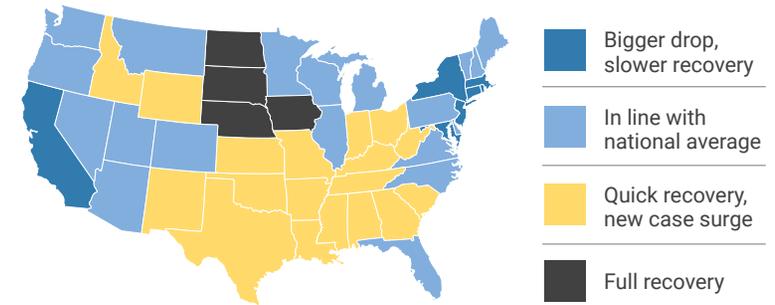
Since bottoming out in April, total VMT has recovered to near pre-COVID levels, but still remains below levels of July 2019.

Our year-over-year comparison of July 2020 VMT reveals it is **still 16.3% lower** than in July 2019. While some transportation experts predicted a VMT “rebound” making up the difference for the year as a whole, we don’t see indications of that level of recovery.

We do see that VMT correlates with several pandemic-related factors (discussed below), and these factors vary by region. This deeper insight can help planners monitor, and even predict, VMT fluctuations in response to pandemic policies and disease progression.

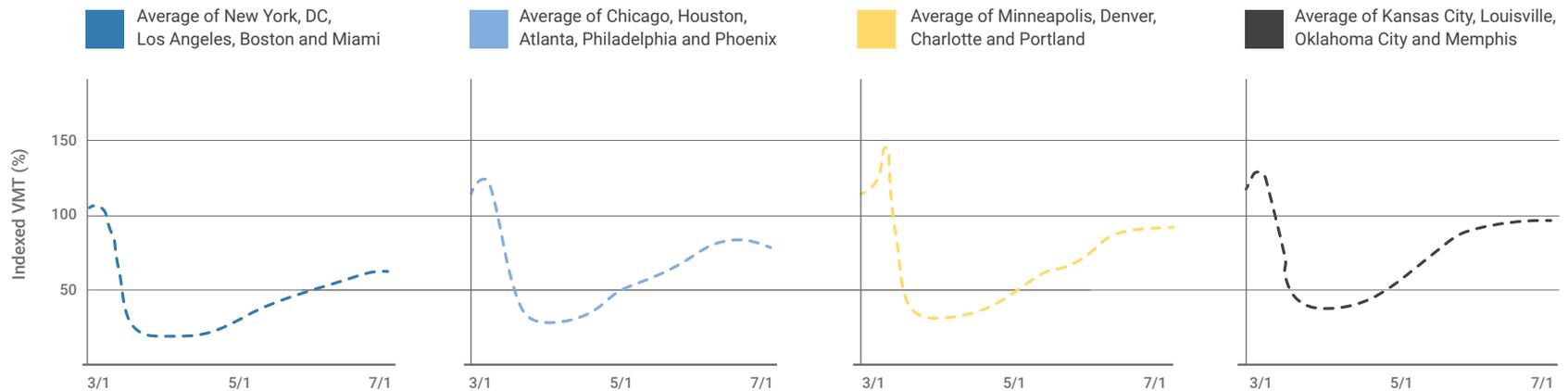
Boston Consulting Group’s [analysis of StreetLight’s VMT data](#) found that specific demographics correlate strongly with VMT fluctuations. Analyzing these correlations divides the U.S. into four key “archetypes,” each associated with a particular VMT trendline.

