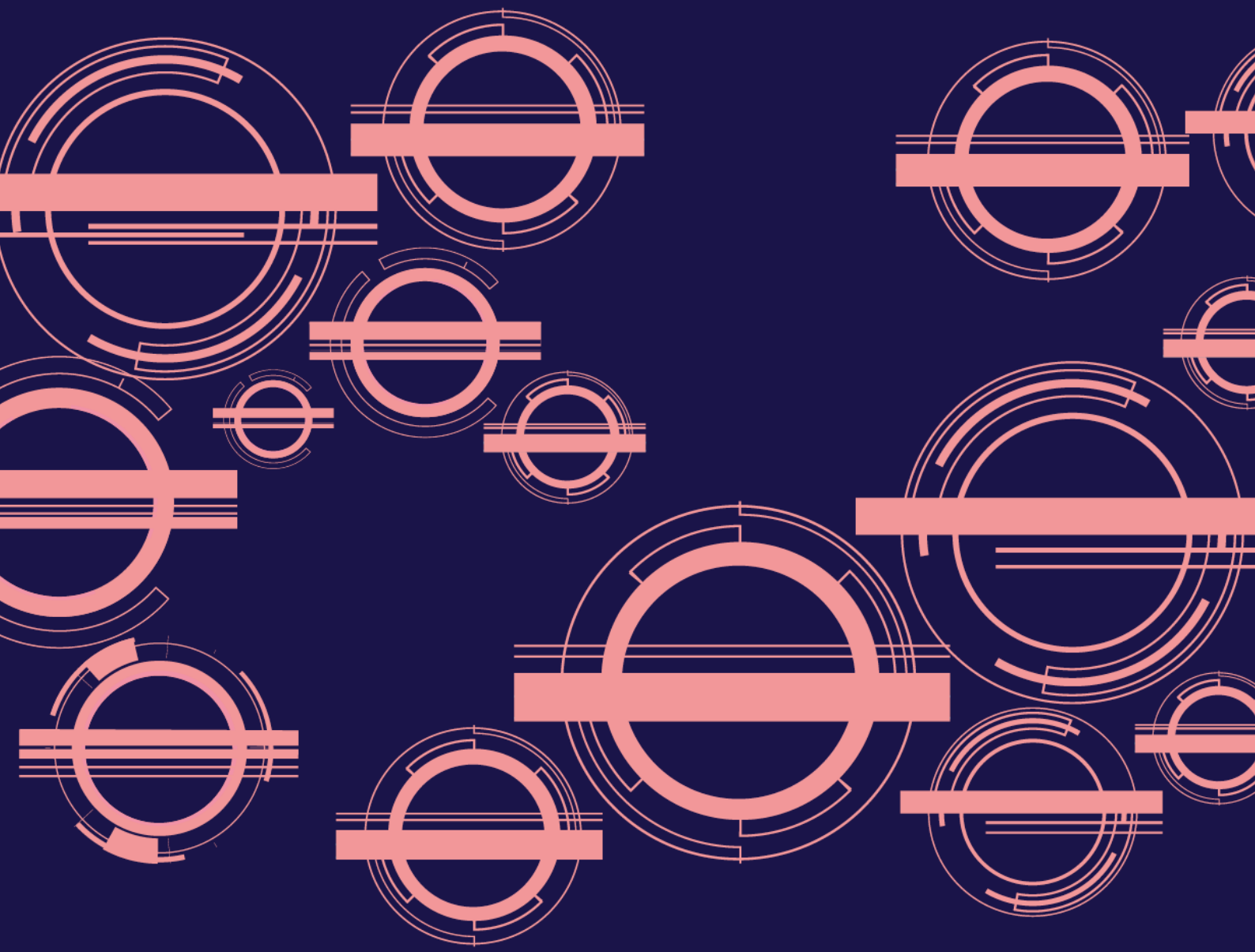
December 2024



Travel in London 2024

Focus report: Motorcycle travel trends

MAYOR OF LONDON

TRANSPORT FOR LONDON

EVERY JOURNEY MATTERS

Travel in London 2024

Focus report: Motorcycle travel trends

Table of contents

Introduction

This report provides a summary of recent travel demand trends for motorcycles in London based in part on data from the London Travel Demand Survey (LTDS). This covers London residents only and their personal travel, including commuting to or from work but excluding trips in the course of work (eg delivery rounds). Data from traffic flow surveys gives a perspective on all motorcycle travel as part of general traffic. The report also looks at trends in motorcycle casualties using verified STATS19 collision data, which covers all motorcycle journeys.

An information gap thus currently exists in relation to travel demand trends for work-based motorcycle journeys, for example motorcycle deliveries, which are included in the motorcycles casualty records but are not included in the LTDS.

The definition of a motorcycle, as stated in the Road Traffic Act 1988, is a mechanically propelled vehicle, not being an invalid carriage, with less than four wheels and the weight of which unladen does not exceed 410kg. This is the strictest definition and will encompass any variations in terms of size, use or composition.

For clarity, this report uses the following expanded definitions in the relevant sections:

- The LTDS and road traffic statistic sections use the Department for Transport definition of 'motorcycles' as including all motorcycles, scooters, mopeds and all motorcycles or scooter combinations.
- The road traffic casualty section uses the Department for Transport definition for the purpose of reported road casualties, where motorcycles are 'two-wheeled motor vehicles, including mopeds, motor scooters and motorcycle combinations'.

The key findings from this report are:

- Motorcycles are used extensively in London for journeys in the course of work, including in the gig economy. We do not currently have data on the number or length of these trips, or the characteristics of the people using them.
- Motorcycles, when used for personal journeys (including commuting to and from work), account for around 0.3 per cent of the trip-based mode share for all personal travel made by residents in London; and about three per cent of the total motorised vehicle flow (which includes trips made in the course of work, for example deliveries). These proportions have varied little over recent years except for the specific impacts of the coronavirus pandemic.
- Motorcycle use for personal journeys is relatively more prevalent on middle-distance trips (2-20km), with a relative shortfall in use (compared to other road modes) for shorter-distance trips (under 2km).
- The latest strategic cordon traffic count data shows a reduction in daily motorcycle flows (all journeys) across the central London cordon (of 12 percentage points between 2019 and 2022), an increase across the inner London cordon (of around 20 percentage points between 2019 and 2022) and an increase across the London boundary cordon (of around 12 percentage points between 2019 and 2023). This follows years of sustained decrease leading up to the coronavirus pandemic.
- Motorcycles (all journeys) remain the mode of travel with the highest risk of injury on London's roads, accounting for only three per cent of the motorised vehicle flow but 25 per cent of all killed or seriously injured casualties. We do not have an accurate

breakdown of how many of these casualties occurred during personal travel or in the course of work.

- The location of motorcycle collisions suggests that roads with higher speed limits represent a greater risk of collisions resulting in fatalities, although it is likely that this is at least partly correlated to the relatively higher traffic volumes on roads with higher speed limits.
- More than half of the motorcycles involved in a collision were travelling 'straight ahead', indicating that these collisions most likely occurred due to vehicles turning across or stopping in the motorcycles' path of travel. Historically, vehicles making right turns have been a common causal factor in road traffic collisions, particularly resulting in motorcycle casualties.
- Motorcycles are also disproportionally involved in collisions that kill or seriously injure other road users. In the most recent five-year period (2018-2022) almost two-thirds of casualties resulting from motorcycle-involved collisions were pedestrians.

We are working in partnership with the Metropolitan Police, the London boroughs and businesses/industry to reduce the risk of collisions to motorcycle riders and all other road users. This includes offering free motorcycle training beyond compulsory basic training and working with various organisations to encourage the Government to strengthen compulsory basic training for motorcyclists. We are also working with the industry to improve minimum standards for people riding in the course of work.

For more information about any of the items featured in this report please contact TiLEnquiries@tfl.gov.uk.

Motorcycle demand for personal travel by London residents

The LTDS allows an examination of motorcycle demand trends for London residents, for **personal travel only** (including commuting to and from work). It does not cover motorcycle use for journeys in the course of work, for example courier deliveries. Therefore, the LTDS-based trends shown underestimate the prevalence of motorcycles in traffic. Data from our general traffic surveys is also examined later to provide a better understanding of these trends.

Except for the two pandemic-affected years (2020/21 and 2021/22), the LTDS provides a continuous and consistent source of trend data over time. It also allows the exploration of the relationship between motorcycle use and some sociodemographic characteristics, recognising again that this covers personal travel only.

Trip rate, total trips and mode shares

Overall, London residents aged 17 years or over made an average of 0.008 motorcycle trips on a typical day. This corresponds to a total of 53,174 trips on an average day for all London residents and around 0.3 per cent of all trips (table 1).

Table 1 Estimated daily trips and trip-based mode share of London residents' personal travel, by main mode of transport, LTDS, 2018/19-2022/23 three-year average (excludes 2020/21 and 2021/22).

Mode of transport	Estimated daily trips	Mode share
Walk	6,407,661	35.8%
Car/van driver	3,813,022	21.3%
Bus/coach	2,276,016	12.7%
Car/van passenger	1,951,357	10.9%
London Underground/DLR	1,619,436	9.0%
London Overground/National Rail	1,054,502	5.9%
Cycle	490,001	2.7%
Taxi/Private hire vehicle	240,811	1.3%
Motorcycle	**53,174**	**0.3%**
Other	8,652	0.05%
Total	**17,914,631**	

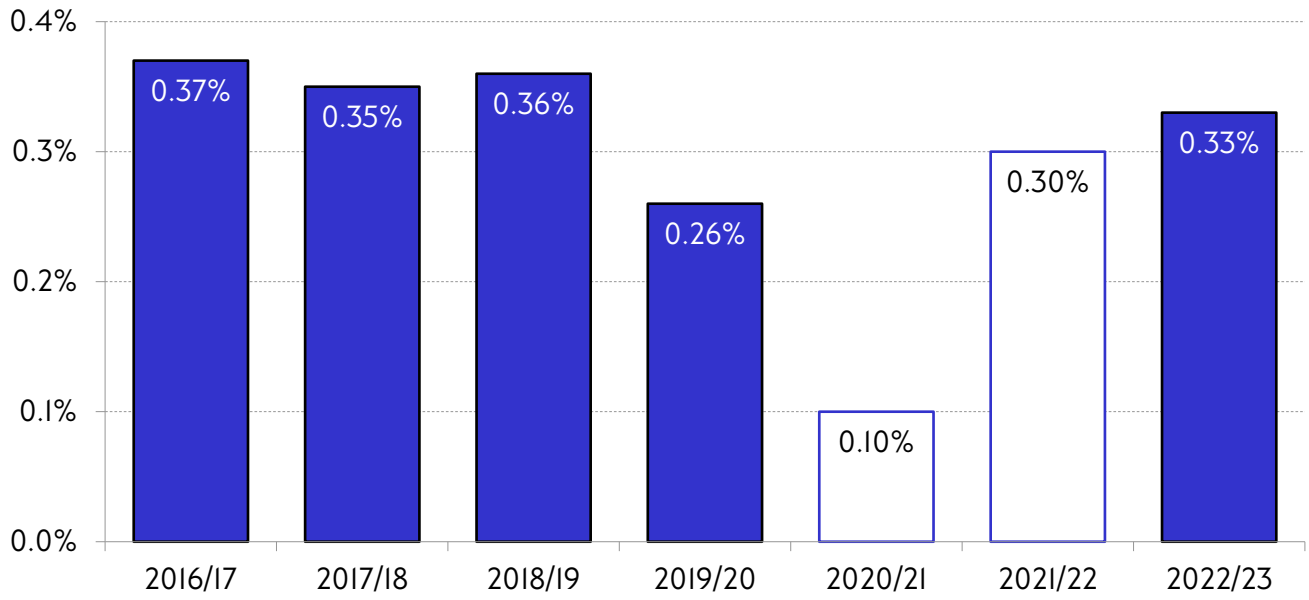
Source: TfL Strategic Analysis, Customer & Strategy.
Note: These modal totals and mode share are estimates for London residents only from LTDS and are used for the purpose of comparability. They differ from 'top level' modal and mode share estimates derived directly from 'on network' surveys, as described in other Travel in London reports.

