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# 2022 INRIX Global Traffic Scorecard

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# KEY FINDINGS

- For the second straight year, London again tops the Global Traffic Scorecard as the most congested city in the world. The average London driver lost 156 hours due to congestion in 2022, but Chicago is a close second, as drivers there saw a drastic return to pre-COVID congestion levels by spending an extra 155 hours sitting in traffic. Paris rounds out the top 3 in 2022 with 138 hours lost.

- Traffic delays exceeded pre-COVID levels in 39% of urban areas in the US (116 out of 295), and 42% in Europe (249 out of 593). In the UK, traffic delays increased 72% in urban areas (79 out of 110), while in Germany, 51% of urban areas saw more delay than in 2019 (37 out of 72).

- The typical US driver lost 51 hours due to congestion in 2022, a 15-hour increase over 2021. In the UK, a driver lost 80 hours due to traffic congestion, a 7-hour increase, and in Germany, drivers lost 40 hours on average, with no change from 2021.

- Fuel prices had a small effect on the amount people traveled but have increased the burden drivers and freight-movers shoulder. Annual fuel costs rose nearly $315 for the typical commuter in Los Angeles over 2021, and £188 ($223 USD) for the average commuter in London. Due to fuel tax relief, drivers in Germany paid an additional 38 € ($42 USD) in direct fuel price increases over 2021.

- Telecommuting has appeared to ease with the onset of hybrid work, yet still exceeds its pre-COVID mode share significantly. In the UK, hybrid work increased from 13% to 24%, while working solely from home dropped from 22% to 14%. Trips to downtowns and city centers generally increased over 2021, but in London, trips decreased, however, the City of London recovered faster than other downtowns in 2021.

- Congestion cost the US more than $81 billion in 2022, UK drivers nearly £9.5 billion, and German drivers 3.9 billion €.

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# INTRODUCTION

With most countries around the world easing COVID-19 restrictions following vaccinations, new therapeutics, and less severe strains of COVID, 2022 was expected to be a year of re-emergence closer to 2019 behavioral norms – as federal, state, and local governments around the world reversed mandates on social gatherings, workplaces re-opened, and music and entertainment venues started hosting crowds. Yet that trend was halted as oil prices began to rise across the world and were further exacerbated by the invasion of Ukraine by neighboring country Russia.

From January through June, the price of regular motor gasoline rose 49% and the price of diesel fuel rose slightly more than 55%, according to the US Bureau of Transportation Statistics. While prices decreased slightly in the second half of the year and ended 2022 58% higher than pre-COVID 19 levels.

Increased fuel prices and inflation had a significant negative economic impact on real wages, commuting, air travel costs, freight movement, the supply chain, and lead to cost increases in goods and services around the globe. INRIX found that the typical driver commuting to work paid more than $1,325 for fuel in 2022, versus $1,010 in 2021. Commuting by driving in the UK cost Londoners an additional £212 ($278 USD) in petrol while fuel tax relief in Germany kept the increase in fuel costs to about 38 € ($42 USD) per driving commuter.

Despite higher fuel costs, people have continued to drive. INRIX data shows US VMT increased less than 1% from 2021, UK VMT saw a 4% increase and VMT in Germany jumped 21%. However, compared to pre-COVID times, US VMT was still down 9% and UK VMT lagged 13%, in contrast with Germany, where VMT leapt above pre-COVID levels by 8%.

One reason the US likely didn't reach pre-COVID VMT is the current state of office space use. In the US, The New York Times reported that many companies are opting for smaller offices, and that "Wall Street investors appear to think the office space sector is in for a deep slump."[i] Many employers, though not all, continued to allow employees to work from home, either full time or hybrid, with nearly 18% of employees in the US working from home, resulting in fewer trips to Downtown areas than in 2019.

Although there remained fewer drivers on the road, safety concerns on transportation networks, especially in the US, continued to remain above pre-COVID levels. Though traffic-related deaths fell the first half of 2022 versus the same period a year earlier, the estimated fatality rate of 1.27 traffic deaths per 100 million VMT was 17% higher than 2019 fatality rate of 1.09 per 100 million VMT.[ii] The rate of 1.27 traffic deaths is still significantly higher than the years between 2011-2019. However, that trend has not been present in the UK, which has seen its traffic death marginally increase from 0.51 traffic deaths per 100 million VMT in 2019 to 0.52 in 2021, while each year between 2011-2018 had a higher fatality rate.[iii]

In terms of other modes of transportation, US public transport use rebounded significantly over 2021 levels by 33%.[iv] However, US public transport use still lagged pre-COVID ridership levels by 39%.[v] In the UK, national rail sits at approximately 84% of pre-COVID levels, while London Tube ridership is about 76% of pre-COVID levels.[vi] As the 9 € ticket started in June, German officials reported short distance public transport ridership increases of 36% in the first half of 2022 versus 2021, but ridership still lags 2019 levels by 21%.[vii]

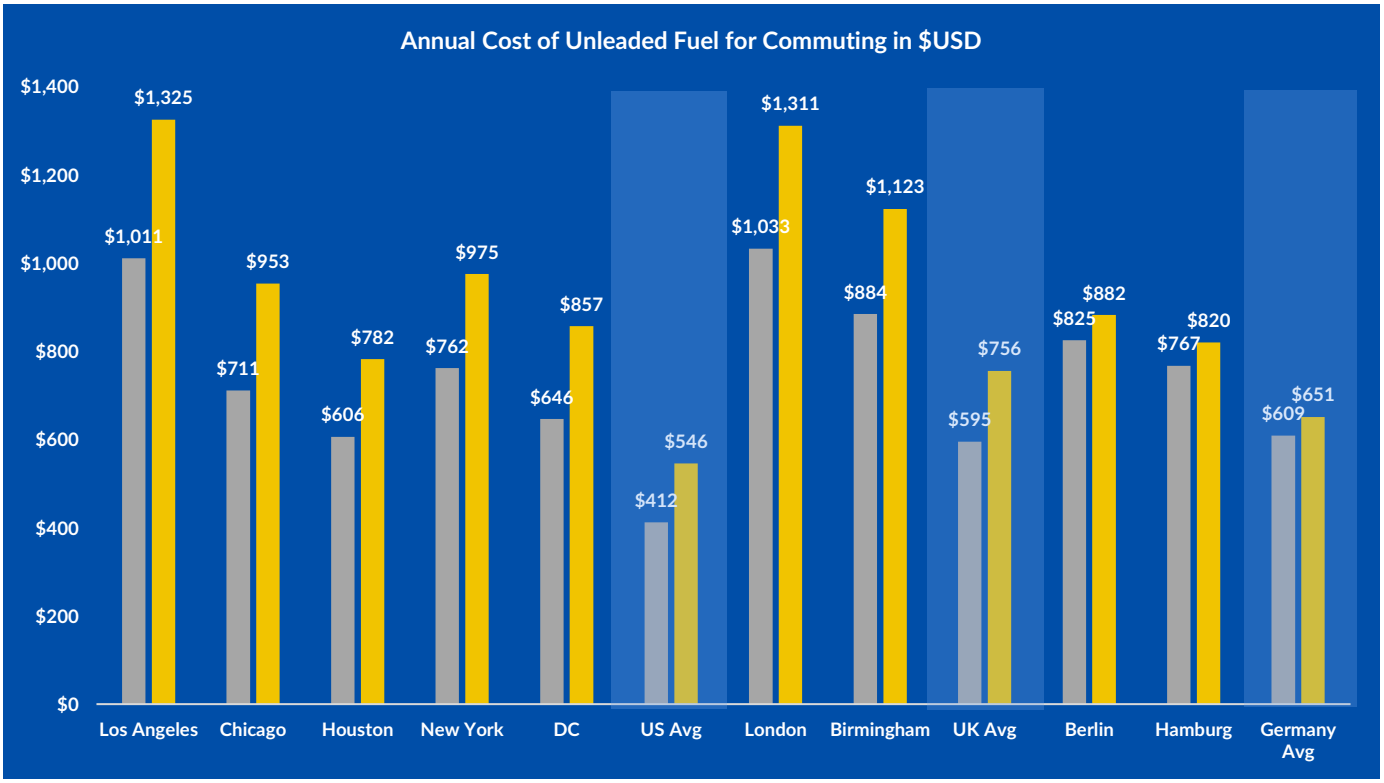
# INTRODUCTION (CONT.)

