

INRIX



2021 INRIX Global Traffic Scorecard

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KEY FINDINGS

- London (148 hours), Paris (140 hours), Brussels (134 hours), Moscow (108 hours) and New York (102 hours) comprise the Top 5 most congested cities in the world by Impact Rank, despite traffic congestion ranging from -27% to 0% below pre-COVID levels.
- In the U.S., drivers lost an average of 36 hours due to congestion, up from 26 hours last year but down from 99 hours in 2019. New York (102 hours), Chicago (104 hours) and Philadelphia (90 hours) lost the most time to traffic congestion, despite a -27% to -37% drop since 2019.
- In the U.K., drivers lost an average 73 hours due to congestion in 2021, up from 37 last year but down from 115 hours in 2019. London (148 hours), Cambridge (75 hours) and Bristol (66 hours) lost the most time to traffic congestion, despite congestion in Bristol remaining -36% below its pre-pandemic level.
- In Germany, drivers lost an average 40 hours due to congestion, up from 26 hours last year but down from 46 hours in 2019. Munich (79 hours), Berlin (65 hours) and Hamburg (47 hours) lost the most time to traffic congestion, as all three are within 10% of pre-COVID level of traffic.
- In general, downtown travel continues to trail pre-pandemic levels. Trips to downtowns in the U.S. are down -22% from pre-pandemic levels while city center trips in the U.K. and Germany are down -19% and 0%, respectively. Shifting travel patterns resulting from working from home, cycling and transit usage continued throughout 2021 – leading many experts to believe such trends will extend beyond post-pandemic.
- California holds one-third of the top 25 worst corridors in the U.S., with I-5 South, between Euclid and I-605 in Los Angeles causing the average driver to lose 89 hours in 2021 on that corridor alone.
- INRIX expects traffic congestion levels to grow, albeit slowly, over the next year, but its unlikely U.S. metro area congestion will not return to pre-COVID levels in 2022. The permanence of telecommuting, mode shifts, uncertainty of the COVID pandemic, school/university schedules, and other factors, will likely moderate traffic growth in 2022.

TABLE OF CONTENTS

Introduction	4
Shifting Travel Demand on the Roadway	5
Data and Methodology	6
Definitions	7
Global Analysis	8
Rankings	9
United States Analysis	10
Rankings	11
Worst Corridors	12
Europe Analysis	14
Rankings	15
United Kingdom Analysis	16
Rankings	16
Worst Corridors	17
Germany Analysis	18
Rankings	18
Worst Corridors	19
Conclusion & Commentary	20
About INRIX Research	21

INTRODUCTION

For nearly every country across the globe, 2021 represented a year that COVID-19 continued to wreak havoc on many aspects of life. In addition to the health risks, inflationary pressures, supply chain disruptions, fuel prices and labor instability led to the continuation of substantial changes in travel behavior.

Twenty months after COVID-19 spread across the world, many employers continued “work from home” policies, people migrated to less-dense areas and governments around the world imposed, lifted and re-imposed lockdowns to limit the spread of the contagious Delta variant. Vaccination access and uptake varied considerably by country, leading to inconsistent travel.

While travel habits shifted closer to “normal” behavior following 2020, most modes still lagged pre-COVID levels. Driving fell significantly in 2020, dropping 40% in April 2020, but rebounded by the end of the year. In most cities, delay increased significantly from their lows in 2020, but the vast majority have yet to reach 2019 levels. Recreational cycling grew in many cities, though many saw a decrease in commuter-based cycling as employees worked from home or suffered job loss.

Similar to driving, air travel rebounded but still lagged considerably behind pre-COVID levels. In the U.S., the Transportation Security Administration reported air travel numbers are still down 24% from 2019-levels, while European air travel was down about 30%. Other modes of travel, like trains, also remained subdued, with Amtrak ridership down 65% through August and U.K. national rail ridership down 58% Q1 2021 vs Q1 2019. Germany’s Deutsche Bahn carried 57% fewer people in H1 2021 than in H1 2019.

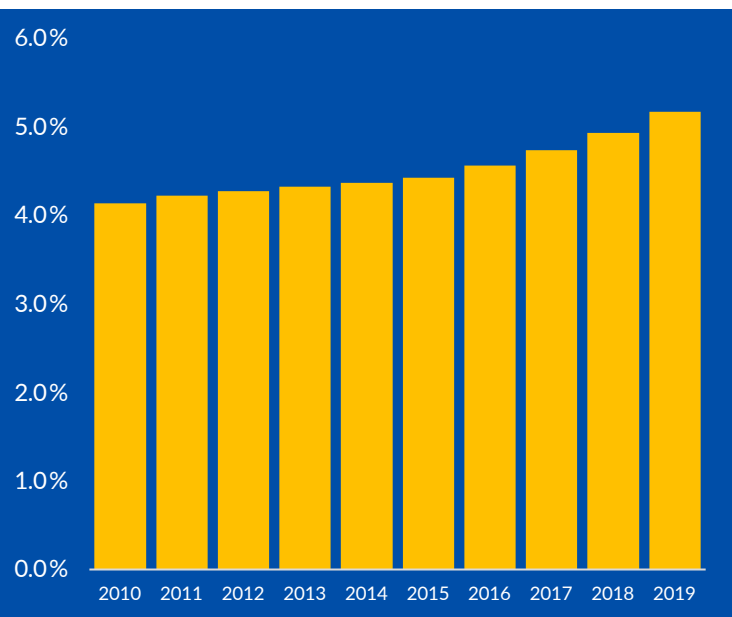
Local public transportation use was also down considerably throughout 2021. New York City’s Metropolitan Transit Authority saw ridership fall 54% on all transit services through August 2021 versus the same time in 2019. In France, the Paris Transportation Authority carried 42% fewer passengers in H1 2021 than pre-COVID times.