Note that to provide robust estimates for motorcycles, an average based on the most recent three years of complete LTDS data (2018/19, 2019/20 and 2022/23, excluding the pandemic-affected years) has been taken.

Figure 1 shows the trend in motorcycle mode share in recent years. Note that the data for the two pandemic-affected years is not directly comparable with the other data.

The general stability of mode share within a narrow band suggests that motorcycle use is relatively consistent from year to year among a relatively small pool of users.

Figure 1 Motorcycle trip-based mode share of London residents' personal travel, LTDS, 2016/17-2022/23.



Source: TfL Strategic Analysis, Customer & Strategy.
Note: Comparable data is missing for 2020/21 and 2021/22 due to the impacts of the coronavirus pandemic.

Sociodemographic profile of motorcycle users

This section is based on the 2018/19-2022/23 three-year average of LTDS data, excluding the pandemic years 2020/21 and 2021/22, for which no comparable data exists.

Gender

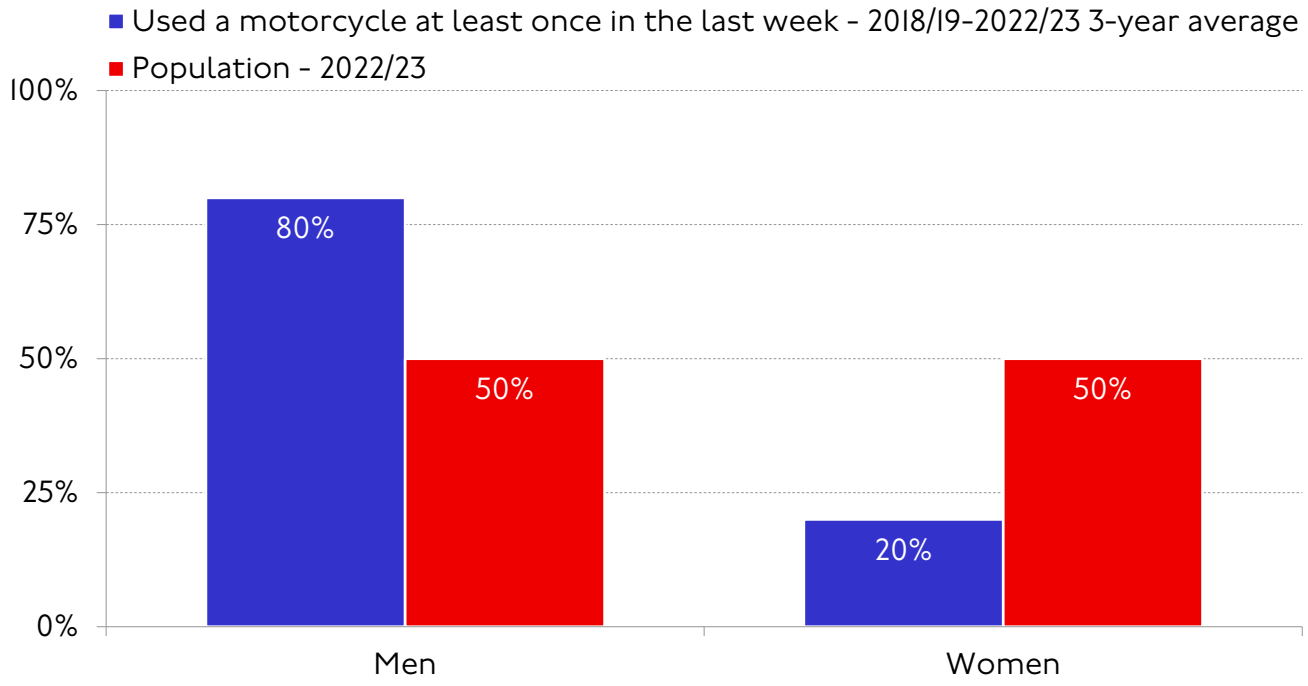
Figure 2 shows that men made up 80 per cent of all London residents who used a motorcycle at least once a week for personal travel, well above their share in the general population (50 per cent).

Age

In terms of age, figure 3 shows that the highest proportion of motorcycle users for personal travel (46 per cent) were aged 25-44, followed by those aged 45-64 (39 per cent), broadly in line with London's working age population. Interestingly, the proportion of users aged 45-64 was relatively higher than the general population (23 per cent), perhaps a reflection that this group may have more riding experience and greater financial freedom. Conversely, the proportion of London residents aged 65 and over who use motorcycles was lower than the general population, with that of young adults (17-24) in

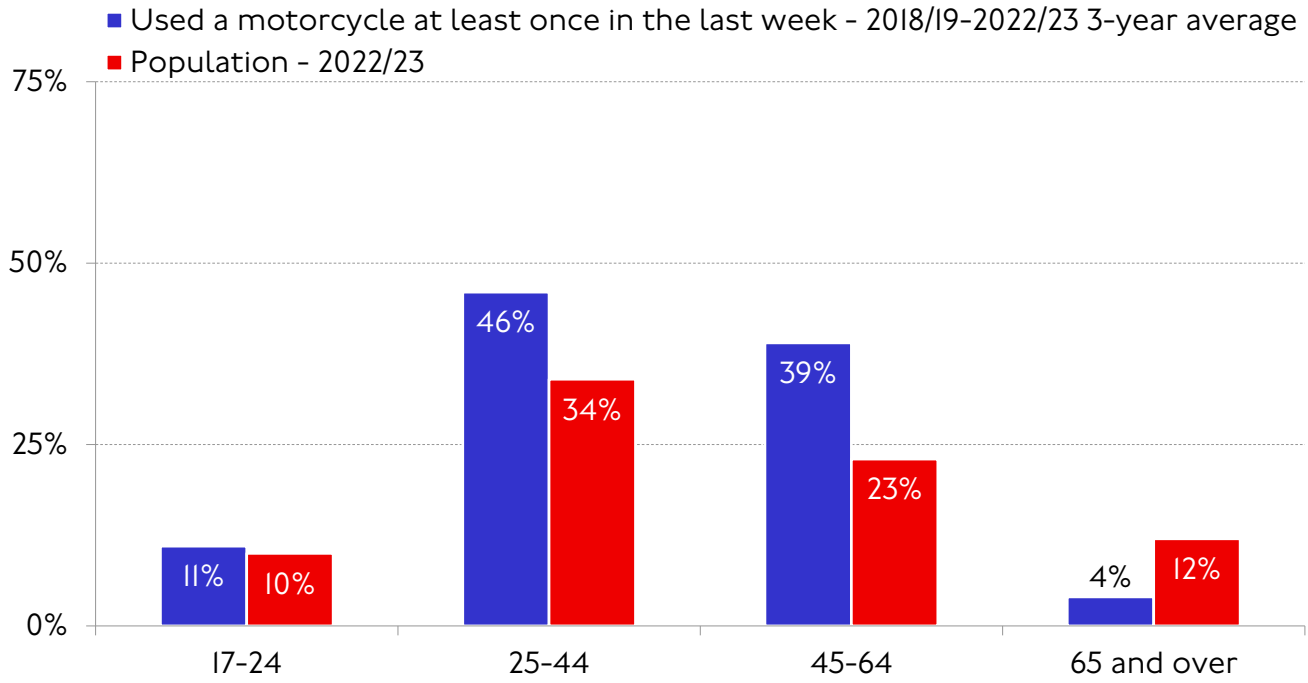
line with London's population. This may be due to individual riding experience, physical ability or the availability of travel concessions on public transport alternatives (16+ Zip Oyster photocards, Freedom Passes, etc.).

Figure 2 Gender of London residents who used a motorcycle at least once in the last week for personal travel in the 2018/19-2022/23 three-year average versus general population in 2022/23, LTDS.



Source: TfL Strategic Analysis, Customer & Strategy.

Figure 3 Age of London residents who used a motorcycle at least once in the last week for personal travel in the 2018/19-2022/23 three-year average versus general population in 2022/23, LTDS.



Source: TfL Strategic Analysis, Customer & Strategy.

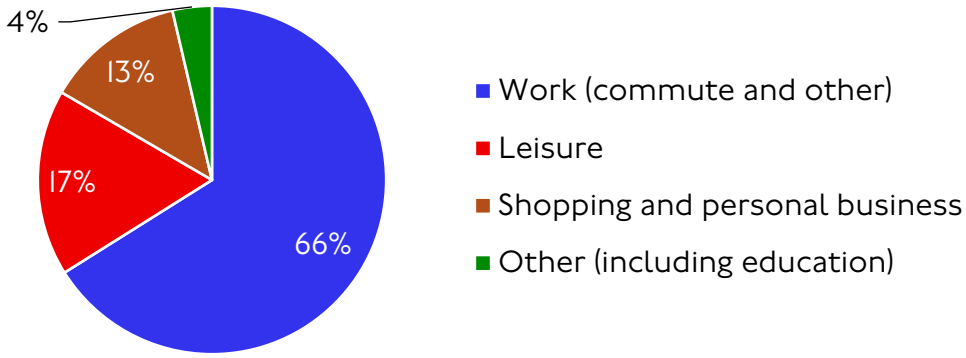
Journey purpose of motorcycle trips

Motorcycles are used extensively in London for journeys in the course of work, including in the gig economy. However, we do not currently have data on the number or length of these trips, or the characteristics of the people using them.

Figure 4 shows LTDS data (personal travel by London residents only) where on average two-thirds (66 per cent) of motorcycle trips were for commuting to and from work or for work-related personal journeys (such as attending meetings off-site).

The second most frequent trip purpose was leisure (17 per cent), perhaps reflecting a portion of journeys made for pleasure that take advantage of the ability to travel to locations not well serviced by other travel modes which the motorcycle enables.