Cycling increased across the UK by about 12% over pre-COVID level but had mixed results in the US.[viii] Bike counters in Germany also logged an increase – comparable cycle counts in Cologne, Dusseldorf, and Berlin were up 21%, 9% and 8%, respectively over 2019.[ix] Yet cycling in cities like Seattle and San Francisco decreased as strong telecommuting continued, at the same time New York City's Citi Bike program recorded record ridership in 2022 and Washington, DC reported a 6.5% increase, mostly due to a 150% increase in bike counts at the Anacostia River Trail – River Terrace counting station.[x]

In summary, while congestion returned in many places, it did not reach pre-pandemic levels. Transit use overall still lagged 2019 levels, and cycling was mixed depending on location. Additionally, drivers still paid more for fuel while vehicle-miles remained the same or slightly increased over 2021. As countries across the world deal with record inflation and slowdowns in their economies, an air of uncertainty still exists around transportation and commuting because of global economic slowdowns and telecommuting preferences rather than an extension of the pandemic.

# Fuel Prices Increase Costs of Commuting

**Figure 1: Change in Cost of Fuel for Driver Commuting**




Oil price increases around the world have resulted in soaring gasoline and diesel prices over the last year. In the US, national pre-pandemic prices for regular unleaded were at $2.35 per gallon in February 2020. Prices hit a high of $4.76 during June 2022, before receding to $3.25 per gallon in December 2022.[xi] This has led to increases in freight costs, commuting costs, and the prices consumers pay for goods and services.

Yet depending on location, fuel prices vary considerably. Consider Los Angeles, where the 2021 average price per gallon was $4.00, and the preliminary 2022 average price is $5.49 per gallon, significantly greater than the national average. The price per gallon is even greater in the UK and Germany, where energy/fuel taxes and Value Added Taxes (VAT) boost the price of fuel. Both the UK and Germany implemented measures to reduce the burden on drivers by reducing taxes.[xii]

Despite that, the costs of commuting jumped across the board. Based on INRIX commuting analysis, the annual cost of fuel per commuter increased about $315 per Los Angeles commuter compared to 2021, while commuters in Chicago paid $242 more to commute to work in 2022.

Commuters in the London paid about £212 ($278 USD) more to drive to work in 2022 versus 2021, while driving to work in Berlin, Germany cost just 51 € ($57 USD) more, likely due to the subsidization of fuel keeping prices at the pump lower.

However, driving commutes outside of major metro areas also saw increased costs. Fuel for the typical commute in the US was $134 more in 2022 than in 2021 and in the UK a driving commuter paid about £122 ($128 USD) more. In Germany, drivers paid about 38 € ($42 USD) more for fuel to commute in 2022 than in 2021.

While telecommuters and those working from home saved on commuting costs, higher prices still affected the cost of goods and services, leisure trips, running errands, and driving to shopping centers.

# Telecommuting & Hybrid Work Still Affecting Downtown Travel

Despite the reopening of many economies, telecommuting (working from home) has continued to remain relatively strong. According to the latest US Census Bureau statistics, 17.9% of workers in the country worked from home in 2021, versus 5.7% in 2019, a more than 200% increase in mode share.[xiii] Yet employers and employees appear to have switched to a more hybrid model since.

In the UK, between February and May 2022, employees with hybrid work schedules increased from 13% to 24%, while the percentage working only from home decreased from 22% to 14%.[xiv]

As a result, trips to employment centers generally increased to downtown/city centers since their COVID-19 lows, though not all downtowns increased over 2021, and many started from significant deficits as shown in previous years' Global Traffic Scorecards. Cologne, Germany saw the largest increase among those downtowns analyzed, with a 28% jump in trips to downtown, followed by Berlin (+25%) Washington, DC (+23%) and Charlotte, North Carolina (+19%). Leeds, UK (-17%), Sheffield (-14%) and London (-11%) saw the biggest decreases among city centers analyzed but had generally recovered trips faster than many other EU cities analyzed earlier in the pandemic.

**Table 1: Year over Year Change in Trips to Downtown/City Center, by Location**

| Downtown (City Center) Trips | | | |
|---|---|---|---|
| **Downtown** | YoY Change | Downtown | YoY Change |
| **United States** | | | |
| **Atlanta** | 3% | Miami | 4% |
| **Baltimore** | -2% | Minneapolis | 3% |
| **Boston** | 13% | New Orleans | 7% |
| **Charlotte** | 19% | New York | 17% |
| **Chicago** | 1% | Philadelphia | 1% |
| **Dallas** | 8% | Phoenix | 14% |
| **Denver** | 9% | San Diego | 17% |
| **Detroit** | 18% | San Francisco | 15% |
| **Houston** | 11% | Seattle | 14% |
| **Los Angeles** | -1% | Washington DC | 23% |
| **United Kingdom** | | **Germany** | |
| **Birmingham** | 2% | Berlin | 25% |
| **London** | -11% | Hamburg | 15% |
| **Manchester** | -2% | Munich | -5% |
| **Sheffield** | -14% | Frankfurt | 19% |
| **Leeds** | -17% | Cologne | 28% |

# Fatality Rates Remain Elevated

Throughout the COVID pandemic period, fatality rates on America's roadways remained relatively high. In the first half of 2019, for example, the fatality rate in the US was 1.07 fatalities per 100 million VMT, while in 2021 that half-year rate jumped to 1.30 fatalities per 100 million VMT. Though the fatality rate decreased slightly to 1.27, it is still significantly higher than in past years.[xv]