Overall, traffic and road congestion in 2021 was still below 2019, however, the increase from 2020 levels signals a significant economic recovery over the last year. In terms of traffic and commuting, cities like London, who tops the INRIX 2021 Global Traffic Scorecard, are approaching pre-COVID levels of traffic, though many other cities lag, suggesting that traffic recovery will continue to be based on local conditions more than a global, widespread return to “normal.”



Shifting Travel Demand on the Roadway

Figure 1: U.S. Telecommuting Mode Share by Year, Census Bureau

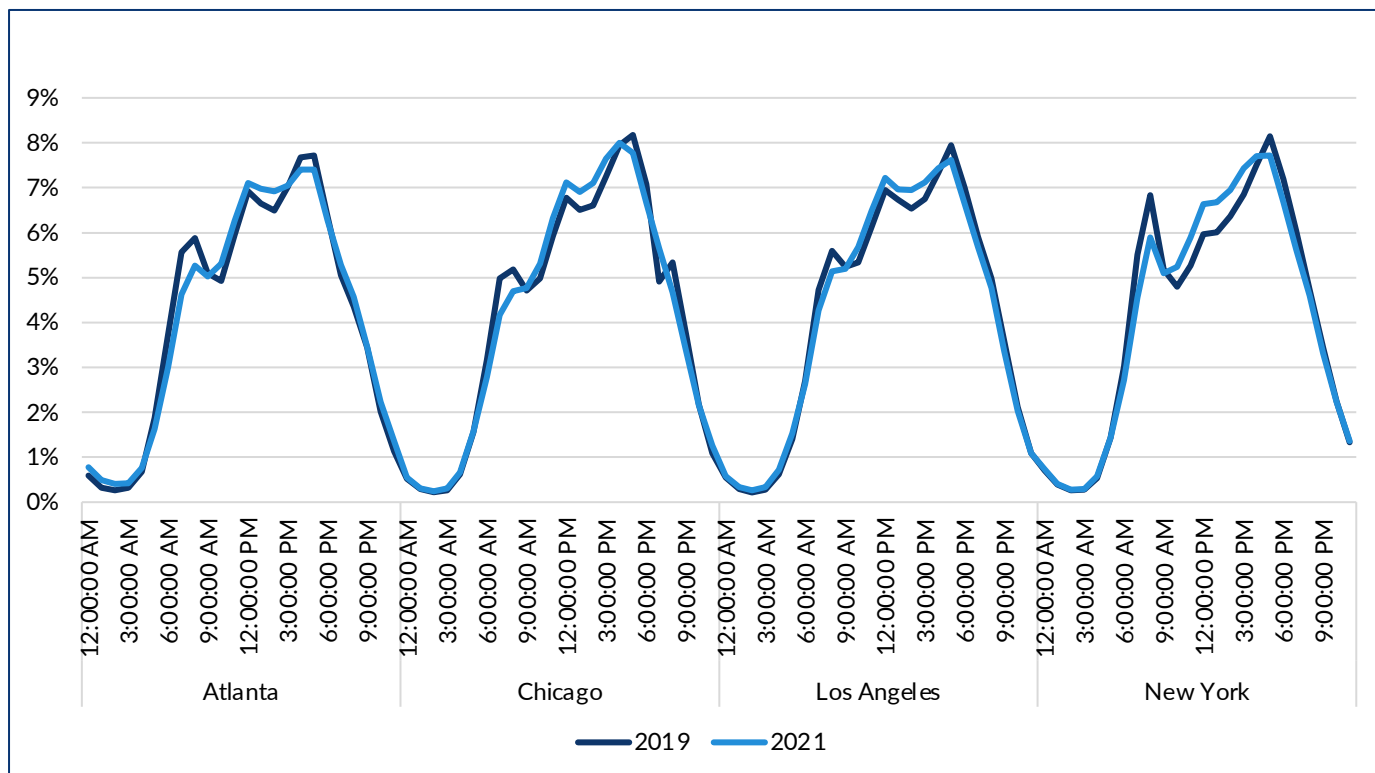


In the last decade, telecommuting has continued to grow, both in terms of absolute numbers and mode share. In fact, telecommuting's mode share in the U.S. surpassed transit commuting for the first time in 2019.¹