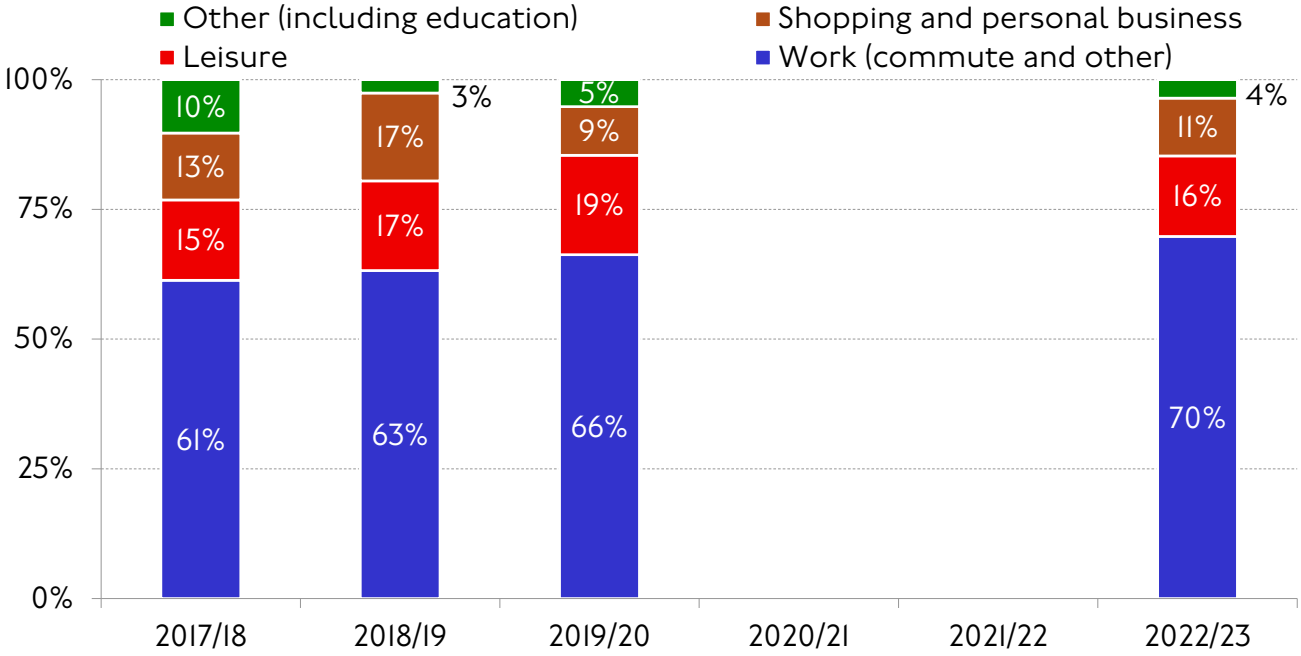
Figure 4 Proportion of motorcycle trips for personal travel by London residents, by journey purpose, LTDS, 2018/19-2022/23 three-year average.



Source: TfL Strategic Analysis, Customer & Strategy.

Figure 5 shows these same journey purpose shares over time.

Figure 5 Proportion of motorcycle trips for personal travel by London residents, by journey purpose, LTDS, 2017/18-2022/23.



Source: TfL Strategic Analysis, Customer & Strategy.
Note: Comparable data is missing for 2020/21 and 2021/22 due to the impacts of the coronavirus pandemic.

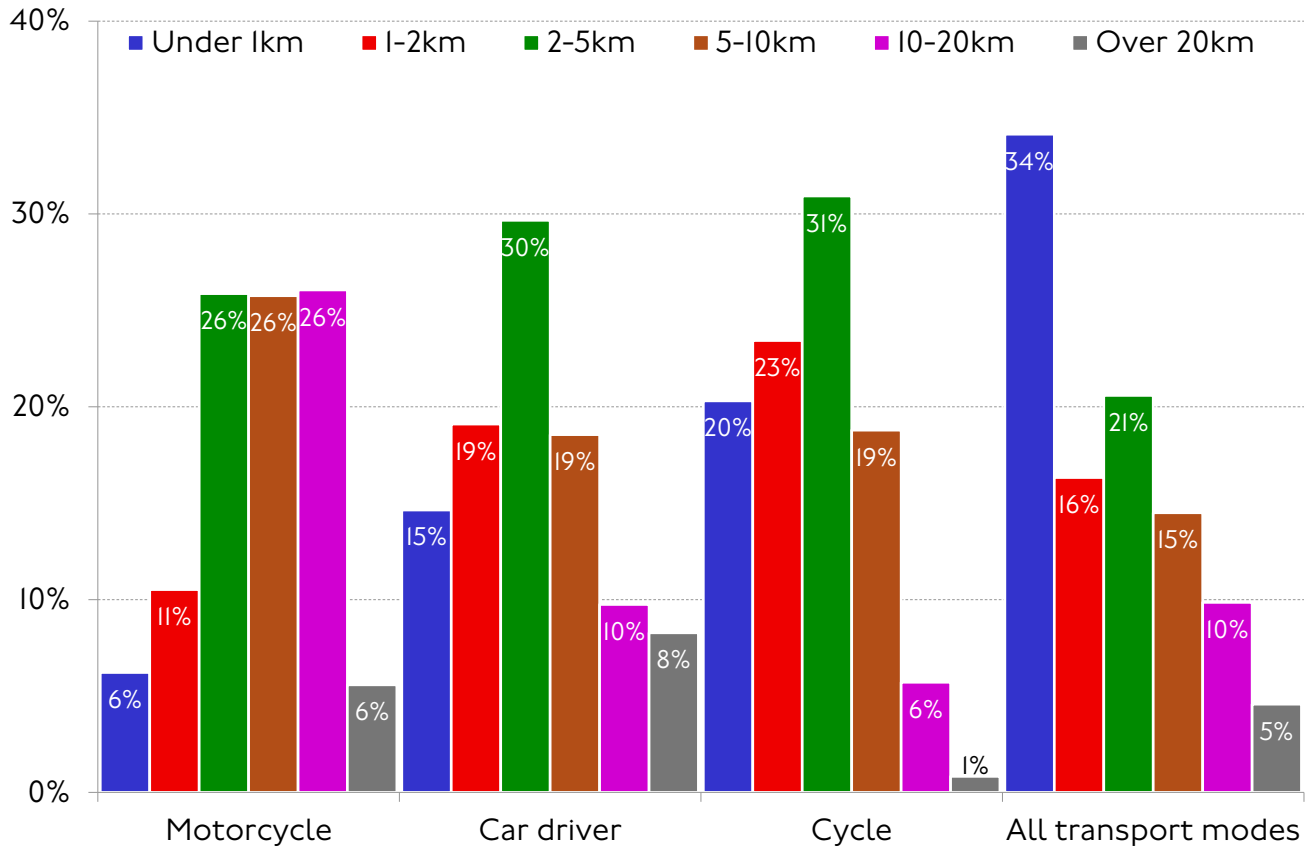
The proportion of work-related trip purposes has increased over time, from between 61 and 66 per cent in the years before the coronavirus pandemic to 70 per cent in 2022/23. Leisure trips also increased in relative terms before the pandemic, but the share dropped slightly in 2022/23. The other purpose shares have fluctuated in different ways.

Journey length of motorcycle trips

Figure 6 shows the relative distribution of trip lengths of personal travel journeys by London residents for different transport modes.

Motorcycle use for personal journeys was relatively more prevalent for middle-distance trips (2-20km), with a relative shortfall in use for shorter distance trips (under 2km) compared to other modes. However, this is in the context of small proportions of motorcycle trips overall (0.3 per cent of all daily trips by London residents). For example, motorcycle trips between 10km and 20km (the most frequent trip length in relative terms) represent only one per cent of all trips by all modes within that length, and in the other categories motorcycle trips made up less than 0.5 per cent of the total trips of that length. Note that this does not include motorcycle journeys in the course of work, for which we do not have data and for which different trip distributions may apply.

Figure 6 Trip length distribution of personal travel journeys, by main mode of trip, LTDS, 2018/19-2022/23 three-year average.



Source: TfL Strategic Analysis, Customer & Strategy.

Comparisons at the national level

Unless otherwise stated, the following findings are based on the National Travel Survey (NTS) for England only, using a three-year average of the 2018, 2019 and 2022 surveys. This data source also covers personal journeys only.

Trip rate, total trips and mode share

Nationally, motorcycle use has a similar breakdown to that seen in London. Across the three-year period analysed, residents in England made an average of 0.006 motorcycle trips on a typical day, which is equivalent to a total of 314,110 trips per day and 0.2 per cent of all trips.

Journey purpose of motorcycle trips

Almost two-thirds (61 per cent) of motorcycle trips in England were for commuting purposes, with 22 per cent for leisure (including visiting friends at home and elsewhere, entertainment, sport, holiday and day trips). This aligns with the purpose shares of motorcycle travel seen in London.

Journey length of motorcycle trips

The average length of motorcycle trips in England was 16.6km, within the same range as seen in London. Although this was greater than the average trip length of other modes, this is in the context of motorcycles making up only 0.2 per cent of all trips.

Sociodemographic profile of motorcycle users

In terms of gender, men accounted for 94 per cent of all motorcycle trips in England, a much higher proportion than the general population (49 per cent).

Similar to the age breakdown of motorcycle users in London, across England those aged 21-49 accounted for 43 per cent of trips and those aged 50-69 for 36 per cent of trips.

