UNDER EMBARGO UNTIL WEDNESDAY, FEBRUARY 15, 00:01 am CET

2023 TomTom Traffic Index

The cost of driving has reached new highs around the world

- The average cost of driving increased 27% for a typical petrol car in 2022 vs 2021
- London's city center was the slowest to drive through in 2022, with an average speed of 11 mph (9 mph during rush hour)
- Dubliners lost the most amount of time to rush hour traffic, with drivers spending a further 27 hours stuck in traffic compared to 2021*
- In Bogota, congestion during rush hour increased a petrol car's CO_2 emission by 41%
- **Get the full ranking and interactive report at tomtom.com/Traffic-Index**

Amsterdam, Netherlands, 15 February 2023 - TomTom (TOM2), the specialist in geolocation technologies, releases the 12th edition of its annual TomTom Traffic Index today, a report detailing traffic trends across 389 cities in 56 countries, throughout 2022. For the first time, TomTom has assessed traffic in each city and the cost of driving in terms of time, money as well as the environmental impact for a driven mile.

The rising cost of driving in 2022

Workers have increasingly been heading back to the office, with travel times seeing a rise across 62% of the cities (242 out of 389). With inflation spiking around the globe and the ongoing climate crisis, TomTom looked at the economic and environmental impact of the return to higher traffic levels. Interestingly, despite the rising costs of driving globally, it continues to be a major mode of transport in most cities.

2022 saw an increase in energy prices due to several factors (disrupted supply chains, bad weather, lower investments, etc.) – and the Russian invasion of Ukraine, which greatly exacerbated the situation. With congestion, fuel consumption increased as well. Consequence: drivers around the world spent 27% more on average to fill up their petrol tanks than in 2021, while those driving diesel cars shelled out 48% more in 2022 than the year before. With fuel prices hitting the roof, Hong Kong became the costliest city to drive in, with more than US$1000 ($1023) spent by a driver commuting every day at rush hour*.

In major European cities, driving an electric vehicle proved to be an effective way of keeping travel costs lower and consistent – even more when charging at fast-charging DC stations. Data shows that in a city like London, EV drivers charging at a slow-charging point saved nearly half of what they would spend driving a combustion engine vehicle that relies on petrol. Moreover, the costs of driving an EV are

* on average, for a 6-mile journey driven twice a day (morning and evening) at rush hour

significantly less volatile, as 2022 showed that prices of fuel can easily fluctuate within the course of a year, while electricity prices are less likely to change as frequently.

Ranking: The most expensive cities to drive

Average cost for 10,000 miles driven in 2022, in US dollars.

City center	Petrol car		Diesel car		EV car (fast charging)	EV car (slow charging)
	2022	YoY diff.	2022	YoY diff.	2022	2022
Hong-Kong	$3 395	+14%	$2 583	+22%	n/a	n/a
London	$3 063	+28%	$2 846	+33%	$2 506	$1 530
Athens	$2 841	+25%	$2 283	+36%	$1 944	$1 170
Oslo	$2 825	+33%	$2 503	+37%	$2 119	$1 152
Paris	$2 738	+16%	$2 528	+28%	$2 401	$1 398

London, the slowest city center to drive in

In 2022, London (city center) emerged as the slowest city to drive in: on average, Londoners needed 35 minutes to drive 6 miles (11 mph). During rush hour, the average speed in London's city center was only 9 mph.

Ranking: Top 5 slowest cities to drive in

Average travel time for a 6-mile trip in 2022, in minutes/seconds.

City center	2022	2021
London	35:05	33:18
Bengaluru	28:09	27:31
Dublin	27:31	25:54
Sapporo	26:43	25:54
Milan	26:33	26:52

City (Metro. area)	2022	2021
Bogota	23:49	22:03
Manila	23:39	22:22
Sapporo	23:29	23:01
Lima	23:01	21:43
Bengaluru	22:51	21:14

New working patterns have little impact on the time and money lost in traffic

With the widespread adoption of flexible working arrangements, many workers now have the option to work remotely, adopt a hybrid work schedule or even work flexible hours. With fewer commuters driving to and from work during rush hour each day, one would expect that people spent less time and money stuck in rush-hour traffic. Surprisingly though, the time people lost in global cities to rush-hour traffic only increased over the past year, with as much as 140 hours lost to traffic in Dublin*. By teleworking one day a week, a commuter in Dublin would save 56 hours of their time*.

Ranking: Top 5 cities where traffic alone accounts for time lost

Average time lost in 2022 for a 6-mile daily round trip (=12 miles in total) driven at rush hour, in hours.

City center	2022	2021
Dublin	140 hrs	112 hrs
Bucharest	138 hrs	132 hrs
London	134 hrs	120 hrs
Bengaluru	129 hrs	125 hrs
Mexico-city	127 hrs	98 hrs

City (Metropolitan area)	2022	2021
Bogota	127 hrs	94 hrs
Bucharest	102 hrs	98 hrs
Manila	99 hrs	93 hrs
Bengaluru	98 hrs	81 hrs
Lima	97 hrs	82 hrs

* on average, for a 6-mile journey driven twice a day (morning and evening) at rush hour

The cost of traffic jams on the driver's wallet is also quite significant. In Paris, driving a petrol-powered car during rush hour increases the cost of driving by 40%, compared to driving during optimal times (when traffic is at its lowest). By teleworking one day a week, a Parisian driver would save US$170*.