The National Bureau of Economic Research indicated that approximately 35% of people reported switching from commuting to work to working from home immediately after COVID-19's growth in April-May 2020.² Telecommuting is also high in the U.K. and Germany, with the OECD estimating that 49% of U.K. workers and 31% of German workers were telecommuting after the pandemic started.³ One study, "Why Working from Home Will Stick," reported 1 in 4 workdays will be performed at home post-pandemic, up from the pre-COVID level of 1 in 20.⁴

As working from home increased, along with school closures and business shutdowns, new traffic patterns emerged on the roadways. In most cities, traffic volumes dropped, most significantly in the AM peak, further leading to changes in trip distribution throughout the day. Figure 2 shows daily trip distribution in four major U.S. cities, revealing a shifting trip distribution away from the AM peak into the mid-day hours. This has led to easier commute times and less time sitting in commute-period congestion.

Figure 2: Weekday Trip Distribution by Hour, 2019 v 2021



1. "Means of Transportation to Work," American Community Survey, Table B08301, 2010-2019 5-Year Estimates
 2. "COVID-19 and Remote Work, an Early Look at U.S. Data," National Bureau of Economic Research, June 2020
 3. "Working during COVID-19: Cross-country evidence from real-time survey data," OECD, July 2020
 4. "Why Working from Home Will Stick," National Bureau of Economic Research, April 2021

DATA & METHODOLOGY

The 2021 Global Traffic Scorecard provides a more granular and holistic analysis of mobility within the world's most congested cities. The 2021 Scorecard continues to include travel delay comparisons, collision trends and last-mile speeds based on the unique commuting patterns within each metro area.

Trips to downtown were also measured more in-depth in this year's Scorecard given the impact of COVID-19 on employment hubs. Since transit use and traffic congestion are both tied to employment centers, this can be used to measure travel demand on key transit routes and roadways leading into the city.

Commute times were calculated by looking exclusively at the time it takes to get to and from major employment centers within the metro area from surrounding commuting neighborhoods. The 2021 Scorecard used anonymized GPS probe data to identify the most frequented routes and destinations throughout a region to create a more accurate portrayal of commuting for a region, not just to and from a downtown core. With the increased level of detail, INRIX calculated the additional time spent commuting due to traffic between multiple points within a region, which can be explored further on the Scorecard's interactive city pages at inrix.com/scorecard.

INRIX collects billions of anonymous data points every day from a diverse set of sources, including connected vehicles, mobile devices, navigation units, fleet vehicles, road and garage infrastructure, and publicly available information on incidents. With coverage on all roads in countries of coverage, and lane by lane precision, INRIX is the preferred provider of driving and mobility intelligence for leading automakers, businesses, and all levels of government for accurate, real-time and historical.

Economic costs are calculated based on the following hourly values of time, which were based on U.S. Federal Highway Administration's *Revised Departmental Guidance on Valuation of Travel Time for Economic Analysis, 2016*, adjusted for inflation: \$15.60 per hour in the U.S., £8.14 per hour in the U.K. and 9.37 € per hour in Germany.

The 2021 Scorecard calculates time loss by analyzing peak speed and free-flow speed data for the busiest commuting corridors and sub areas as identified by data density. Employing free-flow data enables a direct comparison between peak periods and serves as the basis for calculating time loss. Total time lost is the difference in travel times experienced during the peak periods compared to free-flow conditions on a per driver basis. In other words, it is the difference between driving during commute hours versus driving at night with little traffic.

Data used to complete the 2021 Scorecard is based on more than 10 months of data, extrapolated to an annual number. The Scorecard also incorporates three years of historical data to provide a complete year-over-year comparison of congestion and mobility. A multi-year approach enables the identification of trends in the world's largest cities and provides a basis for comparison.



KEY DEFINITIONS

Impact Rank: The primary INRIX rank, based on the severity of congestion (hours lost) weighted by city size.

Urban Area: The geographic scope of a city as defined by its road network density.

Hours Lost in Congestion: The total number of hours lost in congestion during peak commute periods compared to off-peak conditions.

Change vs “Normal”: The percentage difference measured in 2021 compared to 2019.

Last Mile Speed: The speed at which a driver can expect to travel one mile into the central business district during peak hours.

Peak: The absolute worst portion of the morning and afternoon commute.

Off-Peak: The low point between the morning and afternoon commute periods.

Vehicle-Miles Traveled (VMT): The amount of passenger travel within a geography for a specified time period.



GLOBAL ANALYSIS & RANKING

London (148 hours lost), Paris (140), Brussels (134), Moscow (108) and New York (102) comprise the Top 5 most congested cities in the global congestion Impact Ranking due to their large populations and the significant return of the evening commute. The Impact Rank captures the aggregate influence of congestion relative to population.