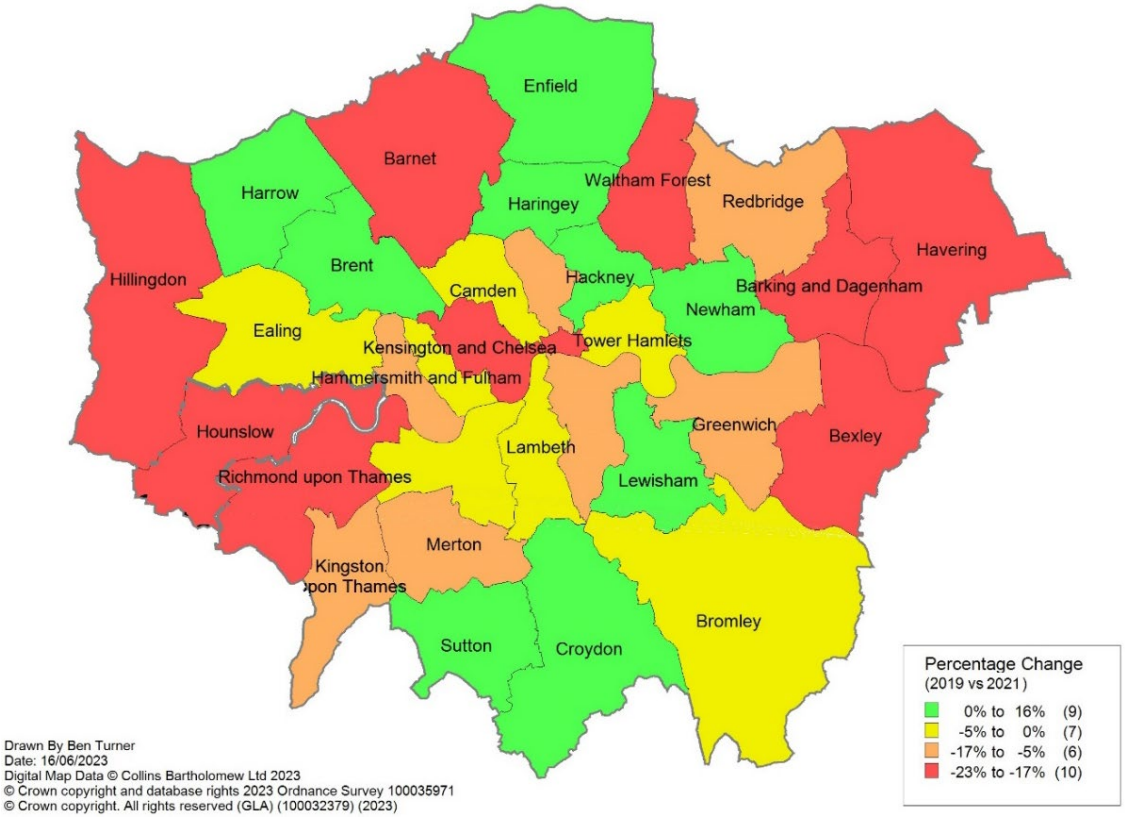
Motorcycle trends in the general traffic

Data from the Department for Transport suggests that there were 1.1 billion kilometres travelled by motorcycle in London in 2022 (3.6 per cent of all kilometres travelled by motorised vehicles), up from around 0.8 billion in 2019 before the pandemic, a level around which this volume had been fluctuating since 2000.

According to data from the Department for Transport for the whole of Great Britain, the total kilometres travelled by motorcycle (all journeys) in Great Britain has fluctuated within a relatively narrow band since the year 2000, with slightly higher volumes in the first decade of the millennium and slightly lower volumes in the second decade. As of 2022, there were an estimated 4.6 billion kilometres travelled annually by motorcycle in Great Britain, the same level as in 2000, which represented a 0.9 per cent mode share based on kilometres travelled.

Figure 7 shows the change between 2019 and 2021 (the latest year available) in estimated kilometres travelled by motorcycle in each London borough. The absolute values for 2019, 2020 and 2021 are provided in the data workbook associated with this report. Within the overall context of pandemic restrictions still affecting the 2021 data, the broad pattern of change over this period was of relative increases in motorcycle volumes in inner London and decreases in outer London.

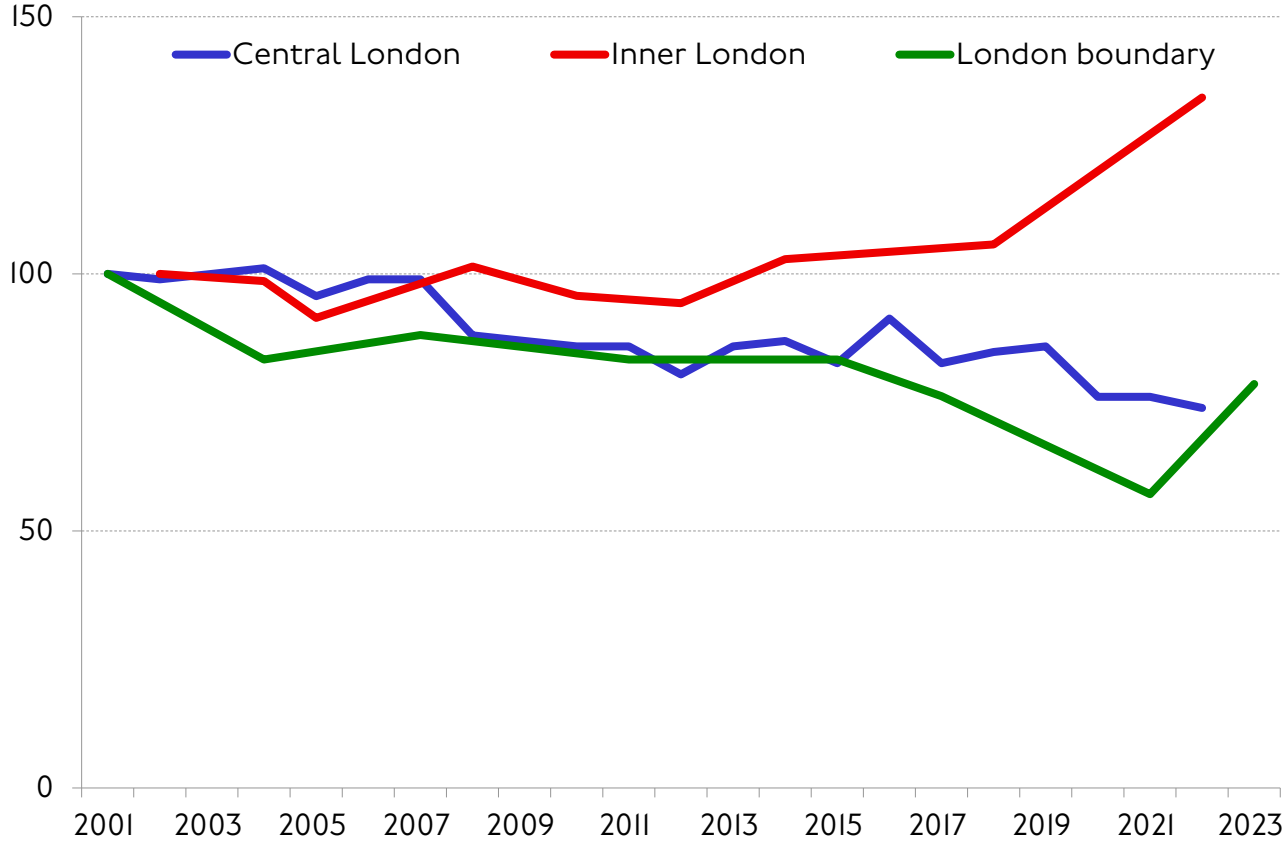
Figure 7 Change (between 2019 and 2021) in annual kilometres travelled by motorcycle, by London borough.



Source: TfL Strategic Analysis, Customer & Strategy, based on Department for Transport traffic data.

Another good indicator of change in the traffic volume of motorcycles is provided by the trends in the number of motorcycles crossing each of the three London strategic counting cordons (figure 8).

Figure 8 Change (index: 2001 = 100) in daily motorcycle flows crossing the strategic cordons, 2001-2023.



Source: TfL Strategic Analysis, Customer & Strategy, based on TfL traffic data.
Note: The inner and outer cordon counts take place every other year in alternate years, with intermediate values interpolated. Due to the coronavirus pandemic there were no inner cordon counts in 2020 or 2021 (interpolated from 2018 and 2022) and no outer cordon counts in 2020 (interpolated from 2019 and 2021).

The latest data shows a reduction in daily motorcycle flows across the central London cordon (of 12 percentage points between 2019 and 2022), an increase across the inner London cordon (of around 20 percentage points between 2019 and 2022) and an increase across the London boundary cordon (of around 12 percentage points between 2019 and 2023) after years of sustained decrease before the pandemic.

Indicative mode share differences across the three cordons can also be calculated from this data, although proportions are small compared to other vehicle modes. In 2022, approximately eight per cent of the vehicles crossing the central London cordon were motorcycles, compared with five per cent across the inner London cordon and one per cent (in 2023) travelling across the London boundary cordon.

Motorcycle-related road casualties

This section provides a summary of personal injury road traffic casualties involving motorcycles in London in 2022, as reported to the police using STATS19 data, as well as further analysis for the 2018-2022 five-year period. In contrast to the above LTDS and NTS data, this section looks at casualties from all motorcycle trips, including those made in the course of work.

In this report, casualties resulting in slight injuries have not been included to focus on killed or seriously injured casualties. Therefore, in this report 'motorcycle casualties' refers to those killed or injured while riding a motorcycle and 'motorcycle-involved casualties' refers to all casualties of collisions involving motorcycles (including, for example, pedestrians).

Motorcycles remain the mode of travel with the highest risk of injury on London's roads, accounting for 25 per cent of all killed or seriously injured casualties but only three per cent of the total motorised vehicle flows.

Motorcycles are also disproportionately involved in collisions that kill or seriously injure other road users, particularly pedestrians. In the 2018-2022 period, motorcycles killed or seriously injured 736 pedestrians, 13 per cent of all pedestrians killed or seriously injured (5,778). Over the same period (2018-2022) and looking at all killed or seriously injured casualties (18,580), motorcycles killed or seriously injured 1,174 people (six per cent of those killed or seriously injured). This is in the context of motorcycles representing only three per cent of the total motorised vehicle flows.

Caveats and limitations of the STATS19 data

The statistics provided in this section include Metropolitan Police Service-reported, City of London Police-reported and self-reported road casualties. All data up to 2022 has been processed by TfL and is considered finalised. For more information, email collisiondata@tfl.gov.uk.

The description of how the collision occurred and the contributory factors are the reporting officer's opinion at the time of reporting and may not be the result of extensive investigation. Note also that self-reported collisions (introduced in September 2016) may have limited information about the circumstances of the collision.

In November 2016 the Metropolitan Police Service changed the way it records collision information to a system called COPA (Case Overview Preparation Application) and provided an online self-reporting system. This changed the way that injury severity is categorised, from the officer's subjective decision to an automatic assignment based on the casualty injury. The impact of this change to 'injury-based reporting' was to almost double the number of serious casualties reported (these would have previously been categorised as slight).

Therefore, data after November 2016 cannot be directly compared with pre-COPA data before November 2016. Some work to back-cast the data for comparison purposes has been undertaken and can be made available upon request.

All fatal and serious collisions are reviewed by dedicated teams in the Metropolitan Police Service. Serious collision reports undergo a quality assurance process to align definitions to the STATS20 DfT guidance. Data up to 2022 has been through this quality assurance process, where typically around 30 per cent of serious collisions are reclassified to slight through this process.

For the most accurate statistics on traffic casualties, see our TfL Road Safety Data pages, which include monthly updates of provisional fatalities, and the Department for Transport's official statistics (updated annually).

The introduction of online self-reporting has made it easier for members of the public to report collisions to the police. There have been year-on-year increases in self-reports since this was introduced, which has contributed to an overall increase in the number of casualties reported on London's roads.

TfL has undertaken analysis with the Transport Research Laboratory (TRL) to back-cast the number of casualties that would have been reported by the police using the injury-defined system (COPA) rather than a severity-defined system. This allows the number of injuries reported by the police since 2016 to be compared with an initial back-estimate of data collected using previous systems.

