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NI Road Safety Strategy to 2020 - Indicator Guidance Booklet

Analysis, Statistics and Research Branch

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Analysis, Statistics and Research Branch
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Indicator Guide

The following document gathers together the full range of targets and indicators that are reported in the Northern Ireland Road Safety Strategy to 2020 Annual Statistical Report. This strategy sets out a vision to improve road safety in Northern Ireland over the ten year period from 2011 – 2020. Its framework concentrates on four high-level outcomes (targets) to be achieved with regards to fatalities and serious injuries on Northern Irelands roads, and then includes a further 19 key performance indicators (KPIs) that are used to track the progress of the underlying road safety performance behind the casualty figures.

The targets were developed for the strategy by the Transport Research Laboratory (TRL), based on a modelling exercise similar to work which they had previously carried out in GB. The KPIs were informed by an extensive literature review drawing heavily on road safety indicators used elsewhere in GB, and were finalised following a period of consultation with relevant road safety stakeholders in NI. As such, the degree to which the targets and indicators meets user needs in both their coverage and relevance is considered to be high.

The DfI's Analysis, Statistics and Research Branch (ASRB) developed the precise definitions for each indicator and identified appropriate sources and methodologies. Contained in this booklet, you will find a dedicated section for each target and indicator which provides a full range of information, including: a definition; links to relevant source data; data collection and quality assurance; associated methodology, limitations and uncertainty; and an overall assessment of the data quality. This information will be reviewed and updated, as necessary, on an annual basis with the latest version of the booklet available from ASRB website.

Data are drawn from many sources and vary by time period, population and presentation of values. Care should be taken with interpretation; indicators are included if viewed as robust and of sufficient quality, however, users are advised to note the information and caveats contained in the detailed metadata sections below.

ASRB employ a range of internal quality assurance procedures, as detailed in each section below, designed to provide users with confidence that the included indicators are fit-for-purpose. All data inconsistencies are queried with the data provider until they have been resolved. In the event that an inconsistency cannot be satisfactorily resolved in advance of the Statistical Report being released, then the indicator update would be withheld from the initial release and populated at the earliest opportunity thereafter. A revised report would then be issued and users notified. Should a data, or significant methodological issue, not be able to be satisfactorily resolved following further investigations, then the indicator would be permanently withdrawn from the report and users would again be notified accordingly. In the interim, the known limitations would be highlighted in the main Statistical Report and this indicator booklet.

Targets and Indicators

Strategy Target 1: To reduce the number of people killed in road collisions by at least 60% by 2020

Indicator Definition: The number of people who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls - see sheet '1.Year', column G.

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods
see sheet '1__Year', column G.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability			✓
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:
Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. The accuracy and reliability of this indicator is therefore regarded as high.

The data are directly comparable with GB and ROI and are considered largely comparable with other international jurisdictions.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are freely available in the public domain from the PSNI website (see links above) and the indicator itself is based on a clear definition.

Strategy Target 2: To reduce the number of people seriously injured in road collisions by at least 45% by 2020

Indicator Definition: The number of people who were seriously injured in a collision on a public highway in Northern Ireland.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '1. Year', column H.

Indicator data (Open Data Format): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods see sheet '1__Year', column H.

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time. This indicator, because based on a larger number of observations compared to fatalities, does not suffer as much from annual random variation. However, the 5-year rolling average will still provide a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability is therefore regarded as medium.

The data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes).

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are freely available in the public domain from the PSNI website (see links above) and the indicator itself is based on a clear definition.

Strategy Target 3: To reduce the number of children (aged 0-15) killed or seriously injured in road collisions by at least 55% by 2020

Indicator Definition: The number of children under the age of 16 who were killed or seriously injured in a collision on a public highway in Northern Ireland.

The number of children killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '4. Age and Gender', column J.

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods- see sheet '4___Age_and_Gender', column J.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the killed and serious injury (KSI) statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording the threshold between the collision occurring and a casualty dying and the definition of what constitutes a serious injury. Whilst differences in counting fatalities should not be a significant issue, the same cannot be said of serious injuries where there are known to be significant differences in definition. For this reason, the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared. In addition, the definition of what constitutes a 'child', in terms of age range (0-15), is consistent across the UK and Ireland; however, EU statistics report age bands of 0-14 and 15-17.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic

collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties,

particularly for monitoring trends over time. Users should still exercise caution when interpreting changes in trends based on small numbers of serious injuries/fatalities (as related to children), as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a more robust picture of the underlying trend. Accuracy and reliability is therefore regarded as medium.

The data are directly comparable with GB and ROI, but not with other international jurisdictions due to differences in age bandings and the grading of severity of injury which each can apply (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes).

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are freely available in the public domain from the PSNI website (see links above) and the indicator itself is based on a clear definition.

Strategy Target 4: To reduce the number of young people (aged 16-24) killed or seriously injured in road collisions by at least 55% by 2020

Indicator Definition: The number of young people aged 16 to 24 years who were killed or seriously injured in a collision on a public highway in Northern Ireland.

The number of young people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls - see sheet '4. Age and Gender', column J.

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '4___Age_and_Gender', column J.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the killed and serious injury (KSI) statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording the threshold between the collision occurring and a casualty dying and the definition of what constitutes a serious injury. Whilst differences in counting fatalities should not be a significant issue, the same cannot be said of serious injuries where there are known to be significant differences in definition. For this reason, the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared. Moreover, the definition of what constitutes a 'young person', in terms of age range, will differ across countries including across the UK and Ireland. This should not be a problem if data is available at a sufficiently disaggregated level to allow an equivalent 16-24 age range to be constructed. EU statistics are not reported on comparable age bands.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland

and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time. Users should still exercise caution when interpreting changes in trends based on small numbers of serious injuries/fatalities (as related to young persons), as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a more robust picture of the underlying trend. Accuracy and reliability is therefore regarded as medium.

The data are not directly comparable with GB, ROI or other international jurisdictions due to differences in age bandings. Furthermore, the indicator is not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which each can apply (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes).

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

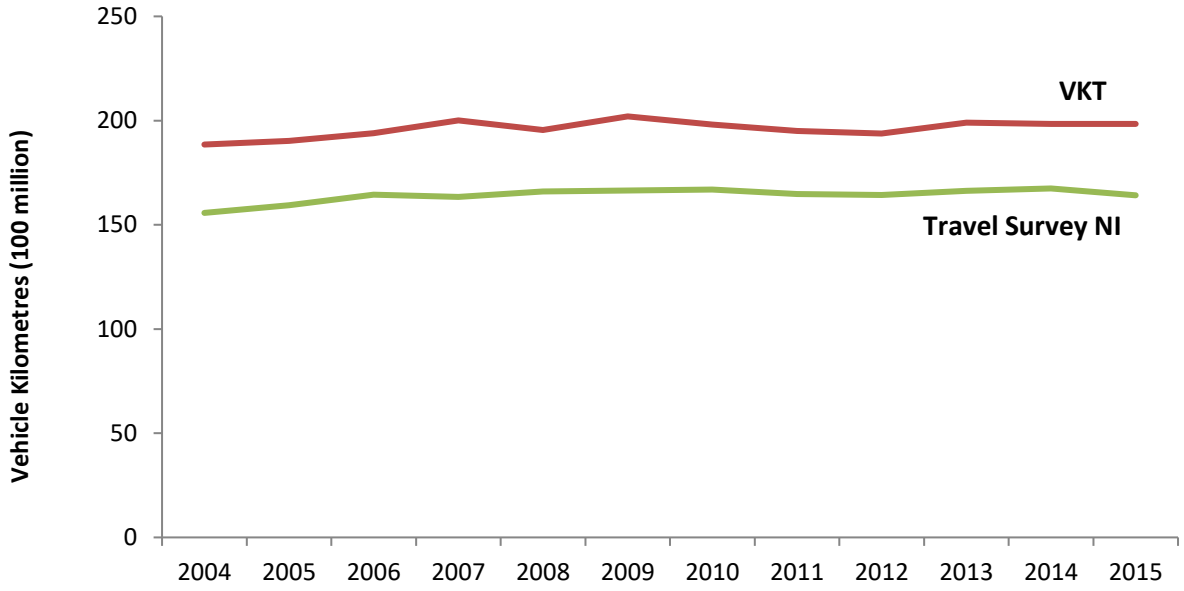
The base data are freely available in the public domain from the PSNI website (see links above) and the indicator itself is based on a clear definition.

Key Performance Indicator 1: Rate of road deaths per 100 million vehicle kilometres

Please note: In 2017, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2017, one of the primary sources of data was the Vehicle Kilometres Travelled (VKT), however, the last available year of data for the VKT was 2014; due to budget constraints the survey is no longer being carried out. Therefore, an alternative source of data was required to enable continued reporting – the Travel Survey for Northern Ireland (TSNI).

ASRB carried out extensive analysis to determine whether estimates produced using the new data source are robust. The chart below shows the comparison of vehicle kilometres travelled (100 million) using both data sources. While the VKT was originally considered more appropriate for use due to single year data and larger sample size, the TSNI is the next best estimate, and the fact that the two trend lines track each other so consistently is an indication that the TSNI will be sufficient for our reporting needs. Note that the TSNI does not include driving for work (hence excludes bus and taxi drivers, delivery vehicles, etc.) so will always produce lower mileage estimates than the VKT which included all road journeys within NI. However, it is the trend that is of primary interest when assessing change in this KPI, rather than its absolute value, and the chart below shows that this is generally consistent between the sources.