PAGE OF VMT RECOVERY



STREETLIGHT DATA

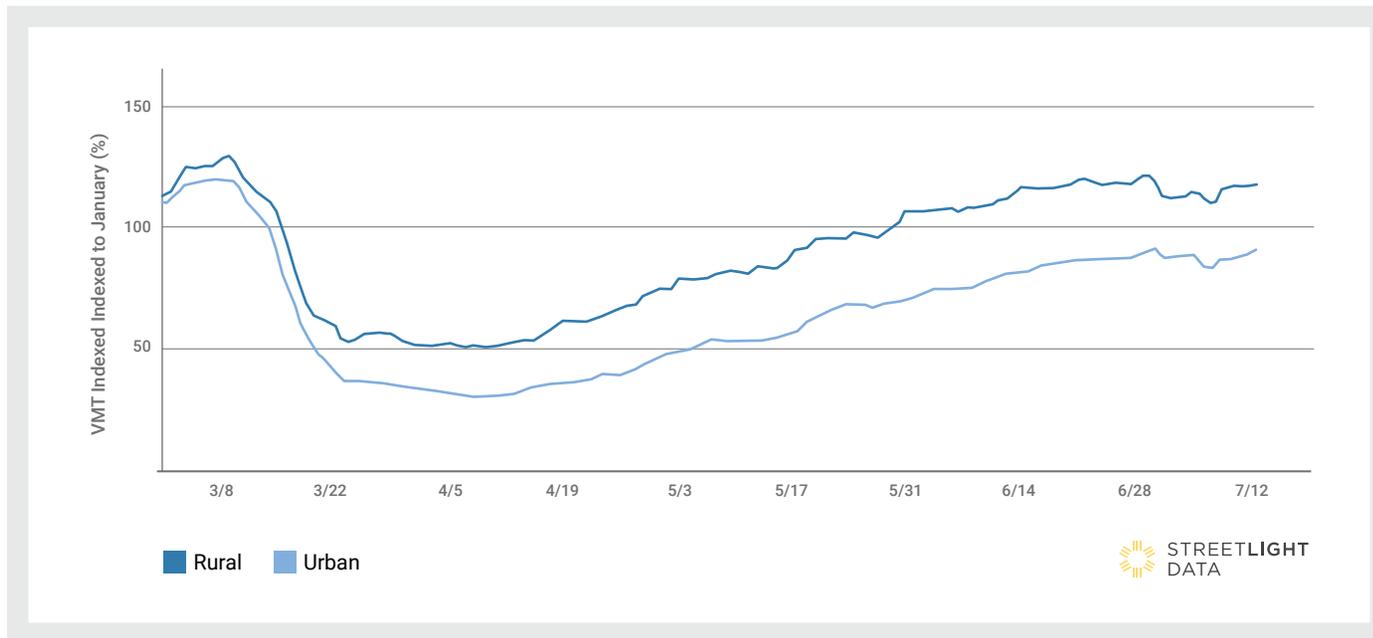
BCG



States can be grouped into four pattern clusters based on how quickly VMT declined and rebounded. Analyzing individual cities within each of the four clusters shows the timeline of VMT recovery.

VMT trends vary significantly among the four cohorts BCG discovered. For example, Northeast states fall into a group with a larger drop in VMT and a slower recovery. This trend correlates with demographic factors including higher income, higher average population density, and higher share of professional services employment. States with a faster recovery trend have lower income levels, less population density, and fewer professional services jobs.

In addition, BCG's analysis shows that rural areas sustained higher VMT levels than urban areas during stay-home orders and work-from-home policies. This trend has held true for the entirety of the pandemic period.



Throughout the pandemic, rural areas across the U.S. have had consistently higher VMT than urban areas.

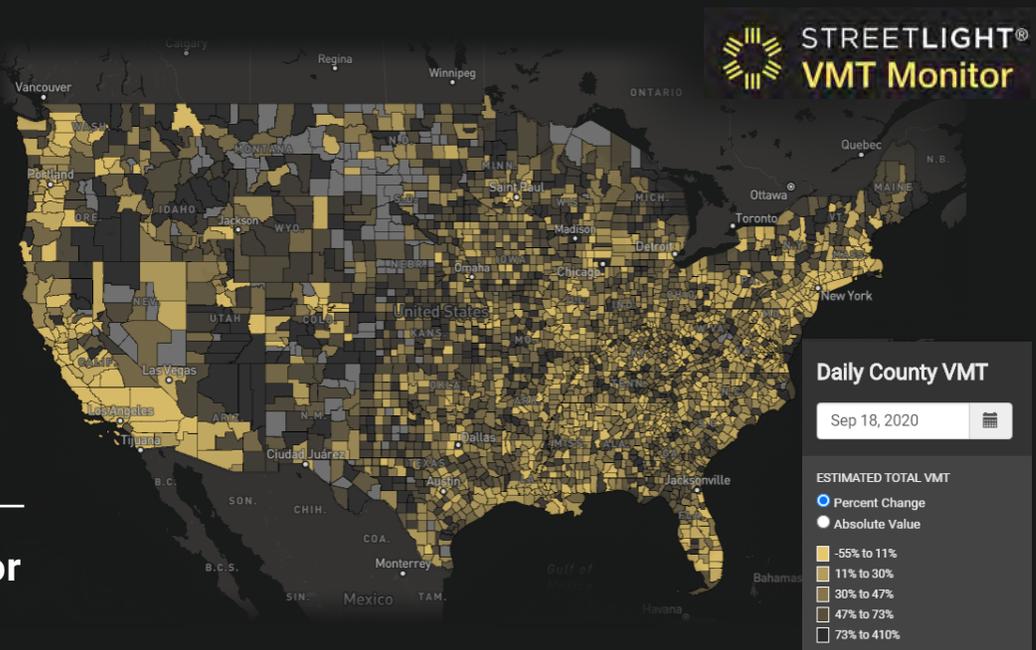
If the U.S. sees sequential waves of COVID outbreaks, or if government officials (local or national) enforce preventive lock-down measures, regional nuances in correlative factors will directly affect VMT. We encourage readers to monitor VMT at the county level to keep up to date on potential impact.