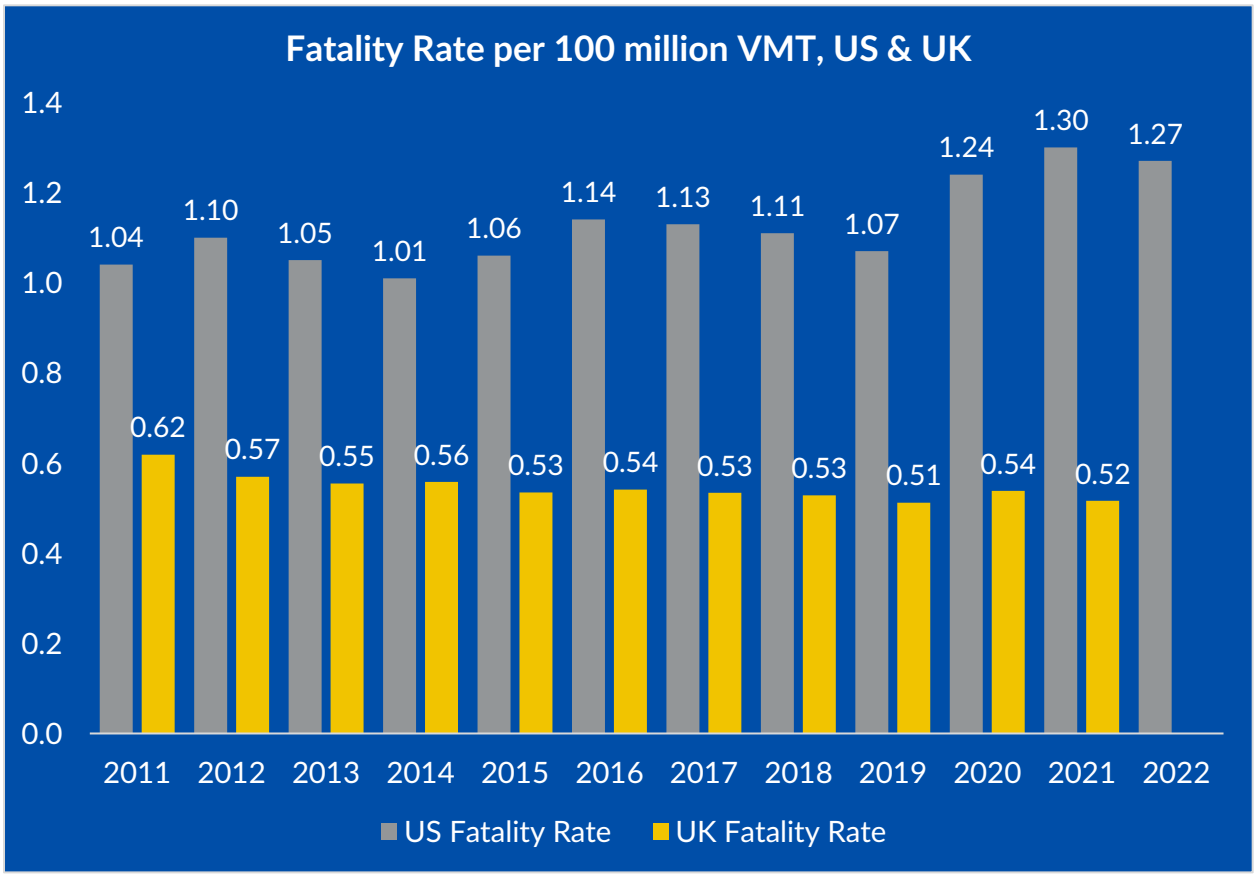
The UK, on the other hand, did see a slight increase in the fatality rate during the pandemic, as the rate moved from 0.51 fatalities per 100 million VMT to 0.54 in 2020.[xvi] But in 2021 that rate had fallen back 0.52, still significantly lower than the 10-year average. 2022 fatality estimates have yet to be released in the UK, but preliminary findings over the past year suggest that road fatalities are down 4% compared to 2019.[xvii] With a slightly decreased VMT figure, it's probable that the UK fatality rate remains close to 2021's figure.

German officials projected 2022 road fatalities to increase 9% over last year, to 2,790, still under 2019's 3,050 road fatalities.[xviii]

To try to combat rising road deaths, state and local transportation officials across the US have widely adopted a "Vision Zero" or "Target Zero" goal – a concept first used across Europe in the 1990's. Most of these plans set a goal zero traffic deaths on roadways by a specific year, like 2030, and highlight the value in using data to prioritize interventions and projects. For example, deciding whether to change roadway configuration to slow down vehicles to planning roadways that enable safe access for all users.

Yet despite the plan to eliminate roadway deaths, fatalities are not falling in all areas. As Vision Zero deadlines approach, city, county, regional, Tribal and state governments will need to remain vigilant to reduce fatalities and serious injuries on the country's road network. In the US, the $1.2 trillion Bipartisan Infrastructure Law allocated more than half of the funds toward road and highway safety, providing funding for important projects to reduce serious injuries and fatalities.

**Figure 2: Annual Fatality Rates for US & UK (Latest Data Available)**

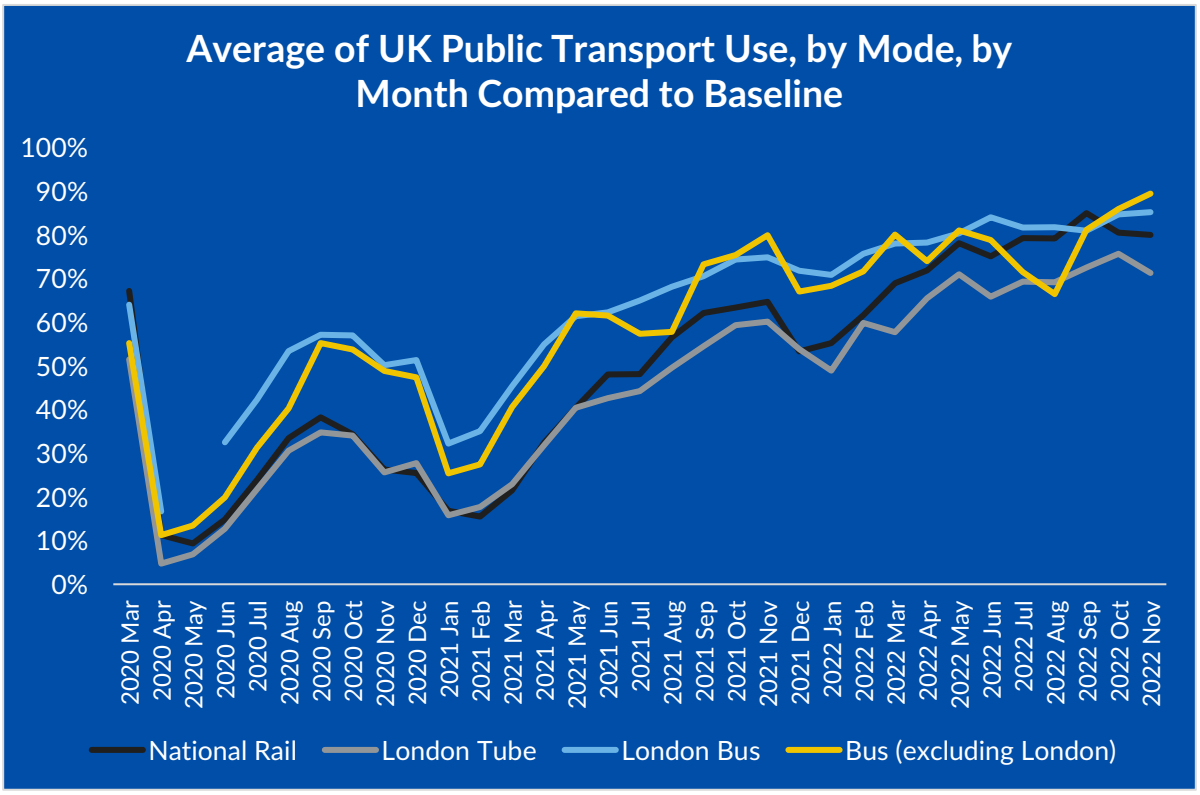


# Commuting Isn't Just About Cars

While VMT picked up just months after the pandemic started in 2020, and is at or near pre-COVID levels, other modes have had mixed results. For example, year-to-date transit ridership in the US dropped more than 50% following the COVID-19 outbreak but recovered 33% of those losses over the past year.[xix] Rail ridership specifically has continued to lag bus ridership in most metro areas. Rail ridership between January and September was still 65% below 2019 levels in 2021 yet grew 55% between 2021 and 2022. A large part of this is a continued lack of commuter demand to downtowns and city centers, but public transport agencies also faced numerous challenges: the virus itself, staffing shortages, higher costs, and reduced fare revenues.[xx]