Comparison of Vehicle Kilometres (100 million) travelled from VKT and Travel Survey Northern Ireland, 2004-2015

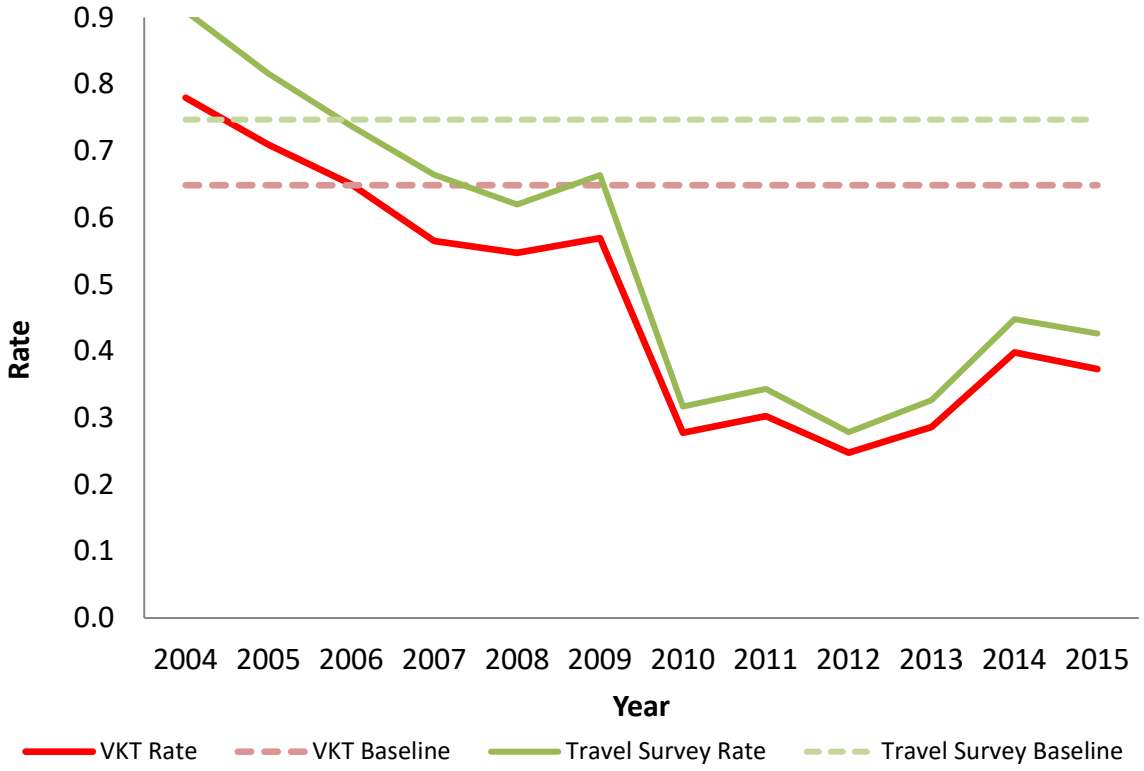


Source: Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Furthermore, the chart below compares the rates for this indicator when calculated using the two different data sources. Once again, the two trend lines are very

consistent, indicating that the TSNI data is a sufficient replacement for the VKT in the calculation of the rate in this indicator.

Comparison of road deaths per 100 million vehicle kilometres from VKT and Travel Survey Northern Ireland, 2004-2015



Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics, Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Indicator Definition: This rate is calculated using the number of people who died within 30 days from injuries received in a collision on a public highway in Northern Ireland and the total number of kilometres travelled in NI each year by all motorised road vehicles (based on the average distance travelled per person multiplied by the estimated number of people in the population of Northern Ireland at 30 June (usually resident population)). “All motorised road vehicles" includes all travel modes apart from "Walk", "Bicycle" and "NI Railways".

Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Calculation:

$$Rate\ of\ road\ deaths\ per\ 100\ million\ vehicle\ kilometres = \frac{Number\ of\ road\ fatalities}{Number\ of\ kilometres\ travelled\ by\ all\ vehicles\ (100\ million)}$$

Where: $Number\ of\ kilometres\ travelled\ by\ all\ vehicles\ (100\ million) =$

$$\frac{Motorised\ Vehicle\ miles\ travelled\ per\ person\ \times 1.609\ \times Population\ (count)}{100000000}$$

The following conversion factors have been applied in this calculation:
1 Mile = 1.609 Kilometres

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, (for publications from 2017 onwards) Travel Survey for Northern Ireland (TSNI), (for publications prior to 2017) Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland (2008 onwards) and Roads Service (NI) Annual Traffic and Travel Census (pre-2008).

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '1. Year', column G.

(*For publications from 2017 onwards*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx see Table 1.

(*For publications prior to 2017*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/annual-road-traffic-estimates-vehicle-kilometres-travelled-in-northern-ireland-2014.pdf- see Table 15.

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '1__Year', column G.

(*For publications from 2017 onwards*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see Table_1.

VKTs are not available in Open Data Format.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying.

However, such differences, when making comparisons with other jurisdictions, are not considered to be significant.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data (*used in publications from 2017 onwards*)
The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. Therefore published data is comparable with GB up to 2012, and with England following that. The National Travel Survey in Ireland reports results for distance travelled, however due to a differing methodology results are not viewed as directly comparable. DfI are not currently aware of any directly comparable International Statistics relating to distance travelled.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

In order to minimise the burden of completing the travel diary, information on short walks (i.e. under one mile in length) are only collected on day one and walks of 1 mile or more on days 2-7. The data on short walks are then grossed for the full travel week so that results in this report include short walks for the full seven day period.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Annual Road Traffic Estimates (*used in publications prior to 2017*)
Prior to 2008, VKT estimates were taken from the Roads Service (NI) Annual Traffic and Travel Census. The process for the gathering of data and calculation of VKT was based on a method established jointly by TransportNI and the former DRD's Central Statistics and Research Branch (CSRB) in 1991. This methodology utilised traffic flows

and vehicle classification data obtained from 114 (115 in 2008) permanent traffic counter locations that had been selected to provide a sample of all route types across the road network in Northern Ireland.

In 2005, a review of the methodology was conducted. Following a comparison of the various methodologies for calculating VKT used by roads authorities from different parts of the world, the Steering Group recommended that the calculation of VKT in Northern Ireland should be based on a similar methodology to that used by the Department for Transport (DfT) in Great Britain. It was also advised that the methodology should be kept under continuous review.

Annual Road Traffic Estimates for 2008 onwards are mainly based on around 500 manual counts where trained enumerators count traffic by vehicle type over a 12 or 24 hour period. Traffic data is also collected from a network of around 350 Automatic Traffic Counters (ATCs), of which 210 have continuous counts at permanent locations, and the remaining are rotated at defined locations. In addition to counting traffic, the ATCs record some of the physical properties of passing vehicles which are used to classify vehicles by type. These two data sources are combined with road lengths statistics to estimate the vehicle kilometres travelled each year by vehicle type and road type.

Although based on a similar method to GB, results are not directly comparable (see limitations section for further details).

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data (*used in publications from 2017 onwards*)

Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research

organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/.

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Annual Road Traffic Estimates (*used in publications prior to 2017*)
TransportNI carry out numerous quality assurance checks on the data as it progresses from data collection to output. Sites listed on the external contractors brief and the internal teams brief are cross checked with the data provided to TransportNI, Temporary Traffic Counts are checked using a Quality Management System (QMS), the number of completed surveys is also monitored on a regular basis by TransportNI and traffic flow data is examined for any unusual trends or fluctuations.

Statistical staff carry out further checks to query any year-on-year variances to traffic flow, ensure that traffic counts for all vehicle types sum to the correct total for each site, calculate weights to be applied to the data based on the totals from sample sites and ensure that VKT for all vehicle types sum to the total VKT. Internal consistency checks such as this help detect any calculation errors whilst the variance checking around totals ensures that changes are within plausible limits. Any queries are referred back to data provider for a resolution before publication.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics
The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random

variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Travel Survey Data

The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence interval for the estimated distance travelled 2002-2019 as published in the Travel Survey.

Average distance travelled by motorised vehicle per person per year, 2002 - 2019

Year	Motorised vehicles	
	Estimate	95% confidence range +/-
2002-2004	5646	139
2003-2005	5735	145
2004-2006	5866	153
2005-2007	5763	149
2006-2008	5798	147
2007-2009	5768	142
2008-2010	5750	146
2009-2011	5643	148
2010-2012	5599	149
2011-2013	5648	151
2012-2014	5654	152
2013-2015	5510	148
2014-2016	5377	146
2015-2017	5337	144
2016-2018	5559	157
2017-2019*	5798	159

Source: Travel Survey for Northern Ireland

"All motorised road vehicles" includes all travel modes apart from "Walk", "Bicycle" and "NI Railways"

** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the distance travelled estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of road deaths based on 95% confidence intervals of 100 million vehicle kilometres

Northern Ireland (2004-2021)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	0.97	0.94	0.92
2005	0.87	0.85	0.83
2006	0.79	0.77	0.75
2007	0.71	0.69	0.67
2008	0.66	0.64	0.63
2009	0.71	0.69	0.67
2010	0.34	0.33	0.32
2011	0.37	0.36	0.35
2012	0.30	0.29	0.28
2013	0.35	0.34	0.33
2014	0.48	0.47	0.46
2015	0.46	0.45	0.44
2016	0.43	0.42	0.41
2017	0.40	0.39	0.38
2018	0.34	0.33	0.32
2019	0.33	0.32	0.31
2020	0.33	0.32	0.31
2021	0.29	0.28	0.27
2004-2008 Baseline	0.78	0.77	0.75

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Travel Survey for Northern Ireland, Department for Infrastructure, NISRA Mid-Year Population Estimates

Note that a narrower confidence interval was newly calculated in 2017 for the 5 year baseline period. This takes account of reduced Travel Survey sampling errors arising from a larger pooled sample size over the longer time period. This improvement has been similarly applied when testing for significant changes in the 5 year rolling average trend.