Get latest VMT data for your county

View daily metrics for 3,100+ counties to monitor the return of vehicle activity or analyze the impact of VMT on gas tax or emissions.



streetlightdata.com/VMT-monitor



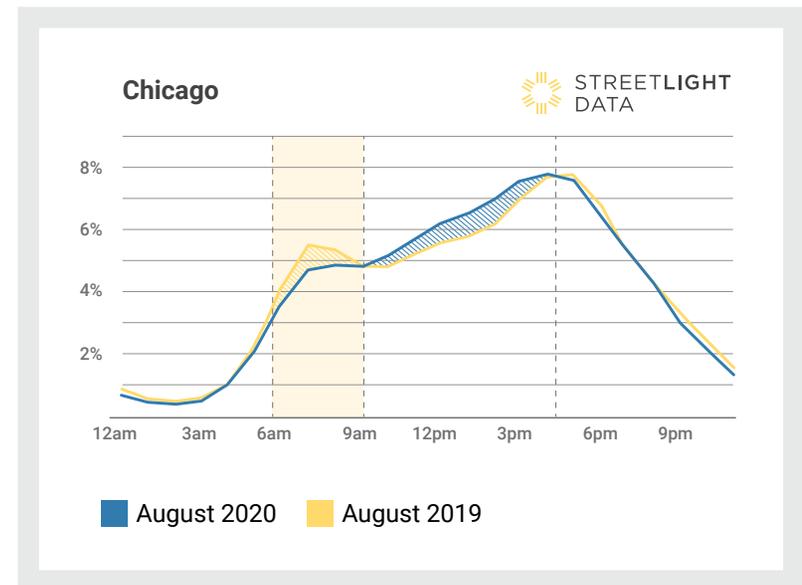
II. THE DEATH OF PEAK AM CONGESTION

The PricewaterhouseCoopers U.S. Remote Work Survey* reveals that 77% of office employees are currently working from home at least one day a week – and the survey projects that 55% will do so post-COVID.

Since many employers enacted work-from-home policies in spring, peak commuting travel in the U.S. has undergone tremendous change. If you're seeing fewer traffic jams on your local highways in the morning, you're not alone.

Our analysis of hourly travel in five major U.S. metro areas reveals that there is no such thing as "peak AM" anymore. Instead of the typical sharp increase in morning travel, followed by a drop and then an afternoon peak, our August 2020 VMT analysis shows weekday traffic building gradually toward a more sustained afternoon high. Millions of commuters no longer head to a distant office in the morning, and they have new flexibility for mid-day grocery shopping and other in-person errands as more businesses gradually reopen their doors.

DISTRIBUTION OF DAILY VMT BY TIME OF DAY



Shaded area indicates a year-over-year drop in peak AM travel, and increase in peak PM travel.

* PWC's June 2020 survey of executives and office workers can be found on [pwc.com](https://www.pwc.com)

Additional U.S. metro areas on the next page >>

DISTRIBUTION OF DAILY VMT BY TIME OF DAY (CONT'D)



While major metros still have peak PM commutes, those peaks aren't as pronounced as they used to be. In Washington D.C., for example, we see a slightly earlier peak for PM travel than during the same period in 2019, but the buildup to that point is a steady increase instead of a sudden jump.

In fact, the Los Angeles and San Francisco metros are seeing a “mini rush hour” just after lunch, with two PM peaks in those cities showing longer periods of lighter congestion. That PM congestion is beginning earlier, but ending sooner, with freeways returning to normal loads as much as an hour early vs. 2019.

All five metros we studied have this “peak-spreading” tendency, with more vehicle travel during midday than in 2019. We validated this behavior against permanent counter data from state DOT sources and see similar changes in AM peak-spreading.

We also analyzed where trips originate, finding that Chicago and Washington, D.C. showed an increase in trip starts further away from the traditional downtown/core urban areas, and a decrease in city center trip starts.

This decoupling of VMT and congestion — which will likely persist to some degree after COVID is over — shakes the foundations of many of our models and decision-making tools for transportation infrastructure, investment, funding, mode choice, and more. With uncertain budgets, localities will need to efficiently monitor and prioritize in order to maximize resources.

Analyze resident, worker, and visitor traffic in your region

Dive deeper into local travel patterns of commuters and other vehicle drivers



streetlightdata.com/trip-purpose

III. SPOTLIGHT ON ESSENTIAL EMPLOYEES

Our analysis in Section II showed that COVID-induced VMT decreases were less pronounced in rural areas. We also discovered that this trend was especially true in counties heavy with essential industries. Our granular data also lets us examine the travel habits of essential employees, regardless of their geographic location.