On the other hand, hours lost reflects the impact of congestion on a typical driver and commuter on the roadway. Often, the Impact Rank and the hours lost provide a different story. For example, Chicago drivers lost 104 hours sitting in commute traffic last year, yet its city-level impact is lower than New York's at 102 hours lost due to city size.

Overall, congestion increased significantly over last year in most cities, yet is still below 2019 levels. The notable rise in ranking for London (#16 to #1) and Paris (#6 to #2), as well as larger jumps in cities like Rome (#18 to #7), outpaced the return of congestion when compared to places like Bucharest (#2 to #11) and Bogota (#1 to #8).

While traffic congestion is returning, travel patterns are still significantly different than normal. In most cities, morning commute traffic lagged pre-COVID levels considerably, while the mid-day saw higher volumes.



2021 Impact Rank (2020 Rank)	Urban Area	Country	2021 Hours Lost	Compared to Pre-COVID	2021 Last Mile Speed (MPH)	Last Mile Speed over Normal
1 (16)	London	UK	148	-1%	11	10%
2 (6)	Paris	FRA	140	-15%	11	10%
3 (25)	Brussels	BEL	134	-4%	10	11%
4 (4)	Moscow	RUS	108	-15%	16	7%
5 (3)	New York	USA	102	-27%	13	18%
6 (7)	Chicago	USA	104	-28%	15	36%
7 (18)	Rome	ITA	107	-35%	14	27%
8 (1)	Bogota	COL	94	-51%	13	44%
9 (23)	Palermo	ITA	109	-20%	9	13%
10 (33)	Istanbul	TUR	88	-42%	14	27%
11 (2)	Bucharest*	ROU	98	-	14	-
12 (34)	Lyon	FRA	102	-2%	11	10%
13 (5)	Philadelphia	USA	90	-37%	13	30%
14 (28)	Rostov-on-Don	RUS	97	16%	13	0%
15 (30)	Budapest	HUN	92	0%	15	0%
16 (20)	Dublin	IRL	89	-42%	13	30%
17 (45)	Turin	ITA	93	-24%	12	33%
18 (36)	Boston	USA	78	-47%	15	25%
19 (453)	Bursa	TUR	82	75%	17	6%
20 (11)	Saint Petersburg	RUS	75	-50%	15	7%
21 (123)	Poznan	POL	87	45%	15	-12%
22 (86)	Toronto	CAN	74	-45%	14	27%
23 (26)	Mexico City	MEX	67	-58%	14	17%
24 (42)	München	DEU	79	-9%	11	0%
25 (42)	Wroclaw	POL	84	9%	15	15%

*New to Scorecard in 2020

UNITED STATES ANALYSIS & RANKING

New York (102 hours), Chicago (104 hours) and Philadelphia (90 hours) ranked in top 3 for congestion impact the U.S. in 2021 despite congestion being -27% to -37% below 2019 levels. Fourth-ranked Boston (78 hours), ranked first in 2019 with 101 hours lost, still lags pre-COVID levels by -47%. Washington, D.C. continued to lag other major U.S. metros, as congestion levels were -65% below 2019 levels.

Overall, the average American driver lost 36 hours due to congestion, up 10 hours from 2020 but down 63 hours from 2019. Nationally, drivers spent 3.4 billion hours in traffic congestion last year, a 34% increase from 2020. Despite the increase, drivers experienced 2.6 billion fewer hours in traffic than in 2019.

Less congestion resulted in saving U.S. drivers money in terms of time lost compared to pre-pandemic. In 2021, the average driver spent \$564 due to congestion, up \$168 from 2020 but still down \$812 from 2019. Despite these savings from 2019, drivers are contending with more than a 60% increase in fuel prices that has put upward pressure on travel costs. Nationally, traffic congestion in the U.S. cost drivers more than \$53 billion in 2021, a 41% increase from last year.

Trips to downtown still down from pre-COVID norms

The most notable change to the commute – other than reduced travel times and volumes – was the lack of downtown travel. Downtowns, also called “Central Business Districts,” house a significant portion of a region’s jobs. For example, in the New York Metro Area, 20.2% of jobs are located downtown. In Washington DC, 13% of jobs are located downtown. On the other hand, downtown Dallas holds just 2% of the region’s jobs. Therefore, the importance of downtown in terms of employment varies by metro area.

San Antonio, Tampa and Phoenix led other major downtowns in terms of traffic recovery, with those areas rebounding to -5%, -6% and -7% below pre-COVID level. Throughout the pandemic, San Francisco, Detroit, and Washington DC have continued to see significant reductions in travel demand for downtown, with the trend continuing through Fall 2021, at -49%, -41%, and -38%, respectively.