In Europe, transit ridership still lags pre-COVID levels as well. UK transit ridership is closely approaching pre-COVID levels, with different modes of transport reaching 70-90% of pre-COVID level as of November 2022, and Germany sits similarly as local transit use is still down 21% from pre-COVID times.[xxi]

**Figure 2: UK Public Transport Use by Mode Versus Pre-COVID Baseline**




Cycling also rose in popularity during the pandemic throughout the UK & Germany. The latest UK.GOV data show cycling at about 112% of pre-COVID levels through November, while cycle counters in German cities show growth between 8-21%.[xxii] Yet some of those gains didn't make their way across the Atlantic. Seattle, for example, has seen decreases on every active bike counter in operation compared to pre-COVID times.[xxiii] According to the San Francisco Municipal Transportation Agency, the latest data showed 2022 cycle counts between January and October 2022 to be down 23% from the same period in 2019.[xxiv] However, in New York, the bikeshare program Citi Bike announced record levels of bike rentals in 2022.[xxv]

The results are mixed, especially in the US, on whether cycling will increase post-pandemic or whether it will continue to lag pre-COVID levels. Cycling advocates and government officials across the country stressed that boosting funding for safety will increase cycling and pedestrian activity. In the 2021 federal Bipartisan Infrastructure Law, various spending programs provided billions of dollars to increase bike and pedestrian infrastructure. For example, the Transportation Alternatives program provides $1.4 billion per year for trails, bike paths, sidewalks, Safe Routes to School programs, and more. The Highway Safety Improvement Program is estimated to fund about $3 billion in projects, some of which can be used for bike and pedestrian safety.

# DATA & METHODOLOGY

The 2022 Global Traffic Scorecard provides a more granular and holistic analysis of mobility within the world's most congested cities. The 2022 Scorecard continues to include travel delay comparisons, collision trends and last-mile speeds based on the unique commuting patterns within each metro area. But also included key insight on transportation trends, with data from outside sources.

Commute times were calculated by looking exclusively at the time it takes to get to and from major employment centers within an urban area from surrounding commuting neighborhoods. The 2022 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 lost 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: $16.89 per hour in the U.S., £8.83 per hour in the U.K. and 10.08 € per hour in Germany.

The 2022 Scorecard calculated 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 2022 Scorecard is based on more than 11 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.

Commuting fuel costs were determined by using the median commute distance for each urban area as calculated by INRIX, area-specific fuel prices where applicable, fleet fuel efficiency for each country for unleaded gasoline, and assumed 240 commute days through the calendar year.

Due to the ongoing conflict in Eastern Europe, Russian urban areas have been omitted from the 2022 Global Traffic Scorecard.

# 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:** The total number of hours lost in congestion during peak commute periods compared to off-peak conditions.

**Pre-COVID Period:** Interchangeable with 2019, though in some contexts it differs from a 2019 average to a comparable day in 2019, depending on data source.

**Downtown Speed:** The speed at which a driver can expect to travel one mile into the central business district during AM 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.

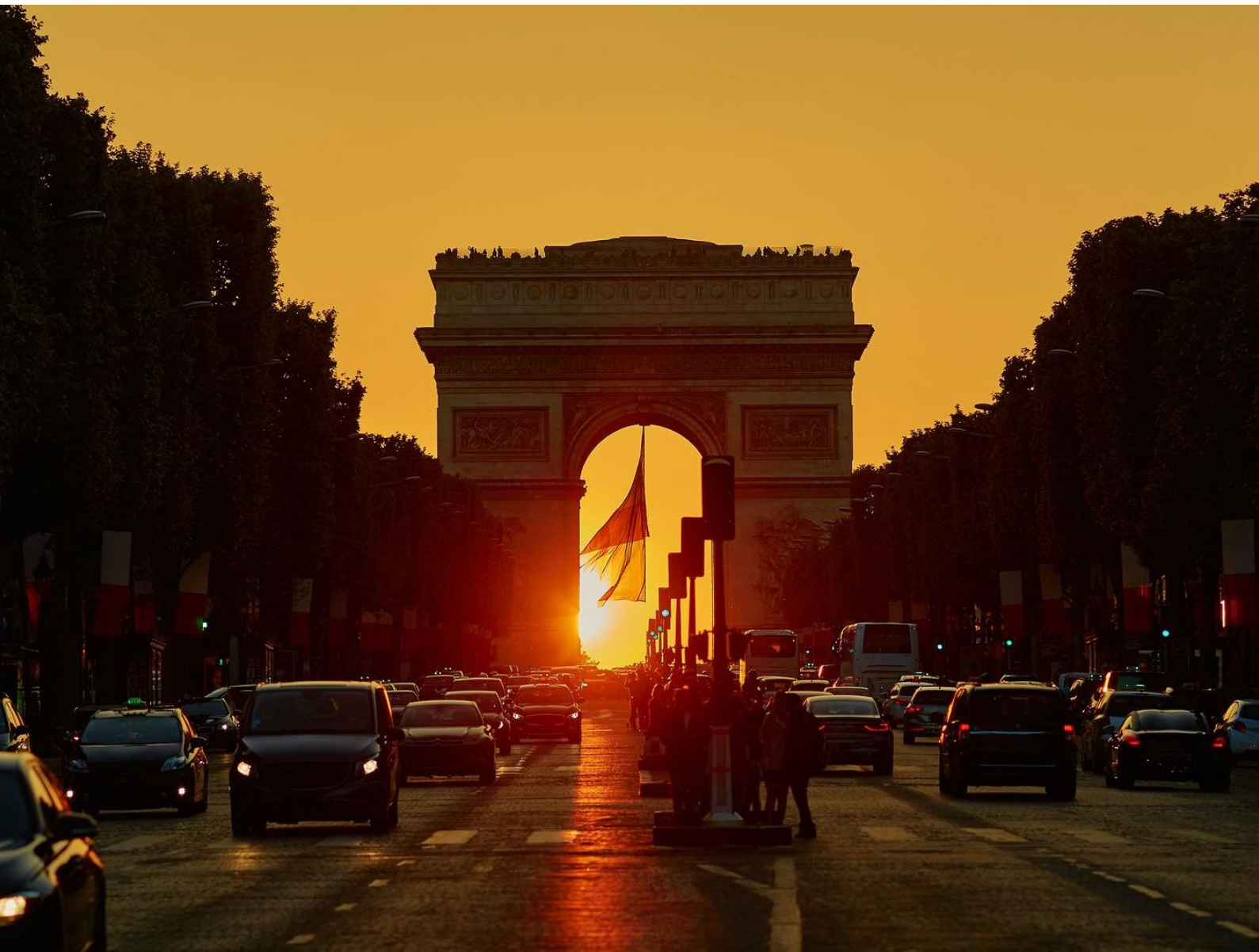
# GLOBAL ANALYSIS & RANKING

London (156 hours lost), Chicago (155), Paris (138), Boston (134), and New York (117) comprise the Top 5 most congested cities in the global congestion Impact Ranking. These results are due to their large populations and the increasing morning commute, when added to the evening commute rebound witnessed in 2021, resulted in traffic patterns last seen in 2019. The Impact Rank captures the aggregate influence of congestion relative to population.

On the other hand, hours lost reflects the impact of congestion on the typical driver and commuter on the roadway. In terms of hours lost, London, Chicago, and Paris still took the top spots with 156 hours, 155 hours, and 138 hours lost respectively.  Cities like Bogota, Boston, Miami and Toronto all moved up significantly from last year, seeing double digit increases over 2021.