Using data recorded by the police between 2005 and 2018, TRL developed a logistic regression model to predict seriously injured casualties as a proportion of all non-fatal casualties. A logistic regression model predicts a binary outcome (in this case whether a casualty was seriously or slightly injured) based on several explanatory variables (such as the casualty mode of travel). This approach is consistent with work undertaken nationally by the Office for National Statistics (ONS) and the Department for Transport.

The back-estimates provided have a level of uncertainty, primarily due to the short time period during which data has been collected using new collision reporting systems. It is expected that these estimates will be further refined as more data becomes available from the police so that repeated exercises can be undertaken. Back-estimates are available at modal level for London and the London boroughs.

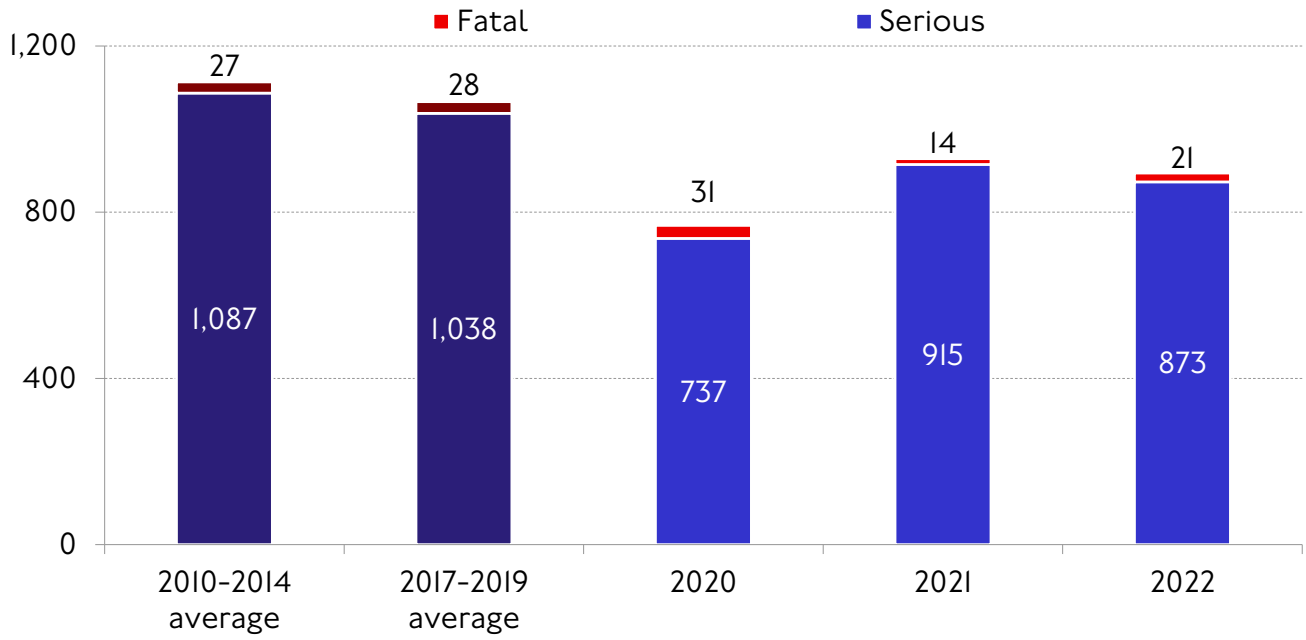
To meet the definition of a National Statistic for road safety, the collision record must meet the STATSI9 criteria. A record that has been submitted to the police may fail to meet the criteria for a National Statistic and therefore may not be reported in National Statistics. There is no general obligation for people to report all personal injury collisions to the police (although there is an obligation under certain conditions, as outlined in the Road Traffic Act). All collisions that were reported by the police and that occurred on a public highway involving at least one motor vehicle, horse rider or pedal cyclist and where at least one person was injured are included. Collisions that happened on private land (including private drives) or car parks are not included in the statistics. Damage-only collisions that did not result in personal injury are also excluded from these statistics.

Overall motorcycle killed or seriously injured casualties

2022 trends against the 2010-2014 and 2017-2019 baselines

Figure 9 shows a trend of decreasing motorcycle (rider) casualties in recent years compared to the 2010-2014 and 2017-19 baselines, both in terms of fatalities and serious injuries.

Figure 9 Motorcycle killed or seriously injured casualties in London, by severity, 2010-2014 and 2017-2019 averages and 2020-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

In the 2017-2019 baseline, before the pandemic, there were 1,066 motorcycle killed or seriously injured casualties compared to 1,114 in 2010-2014, a four per cent reduction. This is likely due to several reasons including: improved communication of road safety awareness, rider engagement and education, and the wider implementation of the Mayor's Vision Zero action plan. Values for years during and after the pandemic will have been affected by pandemic-demand adaptations and wider road user behaviour.

A total of 894 motorcyclists were reported killed or seriously injured in London during 2022, of which 21 were fatally injured and 873 seriously injured. This represents a 20 per cent reduction in killed or seriously injured casualties from the 2010-2014 baseline and a 16 per cent reduction from the 2017-2019 baseline. However, these remain relatively high values given the small mode share for motorcycles in London. Furthermore, the recent reductions are likely affected by pandemic effects like increased working from home.

Trends in the 2018-2022 period

For a robust assessment of the latest casualty trends by various categories it is necessary to aggregate five years of data. Therefore, the remainder of this section reports totals for the whole of the 2018-2022 period. Note however that this period includes the coronavirus pandemic, which severely affected travel patterns.

In 2018-2022, 2.6 per cent of motorcycle killed or seriously injured casualties were fatal. When broken down by engine type (table 2), 63 per cent of fatalities involved an engine over 125cc, compared to 35 per cent for engines under 125cc, indicating a potential correlation between speed/motorcycle size and fatalities. Conversely, 60 per cent of serious injuries involved motorcycles under 125cc compared to 39 per cent involving motorcycles over 125cc.

While advances in road vehicle safety design and medical care play a part in whether collisions result in serious or fatal injuries, lower speeds, manoeuvrability and the lower threshold of training required to ride smaller motorcycles are also important factors.

Table 2 Motorcycle killed or seriously injured casualties in London, by severity and engine type, 2018-2022.

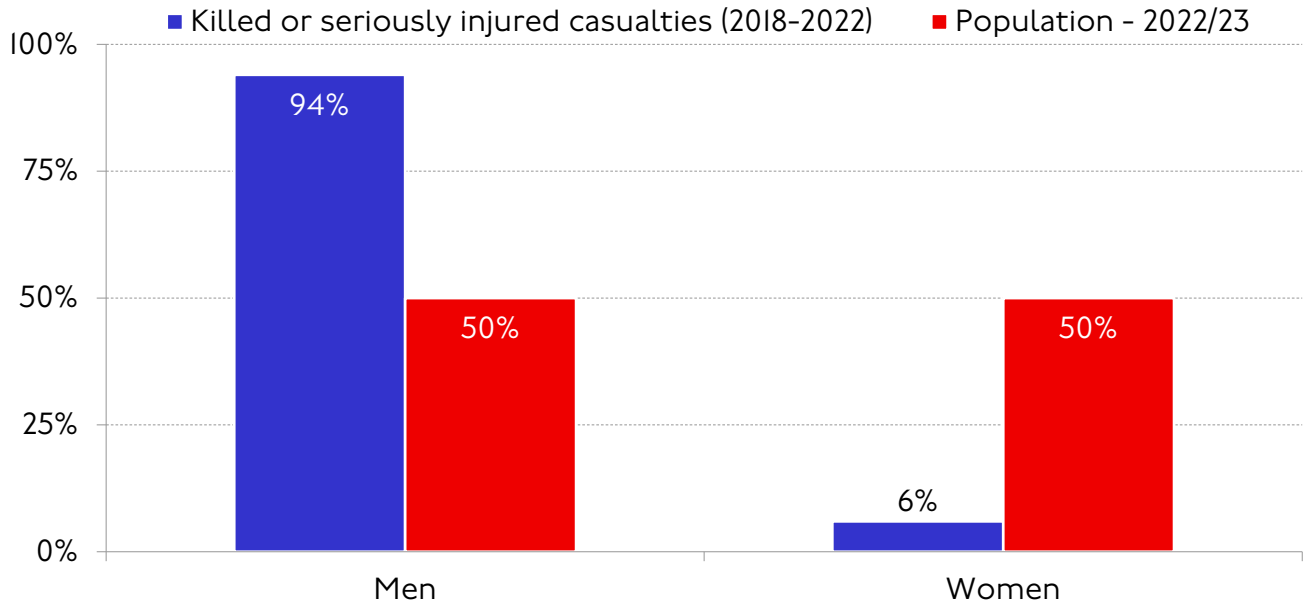
Severity	Engine type	2018	2019	2020	2021	2022	2018-2022 total
Fatal	Under 125cc	4	9	13	7	9	42
	Over 125cc	18	21	18	6	12	75
	Other	0	1	0	1	0	2
	Total	**22**	**31**	**31**	**14**	**21**	**119**
Serious	Under 125cc	605	578	477	561	498	2,719
	Over 125cc	453	400	250	332	348	1,783
	Other	0	10	10	22	27	69
	Total	**1,058**	**988**	**737**	**915**	**873**	**4,571**

Source: Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.
Note: 'Other' includes electric or unknown.

Motorcycle killed or seriously injured casualties by demographic characteristics

Still referring only to motorcycle rider casualties, figure 10 shows that in the 2018-2022 period the large majority (94 per cent) of motorcycle casualties were men.

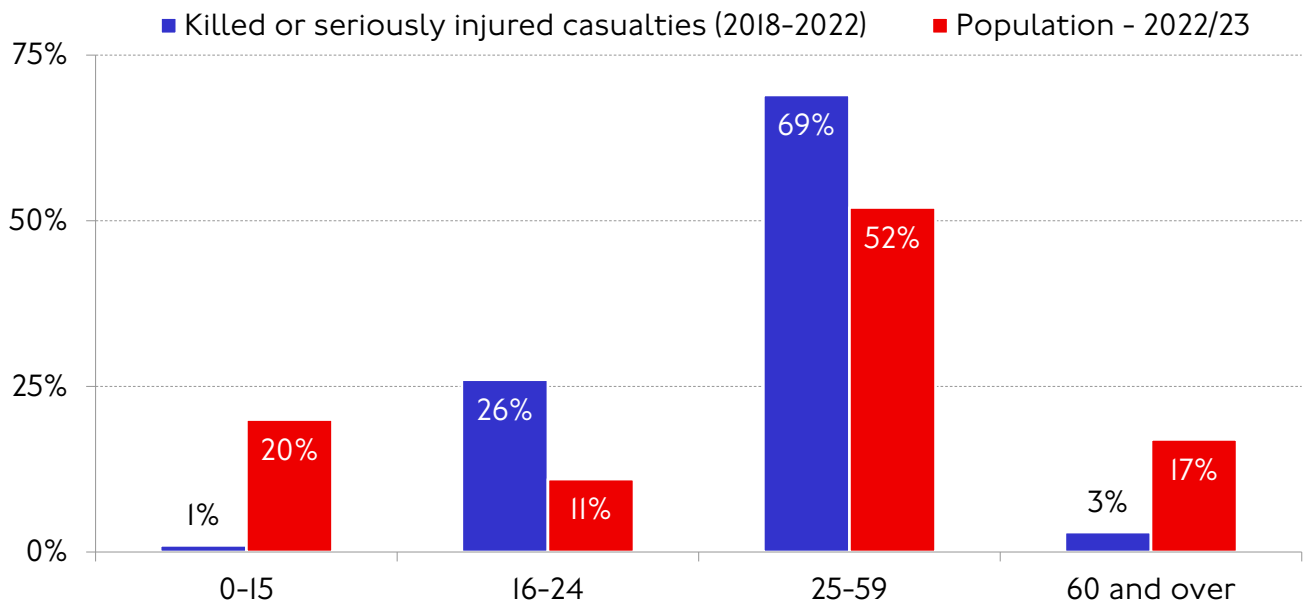
Figure 10 Gender of motorcycle killed or seriously injured casualties in London in 2018-2022 versus general population in 2022/23.