United States Findings

- Time Lost: 36 hours, up 10 hours from 2020
- Cost to Driver: \$564, up \$168 from 2020
- Cost to Country: \$53 billion
- Collisions: Down -2%
- Freight VMT: +1%
- Downtown Trips: -22% from pre-COVID

2021 U.S. Rank (2020)	Urban Area	Delay 2021 (2020) [2019]	Compared to Pre-COVID	Cost per Driver	Cost per City	Downtown Trips
1 (1)	New York	102 (100) [140]	-27%	\$1,595	\$8.3B	-18%
2 (3)	Chicago	104 (86) [145]	-28%	\$1,622	\$5.8B	-21%
3 (2)	Philadelphia	90 (94) [142]	-37%	\$1,404	\$3.3B	-22%
4 (4)	Boston	78 (48) [149]	-47%	\$1,223	\$2.3B	-23%
5 (9)	Miami	66 (35) [81]	-19%	\$1,028	\$2.6B	-20%
6 (5)	Los Angeles	62 (45) [103]	-40%	\$968	\$5.2B	-28%
7 (6)	San Francisco	64 (47) [97]	-34%	\$1,001	\$1.6B	-49%
8 (8)	Houston	58 (35) [81]	-29%	\$897	\$2.6B	-25%
9 (7)	New Orleans	63 (42) [79]	-21%	\$977	\$501M	-28%
10 (22)	Atlanta	53 (20) [82]	-36%	\$820	\$2B	-16%
11 (14)	Portland	48 (27) [89]	-46%	\$754	\$740M	-32%
12 (10)	Dallas	44 (34) [63]	-31%	\$679	\$2.2B	-32%
13 (12)	Washington DC	44 (29) [124]	-65%	\$683	\$1.7B	-38%
14 (11)	Stamford	46 (38) [74]	-38%	\$717	\$270M	-24%
15 (16)	Denver	40 (24) [63]	-36%	\$631	\$819M	-10%
16 (13)	Baltimore	37 (27) [84]	-56%	\$578	\$686M	-23%
17 (17)	Providence	38 (24) [70]	-46%	\$586	\$420M	-5%
18 (45)	San Diego	32 (14) [70]	-54%	\$498	\$688M	-12%
19 (28)	Concord*	40 (24) [-]	-	\$620	\$36M	-8%
20 (29)	Austin	32 (19) [69]	-54%	\$500	\$476M	-21%
21 (15)	Seattle	30 (25) [74]	-59%	\$470	\$730M	-36%
22 (89)	Las Vegas	28 (8) [16]	76%	\$438	\$396M	+3%
23 (55)	Sacramento	25 (13) [64]	-62%	\$383	\$346M	-30%
24 (66)	San Antonio	23 (11) [39]	-40%	\$364	\$375M	-5%
25 (46)	Phoenix	21 (13) [37]	-43%	\$321	\$615M	-7%

*New to 2020 Scorecard Ranking



Top 25 Worst Corridors in the U.S.

Throughout the country, delay on the busiest corridors increased over 2020 levels yet were still significantly lower than in 2019. I-5 in Los Angeles from Euclid Ave to I-605 took the top spot in 2021, with 22 minutes of delay at the 4:00PM peak hour. Like most years, New York's Brooklyn Queens Expressway took second, yet it remains to be seen how the corridor will perform with a lane removed along the corridor.

Rank	Urban Area	Road Name	From	To	Peak Hour Delay (min)	Peak Hour	2021 Hours Lost
1	Los Angeles,	I-5 South	Euclid Ave	I-605	22	4:00 PM	89
2	New York	I-278 BQE West	I-495	Tillary St	20	4:00 PM	77
3	Orlando	I-4 West	Beachline Expy	FL-429	19	5:00 PM	74
4	Bridgeport	I-95 CT Turnpike North	Unquowa Rd	NY-8	18	5:00 PM	72
5	Dublin	I-580 East	Foothill R	Airway Blvd	15	4:00 PM	62
6	Stamford	I-95 North	Riverside Ave	Hillspoint Rd	15	5:00 PM	61
7	Orlando	U.S.-17 South	U.S.-192	The Oaks Blvd	15	5:00 PM	59
8	Miami	I-95-Express North	I-195	51st St	15	5:00 PM	57
9	New York	I-95 Cross Bronx Ex South	I-278	Arthur Ave	13	4:00 PM	55
10	Los Angeles	I-10 Santa Monica Freeway East	Washington Blvd	I-110	14	4:00 PM	55
11	Los Angeles	I-405 West	Santa Monica Blvd	Valley Vista Blvd	13	4:00 PM	54
12	Tacoma	I-5 South	WA-161	Pacific Ave	14	4:00 PM	52
13	Portland	I-5 North	I-405	Columbia Way	13	4:00 PM	52
14	Los Angeles	U.S.-101 South	Santa Monica Blvd	Alvarado St	13	4:00 PM	51
15	San Francisco	CA-24 Shafter Freeway	Fish Ranch Rd	Boulevard Way	13	4:00 PM	51
16	Concord	CA-24 East	Camino Pablo	I-680	13	4:00 PM	49
17	New York	I-278 Bruckner Expressway West	Bronx River Pkwy	138th St	12	7:00 AM	45
18	Dallas	U.S.-80 East	I-635	FM-548	12	5:00 PM	45
19	Seattle	I-5 North	Northgate Way	128th St	11	4:00 PM	45
20	Stamford	I-95 CT Turnpike South	Sherwood Island Connector	Indian Field Rd	12	8:00 AM	44
21	Washington, DC	I-95 Shirley Hwy South	VA-655	VA-642	11	5:00 PM	43
22	Chicago	I-55 Stevenson Expy	I-90	IL-50	11	4:00 PM	43
23	Dallas	I-45/U.S.-75 South	Ross Ave	Hawn Fwy	10	5:00 PM	42
24	Concord	Ygnacio Valley Rd East	I-680	Cowell Rd	10	5:00 PM	40
25	New York	1st Avenue North	49th St	124th St	10	4:00 PM	40