Annual Road Traffic Estimates (*used in publications prior to 2017*)

The VKT figures are calculated from single day counts which may or may not have taken place on a neutral day, where a neutral day is defined as a weekday between March and October, excluding all public and school holidays. They do not account for the change in weekend traffic flows, school or public holidays or seasonal changes so are therefore not comparable with the GB Road Traffic Estimates.

The growth factors used to estimate annual counts from 12 or 24 hour counts do not take into account the change in weekend traffic flows, school or public holidays or seasonal changes. The implications of this are that the VKT for Northern Ireland may have been overestimated for the period 2008 to 2014 but this has not been quantified by the producers. It should be noted, however, that any overestimation should not bias the overall trend.

Furthermore, traffic counts were taken on a sample of minor roads based on a ±5% error at the 95% confidence level. Therefore, the overall VKT figures for all road types are not exact but sit within a range of possible figures. It has not been possible for the data producer to quantify the margin of error in the total VKT figures presented. However, the maximum change in the VKT total over the last 5 years has been 3% per annum and was typically much less than this. For the purposes of significance testing, and as a worst case scenario, it has been assumed that a maximum of one-third of this annual change (or around +/- 1%) may have been attributable to sampling error. This margin of error has been built in when testing for significant change in the composite fatalities/distance travelled indicator.

When considering trends in data it is important to remember that any figure produced from a sample sits within a range of possible figures. Therefore, what may appear to be an increase or a decrease from one year to the next may not be a 'real' change but just due to the sampling or other errors introduced in the statistical process.

The introduction of a new methodology has led to a discontinuity in the series; however it appears to have had little impact on the overall indicator trend. The VKT Survey for 2008 to 2012 was carried out using both the old and the new methodologies and the results at an overall Northern Ireland level are presented in the following table.

Comparison of old and new VKTs (millions), 2008-2012
(*used in publications prior to 2017*)

Year	Old Methodology	New Methodology
2008	19,760	19,550
2009	20,180	20,200
2010	19,880	19,810
2011	19,830	19,500
2012	19,770	19,370

Source: Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland, 2008 to 2013

Further information on the quality assurance and limitations of the VKT data can be found at:
https://www.infrastructure-ni.gov.uk/sites/default/files/publications/drd/annual-road-traffic-estimates-vehicle-kilometres-travelled-in-northern-ireland-2008-to-2013.pdf

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. Accuracy and reliability for the PSNI data is therefore regarded as high. With regards to the Travel Survey in Northern Ireland, the relatively small sample size can be an issue for certain sub-groups; however, as this indicator concerns all motor vehicles, the uncertainty present is relatively low. In the most recent 5 years, all annual changes have been shown to be statistically significant suggesting that this element of uncertainty is not impacting upon the indicator's ability to detect change. The accuracy and reliability of the overall indicator is therefore regarded as high.

The PSNI fatalities data are directly comparable with GB and ROI and are considered largely comparable with other international jurisdictions. The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the production of travel and population estimates.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are freely available in the public domain from the PSNI and DfI websites in open data format (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 2: Rate of road deaths per million population

Indicator Definition: This rate is calculated using the number of people who died within 30 days from injuries received in a collision on a public highway in Northern Ireland and the estimated number of people in the population of Northern Ireland at 30 June (usually resident population).

Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Calculation:

$$Rate\ of\ road\ deaths\ per\ million\ population = \frac{Number\ of\ road\ fatalities}{Population\ (millions)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland and NISRA Mid-Year Population Estimates.

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '1. Year', column G.

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '1__Year', column G.

http://www.ninis2.nisra.gov.uk/Download/Population/Components%20of%20Population%20Change%20(administrative%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National Statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilised in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are

not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when “Ireland” is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. The overall indicator is therefore regarded as highly accurate and reliable.

The PSNI fatalities data are directly comparable with GB and ROI and are considered largely comparable with other international jurisdictions. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. As results are not comparable at an International level, coherence and comparability is classed as medium.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The data are freely available in the public domain from the PSNI and NISRA website (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 3: Rate of pedestrian KSIs per 100 million kilometres walked

Indicator Definition: This rate is calculated using the number of pedestrians who were killed or seriously injured on a public highway in Northern Ireland and the total number of kilometres walked in NI each year (based on the average distance travelled per person multiplied by the estimated number of people in the population of Northern Ireland at 30 June (usually resident population)).

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Pedestrians include

- Children on scooters, roller skates or skateboards;
- Children riding toy cycles on the footpath;
- Persons pushing bicycles or other vehicles or operating pedestrian-controlled vehicles;
- Persons leading or herding animals;
- Occupants of prams or wheelchairs;
- People who alight safely from vehicles and are subsequently injured;
- Persons pushing or pulling a vehicle;
- Persons other than cyclists holding on to the back of a moving vehicle

Calculation:

$$Rate\ of\ pedestrian\ KSIs\ per\ 100\ million\ kilometres\ walked =$$

$$\frac{Number\ of\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road}{Total\ number\ of\ kilometres\ walked\ (100\ million)}$$

Where: $Total\ number\ of\ kilometres\ walked\ (100\ million) =$

$$\frac{Kilometres\ walked\ per\ person\ \times 1.609\ \times Population\ (count)}{100000000}$$

The following conversion factors have been applied in this calculation:
1 Mile = 1.609 Kilometres

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, Travel Survey for Northern Ireland (TSNI) and NISRA Mid-Year Population Estimates.

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls - see sheet '3. Road User Type', column G'.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx- see 'Table 1'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '3_Road_User_Type', column G.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see 'Table 1'

http://www.ninis2.nisra.gov.uk/Download/Population/Components%20of%20Population%20Change%20(administrative%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data

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Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

In order to minimise the burden of completing the travel diary, information on short walks (i.e. under one mile in length) are only collected on day one and walks of 1 mile or more on days 2-7. The data on short walks are then grossed for the full travel week so that results in this report include short walks for the full seven day period.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics
Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data
Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience

in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/.

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilized in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting

in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Travel Survey Data

The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence interval for the estimated distance walked 2002-2019 as published in the Travel Survey.

Average distance walked per person per year, 2002-2019

Year	Walking Estimate	Walking 95% confidence range +/-
2002-2004	137	7
2003-2005	139	7
2004-2006	138	7
2005-2007	144	7
2006-2008	143	7
2007-2009	144	7
2008-2010	136	7
2009-2011	137	8
2010-2012	149	9
2011-2013	157	9
2012-2014	164	9
2013-2015	162	9
2014-2016	167	9
2015-2017	166	9
2016-2018	165	9
2017-2019*	169	9

Source: Travel Survey for Northern Ireland

** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:

https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the walking distance estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of pedestrian KSIs based on 95% confidence intervals of 100 million kilometres walked
Northern Ireland (2004-2020)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	59.41	56.37	53.63
2005	55.59	52.79	50.26
2006	60.97	57.87	55.08
2007	47.12	44.83	42.76
2008	54.45	51.79	49.37
2009	54.39	51.74	49.35
2010	47.25	44.82	42.62
2011	56.56	53.26	50.32
2012	46.50	43.69	41.20
2013	38.79	36.56	34.58
2014	34.42	32.53	30.84
2015	40.15	37.92	35.92
2016	37.81	35.77	33.94
2017	40.20	38.02	36.07
2018	31.97	30.23	28.66
2019	36.10	34.18	32.45
2020	25.41	24.06	22.84
2021	31.84	30.15	28.62
2004-2008 Baseline	53.86	51.97	50.20

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Travel Survey for Northern Ireland, Department for Infrastructure, NISRA Mid-Year Population Estimates

Note that a narrower confidence interval was newly calculated in 2017 for the 5 year baseline period. This takes account of reduced Travel Survey sampling errors arising from a larger pooled sample size over the longer time period. This improvement has been similarly applied when testing for significant changes in the 5 year rolling average trend.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due

to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when "Ireland" is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this target is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. With regards to the Travel Survey in Northern Ireland, the relatively small sample size can be an issue for certain sub-groups; however, pedestrians account for a large enough subgroup that the uncertainty present is relatively low. In the most recent 5 years, all but one of the annual changes have been shown to be statistically significant suggesting that this element of uncertainty is not impacting upon the indicator's ability to detect change. The accuracy and reliability of the overall indicator is therefore regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England

indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the recording of serious injuries and the production of travel and population estimates.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The data are freely available in the public domain from the PSNI, NISRA and DFI websites (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 4: Rate of pedal cyclist KSIs per 100 million kilometres cycled

Indicator Definition: This rate is calculated using the number of pedal cyclists who were killed or seriously injured on a public highway in Northern Ireland and the total number of kilometres cycled in NI each year (based on the average distance cycled per person multiplied by the estimated number of people in the population of Northern Ireland at 30 June (usually resident population)).