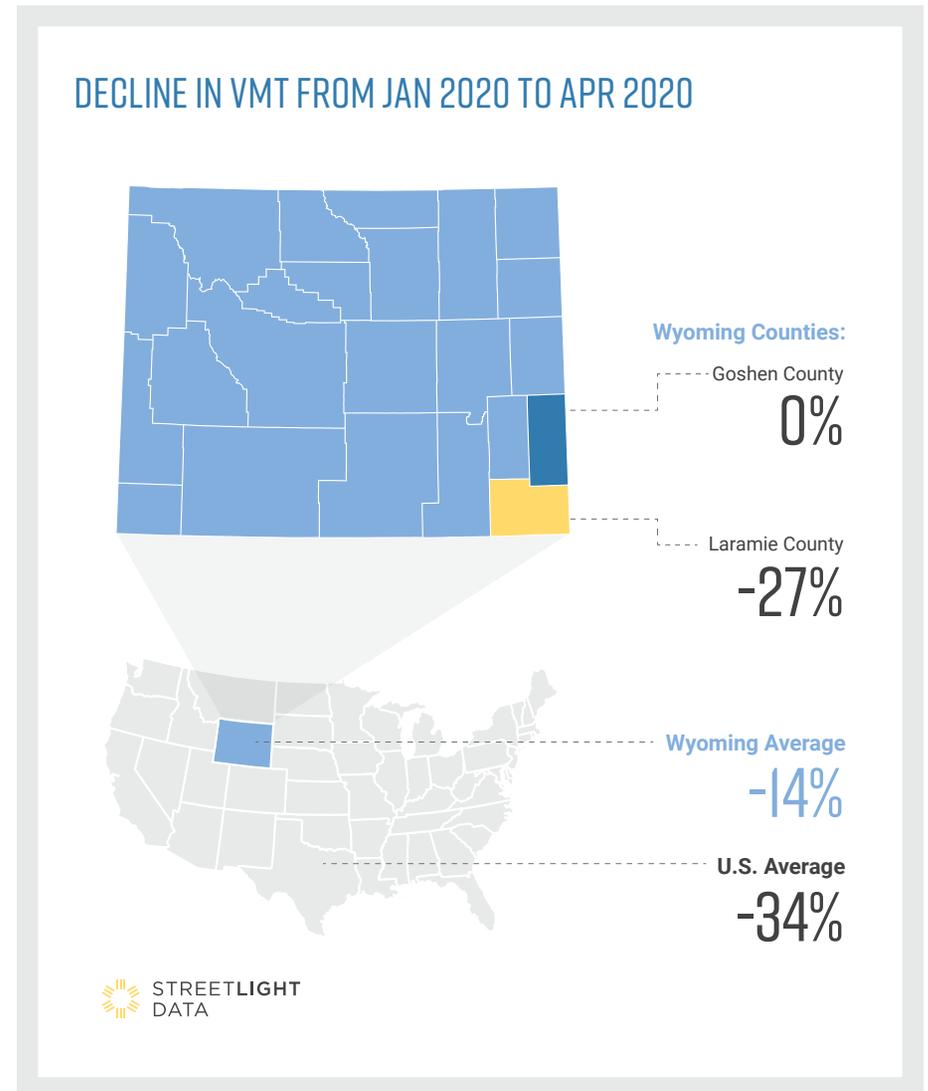
This important traveler must get to work reliably and easily – not only for critical businesses to function during a pandemic, but to support economic growth during an eventual recovery.

The availability of LBS data means that we can go “back in time” to analyze March and April metrics. This reveals insights about mobility during the height of the pandemic.

Our county-level VMT Metrics highlight that areas of the U.S. supporting essential industries showed little VMT decline, even while much of the country was closing up shop and encouraging residents to stay home.

For example, Goshen County, the top ranching county in Wyoming, saw flat VMT in late April. But neighboring Laramie County, home to the state’s capitol, saw VMT drop 27%, closer to the U.S. average decline during this time.

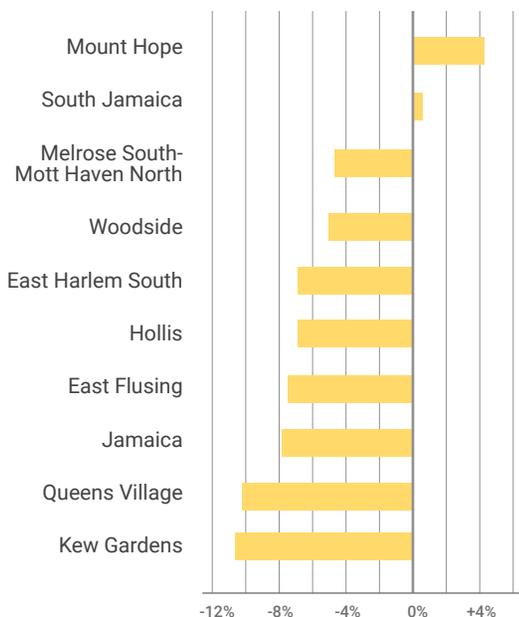
Likewise, Iowa’s Kossuth County, the state’s top producer of corn, soybeans, and other food crops, registered a gain of 6% in VMT in late April, while Park County (home to capital city Des Moines) dropped 35%.