Source: TfL Strategic Analysis, Customer & Strategy and TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

In terms of age, figure 11 shows that two-thirds of all killed or seriously injured casualties (69 per cent) were aged between 25 and 59 and a further 26 per cent between 16 and 24.

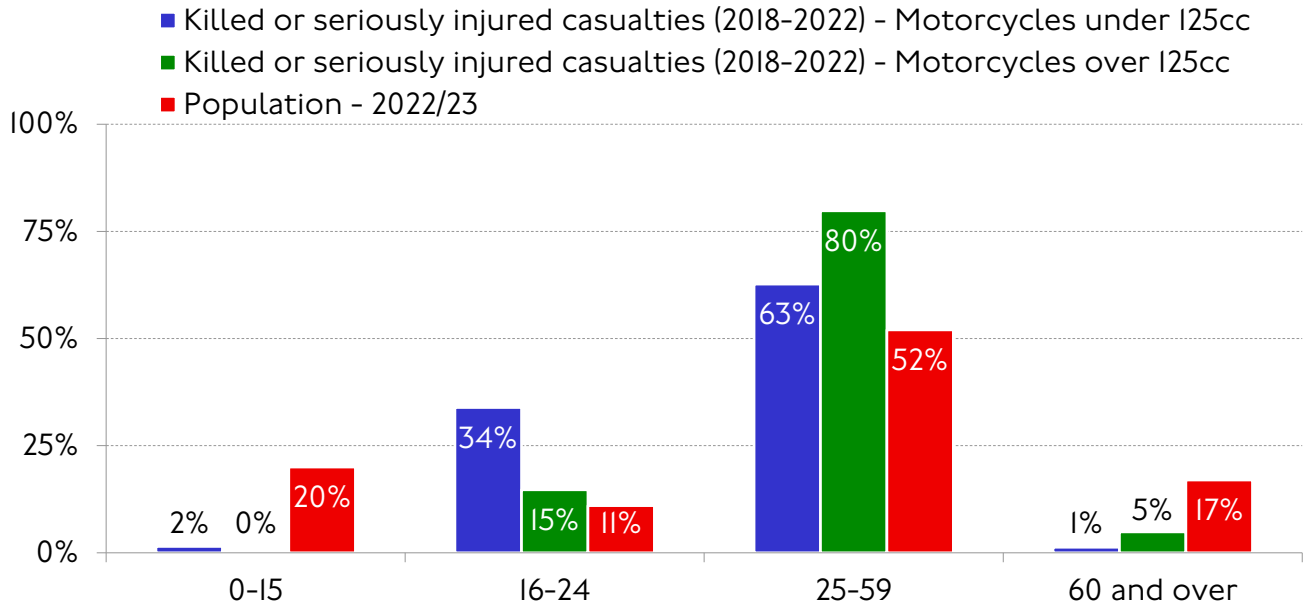
Figure 11 Age of motorcycle killed or seriously injured casualties in London in 2018-2022 versus general population in 2022/23.



Source: TfL Strategic Analysis, Customer & Strategy and TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Figure 12 shows the age trend broken down by motorcycle engine size.

Figure 12 Age of motorcycle killed or seriously injured casualties in London in 2018-2022, by engine type, versus general population in 2022/23.



Source: TfL Strategic Analysis, Customer & Strategy and TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

There was a higher proportion of killed or seriously injured casualties aged 16 to 24 years using motorcycles with engines below 125cc compared to those above 125cc. The opposite is true for casualties aged 25-59, who are more likely to be a casualty on a motorcycle above 125cc. This is likely due to younger riders using smaller engine mopeds and scooters, given the lower licencing requirements, since only riders aged 17 and over can apply for licences to ride motorcycles with larger engines. Rider experience and the

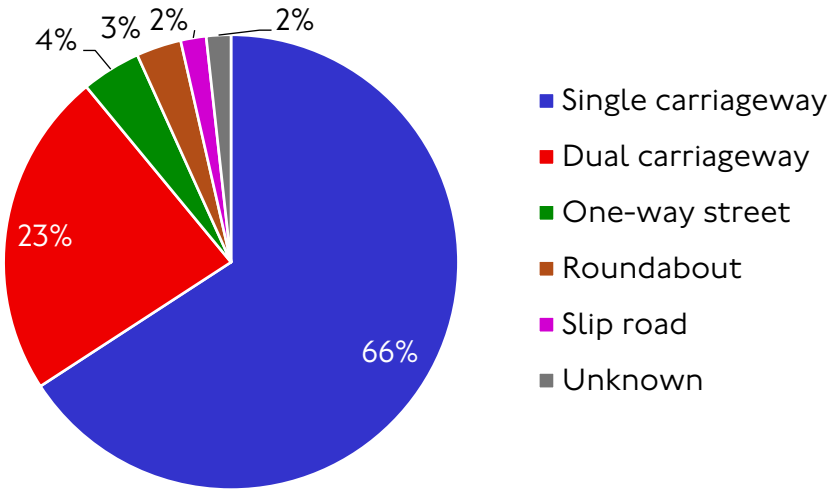
cost of acquiring, maintaining and insuring a motorcycle may also play a part in the choice based on engine size.

Motorcycle killed or seriously injured casualties by road condition

Road layout

Two-thirds (66 per cent) of motorcycle rider killed or seriously injured casualties occurred on single carriageways, followed by 23 per cent on dual carriageways, as shown in figure 13. This aligns with the proportions of these road types on London's road network.

Figure 13 Proportion of motorcycle killed or seriously injured casualties, by road layout at collision location, 2018-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Speed limit

Table 3 shows that 60 per cent of motorcycle rider killed or seriously injured casualties occurred on roads with a 30mph speed limit, followed by 30 per cent in 20mph zones.

Table 3 Motorcycle killed or seriously injured casualties, by severity and speed limit at collision location, 2018-2022.

Speed limit	Fatal	Serious	Killed or seriously injured
20mph	21 (18%)	1,388 (30%)	1,409 (30%)
30mph	69 (58%)	2,712 (59%)	2,781 (60%)
40mph	19 (16%)	282 (6%)	301 (6%)
Over 50mph	10 (8%)	189 (4%)	199 (4%)
Total	**119**	**4,571**	**4,690**

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

When focussing on fatalities, 58 per cent occurred on 30mph roads, with 18 per cent on 20mph roads. However, there was a higher proportion of fatalities on 40mph roads

(16 per cent) compared to six per cent for all killed or seriously injured casualties. This indicates that roads with higher speed limits represent a greater risk of fatalities, although the relatively higher traffic volumes expected on roads with higher speed limits may also be an important factor.

Road surface and weather conditions

As shown in table 4, 80 per cent of motorcycle rider killed or seriously injured casualties resulted from collisions in dry road conditions, followed by those in wet conditions (18 per cent), while a minimal number of casualties resulted from collisions under other road surface conditions such as snow, ice or frost.

Table 4 Motorcycle killed or seriously injured casualties, by road surface condition at collision location, 2018-2022.

Road surface condition	Casualties	Proportion over total
Dry	3,747	80%
Wet	862	18%
Frost/ice	23	0.5%
Snow	4	0.1%
Unknown	54	1%
Total	**4,690**	

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

With regards to the weather conditions (table 5), 83 per cent of rider casualties resulted from collisions in fine weather, 10 per cent from collisions in rain and a minimal number from collisions in other weather conditions.

Table 5 Motorcycle killed or seriously injured casualties, by severity and weather conditions at collision location, 2018-2022.

Weather condition	Fatal	Serious	Killed or seriously injured
Fine	97 (82%)	3,791 (83%)	3,888 (83%)
Raining	13 (11%)	452 (10%)	465 (10%)
Fine/high winds	1 (1%)	41 (1%)	42 (1%)
Raining/high winds	1 (1%)	32 (1%)	33 (1%)
Fog/mist	2 (2%)	8 (0.2%)	10 (0.2%)
Snowing	0 (0%)	7 (0.2%)	7 (0.1%)
Snowing/high winds	0 (0%)	2 (0%)	2 (0%)
Other/unknown	5 (4%)	238 (5%)	243 (5%)
Total	**119**	**4,571**	**4,690**

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

There does not seem to be a significant difference in the proportions for fatal and serious injuries, suggesting that the weather conditions do not influence injury severity. However, they may influence motorcycle rider behaviour, both in terms of choosing whether to ride in more adverse conditions and in terms of potentially riding more carefully to minimise the risks.

Lighting conditions

In terms of lighting conditions (table 6), over 60 per cent of rider casualties resulted from collisions in the daylight, followed by 34 per cent in the darkness with streetlights present and only two per cent in the darkness without street lighting. When looking at fatalities, a higher proportion (42 per cent) occurred in the darkness compared to serious injuries (36 per cent).

Table 6 Motorcycle killed or seriously injured casualties, by severity and lighting conditions at collision location, 2018-2022.