*New to 2020 Scorecard Ranking

EUROPE ANALYSIS & RANKING

In general, European road travel is closer to pre-COVID levels than North America, as lockdown measures in many major countries have eased since mid 2021. However, public transit ridership, and more specifically rail transit, continued to lag pre-COVID levels throughout the year. Reported national rail ridership in the U.K. was down 58% in Q1 2021 vs Q1 2019 while Germany's Deutsche Bahn carried 57% fewer people in H1 2021 than in H1 2019.

London tops both the Global and the European rankings at 148 hours lost, down just 0.7% from pre-COVID levels, largely due to economic growth. London officials expect 2021 growth to reach 5.4%, and to hit 6.9% in 2022. Several European cities continued to be prominent in the top 10 again this year, including Paris (140 hours), Brussels (134), Moscow (108) and Rome (107).

French, Italian and Russian urban areas are heavily represented in the top 25, with four, three and six spots, respectively. Despite lagging 2019 levels, urban areas like Dublin (-42%), Istanbul (-42%) and St. Petersburg (-50%) are still among the most congested cities in Europe. Spain's lack of presence in the top 25 is notable, as Barcelona is ranked 94th globally, the most congested urban area in Spain.

Last mile speeds, which represent travel in city centers, continue to be faster than normal, especially in Italy.



2021 European Rank	Urban Area	Country	2021 Hours Lost	Compared to Pre-COVID	Last Mile Speed (MPH)	Last Mile Speed over Normal
1	London	UK	148	-1%	11	10%
2	Paris	FRA	140	-15%	11	10%
3	Brussels	BEL	134	-4%	10	11%
4	Moscow	RUS	108	-16%	16	7%
5	Rome	ITA	107	-36%	14	27%
6	Palermo	ITA	109	-20%	9	13%
7	Istanbul	TUR	88	-42%	14	27%
8	Bucharest*	ROU	98	-	14	-
9	Lyon	FRA	102	-3%	11	10%
10	Rostov-on-Don	RUS	97	15%	13	0%
11	Budapest	HUN	92	0%	15	0%
12	Dublin	IRL	89	-42%	13	30%
13	Turin	ITA	93	-24%	12	33%
14	Bursa	TUR	82	74%	17	6%
15	Saint Petersburg	RUS	75	-50%	15	7%
16	Poznan	POL	87	45%	15	-12%
17	München	DEU	79	-9%	11	0%
18	Wroclaw	POL	84	9%	15	15%
19	Ufa	RUS	80	54%	13	8%
20	Nimes	FRA	92	96%	17	-15%
21	Marseille	FRA	78	-4%	12	9%
22	Samara	RUS	77	-4%	13	8%
23	Athens	GRC	70	-35%	14	0%
24	Tyumen	RUS	77	31%	15	25%
25	Berlin	DEU	65	-2%	14	8%

The United Kingdom

Like most other countries, the U.K. implemented various protective lockdowns and restrictions that impacted travel within the country in 2020. By 2021, those restrictions had been lifted in many parts of the country, with England having no restrictions since mid-June when the third national lockdown ended. Minimal restrictions are still present, however, in Ireland, Scotland and Wales.

On average, drivers in the U.K. lost 73 hours due to congestion in 2021, up from 37 last year, but down from 115 in 2019. The result was a savings of £298 per driver over 2019.

Nationally, drivers spent more than 980 million hours sitting in traffic. Trips to larger city centers still lag pre-COVID levels, while smaller areas generally recovered. This is likely due to the large number of jobs in the City of London, which accounts for 10% of Greater London's jobs, being more affected by telecommuting. Smaller cities, like Cambridge, Exeter and Cheltenham saw minimal decreases in travel to their city centers, keeping traffic congestion levels higher in smaller urban areas.