Drivers in just seven of the top 25 cities spent less time in traffic in 2022 than they did in 2021, with drivers in Brussels seeing a -27% decrease in traffic congestion.

Despite higher fuel prices, significant inflationary pressure, and supply chain problems around most of the world - in addition to a war in Europe - most urban areas experienced more delay in 2022 than in 2021. However, most still lag their 2019 levels of traffic congestion, as commuting and work habits have shifted considerably.



| 2022 Impact Rank (2021 Rank) | Urban Area | Country | 2022 Delay per Driver (hours) | Change from 2021 | Change from Pre-COVID | Downtown Speed (mph) | Change in Downtown Speed |
|---|---|---|---|---|---|---|---|
| 1 (1) | London | UK | 156 | 5% | 5% | 10 | -9% |
| 2 (6) | Chicago IL | USA | 155 | 49% | 7% | 11 | -27% |
| 3 (2) | Paris | FRA | 138 | -1% | -16% | 11 | 0% |
| 4 (18) | Boston MA | USA | 134 | 72% | -10% | 11 | -27% |
| 5 (5) | New York City NY | USA | 117 | 15% | -16% | 11 | -15% |
| 6 (8) | Bogota | COL | 122 | 30% | -36% | 11 | -15% |
| 7 (22) | Toronto ON | CAN | 118 | 59% | -13% | 10 | -29% |
| 8 (13) | Philadelphia PA | USA | 114 | 27% | -20% | 11 | -15% |
| 9 (32) | Miami FL | USA | 105 | 59% | 30% | 15 | -21% |
| 10 (9) | Palermo | ITA | 121 | 11% | -12% | 9 | 0% |
| 11 (36) | Monterrey | MEX | 116 | 66% | 108% | 19 | -17% |
| 12 (16) | Dublin | IRL | 114 | 28% | -26% | 12 | -8% |
| 13 (7) | Rome | ITA | 107 | 0% | -36% | 13 | -7% |
| 14 (33) | Los Angeles CA | USA | 95 | 53% | -8% | 19 | -17% |
| 15 (34) | San Francisco CA | USA | 97 | 52% | 0% | 12 | -14% |
| 16 (10) | Istanbul | TUR | 89 | 1% | -42% | 14 | 0% |
| 17 (3) | Brussels | BEL | 98 | -27% | -30% | 10 | 0% |
| 18 (68) | Medellin | COL | 91 | 72% | 32% | 12 | -14% |
| 19 (11) | Bucharest | ROU | 91 | -7% | * | 15 | 7% |
| 20 (99) | Washington DC | USA | 83 | 89% | -33% | 11 | -21% |
| 21 (12) | Lyon | FRA | 92 | -10% | -12% | 10 | -9% |
| 22 (23) | Mexico City | MEX | 74 | 10% | -53% | 12 | -14% |
| 23 (15) | Budapest | HUN | 86 | -7% | -7% | 16 | 7% |
| 24 (43) | Cape Town | ZAF | 80 | 36% | -35% | 12 | -20% |
| 25 (50) | Bristol | UK | 91 | 38% | -12% | 14 | -13% |

*New to Scorecard in 2020

# UNITED STATES ANALYSIS & RANKING

In 2022, Chicago (155 hours lost ), Boston (134), New York (117), Miami (105) and Los Angeles (95) ranked in the top 5 for congestion impact in the US. Both Chicago and Miami now have more traffic congestion and delays than they did pre-COVID, while Boston, New York and Los Angeles still lag 2019 levels.

In the top 25, some of the biggest increases in delay occurred in Miami and Las Vegas. Miami saw an increase of 39 hours of delay over last year, a 59% increase, and drivers in Las Vegas lost 13 more hours in 2022 than the year before, a 46% increase. For the first time, Nashville also cracked the top 25 list, as drivers lost 41 hours to traffic congestion in 2022, a 14% increase over 2019 levels.

Of the 295 US urban areas analyzed, 179 are still below their pre-COVID normal levels, while 116 have surpassed them. Of the top 50 ranked areas, just 12 have exceeded 2019 levels, indicating it's the smaller, less-congested cities that have already "returned to normal" in terms of traffic.

## United States Findings

- Time Lost: 51 hours, up 15 hours from 2021
- Cost to Driver: $869, up $305 from 2021
- Cost to Country: $81 billion
- Fuel Costs: Up 32%
- Collisions: Up 4%

The typical driver in the country lost 51 hours in congestion, up 15 hours from 2021's 36 hours lost, costing the average driver $869 in lost time. That doesn't include fuel cost increases, which INRIX analyzed would cost the average American driver $134 more in 2022 than in 2021. It would cost the Los Angeles commuter nearly $315 more in 2022 than in 2021, and the typical New York driver an additional $213 in 2022.

Nationally, drivers spent 4.8 billion hours in congestion, still short of 2019's 6 billion lost hours. The cost of traffic delays across the country increased from $53 billion in 2021 to $81 billion in 2022, a 53% increase. However, despite an approximate 17% jump in inflation since, the cost of nationwide congestion is still down $7 billion from 2019's high of $88 billion.

| 2022 US Rank (2021 Rank) | Urban Area | 2022 Delay (2021) | Compared to Pre-COVID | 2022 Cost per Driver | 2022 Cost per City | Downtown Speed (mph) | Change in Downtown Speed |
|---|---|---|---|---|---|---|---|
| 1 (2) | Chicago IL | 155 (104) | 7% | $2,618 | $9.5 B | 11 | -27% |
| 2 (4) | Boston MA | 134 (78) | -10% | $2,270 | $4.3 B | 11 | -27% |
| 3 (1) | New York City NY | 117 (102) | -16% | $1,976 | $10.2 B | 11 | -15% |
| 4 (3) | Philadelphia PA | 114 (90) | -20% | $1,925 | $4.5 B | 11 | -15% |
| 5 (5) | Miami FL | 105 (66) | 30% | $1,773 | $4.5 B | 15 | -21% |
| 6 (6) | Los Angeles CA | 95 (62) | -8% | $1,601 | $8.6 B | 19 | -17% |
| 7 (7) | San Francisco CA | 97 (64) | 0% | $1,642 | $2.6 B | 12 | -14% |
| 8 (13) | Washington DC | 83 (44) | -33% | $1,398 | $3.5 B | 11 | -21% |
| 9 (8) | Houston TX | 74 (58) | -9% | $1,257 | $3.7 B | 16 | -16% |
| 10 (10) | Atlanta GA | 74 (53) | -10% | $1,257 | $3.1 B | 16 | -16% |
| 11 (9) | New Orleans LA | 77 (63) | -3% | $1,297 | $665 M | 14 | -13% |
| 12 (11) | Portland OR | 72 (48) | -19% | $1,216 | $1.2 B | 15 | -12% |
| 13 (14) | Stamford CT | 73 (46) | -1% | $1,236 | $465 M | 13 | -19% |
| 14 (12) | Dallas TX | 56 (44) | -11% | $953 | $3.1 B | 16 | -16% |
| 15 (16) | Baltimore MD | 55 (37) | -35% | $932 | $1.1 B | 12 | -14% |
| 16 (19) | San Diego CA | 54 (32) | -23% | $912 | $1.3 B | 19 | -17% |
| 17 (15) | Denver CO | 54 (40) | -14% | $912 | $1.2 B | 14 | -13% |
| 18 (21) | Austin TX | 53 (32) | -23% | $892 | $850 M | 17 | -15% |
| 19 (22) | Seattle WA | 46 (30) | -38% | $770 | $1.2 B | 17 | -11% |
| 20 (20) | Concord CA | 54 (40) | * | $912 | $53 M | 18 | -10% |
| 21 (17) | Providence RI | 42 (38) | -40% | $709 | $500 M | 14 | -13% |
| 22 (23) | Las Vegas NV | 41 (28) | 156% | $689 | $622 M | 19 | -10% |
| 23 (*) | San Juan PR | 41 (24) | -7% | $689 | * | 20 | -5% |
| 24 (54) | Nashville TN | 41 (16) | 14% | $689 | $600 M | 21 | -13% |
| 25 (24) | Sacramento CA | 36 (25) | -44% | $608 | $550 M | 17 | -11% |