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

The *bicycle* category includes travel on all forms of bicycle or tricycle not mechanically propelled, with the exception of children's toy bicycles or tricycles not primarily intended as a means of transport. Children who accompany an adult on a journey e.g. a visit to the shops on these bicycles (where the adult is walking) are coded as having walked there.

Calculation:

$$Rate\ of\ pedal\ cyclist\ KSIs\ per\ 100\ million\ kilometres\ cycled =$$

$$\frac{Number\ of\ pedal\ cyclists\ killed\ or\ seriously\ injured\ on\ the\ road}{Total\ number\ of\ kilometres\ cycled\ (100\ million)}$$

Where: $Total\ number\ of\ kilometres\ cycled\ (100\ million) =$

$$\frac{Miles\ cycled\ per\ person\ \times 1.609\ \times Population\ (count)}{100000000}$$

The following conversion factors have been applied in this calculation:
1 Mile = 1.609 Kilometres

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, Travel Survey for Northern Ireland (TSNI) and NISRA Mid-Year Population Estimates.

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '3. Road User Type', column G'.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx- see 'Table 1'.

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20_SYA.xlsx

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '3_Road_User_Type', column G.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see 'Table 1'

http://www.ninis2.nisra.gov.uk/Download/Population/Components%20of%20Population%20Change%20(administrative%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data

The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. Therefore published data is comparable with GB up to 2012, and with England following that. The National Travel Survey in Ireland reports results for distance travelled, however due to a differing methodology results are not viewed as directly comparable. DfI are not currently aware of any directly comparable International Statistics relating to distance travelled.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data

Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice.

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but

also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilised in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Travel Survey Data

The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence range for the estimated distance cycled 2002-2019 as published in the Travel Survey.

Average distance cycled per person per year, 2002-2019

Year	Cycling Estimate	Cycling 95% confidence range +/-
2002-2004	17	6
2003-2005	20	7
2004-2006	18	7
2005-2007	19	6
2006-2008	16	5
2007-2009	20	6
2008-2010	19	5
2009-2011	22	6
2010-2012	28	6
2011-2013	26	7
2012-2014	28	7
2013-2015	27	8
2014-2016	33	9
2015-2017	34	9
2016-2018	32	8
2017-2019*	34	9

Source: Travel Survey for Northern Ireland

** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:

https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the cycling distance estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of pedal cyclist KSIs based on 95% confidence intervals of 100 million kilometres cycled

Northern Ireland (2004-2021)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	95.59	61.85	45.72
2005	80.25	52.16	38.64
2006	110.21	67.35	48.49
2007	86.84	59.42	45.16
2008	88.92	61.13	46.58
2009	79.21	55.45	42.65
2010	120.52	88.81	70.31
2011	104.91	76.30	59.95
2012	88.30	69.38	57.13
2013	82.24	60.10	47.35
2014	99.70	74.77	59.82
2015	70.66	49.73	38.36
2016	89.00	64.73	50.86
2017	69.10	50.81	40.17
2018	64.68	48.51	38.81
2019	77.46	56.95	45.03
2020	64.25	47.25	37.36
2021	83.60	61.47	48.61
2004-2008 Baseline	83.28	60.15	47.07

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Travel Survey for Northern Ireland, Department for Infrastructure, NISRA Mid-Year Population Estimates

Note that a narrower confidence interval was newly calculated in 2017 for the 5 year baseline period. This takes account of reduced Travel Survey sampling errors arising from a larger pooled sample size over the longer time period. This improvement has been similarly applied when testing for significant changes in the 5 year rolling average trend.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when "Ireland" is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this target is deemed highly relevant.

Whilst police data on road traffic collisions remains the most detailed, complete and reliable source of information on road traffic casualties, the potential for casualties to go unreported gives this data a medium level of accuracy and reliability. It is, however, the uncertainty associated with the Travel Survey data relating to distance travelled by pedal cycle, that presents the biggest difficulty to calculating a reliable indicator of change over time.

The annual sample size of the Travel Survey in Northern Ireland is small; hence three years of survey data are combined in order to provide robust estimates at overall population level and for large sub-groups. However, the subgroup represented by pedal cyclists is not sufficiently large to provide reliable estimates for this indicator (as highlighted by the large 95% confidence interval around the indicator). It had initially been thought that basing these indicators instead on numbers of cyclists in force, rather than distance travelled may have provided an acceptable alternative. A consultation with users did not highlight any objections to this proposal. However, it does assume that the distance travelled per cyclist has remained reasonably constant over time. With evidence from the Travel Survey in England, where small sub-group sample sizes are not such an issue, showing that the kilometres travelled by pedal cycle per person per year has been increasing over time it was felt that it could be misleading to present alternative casualty risk indicators that did not make some attempt to capture distance travelled.

Work was subsequently taken forward to attempt to reduce the uncertainty around the indicators by pooling more years of Travel Survey data and hence increasing the effective sample size. Whilst this did not prove to be a very successful strategy in terms of markedly reducing the confidence intervals associated with individual KSI rates, it did reveal that more recent large changes that were reported in distance travelled for cyclists since the baseline period were, in fact, statistically significant. These significant results were obtained by pooling 5 years' worth of travel survey data which is the same time period for construction of the baseline indicators. This is an important finding as it means that we can then be confident that any change in a KSI rate which is based on a statistically significant change in distance travelled (from the baseline period), **is a real change**. This is true, even if the resultant KSI rate itself has not itself experienced much movement. Taking all of this in to account – i.e. by reporting only on the pooled 5 years of data and examining the statistical significance of the component parts of the rate, the accuracy and reliability of the indicator is therefore assessed as (low) medium. That said – further work is required in order to better detect statistically significant changes in the overall trend, or indeed to determine whether the trend, or parts of it, are stationary.

The PSNI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are

deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the recording of serious injuries and the production of travel and population estimates.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date. The data are freely available in the public domain from the PSNI and DFI website (however the TSNI data is not available in open data format) (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 5: Rate of motorcyclist KSIs per 100 million motorcycle kilometres

Indicator Definition: This rate is calculated using the number of motorcyclists who were killed or seriously injured on a public highway in Northern Ireland and the total number of motorcycle kilometres in NI each year (based on the average distance travelled per person by motorcycle multiplied by the estimated number of people in the population of Northern Ireland at 30 June (usually resident population)).

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

The motorcycle category covers all two wheeled motorised vehicles used for private transport.

Calculation:

$$Rate\ of\ motorcyclist\ KSIs\ per\ 100\ million\ motorcycle\ kilometres = \frac{Number\ of\ motorcyclists\ killed\ or\ seriously\ injured\ on\ the\ road}{Total\ number\ of\ motorcycle\ kilomotres\ (100\ million)}$$

Where: $Total\ number\ of\ motorcycle\ kilometres\ (100\ million) =$

$$\frac{Miles\ travelled\ per\ person\ by\ motorcycle\ \times 1.609\ \times Population\ (count)}{100000000}$$

The following conversion factors have been applied in this calculation:
1 Mile = 1.609 Kilometres

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, Travel Survey for Northern Ireland (TSNI) and NISRA Mid-Year Population Estimates.

Indicator data (MS Excel):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls - see sheet '3. Road User Type', column G'.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx- see 'Table 1'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '3_Road_User_Type', column G.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see 'Table 1'

http://www.ninis2.nisra.gov.uk/Download/Population/Components%20of%20Population%20Change%20(administrative%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data

The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. Therefore published data is comparable with GB up to 2012, and with England following that. The National Travel Survey in Ireland reports results for distance travelled, however due to a differing methodology results are not viewed as directly comparable. DfI are not currently aware of any directly comparable International Statistics relating to distance travelled.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data

Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but

also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilized in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Travel Survey Data

The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.
As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence range for the estimated distance travelled by motorcycle 2002-2019 as published in the Travel Survey.

Average distance travelled by motorcycle per person per year, 2002-2019

Year	Motorcycling	
	Estimate	95% confidence range +/-
2002-2004	31	13
2003-2005	31	12
2004-2006	30	13
2005-2007	20	10
2006-2008	11	6
2007-2009	14	7
2008-2010	14	7
2009-2011	13	7
2010-2012	8	5
2011-2013	6	4
2012-2014	11	8
2013-2015	14	9
2014-2016	14	9
2015-2017	14	9
2016-2018	11	8
2017-2019*	12	8

Source: Travel Survey for Northern Ireland

** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the motorcycle distance estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of motorcyclist KSIs based on 95% confidence intervals of 100 million motorcycle kilometres

Northern Ireland (2004-2020)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	332.38	192.99	135.97
2005	302.92	185.66	133.85
2006	297.82	168.77	117.74
2007	539.77	269.88	179.92
2008	964.14	438.25	283.57
2009	762.44	381.22	254.15
2010	590.32	295.16	196.77
2011	616.60	284.58	184.98
2012	1136.02	426.01	262.16
2013	1715.34	571.78	343.07
2014	1091.84	297.77	172.40
2015	550.47	196.60	119.67
2016	614.12	219.33	133.50
2017	591.33	211.19	128.55
2018	1,189.08	324.29	187.75
2019	713.84	237.95	142.77
2020	754.13	251.38	150.83
2021	865.42	288.47	173.08
2004-2008 Baseline	415.31	257.09	186.17

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Travel Survey for Northern Ireland, Department for Infrastructure, NISRA Mid-Year Population Estimates

Note that a narrower confidence interval was newly calculated in 2017 for the 5 year baseline period. This takes account of reduced Travel Survey sampling errors arising from a larger pooled sample size over the longer time period. This improvement has been similarly applied when testing for significant changes in the 5 year rolling average trend.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as

young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when "Ireland" is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this target is deemed highly relevant.
Whilst police data on road traffic collisions remains the most detailed, complete and reliable source of information on road traffic casualties, the potential for casualties to go unreported gives this data a medium level of accuracy and reliability. It is, however, the uncertainty associated with the Travel Survey data relating to distance travelled by motorcycle, that presents the biggest difficulty to calculating a reliable indicator of change over time.