Lighting condition	Fatal	Serious	Killed or seriously injured
Daylight	69 (58%)	2,895 (63%)	2,964 (63%)
Dark – streetlights present and lit	47 (39%)	1,566 (34%)	1,613 (34%)
Dark – streetlights not present, unknown or unlit	3 (3%)	110 (2%)	113 (2%)
Total	**119**	**4,571**	**4,690**

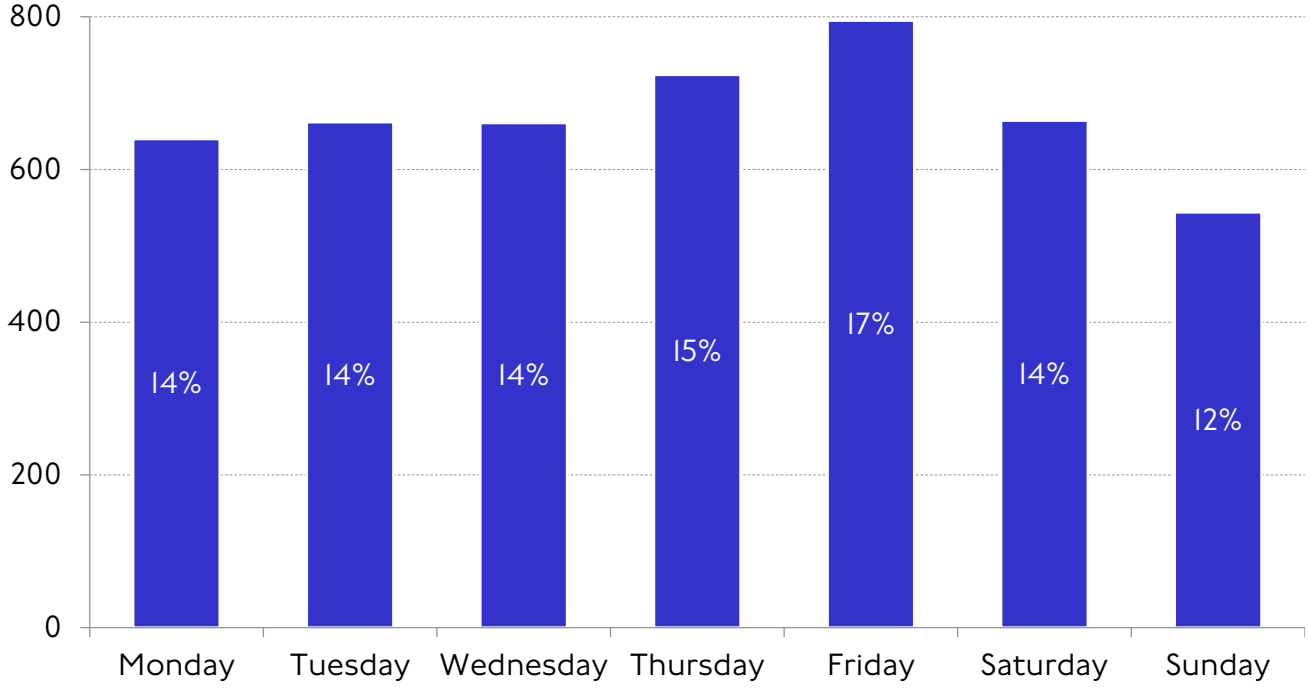
Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Motorcycle killed or seriously injured casualties by time of travel

Day of the week

As shown in figure 14, the number of killed or seriously injured motorcycle rider casualties is broadly similar across all days of the week, with an average of 14 per cent of the total on each day. There is however a lower proportion on Sundays (12 per cent), perhaps related to the overall lower volumes of motorcycles (and other motor vehicles) using the road network at weekends; and a higher proportion on Thursdays (15 per cent) and Fridays (17 per cent), which may suggest a link to changes in road user behaviour exhibited towards the end of the working week.

Figure 14 Motorcycle killed or seriously injured casualties, by day of the week, 2018-2022.

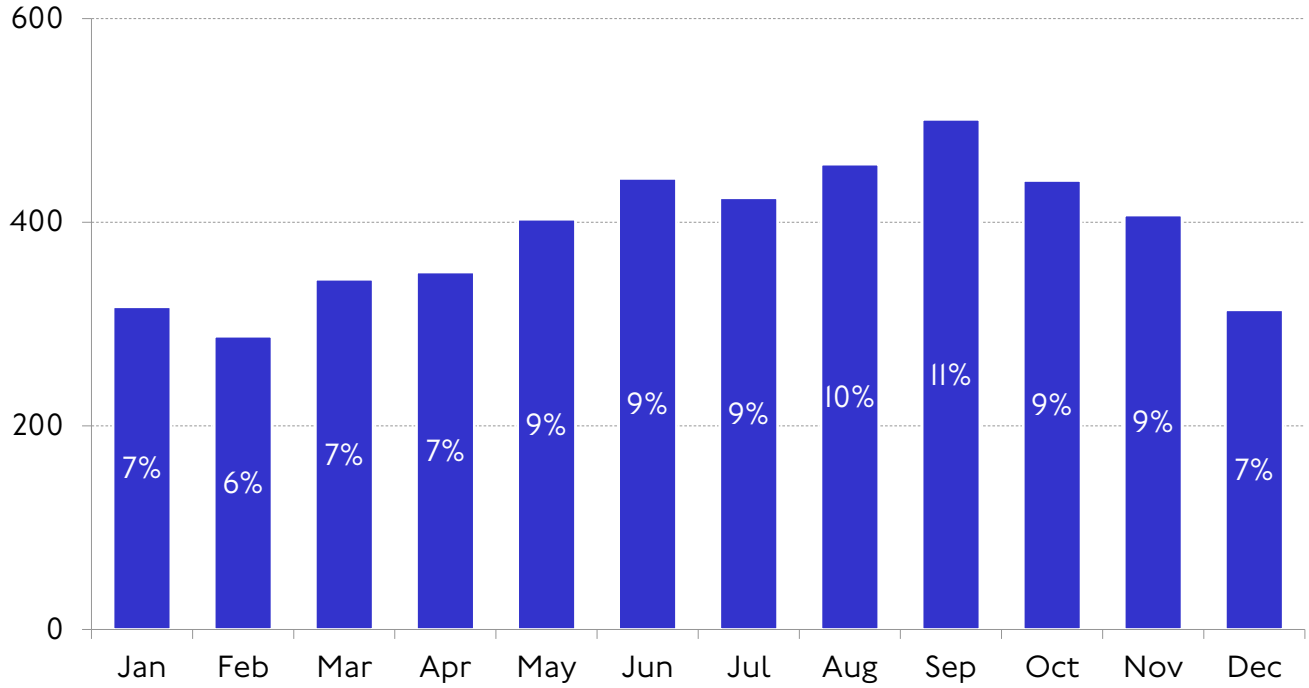


Source: TfL Insights & Direction, Safety, Health & Environment, based on STATSI9 data.
Note: The percentages shown inside the bars represent the proportion over the total.

Month

Figure 15 shows the trend in motorcycle killed or seriously injured rider casualties by month.

Figure 15 Motorcycle killed or seriously injured casualties, by month, 2018-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATSI9 data.
Note: The percentages shown inside the bars represent the proportion over the total.

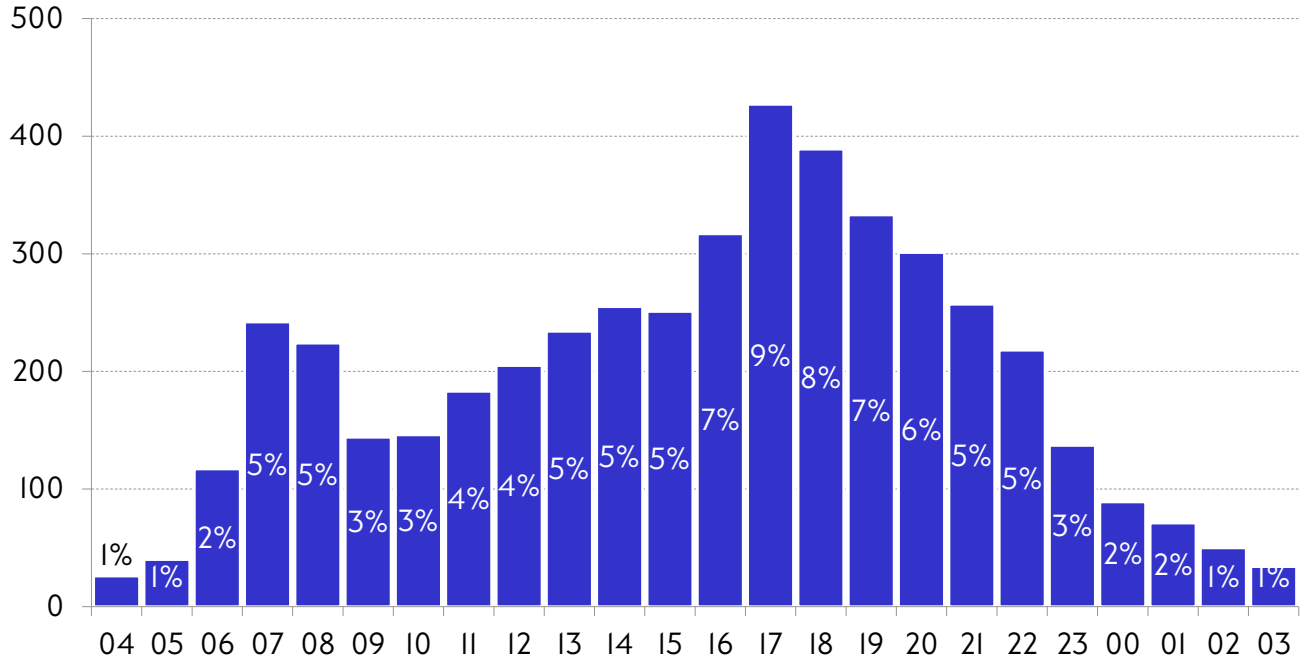
The proportion of casualties gradually increases through the spring and summer months and peaks in September, which accounts for 11 per cent of all casualties. The number of casualties then decreases through the autumn and winter, likely due to poorer weather conditions and reduced visibility deterring motorcycle use.

Hour

Figure 16 shows the trend in motorcycle rider killed or seriously injured casualties throughout the day. The proportion increases gradually during daylight hours and peaks in the earlier part of the morning peak (between 07:00 and 09:00) and the later part of the evening peak (between 17:00 and 19:00), coinciding with the highest volumes of traffic.

Looking specifically at fatalities, the proportion of fatalities is relatively higher than the proportion of all killed or seriously injured casualties particularly between 19:00 and 07:00. This corresponds to the dark or twilight hours, thus further suggesting the correlation with lighting conditions observed above. However, other night-time-specific factors may also be at play, such as the reduced traffic volumes allowing for more speeding to take place.

Figure 16 Motorcycle killed or seriously injured casualties, by hour, 2018-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.
Note: The percentages shown above the bars represent the proportion over the total.

Motorcycle killed or seriously injured collisions by manoeuvre type

In terms of manoeuvres involved in the collisions resulting in killed or seriously injured motorcycle riders (tables 7 and 8), more than half (54 per cent) of these casualties occurred when motorcycles were travelling 'straight ahead' or performing an overtaking manoeuvre (17 per cent).

Furthermore, almost two-thirds (62 per cent) of collisions resulting in killed or seriously injured motorcycle rider casualties involved the front of the motorcycle as the first point of contact. This suggests that most collisions are head-on and occur due to

vehicles turning across or stopping in the motorcycles' path of travel or travelling in the opposite direction. Vehicles making right-hand turns have typically been a common causal factor in road traffic collisions resulting in motorcycle casualties.