## Top 25 Worst Corridors in the U.S.

Throughout the country, delay on the busiest corridors increased in 2022 along with congestion metro wide. I-95 through Stamford, Connecticut, took the number 1 and number 3 spots. Drivers on the 30-mile corridor on I-95 Southbound from Sherwood Island Connector to Indian Field Road lost an average of 34.5 minutes per day in lost time during the morning commute, only to see significant congestion on the return trip Northbound, losing nearly 30 minutes on that stretch of I-95.

I-5 Southbound in Los Angeles was number 2 on the top 25 list, where drivers lost an average of 31.8 minutes per day at the 5:00 PM rush hour. A driver taking that route 240 workdays in 2022 would have lost 127 hours a year sitting in traffic. Other notable corridors are I-93 Southbound through Downtown Boston to the Pilgrim Highway Interchange (99 hours lost annually) and Westbound Brooklyn Queens Expressway to Tillary Street in New York City (91 hours lost).

| Rank | Urban Area | Road Name | From | To | Peak Hour | 2022 Peak Minutes Lost | 2022 Hours Lost |
|---|---|---|---|---|---|---|---|
| 1 | Stamford, CT | I-95 SB | Sherwood Island Conn. | Indian Field Rd | 8:00 AM | 34.5 | 138 |
| 2 | Los Angeles, CA | I-5 SB | I-10 | I-605 | 5:00 PM | 31.8 | 127 |
| 3 | Stamford, CT | I-95 NB | Indian Field Rd | Sherwood Island Conn. | 4:00 PM | 29.6 | 118 |
| 4 | Boston, MA | I-93 SB | Exit 18/US-3 | Exit 7/MA-3 | 4:00 PM | 24.7 | 99 |
| 5 | New York City, NY | I-278 WB | I-495 | Tillary St | 4:00 PM | 22.6 | 91 |
| 6 | Concord, CA | CA-4 EB | Exit 12B for I-680 | Exit 15A-B for CA-242 | 4:00 PM | 20.7 | 83 |
| 7 | Stamford, CT | CT-15 NB | North St | Allen Raymond Lane | 4:00 PM | 19.5 | 78 |
| 8 | Stamford, CT | Merritt Pkwy SB | Wilton Rd | Stanwich Rd | 8:00 AM | 18.3 | 73 |
| 9 | Chicago, IL | I-55 SB | I-94 | S Central Ave | 4:00 PM | 17.9 | 72 |
| 10 | Orlando, FL | I-4 EB | Exit 72/FL-528 | Exit 60/FL-429 Toll | 5:00 PM | 17.4 | 70 |
| 11 | Baton Rouge, LA | I-10 EB | Bayou Rd | I-12 | 4:00 PM | 17.1 | 69 |
| 12 | New York City, NY | I-95 NB | I-678 | E 175th St | 4:00 PM | 17.0 | 68 |
| 13 | Dublin, CA | I-580 EB | Grove Way | Airway Blvd | 4:00 PM | 15.8 | 63 |
| 14 | Chicago, IL | I-90/I-94 EB | I-290 | I-57 | 4:00 PM | 15.6 | 62 |
| 15 | Norfolk, VA | I-664 NB | I-64 Exit 264 | Exit 9/VA-164 | 4:00 PM | 15.6 | 62 |
| 15 | Los Angeles, CA | CA-91 WB | I-15 Exits 96-96A | Exit 45/CA-71 | 7:00 AM | 15.5 | 62 |
| 17 | Tacoma, WA | WA-167 SB | 15th St SW | Valley Ave East | 4:00 PM | 14.5 | 58 |
| 17 | New York City, NY | Harlem River Dr NB | East 127th St | Trans-Manhattan Expy | 4:00 PM | 14.4 | 58 |
| 19 | Chicago, IL | I-290/IL-110 EB | Exit 17/US-45 | S Austin Blvd | 7:00 AM | 14.3 | 57 |
| 20 | Los Angeles, CA | I-405 NB | Wilshire Blvd | Sepulveda Blvd | 5:00 PM | 14.1 | 56 |
| 20 | Portland, OR | I-5 NB | I-405 | Lewis and Clark Hwy | 4:00 PM | 14.1 | 56 |
| 22 | San Francisco, CA | Caldecott Tunnel EB | Fish Ranch Rd | Pleasant Hill Rd | 4:00 PM | 14.0 | 56 |
| 23 | Concord, CA | CA-24 EB | Camino Pablo | I-680 | 4:00 PM | 13.3 | 53 |
| 24 | Orlando, FL | John Young Pkwy SB | Vine St | Pleasant Hill Rd | 5:00 PM | 13.0 | 52 |
| 25 | Los Angeles, CA | I-605 SB | Exit 19/CA-60 | Imperial Hwy | 4:00 PM | 12.9 | 51 |

# EUROPE ANALYSIS & RANKING

European cities place amongst the slowest globally due to the vast majority of their growth occurring prior to widespread adoption of the automobile. Dense cores, narrow roads and complex road networks make these cities ill-suited for car-based mobility. Last year's number one, London, and number two, Paris, took the top spots in the European ranking again this year, with drivers losing 156 and 138 hours in congestion, respectively.

Most urban areas in Europe were still significantly below pre-COVID levels in terms of traffic delay, with just 7 of the top 25 exceeding 2019's level of congestion. Of the 593 urban areas analyzed in Europe, 249, or 42%, have reached or exceeded their pre-COVID levels of traffic congestion, leaving 344 still below 2019 levels.

Yet London and Berlin, both capital cities, continue to sit above their pre-COVID level of delay, at +5% and +8%, respectively. 2019's number one-ranked Rome, Italy, drops a spot to number 5, seeing no increase in traffic congestion over last year. The UK hosted 6 urban areas in the Top 25, France had 4, and Italy and Poland each had 3.