United Kingdom Findings

- Time Lost: 73 hours, up 36 hours from 2020
- Cost to Driver: £595, up £303 from 2020
- Cost to Country: £8 billion
- Collisions: Up +26%
- Freight VMT: +1%
- Downtown Trips: -19% from pre-COVID

2021 U.K. Rank (2020)	Urban Area	Delay 2021 (2020) [2019]	2021 v Normal	2021 Driver Cost	2021 City Cost	Downtown Trips
1 (1)	London	148 (69) [149]	-1%	£1,211	£5.1B	-13%
2 (29)	Cambridge	75 (21) [71]	7%	£618	£11M	0%
3 (3)	Bristol	66 (37) [103]	-36%	£542	£28M	-28%
4 (35)	Exeter	71 (18) [56]	27%	£578	£36M	-4%
5 (31)	Cheltenham	71 (20) [60]	18%	£576	£140M	-4%
6 (20)	Manchester	62 (23) [92]	-33%	£502	£35M	-25%
7 (7)	Belfast	60 (31) [112]	-46%	£487	£32M	-12%
8 (12)	Birmingham	53 (26) [80]	-34%	£434	£123M	-23%
9 (15)	Nottingham	58 (26) [78]	-26%	£469	£65M	-24%
10 (9)	Hull	56 (31) [75]	-25%	£459	£226M	-9%

Top 5 Worst Corridors in London

The U.K.'s Top 5 worst corridors are located in London, the most populated area in the U.K., but with reductions in delay versus 2019. Previously, the A404/501 corridor (44 hours) held the top spot, while the top spot in 2020 was on A24, High Street Colliers Wood (24 hours).

Rank	Urban Area	Road Name	From	To	Peak Hour Delay (min)	Peak Hour	2021 Hours Lost
1	London	A503 East	Camden High Street	B152 St Ann's Road	11	4:00 PM	42
2	London	A2 West	Shooter's Hill Road	Bricklayers Arms	10	8:00 AM	39
3	London	A406 North Circular Rd East	Henly's Corner	Arnos Grove	10	4:00 PM	38
4	London	A501 East	Edgware Road	Old Street Roundabout	9	8:00 AM	35
5	London	A205 West	Clifton's Roundabout	Stanstead Road	8	8:00 AM	33

Top 10 Worst Corridors in the U.K. (outside of London)

Rank	Urban Area	Road Name	From	To	Peak Hour Delay (min)	Peak Hour	2021 Hours Lost
1	Belfast	A644 East	M62	Church Lane	8	4:00 PM	32
2	Birmingham	A435 South	Haden Circus Roundabout	Woodthorpe Rd	7	4:00 PM	26
3	Liverpool	A5058 Queens Drive East	A59 County Rd	Bowring Park Rd	5	4:00 PM	20
4	Birmingham	A440 North	Worcestrer Rd	A451 Roundabout	5	4:00 PM	20
5	Edinburgh	A702 South	A700 Brougham St	the City of Edinburgh Bypass	5	4:00 PM	18
6	Edinburgh	A902 West	Great Junction St	Hillhouse Rd	5	4:00 PM	18
7	Liverpool	A5047 East	A5048 Grove St	M62	5	4:00 PM	18
8	Hull	A1079 South	Dunswell Roundabout	A615 Freetown Way	4	8:00 AM	17
9	Belfast	B102 South	A55 Kennedy Way	A512 McKinstry Road	4	4:00 PM	17
10	Nottingham	A610 Nuthall Rd East	Nuthall Interchange	A6514 Western Blvd	4	8:00 AM	17

Germany

German lockdown measures varied throughout the year, and government officials began easing restrictions in March 2021. Yet further regulations were imposed a month later due to the “Federal Emergency Brake” and lasted through June 2021, followed by another round of varying restrictions in November due to rising cases.

Despite the lockdown measures, the country has re-emerged toward its pre-COVID level in terms of vehicular travel.

Munich (79 hours), Berlin (65 hours), and Hamburg (47 hours) sit atop German areas again with the largest impact of traffic congestion in 2021. All three are close to pre-COVID levels of delay, with Munich still down approximately -9%. Congestion imposes the greatest costs on Munich’s drivers at up to 740 € per year, 155 € more than 2020 but 34 € less than 2019.

On a national level, Germans lost an average of 40 hours due to congestion in 2021, up from 26 last year but down from 46 in 2019. Congestion cost the country 3.5 billion € or 371 € per driver. Compared to 2019, the average driver saved 6 hours, resulting in 37 € in time savings.

Trips to city centers were near pre-COVID levels by October 2021, indicating Germans were headed back to work and play quicker than U.K. and U.S. cities.

Germany Findings

- Time Lost: 40 hours, up 14 hours from 2020
- Cost to Driver: 371 €, up 136 € from 2020
- Cost to Country: 3.5 billion €
- Collisions: Up +4%
- Freight VMT: +5%
- Downtown Trips: 100% of pre-COVID level

2021 Country Rank (2020)	Urban Area	Delay 2021 (2020) [2019]	Compared to Pre-COVID	2021 Cost	2021 City Cost	Downtown Trips
1 (1)	München	79 (65) [87]	-9%	740 €	388M €	15%
2 (2)	Berlin	65 (46) [66]	-1%	610 €	823M €	-5%
3 (3)	Hamburg	47 (33) [48]	-1%	443 €	291M €	-5%
4 (12)	Cologne	42 (24) [41]	4%	398 €	152M €	-3%
5 (8)	Dusseldorf	43 (27) [50]	-15%	400 €	88M €	16%
6 (28)	Potsdam	46 (16) [35]	31%	428 €	27M €	4%
7 (24)	Dresden	41 (16) [31]	32%	385 €	75M €	11%
8 (4)	Nuremberg	41 (35) [42]	-3%	382 €	71M €	29%
9 (5)	Leipzig	40 (31) [33]	22%	376 €	76M €	8%
10 (10)	Stuttgart	39 (26) [42]	-6%	368 €	33M €	15%