The annual sample size of the Travel Survey in Northern Ireland is small; hence three years of survey data are combined in order to provide robust estimates at overall population level and for large sub-groups. However, the subgroup represented by motorcyclists is not sufficiently large to provide reliable estimates for this indicator (as highlighted by the large 95% confidence interval around the indicator). It had initially been thought that basing these indicators instead on numbers of motorcyclist licences in force, rather than distance travelled may have provided an acceptable alternative.

A consultation with users did not highlight any objections to this proposal. However, it does assume that the distance travelled per motorcyclist has remained reasonably constant over time. With evidence from the Travel Survey in England, where small sub-group sample sizes are not such an issue, showing that the kilometres travelled by motorcycle per person per year has been decreasing over time it was felt that it could be misleading to present alternative casualty risk indicators that did not make some attempt to capture distance travelled.

Work was subsequently taken forward to attempt to reduce the uncertainty around the indicators by pooling more years of Travel Survey data and hence increasing the effective sample size. Whilst this did not prove to be a very successful strategy in terms of markedly reducing the confidence intervals associated with individual KSI rates, it did reveal that more recent large changes that were reported in distance travelled for motorcyclists since the baseline period were, in fact, statistically significant. These significant results were obtained by pooling 5 years' worth of travel survey data which is the same time period for construction of the baseline indicators. This is an important finding as it means that we can then be confident that any change in a KSI rate which is based on a statistically significant change in distance travelled (from the baseline period), **is a real change**. This is true, even if the resultant KSI rate itself has not itself experienced much movement. Taking all of this in to account – i.e. by reporting only on the pooled 5 years of data and examining the statistical significance of the component parts of the rate, the accuracy and reliability of the indicator is therefore assessed as (low) medium. That said – further work is required in order to better able to better detect statistically significant changes in the overall trend, or indeed to determine whether the trend, or parts of it, are stationary. There is also the possibility that mileage data captured as part of the MoT test may provide an alternative, and more reliable data source in future, subject to it having it good historical coverage.

The PSNI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the recording of serious injuries and the production of travel and population estimates.

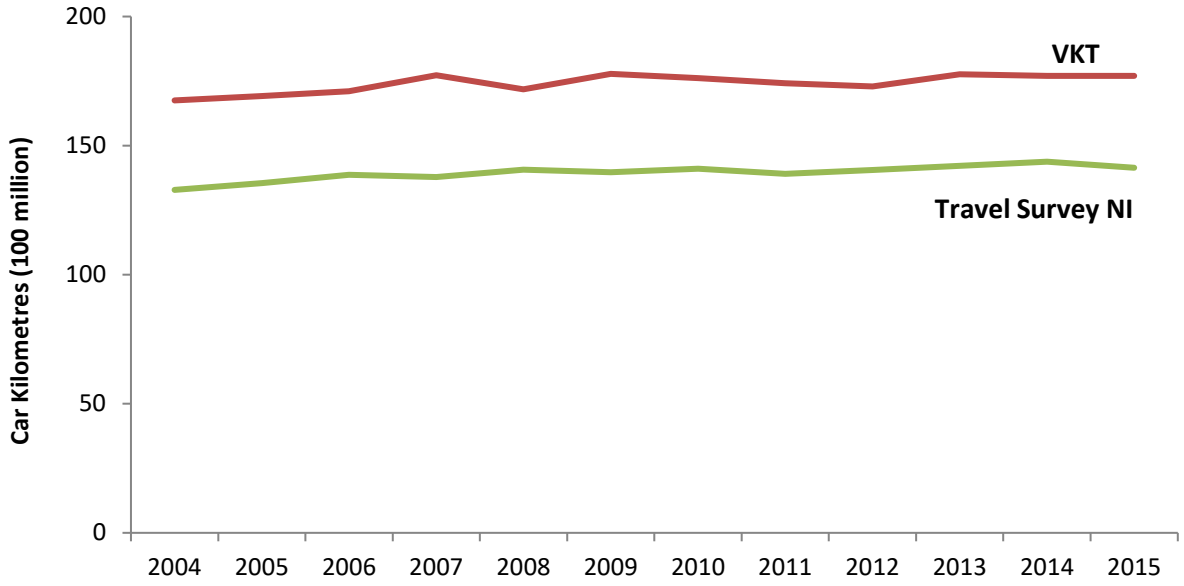
The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date. The data are freely available in the public domain from the PSNI and DFI website (however the TSNI data is not available in open data format) (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 6: Rate of car users KSIs per 100 million kilometres (cars and vans)

Please note: In 2017, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2017, one of the primary sources of data was the Vehicle Kilometres Travelled (VKT), however, the last available year of data for the VKT was 2014; due to budget constraints the survey is no longer being carried out. Therefore, an alternative source of data was required to enable continued reporting – the Travel Survey for Northern Ireland (TSNI).

ASRB carried out extensive analysis to determine whether estimates produced using the new data source are robust. The chart below shows the comparison of vehicle kilometres travelled (100 million) using both data sources. While the VKT was originally considered more appropriate for use due to single year data and larger sample size, the TSNI is the next best estimate, and the fact that the two trend lines track each other so consistently is an indication that the TSNI will be sufficient for our reporting needs. Note that the TSNI does not include driving for work (hence excludes bus and taxi drivers, delivery vehicles, etc.) so will always produce lower mileage estimates than the VKT which included all road journeys within NI. However, it is the trend that is of primary interest when assessing change in this KPI, rather than its absolute value, and the chart below shows that this is generally consistent between the sources.

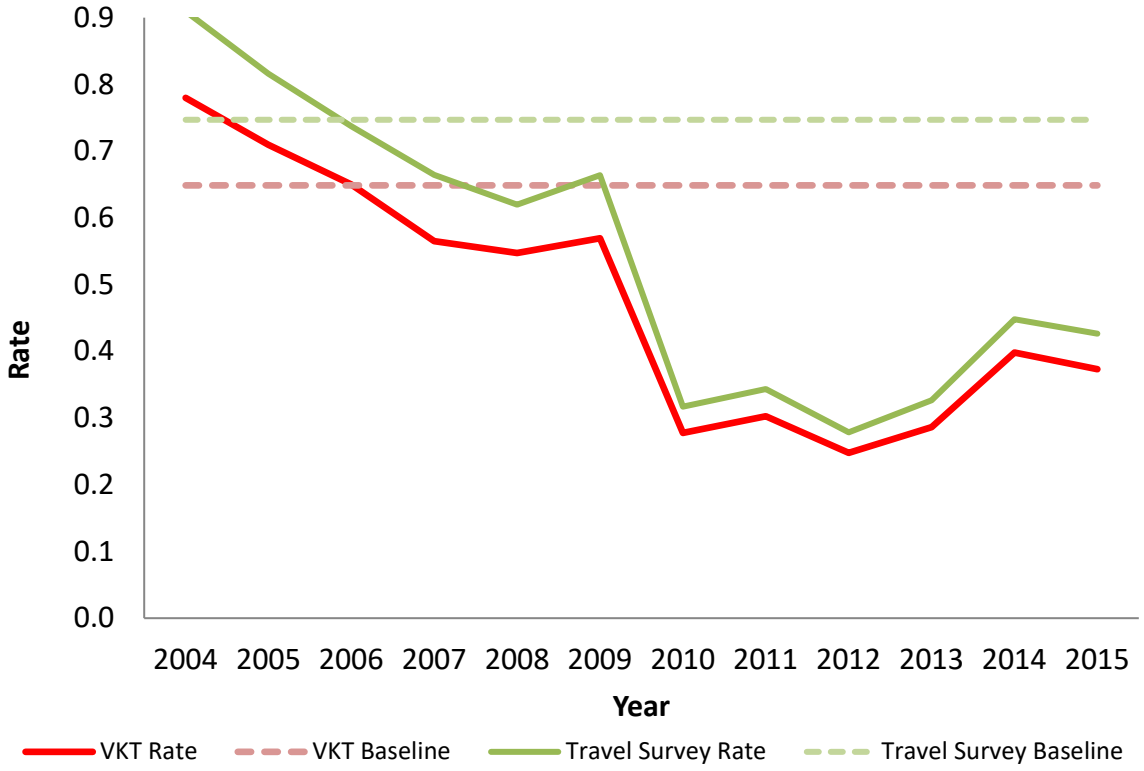
Comparison of Car Kilometres (100 million) travelled from VKT and Travel Survey Northern Ireland, 2004-2015



Source: Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Furthermore, the chart below compares the rates for this indicator when calculated using the two different data sources. Once again, the two trend lines are very consistent, indicating that the TSNI data is a sufficient replacement for the VKT in the calculation of the rate in this indicator.