| 2022 EU Rank (2021 EU Rank) | Urban Area | Country | 2022 Delay per Driver (hours) | Change from 2021 | Change from Pre-COVID | Downtown Speed (mph) | Change in Downtown Speed |
|---|---|---|---|---|---|---|---|
| 1 (1) | London | UK | 156 | 5% | 5% | 11 | -10% |
| 2 (2) | Paris | FRA | 138 | -1% | -16% | 11 | 0% |
| 3 (6) | Palermo | ITA | 121 | 11% | -12% | 9 | 0% |
| 5 (12) | Dublin | IRL | 114 | 28% | -26% | 13 | -8% |
| 6 (5) | Rome | ITA | 107 | 0% | -36% | 14 | -8% |
| 7 (7) | Istanbul | TUR | 89 | 1% | -42% | 14 | 0% |
| 8 (3) | Brussels | BEL | 98 | -27% | -30% | 10 | 0% |
| 9 (8) | Bucharest | ROM | 91 | -7% | 0% | 14 | 7% |
| 11 (9) | Lyon | FRA | 92 | -9% | -12% | 11 | -10% |
| 12 (11) | Budapest | HUN | 86 | -6% | -7% | 15 | 6% |
| 14 (32) | Bristol | UK | 91 | 38% | -12% | 16 | -14% |
| 15 (23) | Athens | GRC | 78 | 11% | -27% | 14 | 0% |
| 16 (13) | Turin | ITA | 86 | -7% | -30% | 12 | -9% |
| 17 (21) | Marseille | FRA | 83 | 6% | 2% | 12 | -9% |
| 18 (38) | Manchester | UK | 84 | 35% | -9% | 16 | -14% |
| 19 (18) | Wroclaw | POL | 80 | -4% | 4% | 15 | -7% |
| 20 (25) | Berlin | DEU | 71 | 9% | 8% | 14 | 0% |
| 21 (12) | München | DEU | 74 | -6% | -15% | 11 | 0% |
| 21 (105) | Galway | IRL | 94 | 84% | -12% | 15 | -15% |
| 23 (48) | Birmingham | UK | 73 | 38% | -9% | 18 | -13% |
| 24 (16) | Poznan | POL | 74 | -14% | 23% | 15 | 0% |
| 25 (40) | Nice | FRA | 71 | 18% | 1% | 14 | 0% |
| 23 (44) | Belfast | UK | 73 | 20% | -9% | 16 | -6% |
| 24 (23) | Warsaw | POL | 64 | 3% | -10% | 15 | 0% |
| 25 (47) | Nottingham | UK | 71 | 22% | -9% | 14 | -7% |

# The United Kingdom

All urban areas in the UK top 10 saw increases in traffic congestion and delays over last year, yet just London was above their 2019, pre-COVID level. Delay per driver in London increased just 5.4% over 2021, while the area experienced a greater recovery than most in the previous Scorecard. With those gains, London still sits atop the UK and the INRIX Global Traffic Scorecard with 156 hours lost per driver to delay, while Chicago in the US sits just below London at 155 hours of delay per driver.

## United Kingdom Findings

- Time Lost: 80 hours, up 7 hours from 2021
- Cost to Driver: £707, up £112 from 2021
- Cost to Country: £9.5 billion
- Fuel Costs: Up 25%
- Collisions: Up 11%

The cities of Cambridge, Exeter, and Cheltenham fell out of the top 10, while Edinburgh (7th), Leeds (9th) and Leicester (10th) joined the Top 10 in 2022. Traffic congestion overall increased, which could be in part due to light commercial vehicles (LCV) and heavy goods vehicles (HGV) on UK roads. Comparing each day in 2022 to its comparable pre-COVID day, LCV use was higher 95% of days, while HGV use was more on 88% of days.[xxvi]

The typical driver in the UK lost 80 hours due to traffic congestion last year, up 7 hours from last year but down 35 hours from 2019, costing drivers an average of £707 in lost time. That's in addition to the extra cost of fuel, which INRIX calculated on page 6. A driver commuting in London pays an extra £212 ($278 USD) this year for fuel, while the average driver in Birmingham pays about £182 ($238 USD) more this year to commute. The typical driver throughout the entire UK paid about £122 ($160 USD) more to commute.

Traffic congestion cost the UK £9.5 billion in 2021, with 60% of that cost attributed to London's congestion. Out of the 110 urban areas analyzed in the UK, 79 have met or exceeded their pre-COVID levels of delay.

| 2022 UK Rank (2021 Rank) | Urban Area | 2022 Delay (2021) | Compared to Pre-COVID | 2022 Cost per Driver | 2022 Cost per City | City Center Speed (mph) | Change in City Center Speed |
|---|---|---|---|---|---|---|---|
| 1 (1) | London | 156 (148) | 5% | £1,377 | £5.7 B | 10 | -9% |
| 2 (3) | Bristol | 91 (66) | -12% | £805 | £175 M | 14 | -13% |
| 3 (6) | Manchester | 84 (62) | -9% | £742 | £191 M | 14 | -13% |
| 4 (8) | Birmingham | 73 (53) | -9% | £646 | £346 M | 16 | -11% |
| 5 (7) | Belfast | 72 (60) | -36% | £636 | £102 M | 16 | -6% |
| 6 (9) | Nottingham | 71 (58) | -9% | £625 | £97 M | 14 | -7% |
| 7 (21) | Edinburgh | 67 (45) | -32% | £593 | £150 M | 16 | -6% |
| 8 (10) | Hull | 68 (56) | -9% | £604 | £74 M | 16 | 0% |
| 9 (13) | Leeds | 60 (50) | -9% | £530 | £196 M | 16 | -6% |
| 10 (12) | Leicester | 62 (53) | -15% | £551 | £92 M | 16 | -6% |

## Top 5 Worst Corridors in London

London holds most of the top corridors for traffic delays in the UK, with 4 out of the top 5. In general, delays on London's worst corridors increased over last year. In 2021, A503 East from Camden High Street to B152 St Ann's Road held the top spot at 42 hours lost annually. This year, A219, from Fulham Road to Morden Hall Road takes the top spot at 47 hours lost for those who take the corridor.

| Rank | Urban Area | Road Name | From | To | Peak Hour | 2022 Peak Minutes Lost | 2022 Hours Lost |
|---|---|---|---|---|---|---|---|
| 1 | London | A219 SB | Fulham Rd | Morden Hall Rd | 5:00 PM | 12 | 47 |
| 2 | London | A202 EB | Neathouse Pl | Peckham Hill St | 5:00 PM | 11 | 45 |
| 3 | London | A406 EB | Falloden Way | Bowes Rd | 4:00 PM | 11 | 42 |
| 4 | London | A24 SB | The Avenue | Merton High St | 4:00 PM | 10 | 38 |
| 5 | London | A205 EB | Norwood Rd | Ravensbourne Rd | 4:00 PM | 9 | 36 |

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

| Rank | Urban Area | Road Name | From | To | Peak Hour | 2022 Peak Minutes Lost | 2022 Hours Lost |
|---|---|---|---|---|---|---|---|
| 1 | Birmingham | A45 EB | Bordesley Circus | Henry Rd | 4:00 PM | 9 | 37 |
| 2 | Leeds | A6177 SB | Bolton Rd | Great Horton Rd | 4:00 PM | 8 | 34 |
| 3 | Birmingham | A435 SB | Haden Circus | Wynfield Gardens | 4:00 PM | 7 | 33 |
| 4 | Edinburgh | A902 WB | Great Junction St | Hillhouse Rd | 4:00 PM | 7 | 30 |
| 5 | Leeds | A65 SB | Park Road | White Horse Roundabout | 4:00 PM | 7 | 30 |
| 6 | Sheffield | A61 NB | Moore Street Roundabout | Bradfield Rd | 4:00 PM | 7 | 29 |
| 7 | Birmingham | A45 WB | Hobs Moat Rd | Bordesley Circus | 4:00 PM | 7 | 28 |
| 8 | Birmingham | A34 SB | Camp Hill Circus | Hamlet Rd | 5:00 PM | 7 | 28 |
| 9 | Bristol | A4174 NB | Hicks Gate Roundabout | Bromley Heath Roundabout | 5:00 PM | 7 | 28 |
| 10 | Edinburgh | A702 SB | Brougham St | City of Edinburgh Bypass | 4:00 PM | 7 | 27 |

# Germany

In 2022, Germany re-emerged toward its pre-COVID level of travel. Yet certain measures by the government lessened the burden on most travelers. During the summer, German officials passed the 2.5 billion € "Energy Cost Relief Package," which included fuel subsidies and a 9 € per month train ticket program, allowing regional and local travelers across the country unlimited travel for a subsidized fee.