CHANGE IN COMMUTE TRIPS BY NYC NEIGHBORHOOD, APR. 2020 VS. APR. 2019



DETAIL

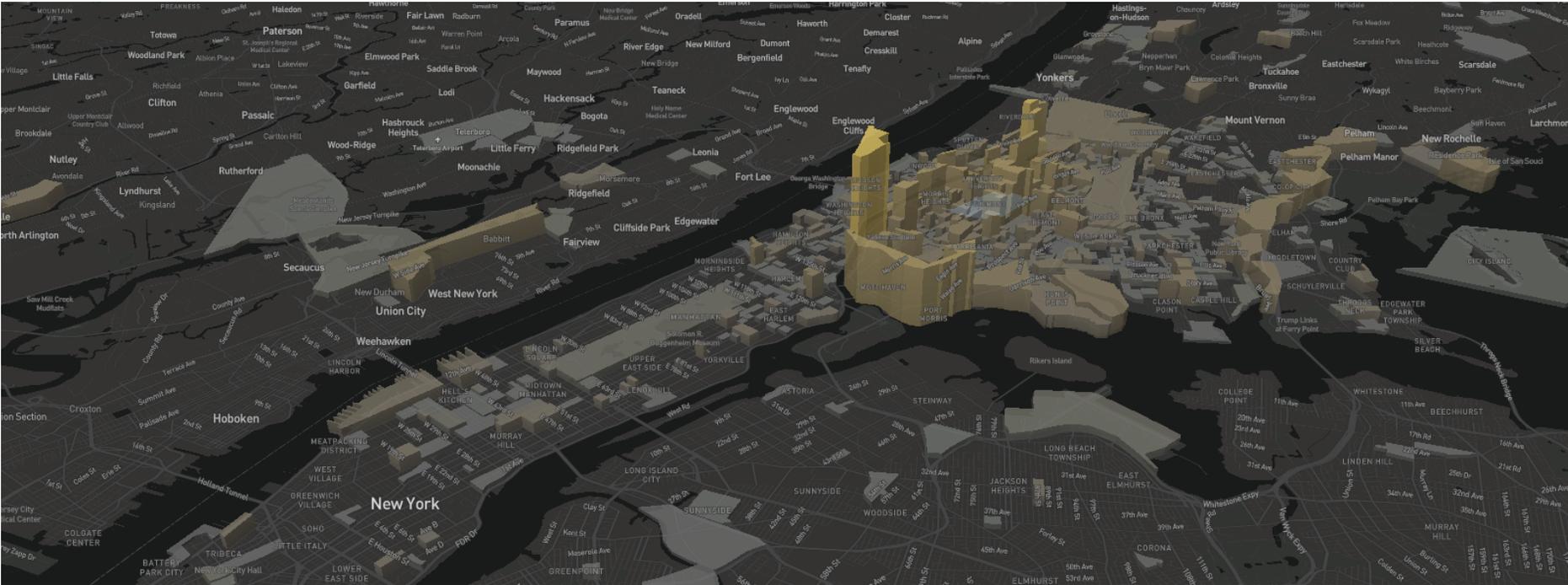


Drilling deeper, we examined VMT down to zip code, and also went “back in time” to see where travel remained high during peak quarantine in different parts of individual cities.

The *New York Times* used our Metrics to study where commuting travel rose and fell in all 188 New York City neighborhoods during April, and ranked them from highest (most travel) to lowest (least travel). Aligning with BCG’s finding that VMT correlates with income levels, this analysis also found that travel dropped more in neighborhoods with higher income levels, populated by office workers and non-essential employees able to work from home.

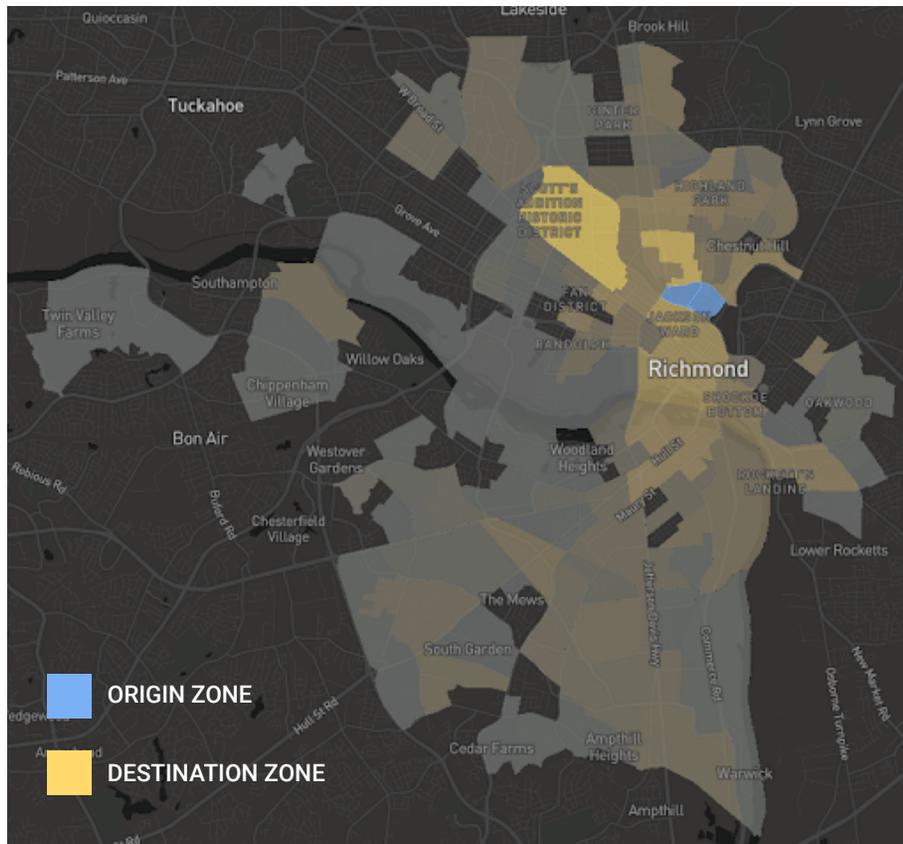
The *New York Times* study identified several Manhattan, Queens and Bronx neighborhoods with VMT declines greater than 40%. The Mount Hope neighborhood of the Bronx stood out because VMT increased markedly during stay-home orders. Further study showed Mount Hope to be home to a high percentage of New York City's essential employees – valuable information for any locality looking to ease commuting for this cohort.