Comparison of car user KSIs per 100 million kilometres (cars and vans) from VKT and Travel Survey Northern Ireland, 2004-2015



Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics, Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Indicator Definition: This rate is calculated using the number of car occupants who were killed or seriously injured on a public highway in Northern Ireland and the estimated annual kilometres travelled by car on all roads in Northern Ireland.

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

"Car users" includes occupants of either a car, car used as taxi, hackney cab, or Light Goods Vehicle (LGV). The distance travelled by car includes all miles recorded for "Car driver", "Car passenger" and "Car undefined".

Calculation:

$$Rate\ of\ car\ user\ KSIs\ per\ 100\ million\ kilometres\ (can\ and\ van) =$$

$$\frac{Number\ of\ car\ users\ killed\ or\ seriously\ injured\ on\ the\ road}{Total\ number\ of\ car\ and\ van\ kilomotres\ (100\ million)}$$

Where: $Total\ number\ of\ car\ and\ van\ kilometres\ (100\ million) =$

$$\frac{Miles\ travelled\ per\ person\ by\ car\ \times 1.609\ \times Population\ (count)}{100000000}$$

The following conversion factors have been applied in this calculation:
1 Mile = 1.609 Kilometres

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, (for publications from 2017 onwards) Travel Survey for Northern Ireland (TSNI), (for publications prior to 2017) Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland (2008 onwards) and Roads Service (NI) Annual Traffic and Travel Census (pre-2008).

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls - see sheet '3. Road User Type', column G'.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx- see 'Table 1'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

Indicator data (Open Data Format):
https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '3_Road_User_Type', column G.

https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see 'Table 1'

http://www.ninis2.nisra.gov.uk/Download/Population/Components%20of%20Population%20Change%20(administrative%20geographies).ods

VKTs are not available in Open Data Format.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data (*used in publications from 2017 onwards*)

The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. Therefore published data is comparable with GB up to 2012, and with England following that. The National Travel Survey in Ireland reports results for distance travelled, however due to a differing methodology results are not viewed as directly comparable. DfI are not currently aware of any directly comparable International Statistics relating to distance travelled.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

In order to minimise the burden of completing the travel diary, information on short walks (i.e. under one mile in length) are only collected on day one and walks of 1 mile

or more on days 2-7. The data on short walks are then grossed for the full travel week so that results in this report include short walks for the full seven day period.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Annual Road Traffic Estimates (*used in publications prior to 2017*)
Prior to 2008, VKT estimates were taken from the Roads Service (NI) Annual Traffic and Travel Census. The process for the gathering of data and calculation of VKT was based on a method established jointly by TransportNI and the former DRD's Central Statistics and Research Branch (CSRB) in 1991. This methodology utilised traffic flows and vehicle classification data obtained from 114 (115 in 2008) permanent traffic counter locations that had been selected to provide a sample of all route types across the road network in Northern Ireland.

In 2005, a review of the methodology was conducted. Following a comparison of the various methodologies for calculating VKT used by roads authorities from different parts of the world, the Steering Group recommended that the calculation of VKT in Northern Ireland should be based on a similar methodology to that used by the Department for Transport (DfT) in Great Britain. It was also advised that the methodology should be kept under continuous review.

Annual Road Traffic Estimates for 2008 onwards are mainly based on around 500 manual counts where trained enumerators count traffic by vehicle type over a 12 or 24 hour period. Traffic data is also collected from a network of around 350 Automatic Traffic Counters (ATCs), of which 210 have continuous counts at permanent locations, and the remaining are rotated at defined locations. In addition to counting traffic, the ATCs record some of the physical properties of passing vehicles which are used to classify vehicles by type. These two data sources are combined with road lengths statistics to estimate the vehicle kilometres travelled each year by vehicle type and road type.

Although based on a similar method to GB, results are not directly comparable (see limitations section for further details).

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics
Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data (*used in publications from 2017 onwards*)
Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/.

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Annual Road Traffic Estimates (*used in publications prior to 2017*)
TransportNI carry out numerous quality assurance checks on the data as it progresses from data collection to output. Sites listed on the external contractors brief and the internal teams brief are cross checked with the data provided to TransportNI, Temporary Traffic Counts are checked using a Quality Management System (QMS), the number of completed surveys is also monitored on a regular basis by TransportNI and traffic flow data is examined for any unusual trends or fluctuations.

Statistical staff carry out further checks to query any year-on-year variances to traffic flow, ensure that traffic counts for all vehicle types sum to the correct total for each site, calculate weights to be applied to the data based on the totals from sample sites and ensure that VKT for all vehicle types sum to the total VKT. Internal consistency checks such as this help detect any calculation errors whilst the variance checking around totals ensures that changes are within plausible limits. Any queries are referred back to data provider for a resolution before publication.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Travel Survey Data (*used in publications from 2017 onwards*)

The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of

Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence interval for the estimated distance travelled 2002-2019 as published in the Travel Survey.

Average distance travelled by car per person per year, 2002-2019

Year	Car User	
	Estimate	95% confidence range +/-
2002-2004	4817	131
2003-2005	4871	136
2004-2006	4944	141
2005-2007	4864	139
2006-2008	4916	137
2007-2009	4839	131
2008-2010	4859	132
2009-2011	4762	133
2010-2012	4791	137
2011-2013	4828	139
2012-2014	4855	141
2013-2015	4747	139
2014-2016	4653	138
2015-2017	4614	137
2016-2018	4827	147
2017-2019*	5078	150

Source: Travel Survey for Northern Ireland
"Car user" includes "Car driver", "Car passenger" and "Car undefined"
** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:

https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the car distance travelled estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of car user KSIs based on 95% confidence intervals of 100 million kilometres (cars and vans)

Northern Ireland (2004-2020)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	6.79	6.60	6.43
2005	5.80	5.64	5.49
2006	6.55	6.36	6.18
2007	5.97	5.80	5.63
2008	4.98	4.84	4.71
2009	5.22	5.08	4.94
2010	4.12	4.00	3.90
2011	3.52	3.42	3.32
2012	3.42	3.32	3.23
2013	3.09	3.00	2.92
2014	3.21	3.12	3.03
2015	3.34	3.24	3.15
2016	4.04	3.92	3.81
2017	3.60	3.49	3.39
2018	3.15	3.05	2.96
2019	3.19	3.10	3.01
2020	2.40	2.33	2.26
2021	3.30	3.20	3.11
2004-2008 Baseline	5.93	5.80	5.68

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Travel Survey for Northern Ireland, Department for Infrastructure, NISRA Mid-Year Population Estimates

Annual Road Traffic Estimates (*used in publications prior to 2017*)

The VKT figures are calculated from single day counts which may or may not have taken place on a neutral day, where a neutral day is defined as a weekday between March and October, excluding all public and school holidays. They do not account for the change in weekend traffic flows, school or public holidays or seasonal changes so are therefore not comparable with the GB Road Traffic Estimates.

The growth factors used to estimate annual counts from 12 or 24 hour counts do not take into account the change in weekend traffic flows, school or public holidays or seasonal changes. The implications of this are that the VKT for Northern Ireland may have been overestimated for the period 2008 to 2014 but this has not been quantified by the producers. It should be noted, however, that any overestimation should not bias the overall trend.

Furthermore, traffic counts were taken on a sample of minor roads based on a ±5% error at the 95% confidence level. Therefore, the overall VKT figures for all road types are not exact but sit within a range of possible figures. It has not been possible for the data producer to quantify the margin of error in the total VKT figures presented. However, the maximum change in the VKT total over the last 5 years has been 3%

per annum and was typically much less than this. For the purposes of significance testing, it has been assumed that a maximum of one-third of this annual change (or around +/- 1%) may have been attributable to sampling error. This margin of error has been built in when testing for significant change in the composite fatalities/distance travelled indicator.

When considering trends in data it is important to remember that any figure produced from a sample sits within a range of possible figures. Therefore, what may appear to be an increase or a decrease from one year to the next may not be a 'real' change but just due to the sampling or other errors introduced in the statistical process.

The introduction of a new methodology has led to a discontinuity in the series; however it appears to have had little impact on the overall indicator trend. The VKT Survey for 2008 to 2012 was carried out using both the old and the new methodologies and the results at an overall Northern Ireland level are presented in the following table.