The subsidized fuel price allowed drivers to travel without the large price increases seen in neighboring European countries. For example, a driver commuting in London paid about £212 ($278 USD) more for petrol in 2022 than in 2021, but a commuter in Berlin paid about 51 € ($57 USD) more.

## Germany Findings

- Time Lost: 40 hours, up 0 hours from 2021
- Cost to Driver: 399 €, up 28 € from 2021
- Cost to Country: 3.9 Billion €
- Fuel Costs: Up 5%
- Collisions: Up 5%

Berlin topped the list for Impact Rank in 2022 with 71 hours per driver lost, a 9% increase over 2021's 65 hours lost. Munich (74 hours lost) saw moderate decreases in congestion in 2022, falling from number 1 in 2021 to number 2 in 2022, largely due to above-average congestion in 2021 between late June and early September. In addition to Munich, Cologne and Nuremberg also saw reductions in delay per driver.

German drivers in total lost more than 325 million hours to traffic jams in 2022, costing 3.9 billion € in lost time. The typical German driver lost 40 hours in congestion, the same as 2021, yet lost 28 € more in the value of lost time due to inflation. Though average driver delay remained flat, delays were still down from their 2019-high of 46 hours lost per driver.

| 2022 Germany Rank (2021 Rank) | Urban Area | 2022 Delay (2021) | Compared to Pre-COVID | Cost per Driver | Cost per City | Downtown Speed (Last Mile, MPH) | Change in Downtown Speed |
|---|---|---|---|---|---|---|---|
| 1 (2) | Berlin | 71 (65) | 8% | 714 € | 963 M € | 14 | 0% |
| 2 (1) | München | 74 (79) | -15% | 746 € | 390 M € | 11 | 0% |
| 3 (4) | Hamburg | 56 (47) | 17% | 569 € | 372 M € | 15 | -6% |
| 4 (7) | Potsdam | 55 (46) | 57% | 556 € | 35 M € | 16 | 0% |
| 5 (10) | Leipzig | 46 (40) | 38% | 460 € | 92 M € | 16 | 0% |
| 6 (22) | Darmstadt | 47 (37) | 31% | 472 € | 27 M € | 16 | 0% |
| 7 (12) | Freiburg | 43 (40) | 23% | 435 € | 36 M € | 15 | 0% |
| 8 (5) | Köln | 38 (42) | -7% | 387 € | 148 M € | 17 | 0% |
| 9 (13) | Bremen | 40 (37) | 8% | 399 € | 79 M € | 16 | -6% |
| 10 | Nürnberg | 40 (41) | -5% | 399 € | 74 M € | 16 | 0% |

## Top 10 Worst Corridors in Germany

In Germany, worst corridors were mostly concentrated in Berlin, holding 3 spots in the top 10. Yet the most congested corridor was in Munich, where drivers on the B2R Northbound from Stettnerstraße to Plinganserstraße at 5:00 PM lost 51 hours last year if they commuted on that stretch of the B2R. Though Munich held just one spot in the top 10, Berlin's corridors ranked 5th, 6th, and 7th. Hamburg and Cologne urban areas held two spots on the top 10 (2nd and 8th & 3rd and 4th, respectively).

Corridors in Kiel, Hannover, Dusseldorf and Frankfurt, which made the top 10 in 2021, fell from the list in 2022, while Cologne and Hamburg joined.

The number of hours lost on Germany's worst corridors continued to increase. For example, in 2021 the B2R Mittlerer Ring from Petuelring to Heimeranplatz ranked the highest at 27 hours lost if a driver took that corridor every workday for the year. Yet in 2022, a driver on another corridor also located mostly on the Mittlerer Ring, would spend 51 hours if taken every day to work.

Additionally, the most congested morning commute route was in Berlin, on the A1/B5 Westbound from Myslowitzer Straße to Samariterstraße – the only morning commute listed in the top 10.

| Rank | Urban Area | Road Name | From | To | Peak Hour | 2022 Peak Minutes Lost | 2022 Hours Lost |
|---|---|---|---|---|---|---|---|
| 1 | München | B2R NB | Stettnerstraße | Plinganserstraße | 5:00 PM | 13 | 51 |
| 2 | Hamburg | A7 SB | HH-Volkspark | HH-Waltershof | 4:00 PM | 10 | 40 |
| 3 | Köln | A3 NB | Dreieck Köln-Heumar | Kreuz Leverkusen | 4:00 PM | 9 | 38 |
| 4 | Köln | AA59 SB | Dreieck Köln-Heumar | Exit Troisdorf | 4:00 PM | 9 | 37 |
| 5 | Berlin | A1/B5 WB | Myslowitzer Straße | Samariterstraße | 7:00 AM | 8 | 33 |
| 6 | Berlin | B96 NB | Roedernallee | Bieselheider Weg | 4:00 PM | 8 | 32 |
| 7 | Berlin | A100 EB | Hohenzollerndamm | A103 | 4:00 PM | 8 | 32 |
| 8 | Hamburg | Ring 2 SB | Schwalbenplatz | Sievekingsallee | 4:00 PM | 8 | 31 |
| 9 | Bonn | A565 NB | Rulandsweg | A555 | 4:00 PM | 8 | 30 |
| 10 | Wiesbaden | A3 NB | Mönchhof-Dreieck | Wiesbaden/ Niedernhausen | 4:00 PM | 8 | 30 |

# CONCLUSION & COMMENTARY

Just as most countries, states, cities, and towns completely lifted most mandates on social gatherings and events – and as companies opened their doors to employees – the economic fallout from a weakened supply chain, soaring energy and& oil prices, a war in Europe, and general inflationary pressure rippled through most of the western world. Yet despite those challenges, Vehicle-Miles Traveled, or amount people drive, largely stayed the same or even increased in certain urban areas and countries.

However, congestion has been generally increasing, as traffic patterns begin to look more like they did in 2019 than in 2021. The AM peak period continued to grow into the more traditional peak, as opposed to a gradual increase in traffic throughout the day.

Trips to Downtown have generally increased from 2021, yet downtown city centers continue to lag pre-COVID levels as office space vacancies continued to be stubbornly elevated and small businesses struggled with a lack of workers flooding office buildings.

In the US, urban areas like Chicago and Miami saw significantly increased traffic congestion over last year. In the UK, London continued its reign at the top of the Global Traffic Scorecard Impact Rank as the UK continues to see more light commercial vehicles and heavy goods vehicles than it did prior to the COVID-19 pandemic. In Germany, the energy package reduced the cost of travel in general, both on rail and for fuel, reducing the burden fuel prices and alternatives to driving place on the traveling public.

Energy markets are hard to predict. Large scale energy infrastructure projects can take decades to build and often face strong political opposition no matter the energy source. In lieu of that, governments generally looked toward reducing demand for energy, with varying degrees of success or failure. It's likely higher-than-normal oil prices continue through 2023. Additionally, Bloomberg Economics gives a 100% chance of a recession in the US within a year, which may put downward pressure on travel.

In the 2021 Global Traffic Scorecard, INRIX Research stated that it expects "growth in VMT, especially in the US, to remain low, with a gradual increase over the coming years." It largely expects the same for 2023, yet VMT may trend into negative territory should a recession strongly take hold.

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# 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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