TOP DESTINATION ZONES FOR TRIPS ORIGINATING IN MOUNT HOPE

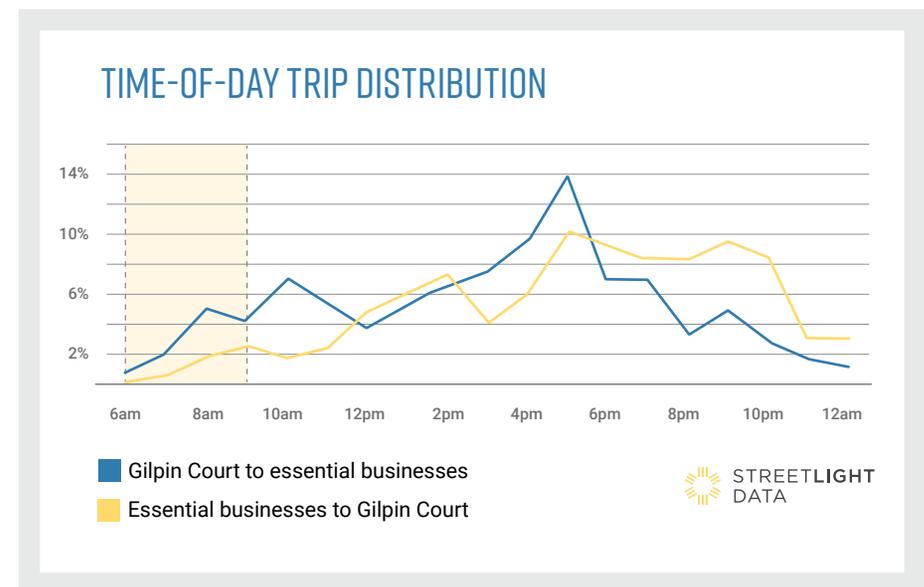


Three dimensional map indicating destination zones for essential employees in Mount Hope, New York. Taller zones indicate higher volume of trips ending in that zone.

In StreetLight's own [analysis of equitable transit access in Richmond, Virginia](#), we focused on the Gilpin Court neighborhood because of its high correlation with demographic factors associated with essential employees. In addition, Census data for Gilpin Court indicates a high percentage of households without access to vehicles.



Highly traveled routes between essential employees living in Gilpin Court (blue) and nearby businesses (yellow).



We then zeroed in on travel patterns between Gilpin Court and nearby essential services, including a hardware store and a large grocery store. Overlaying transit route maps between these locations, we found a lack of transit coverage for Gilpin Court residents.

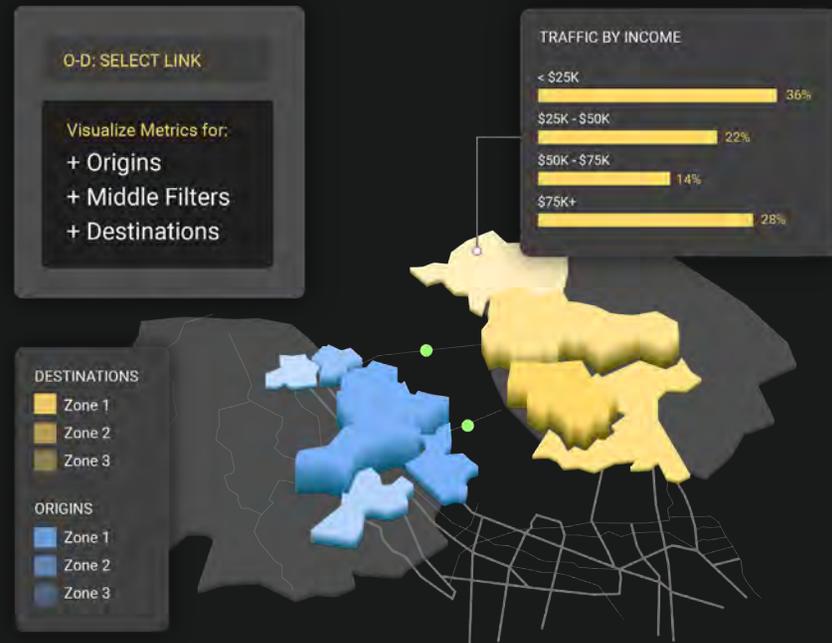
We also found that travel among these likely essential employees didn't follow traditional peak AM and PM patterns. This correlates with the national decline of peak AM travel, but this observation warrants further analysis since many essential employees are also likely off-hours shift workers.

Optimize mobility for essential workers in your communities

Get demographic metrics for Origin-Destination analyses, including race and income, to measure impact across populations and neighborhoods.



streetlightdata.com/social-equity



IV: THE RENAISSANCE OF BICYCLING

StreetLight's year-over-year [analysis of bicycle travel](#) conducted in May 2020 confirmed the anecdotal cycling "boom" during quarantine and the sustained periods of work-from-home that followed. This initial rush of cycling activity fed Slow Streets movements amid calls for increased safety.