Comparison of old and new VKTs (millions), 2008-2012

Year	Old Methodology	New Methodology
2008	19,760	19,550
2009	20,180	20,200
2010	19,880	19,810
2011	19,830	19,500
2012	19,770	19,370

Source: Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland, 2008 to 2013

Further information on the quality assurance and limitations of the VKT data can be found at:
https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/annual-road-traffic-estimates-vehicle-kilometres-travelled-in-northern-ireland-2014.pdf

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-

recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the Travel Survey in Northern Ireland, the relatively small sample size can be an issue for certain sub-groups; however, car users account for a large enough subgroup that the uncertainty present is relatively low. Examining the historical trend, most annual changes have been shown to be statistically significant suggesting that this element of uncertainty is not impacting upon the indicator's ability to detect change. The accuracy and reliability of the overall indicator is therefore regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the recording of serious injuries and the production of travel and population estimates.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

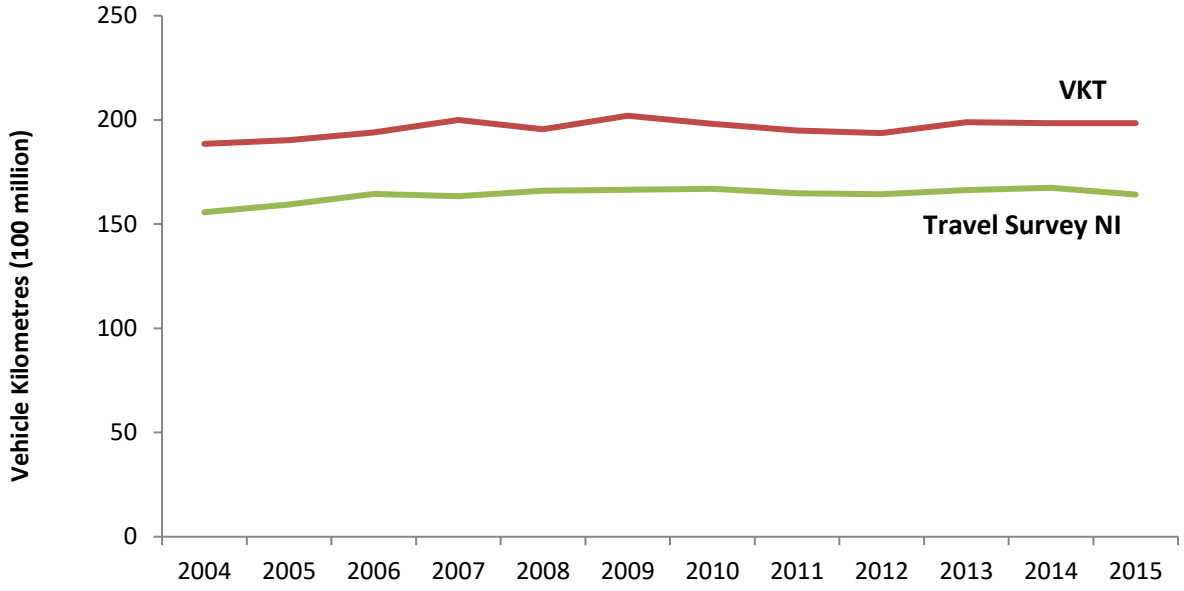
The base data are freely available in the public domain from the PSNI and DfI websites (however only PSNI data is available in open data format) (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 7: Rate of fatal and serious collisions per 100 million vehicle kilometres

Please note: In 2017, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2017, one of the primary sources of data was the Vehicle Kilometres Travelled (VKT), however, the last available year of data for the VKT was 2014; due to budget constraints the survey is no longer being carried out. Therefore, an alternative source of data was required to enable continued reporting – the Travel Survey for Northern Ireland (TSNI).

ASRB carried out extensive analysis to determine whether estimates produced using the new data source are robust. The chart below shows the comparison of vehicle kilometres travelled (100 million) using both data sources. While the VKT was originally considered more appropriate for use due to single year data and larger sample size, the TSNI is the next best estimate, and the fact that the two trend lines track each other so consistently is an indication that the TSNI will be sufficient for our reporting needs. Note that the TSNI does not include driving for work (hence excludes bus and taxi drivers, delivery vehicles, etc.) so will always produce lower mileage estimates than the VKT which included all road journeys within NI. However, it is the trend that is of primary interest when assessing change in this KPI, rather than its absolute value, and the chart below shows that this is generally consistent between the sources.

Comparison of Vehicle Kilometres (100 million) travelled from VKT and Travel Survey Northern Ireland, 2004-2015

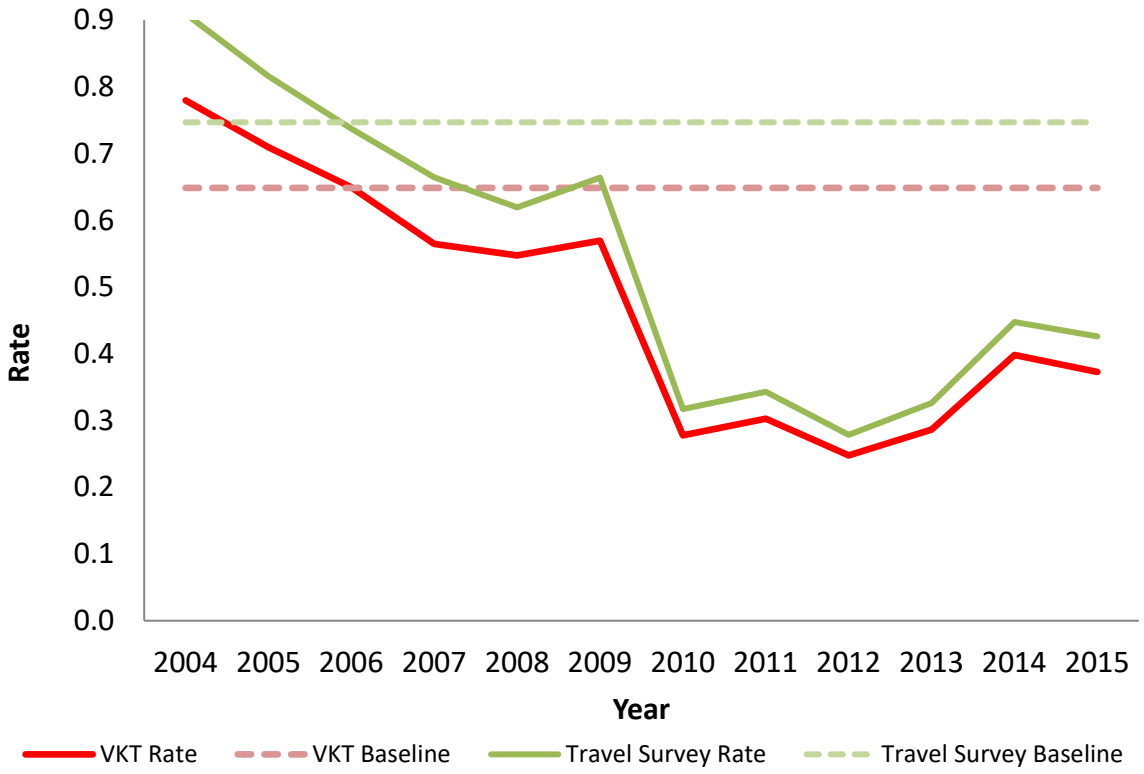


Source: Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Furthermore, the chart below compares the rates for this indicator when calculated using the two different data sources. Once again, the two trend lines are very

consistent, indicating that the TSNI data is a sufficient replacement for the VKT in the calculation of the rate in this indicator.

Comparison of road deaths per 100 million vehicle kilometres from VKT and Travel Survey Northern Ireland, 2004-2015



Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics, Vehicle kilometres travelled (VKT) in Northern Ireland, DfI, Travel Survey for Northern Ireland and NISRA Mid-Year Population Estimates

Indicator Definition: This rate is calculated using the number of collisions involving a fatality or serious injury on the public highway (including footpaths) in which a vehicle is involved and the kilometres travelled (100million) by all motorised road vehicles. “All motorised road vehicles" includes all travel modes apart from "Walk", "Bicycle" and "NI Railways".

Collisions are categorised as either ‘Fatal’, ‘Serious’ or ‘Slight’ according to the most severely injured casualty.

Killed is defined as those who died within 30 days from injuries received. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an ‘in-patient’, or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Calculation:

$$Rate\ of\ fatal\ and\ serious\ collisions\ per\ 100\ million\ vehicle\ kilometres =$$

$$\frac{Number\ of\ fatal\ and\ serious\ injury\ collisions}{Number\ of\ Vehicle\ Kilometres\ Travelled\ (100\ million)}$$

Where: $Number\ of\ kilometres\ travelled\ by\ all\ vehicles\ (100\ million) =$

$$\frac{Vehicle\ miles\ travelled\ per\ person\ \times 1.609\ \times Population\ (count)}{100000000}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland, (for publications from 2017 onwards) Travel Survey for Northern Ireland (TSNI), (for publications prior to 2017) Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland (2008 onwards) and Roads Service (NI) Annual Traffic and Travel Census (pre-2008).

Indicator data (MS Excel): https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.xls- see sheet '1. Year', columns C+D.

(*For publications from 2017 onwards*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.xlsx - see Table 1.

(*For publications prior to 2017*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/annual-road-traffic-estimates-2014.xls - see 'VKT by Vehicle Type'.

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-key-statistics-tables.ods - see sheet '1__Year', columns B+C.

(*For publications from 2017 onwards*) https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/tsni-headline-report-2017-2019-tables.ods - see Table_1.

VKTs are not available in Open Data Format.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules,

particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Travel Survey Data (*used in publications from 2017 onwards*)
The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. Therefore published data is comparable with GB up to 2012, and with England following that. The National Travel Survey in Ireland reports results for distance travelled, however due to a differing methodology results are not viewed as directly comparable. DfI are not currently aware of any directly comparable International Statistics relating to distance travelled.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions. Questions are also asked about each household vehicle.

Each individual interviewed is asked to complete a seven day travel diary, which collects information on all journeys 50 metres or more. Details collected for each journey include the purpose of the journey, the length of the journey and the method of travel. The personal information collected from the initial computer interview allows details such as age, sex, working status, etc. to be linked to the journey data.