The traffic index also allows us to determine the impact in CO_2 emissions when we drive during rush hour. For example, a Londoner who uses their petrol car every day to go to work emits 1.1t (2412 lbs) of CO_2 per year*. By working from home one day a week, that would be 219 kg (482 lbs) fewer emissions.

Ranking: Cities with the highest CO2 emissions per driven mile at rush hour

Average annual CO_2 emissions based on a 6-mile round trip (=12 miles total) driven daily at rush hour, in kg of CO_2.

City center	**Petrol car** *At rush hour*
London	1094 kg / 2412 lbs
Paris	1054 kg / 2324 lbs
Manila	1011 kg / 2229 lbs
Bucharest	996 kg / 2196 lbs
Bengaluru	974 kg / 2148 lbs

City center	**Diesel car** *At rush hour*
London	1030 kg / 2271 lbs
Paris	1021 kg / 2251 lbs
Nice	977 kg / 2153 lbs
Ankara	976 kg / 2151 lbs
Manila	963 kg / 2122 lbs

2023 TomTom Traffic Index: New year, new methodology

For this edition of its Traffic Index, TomTom has modified its approach to calculating the costs of driving. This year, we're assessing the time per mile driven, and simulating how long it takes to complete a 6-mile journey within a city. For the first time, we also worked on 2 analysis zones: the metropolitan area of each city (varying according to the size of the agglomeration), and the city center which corresponds for all cities to the complete road network within a radius of 5 kilometers (ab. 3 miles) around the center.

This methodology gives TomTom a deeper insight into traffic that more closely represents real-world driving conditions. It also allows for a more accurate comparison of driving conditions between cities, as the new method also identifies cities where the infrastructure (ratio of express lanes, traffic lights, speed limits, etc.) supports a faster or slower base speed. This new method quantifies the time and money drivers lose to road traffic, serving as a foundation for them to reconsider their travel behavior and make informed choices that benefit them as well as the environment.

Find out more about the TomTom Traffic Index and discover how your home city fared in 2022 at www.tomtom.com/Traffic-Index

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Notes to Editors

About the TomTom Traffic Index
Urban mobility is a key contributor to issues such as climate change, health and economic development and the TomTom Traffic Index has become the barometer of mobility patterns around the world. TomTom's traffic data, which is powered by 600 million connected devices, is an authoritative indicator of how people move, economic activity levels, global trade and much more. For years, TomTom's Traffic Index has been used by analysts, corporations and the media to explain a world in flux.
Which data does TomTom use for the Traffic Index?

* on average, for a 6-mile journey driven twice a day (morning and evening) at rush hour

We source our traffic flow data from over 600 million devices, such as in-dash car navigation (7 out of 10 connected in-dash navigation systems in passenger cars currently sold in Europe are powered with TomTom Traffic), smartphones, personal navigation devices and telematics systems. Each day, TomTom collects from these sources over 61 billion anonymous GPS data points around the world, covering a total distance of 3.5 billion kilometers driven. This real-time data is archived and accessible as historical data right away. Based on this historical data, TomTom can assess speed profiles and traffic patterns for each time of the day and each day of the week. 58 billion driving hours have been accumulated in TomTom's historical traffic data over the past decade.

2023 TomTom Traffic Index: new methodology

For this edition of its Traffic Index, TomTom has modified its approach to calculating the cost of driving. Previously, our data scientists calculated congestion (= time lost in traffic) by measuring the additional time required to complete a trip compared to how long that same trip would take in free-flowing traffic – the given congestion levels were the ratio between driven times vs. base times.

This year, we're assessing the time, cost and CO_2 emission per mile driven, and simulating how long it takes to complete a 10-km (or 6-mile) trip within a city, for typical EV, petrol and diesel cars. For the first time, we also worked on 2 analysis zones: the metropolitan area of each city (varying according to the size of the agglomeration), and the urban ultra-center (within a radius of 5 km around the ultra-center).

Costs of driving

TomTom defines the cost of driving as the amount of time, fuel and CO_2 used per km or per mile. The cost of driving is the difference between the figures in optimal traffic conditions and the actual average figures, considering the extra amount of average time spent on the road. TomTom collects real-time fuel prices for thousands of stations around the world. To assess fuel costs, TomTom data is based on country-averaged daily pricing over 2022.

Emissions Methodology

Emission from traffic is directly proportional to a vehicle's energy consumption. To raise those consumption models, TomTom used the PHEM (Passenger car and Heavy-duty Emission Model) simulation tool developed by the Graz University of Technology (TU Graz). PHEM calculates the energy required to perform any observed driving maneuvers (speeds, accelerations) from TomTom data for different road profiles, and estimates the resulting emissions, based on the vehicle efficiency, vehicle and energy type (petrol, diesel or electric), as well as speeds.

The TomTom Traffic Index report is available online

At tomtom.com/Traffic-Index, anyone can discover where their city ranked in 2022, how travel times changed year on year, and how much their driving habits cost. Drivers can see the most congested days and even most congested hours of the day – and figure out the best times for them to commute.

About TomTom:

Billions of data points. Millions of sources. Hundreds of communities. We are the mapmaker bringing it all together to build the world's smartest map. We provide location data and technology to drivers, carmakers, businesses, and developers. Our application-ready maps, routing, real-time traffic, APIs and SDKs enable the dreamers and doers to shape the future of mobility.

Headquartered in Amsterdam with 4,000 employees around the globe, TomTom has been helping people find their way in the world for over 30 years.

www.tomtom.com

For further information:

Media Relations

mediarelations@tomtom.com

Investor Relations

ir@tomtom.com

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