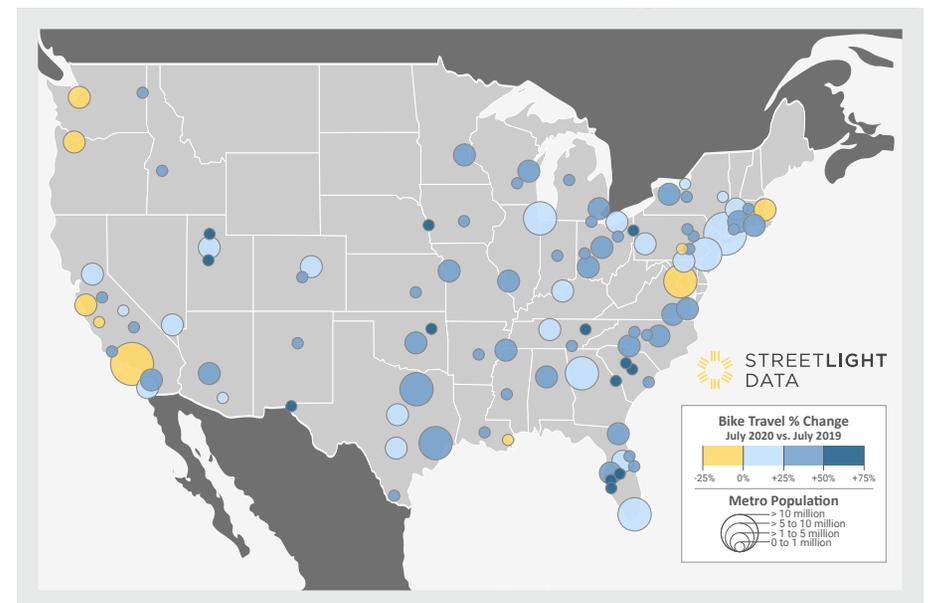
We analyzed 100 of America's most-populated MSAs, and initially found that cycling actually *dropped* in cities with previously high levels of cycling commuting, including San Francisco, Seattle, Chicago, Philadelphia, and New York. [A subsequent study by BloombergNEF](#) using StreetLight Metrics confirmed that these declines were concentrated during weekdays, when large cohorts previously commuting to the office by bicycle were now working from home.

However, bicycle activity in those cities decreased less than vehicle miles traveled did, suggesting that even if they aren't commuting, residents of a city with strong bike infrastructure are still increasing the use of bikes as a percentage of all travel during COVID.

Conversely, cycling activity *doubled* during May and June in metro areas not known for bike commuting, including Ogden (UT), Lakeland (FL), Knoxville (TN), Columbia (SC), and Provo (UT).

One might think that increase could be due to these areas' popularity for mountain biking, road biking, and/or triathlon training. But our analysis showed that even though average trip lengths increased, they remained below five miles on average, much shorter than a typical road or mountain biking workout, implying that "everyday cycling" (versus specialized athletic training) likely also increased.

In July, we see that on average the metros we analyzed gave back some of their gains.



Of the 10 metros with increased year-over-year bike travel for May, three have nearly recovered back to pre-COVID levels by July: Chicago, New York, and Philadelphia. All three cities also saw substantial recovery in VMT by July, with the Chicago metro back to normal, New York 15% below pre-COVID VMT levels, and Philadelphia 19% below.

July 2020 cycling activity remains below 2019 levels in San Francisco, Washington, D.C., and Boston. This enduring drop dovetails with sustained lower VMT in those cities related to office closures in the urban core and anecdotal reports of city residents temporarily relocating.

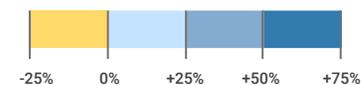
In addition, as many as 15 smaller U.S. metros have by July lost at least 50% of their year-over-year biking gains observed in May. These include historically car-friendly California metro areas anchored by Oxnard-Thousand Oaks, Bakersfield, and Riverside.

By and large, however, the remaining 70+ U.S. metro areas continued to see substantial year-over-year bicycling gains in July.

In sum, our July analysis shows a nationwide 12% year-over-year gain in bike ridership on average, with VMT trailing about 15% for the same period – encouraging data for what could be a rejuvenation of bicycling in this country.