Top 10 Worst Corridors in Germany

The worst corridors in Germany, while significantly lower than in 2019, are spread throughout the country. Delays across some of the most crowded roads in Germany are much higher than 2020 due to COVID-19, yet still lag 2019 delay levels. Many of the top corridors underwent or are undergoing renovation, including B76 (Theodor-Heuss-Ring) in 2021, the B6 in Hanover and Bautzner Strasse in Dresden. In addition, traditional bottlenecks have continued where roads narrow, like on Prenzlauer Allee/Promenade and the B2, both in Berlin.

During COVID-19, the bicycle played an important role in the public discussion on transport. In many cities, extra lanes were designated for cyclists on busy streets, and made permanent in 2021.

Rank	Urban Area	Road Name	From	To	Peak Hour Delay (min)	Peak Hour	2021 Hours Lost
1	Munich	B2R Mittlerer Ring	Petuelring	Heimeranplatz	7	5:00 PM	27
2	Kiel	B76 South	Bundestraße 503	Neue Hamburger Str.	7	4:00 PM	27
3	Hannover	B6 North	L190 Bremer Damm	A2 AS Hannover-Herrenhausen	6	4:00 PM	25
4	Berlin	B96 Tempelhofer Damm/Mariendorfer Damm South	Platz der Luftbrücke	Reißeckstraße	5	4:00 PM	21
5	Dusseldorf	B8 South	Brehmplatz	Mecumstraße	5	4:00 PM	21
6	Dresden	Bautzner Straße West	Mordgrundwasser	Hanastraße	5	8:00 AM	21
7	Berlin	A100 North	Dreieck Neukölln	Dreieck Charlottenburg	5	4:00 PM	20
8	Berlin	B2 North	Alexanderplatz	Caseler Straße	5	4:00 PM	20
9	Berlin	Prenzlauer Allee/Promenade North	Christburger Straße	A114 AS Pasewalker Straße	5	4:00 PM	20
10	Frankfurt	B8 Frankfurter Landstraße/Hanauer Landstraße West	Am Kreuzstein	A661 AS Frankfurt-Ost	5	8:00 AM	20

CONCLUSION & COMMENTARY

2021, like 2020, was an atypical year in terms of surface transportation. Working from home continued to put downward pressure on trips, especially to downtown areas, more so in the U.S. than abroad. Amid vaccine rollouts and the relative relaxing of restrictions, cities and countries have battled COVID-19 differently, resulting in varying effects on their respective roadways.

For example, metro areas like Washington DC have vaccination rates above 70%, yet that hasn't necessarily resulted in a return to normal traffic congestion, as hours lost to traffic is still down -65% from 2019. In contrast, the London metro area has a 60% vaccination rate, yet traffic congestion has returned to pre-COVID levels. Obviously, other factors are also influencing traffic besides vaccination uptake.

School schedules are also affecting traffic levels. Through most of the year, schools and universities around the world have been remote or hybrid, significantly reducing AM peak traffic. The local economy also matters. Industries like Financial Activities, Information, Professional and Business Services and Public Administration have more of an ability to telework than those focused on Agriculture, Leisure and Hospitality, Construction and Utilities.

Trips to job centers downtown, as well as congestion in general, have increased since last year, but remain below pre-COVID levels. INRIX Research expects growth in VMT, especially in the U.S., to remain low, with a gradual increase over the coming years. Studies have suggested that teleworking, which was growing before COVID-19, will persist even after the pandemic, leading to new traffic patterns emerging on the roadway. Public transit use will likely continue to make small steps toward pre-COVID levels of ridership, but will take years to recover, especially public transit systems that are focused on downtowns and city centers.



ABOUT INRIX RESEARCH

Launched in 2016, INRIX Research uses INRIX proprietary big data, analytics and industry expertise to understand the movement of people and goods around the world.

We achieve this by leveraging billions of anonymous data points every day from a diverse set of sources on all roads in countries of coverage. Our data provides a rich and fertile picture of mobility that enables INRIX Research to produce valuable and actionable insights for policy makers, transport professionals, automakers, and drivers.

INRIX Research has a team in Europe and North America, and is comprised of economists, transportation policy specialists and data scientists with backgrounds in academia, think tanks and commercial research and development groups. We have decades of experience in applying rigorous, cutting-edge methodologies to answer salient, real-world problems.

In addition to our research outputs, INRIX research reports and data are a free and valuable resource for journalists, researchers and policymakers. We are able to assist with data, analysis and expert commentary on all aspects of urban mobility and smart cities. Spokespeople are available globally for interviews.



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