Table 7 Collisions resulting in motorcycle killed or seriously injured casualties, by manoeuvre type at time of collision, 2018-2022.

Manoeuvre	Collisions	Proportion of total
Going ahead of another	2,595	54%
Overtaking moving vehicle offside	400	8%
Overtaking near side	246	5%
Overtaking stationary vehicle offside	193	4%
Moving off	164	3%
Other manoeuvre	1,200	25%
Total	**4,798**	

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Table 8 Collisions resulting in motorcycle killed or seriously injured casualties, by collision point of contact at time of collision, 2018-2022.

Collision point of contact	Collisions	Proportion over total
Front hit first	2,865	62%
Near side hit first	572	12%
Offside hit first	537	12%
Did not impact	265	6%
Back hit first	230	5%
Unknown	168	4%
Total	**4,637**	

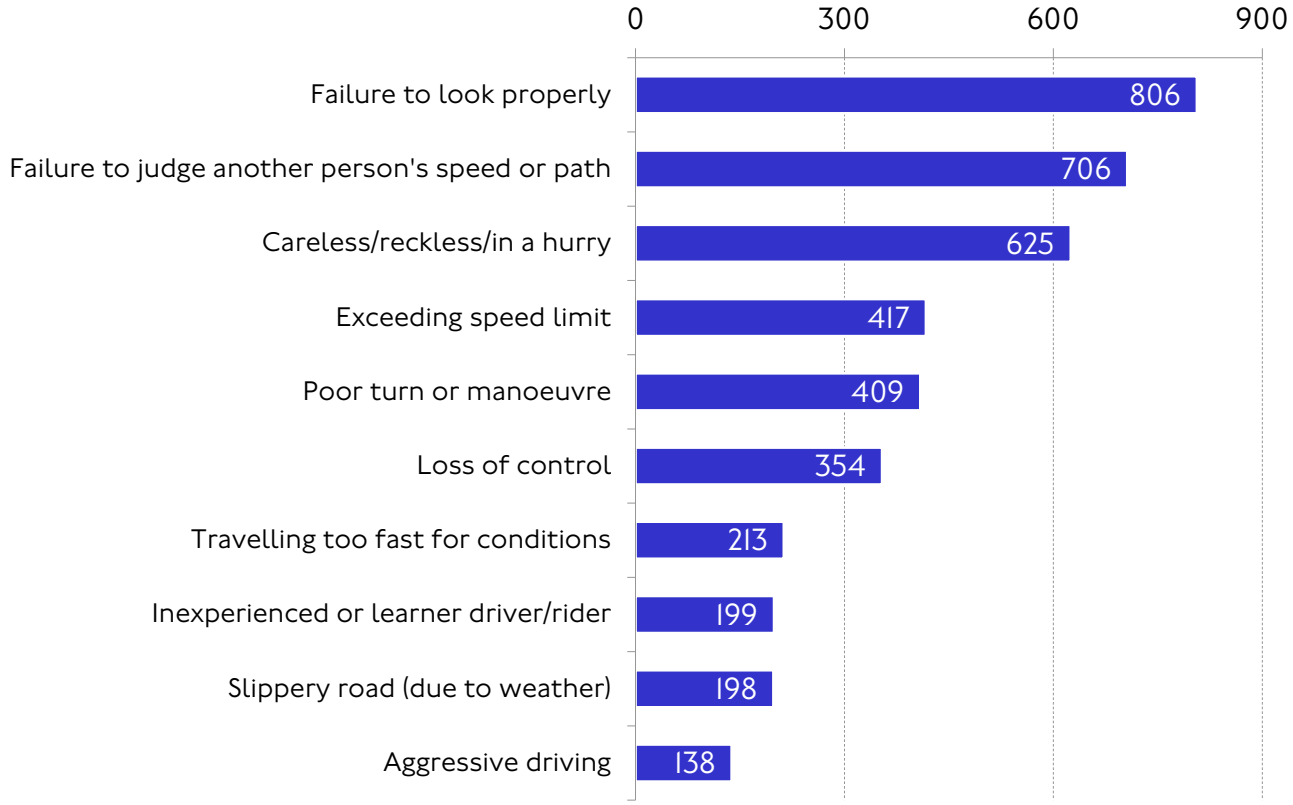
Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Motorcycle killed or seriously injured casualties by contributory factors

As stated at the beginning of this section, contributory factors are only captured for police-attended collisions and are based on the officer's observations upon arrival at the scene. Therefore, the following results are only indicative of potential collision causal factors and not definitive since these factors are assigned based on the initial recorded details of the attending officer and are not updated unless a fatal collision investigation is conducted.

Figure 17 shows the top 10 contributory factors assigned to collisions resulting in killed or seriously injured motorcycle rider casualties.

Figure 17 Top 10 contributory factors related to motorcycle killed or seriously injured casualties, 2018-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

The most common were 'failure to look properly', 'failed to judge another person's speed or path' and 'careless/reckless/in a hurry'. The first two fall within the wider category of 'driver error or reaction', which indicates behaviour which is not necessarily intentional but shows a lack of concentration and awareness of other road users.

Two further contributory factors within the top 10 were 'exceeding speed limit' and 'travelling too fast for conditions'. These fall within the wider category of 'driver injudicious action', which indicates intentional driver behaviour.

Nationally, speeding is recognised as one of the 'Fatal Four' causes for collisions resulting in fatal or serious injuries and, while identified across all vehicles modes, is even more prevalent in collisions involving motorcycles.

Motorcycle-involved killed or seriously injured casualties in collisions with other users

Motorcycle killed or seriously injured casualties by other vehicle involved

Between 2018 and 2022 there were 4,690 motorcyclists killed or seriously injured on London's roads, of which 668 (14 per cent) were killed or seriously injured in solo collisions (with no other vehicles involved) and the remaining 4,022 (86 per cent) in collisions involving at least one other vehicle, although no blame is implied by this.

Table 9 shows the number of motorcycle killed or seriously injured casualties in collisions involving at least one other vehicle between 2018 and 2022, by other vehicle

involved. It should be noted that since some collisions involve more than one other vehicle and each vehicle involved is listed separately, the total number of casualties implied by the table exceeds the actual total of 4,022 reported above.

Table 9 Motorcycle killed or seriously injured casualties, by other vehicle involved, 2018-2022.

Other vehicle involved	Casualties
Car	3,269
Goods vehicle	540
Motorcycle	193
Private hire vehicle	112
Bus/coach	77
Taxi	74
Other	52
Pedal cycle	50

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATS19 data.

Cars were by far the most common other vehicle involved in collisions with motorcycles resulting in fatal or serious injuries between 2018 and 2022, with 3,269 motorcycle killed or seriously injured casualties involving at least one car. This probably reflects the fact that cars make up the largest proportion of other vehicles on the road.

A substantial number (540) of motorcycle killed or seriously injured casualties involving at least one other vehicle in 2018-2022 resulted from collisions with goods vehicles, which include all vans and lorries from light goods vehicles to heavy goods vehicles. Reasons for this include the fact that many of these vehicles have poorer visibility of the road from the driving seat and the differences in size, speed and manoeuvrability of these vehicles compared to motorcycles.

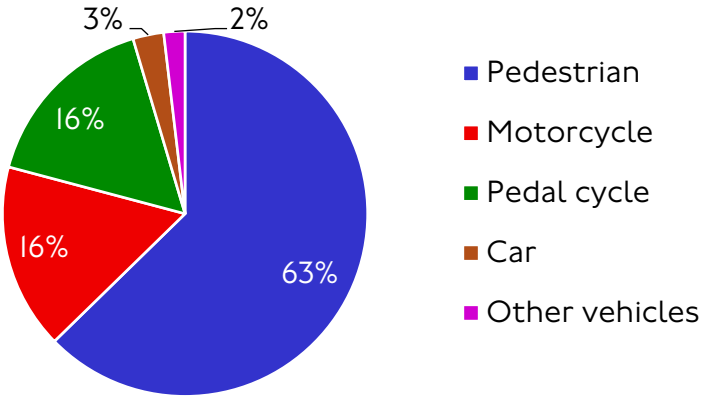
Other user killed or seriously injured casualties in collisions involving motorcycles

Looking at all casualties from collisions involving motorcycles, motorcycles are disproportionally involved in collisions that kill or seriously injure other road users. In 2018-2022, motorcycles killed or seriously injured 1,174 people, of which 736 were pedestrians. This compares to a total of 18,580 killed or seriously injured casualties to all road users and 5,778 killed or seriously injured casualties to pedestrians, respectively. This means that motorcycles were involved in six per cent of all killed or seriously injured casualties and in 13 per cent of killed or seriously injured pedestrians, while accounting for around only three per cent of the total motorised vehicle flow.

Figure 18 further shows that 63 per cent of killed or seriously injured casualties resulting from collisions involving a motorcycle were pedestrians, followed by those who were using another motorcycle (16 per cent) or a pedal cycle (16 per cent). The involvement of motorcycles in collisions resulting in injuries to these users is likely to be exacerbated by their potential speed and relatively limited visibility to other road users due to their small size.

It is interesting that although motorcycles interact frequently with other motorcycles and pedal cycles on the road network, they cause relatively fewer collisions resulting in killed or seriously injured casualties among those users. On the other hand, pedestrians have far fewer interactions with motorcycles due to the segregation of pavements and carriageways, but they account for the most killed or seriously injured casualties in collisions involving motorcycles. Reasons for this could be found in the fact that motorcycles and pedal cycles tend to predominantly travel in the same direction. Conversely, the interaction between motorcycles and pedestrians tends to be mostly in perpendicular directions when pedestrians are crossing the road, and this poses an increased risk.

Figure 18 Proportion of other user killed or seriously injured casualties in collisions with motorcycles, by other mode involved, 2018-2022.



Source: TfL Insights & Direction, Safety, Health & Environment, based on STATSI9 data.

Finally, table 10 shows the breakdown of pedestrians killed or seriously injured in collisions with motorcycles by severity and engine type in the 2018-2022 period. Note that the total may not add up to the figures quoted above due to incomplete reporting of the engine type.

Up to 65 per cent of pedestrians killed or seriously injured in collisions involving a motorcycle occurred with a motorcycle under 125cc. However, when looking at fatalities, 79 per cent of pedestrians were killed by motorcycles over 125cc. This suggests that larger engine motorcycles, which can travel faster and have a greater weight, have a higher potential to cause fatal injuries. Conversely, 66 per cent of serious injuries involved motorcycles under 125cc, which are smaller and slower and therefore pose a relatively lower risk.

Table 10 Pedestrian killed or seriously injured casualties in collisions with motorcycles, by severity and engine type, 2018-2022.

Engine type	Fatal	Serious	Killed or seriously injured
Under 125cc	3 (21%)	449 (66%)	452 (65%)
Over 125cc	11 (79%)	229 (34%)	240 (35%)
Total	**14**	**678**	**692**

Source: TfL Insights & Direction, Safety, Health & Environment, based on STATSI9 data.