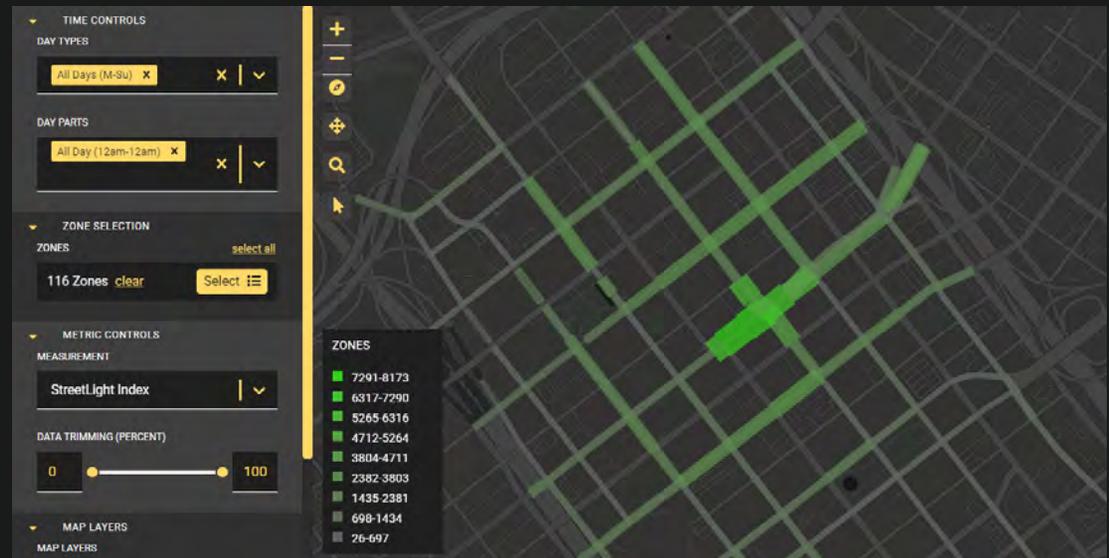
TREND IN BIKE RIDERSHIP FROM MAY 2020 TO JULY 2020

	May 2020 YOY Increase	Trend	July 2020 YOY Increase
Oxnard-Thousand Oaks-Ventura, CA Metro Area	Dark Blue	▼	Dark Blue
Bakersfield, CA	Dark Blue	▼	Dark Blue
Milwaukee-Waukesha-West Allis, WI	Dark Blue	▼	Dark Blue
Houston-The Woodlands-Sugar Land, TX	Dark Blue	▼	Dark Blue
Minneapolis-St. Paul-Bloomington, MN-WI	Dark Blue	▼	Dark Blue
Tampa-St. Petersburg-Clearwater, FL	Dark Blue	▼	Dark Blue
Richmond, VA	Dark Blue	▼	Dark Blue
Riverside-San Bernardino-Ontario, CA	Dark Blue	▼	Dark Blue
San Antonio-New Braunfels, TX	Dark Blue	▼	Light Blue
Orlando-Kissimmee-Sanford, FL	Light Blue	▼	Light Blue
Salt Lake City, UT	Light Blue	▼	Light Blue
Denver-Aurora-Lakewood, CO	Light Blue	▼	Light Blue
Nashville-Davidson—Murfreesboro—Franklin, TN	Light Blue	▼	Light Blue
San Diego-Carlsbad, CA	Light Blue	▼	Light Blue
Harrisburg-Carlisle, PA	Light Blue	▼	Yellow
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	Yellow	▲	Light Blue
New York-Newark-Jersey City, NY-NJ-PA	Yellow	▲	Light Blue
Chicago-Naperville-Elgin, IL-IN-WI	Yellow	▲	Light Blue
San Francisco-Oakland-Hayward, CA	Yellow	—	Yellow
Washington-Arlington-Alexandria, DC-VA-MD-WV	Yellow	—	Yellow
Boston-Cambridge-Newton, MA-NH	Yellow	—	Yellow



Explore 2019 and 2020 Bicycle and Pedestrian Metrics

Get access to data from the last few months to compare bike and ped trends to last year's metrics to understand the impact of COVID-19.



streetlightdata.com/bike-ped

V: THE NEW METRICS THAT MATTER

The trends covered in this report wouldn't have been identifiable without the Location-Based Services (LBS) data we used to uncover them. LBS data populates the core StreetLight Metrics used for this research, including Origin-Destination, Vehicle Miles Traveled, Trip Volume, and Trip Attributes.

Creating a comprehensive, focused report within minutes using LBS data allows transportation agencies to form and test hypotheses quickly, freeing resources to solve problems instead of figuring out what the problems are.

And the problems are growing. We hear that from our customers, which include a cross section of public agencies and private organizations across the transportation industry. They are focused on a handful of particularly dynamic issues the pandemic has introduced:

- budget uncertainty
- transit, bicycle, and other alternate mode use (or disuse)
- deeper focus on safety and transportation equity
- trip purpose (including commuting)

How do we adjust and manage transportation to respond to these changes? Conditions are shifting more quickly than ever, and we want to help you stay effective.

Throughout this report, we provided specific references (and links to) StreetLight Metrics to help you move beyond national and regional insights, and zero in on your own counties, cities, zip codes, and zones.

You can also learn more about on-demand access to AADT, O-D, Top Routes, and more on our Transportation Metrics page referenced below.



We invite you to peruse these multimode “essentials for everyday” traffic analyses further on our website at

[streetlightdata.com/
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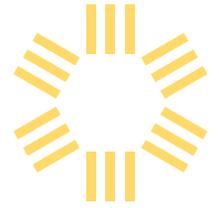
THOMAS GROGAN



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About StreetLight Data



StreetLight Data pioneered the use of Big Data analytics to help transportation professionals solve their biggest problems. Applying proprietary machine-learning algorithms to over four trillion spatial data points over time, StreetLight measures diverse travel patterns and makes them available on-demand via the world's first SaaS platform for mobility, StreetLight InSight®. From identifying sources of congestion to optimizing new infrastructure to planning for autonomous vehicles, StreetLight powers more than 6,000 global projects every month.

For more information please visit: streetlightdata.com.



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