In order to minimise the burden of completing the travel diary, information on short walks (i.e. under one mile in length) are only collected on day one and walks of 1 mile or more on days 2-7. The data on short walks are then grossed for the full travel week so that results in this report include short walks for the full seven day period.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Annual Road Traffic Estimates (*used in publications prior to 2017*)
Prior to 2008, VKT estimates were taken from the Roads Service (NI) Annual Traffic and Travel Census. The process for the gathering of data and calculation of VKT was based on a method established jointly by TransportNI and the former DRD's Central Statistics and Research Branch (CSRB) in 1991. This methodology utilised traffic flows and vehicle classification data obtained from 114 (115 in 2008) permanent traffic counter locations that had been selected to provide a sample of all route types across the road network in Northern Ireland.

In 2005, a review of the methodology was conducted. Following a comparison of the various methodologies for calculating VKT used by roads authorities from different parts of the world, the Steering Group recommended that the calculation of VKT in Northern Ireland should be based on a similar methodology to that used by the Department for Transport (DfT) in Great Britain. It was also advised that the methodology should be kept under continuous review.

Annual Road Traffic Estimates for 2008 onwards are mainly based on around 500 manual counts where trained enumerators count traffic by vehicle type over a 12 or 24 hour period. Traffic data is also collected from a network of around 350 Automatic Traffic Counters (ATCs), of which 210 have continuous counts at permanent locations, and the remaining are rotated at defined locations. In addition to counting traffic, the ATCs record some of the physical properties of passing vehicles which are used to classify vehicles by type. These two data sources are combined with road lengths statistics to estimate the vehicle kilometres travelled each year by vehicle type and road type.

Although based on a similar method to GB, results are not directly comparable (see limitations section for further details).

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics
Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Travel Survey Data (*used in publications from 2017 onwards*)
Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues. CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/.

The validated CSU datasets are passed to independent statisticians in ASRB who then produce the National Statistics from which the journey time estimates are sourced. All estimates are subjected to variance checking by the ASRB statisticians with all large variances thoroughly investigated. This independent sense checking of the estimates provides assurance that the underlying data are fit-for-purpose and errors have not been made during the production of the statistics.

Annual Road Traffic Estimates (*used in publications prior to 2017*)
TransportNI carry out numerous quality assurance checks on the data as it progresses from data collection to output. Sites listed on the external contractors brief and the internal teams brief are cross checked with the data provided to TransportNI, Temporary Traffic Counts are checked using a Quality Management System (QMS), the number of completed surveys is also monitored on a regular basis by TransportNI and traffic flow data is examined for any unusual trends or fluctuations.

Statistical staff carry out further checks to query any year-on-year variances to traffic flow, ensure that traffic counts for all vehicle types sum to the correct total for each site, calculate weights to be applied to the data based on the totals from sample sites and ensure that VKT for all vehicle types sum to the total VKT. Internal consistency checks such as this help detect any calculation errors whilst the variance checking around totals ensures that changes are within plausible limits. Any queries are referred back to data provider for a resolution before publication.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics
The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore

keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Travel Survey Data (*used in publications from 2017 onwards*)
The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data need to be combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence interval for the estimated distance travelled 2002-2019 as published in the Travel Survey.

Average distance travelled by motorised vehicle per person per year, 2002-2019

Year	All motorised vehicles	
	Estimate	95% confidence range +/-
2002-2004	5646	139
2003-2005	5735	145
2004-2006	5866	153
2005-2007	5763	149
2006-2008	5798	147
2007-2009	5768	142
2008-2010	5750	146
2009-2011	5643	148
2010-2012	5599	149
2011-2013	5648	151
2012-2014	5654	152
2013-2015	5510	148
2014-2016	5377	146
2015-2017	5337	144
2016-2018	5559	157
2017-2019*	5798	159

Source: Travel Survey for Northern Ireland

"All motorised road vehicles" includes all travel modes apart from "Walk", "Bicycle" and "NI Railways"

** It was decided that due to the methodology changes as a result of the pandemic, it would not be appropriate to combine 2020 data with previous years. Due to this, 2017-2019 TSNI data was used to work out the travel estimates for 2021.*

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:

https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Composite Index

Taking the confidence range of the distance travelled estimates above and applying these to the composite indicator yields the following uncertainty range around the published indicator:

Rates of fatal and serious collisions based on 95% confidence intervals of 100 million vehicle kilometres

Northern Ireland (2004-2020)

Year	Upper 95% confidence limit	Published Rate	Lower 95% confidence limit
2004	6.74	6.57	6.41
2005	6.19	6.03	5.89
2006	6.33	6.16	6.01
2007	5.93	5.77	5.63
2008	5.64	5.49	5.36
2009	5.73	5.59	5.45
2010	4.77	4.65	4.54
2011	4.77	4.64	4.53
2012	4.50	4.38	4.27
2013	4.14	4.03	3.92
2014	4.00	3.89	3.79
2015	4.00	3.89	3.79
2016	4.81	4.68	4.56
2017	4.51	4.39	4.28
2018	4.15	4.03	3.92
2019	4.03	3.92	3.81
2020	3.31	3.22	3.13
2021	4.04	3.93	3.83
2004-2008 Baseline	6.06	5.94	5.83

Annual Road Traffic Estimates (*used in publications prior to 2017*)

The VKT figures are calculated from single day counts which may or may not have taken place on a neutral day, where a neutral day is defined as a weekday between March and October, excluding all public and school holidays. They do not account for the change in weekend traffic flows, school or public holidays or seasonal changes so are therefore not comparable with the GB Road Traffic Estimates.

The growth factors used to estimate annual counts from 12 or 24 hour counts do not take into account the change in weekend traffic flows, school or public holidays or seasonal changes. The implications of this are that the VKT for Northern Ireland may have been overestimated for the period 2008 to 2014 but this has not been quantified by the producers. It should be noted, however, that any overestimation should not bias the overall trend.

Furthermore, traffic counts were taken on a sample of minor roads based on a ±5% error at the 95% confidence level. Therefore, the overall VKT figures for all road types are not exact but sit within a range of possible figures. It has not been possible for the data producer to quantify the margin of error in the total VKT figures presented. However, the maximum change in the VKT total over the last 5 years has been 3% per annum and was typically much less than this. For the purposes of significance testing, it has been assumed that a maximum of one-third of this annual change (or

around +/- 1%) may have been attributable to sampling error. This margin of error has been built in when testing for significant change in the composite fatalities/distance travelled indicator.

When considering trends in data it is important to remember that any figure produced from a sample sits within a range of possible figures. Therefore, what may appear to be an increase or a decrease from one year to the next may not be a 'real' change but just due to the sampling or other errors introduced in the statistical process.

The introduction of a new methodology has led to a discontinuity in the series; however it appears to have had little impact on the overall indicator trend. The VKT Survey for 2008 to 2012 was carried out using both the old and the new methodologies and the results at an overall Northern Ireland level are presented in the following table.

Comparison of old and new VKTs (millions), 2008-2012

Year	Old Methodology	New Methodology
2008	19,760	19,550
2009	20,180	20,200
2010	19,880	19,810
2011	19,830	19,500
2012	19,770	19,370

Source: Annual Road Traffic Estimates: Vehicle Kilometres Travelled in Northern Ireland, 2008 to 2013

Further information on the quality assurance and limitations of the VKT data can be found at:
https://www.infrastructure-ni.gov.uk/system/files/publications/infrastructure/annual-road-traffic-estimates-vehicle-kilometres-travelled-in-northern-ireland-2014.pdf

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity			✓

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is

therefore regarded as medium. With regards to the Travel Survey in Northern Ireland, the relatively small sample size can be an issue for certain sub-groups; however, as this indicator concerns all motor vehicle kilometres, the uncertainty present is relatively low. Looking at the historical trend, most annual changes have been shown to be statistically significant suggesting that this element of uncertainty is not impacting upon the indicator's ability to detect change. The accuracy and reliability for the overall indicator is still assessed as medium – particularly when focussing on the 5 year moving average trend. The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). The TSNI is based on the National Travel Survey (NTS), which provides travel data for GB up to 2012, and for England from 2013 onwards, therefore the indicator will be directly comparable with GB/England indicators. There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. Taking all this into account, coherence and comparability is classified as medium because of international differences in the recording of serious injuries and the production of travel and population estimates.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are freely available in the public domain from the PSNI and DfI websites (however only PSNI data is available in open data format) (see links above). In addition, the indicator itself is based on a clear definition.

Key Performance Indicator 8: Rate of people aged over 70 killed or seriously injured in road collisions per 100,000 population aged over 70

Indicator Definition: This rate is calculated using the number of people over the age of 70 who were killed or seriously injured on a public highway in Northern Ireland and the estimated population of Northern Ireland over the age of 70 at 30 June (usually resident population).

Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Calculation:

$$Rate\ of\ people\ aged\ over\ 70\ killed\ or\ seriously\ injured\ in\ road\ collisions\ per\ 100{,}000\ population\ aged\ over\ 70 =$$

$$\frac{Number\ of\ people\ aged\ over\ 70\ killed\ or\ seriously\ injured\ on\ the\ road}{Population\ aged\ over\ 70\ (100{,}000)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland and NISRA Mid-Year Population Estimates.

Indicator data (MS Excel):

No published PSNI data available

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

Indicator data (Open Data Format):

No published PSNI data available

No published population data available

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside

of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilised in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at: https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf. This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when “Ireland” is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. The accuracy and reliability of the overall indicator is therefore still regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. As results are not comparable at an International level though, coherence and comparability is assessed as medium.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. The indicator itself is based on a clear definition.

Key Performance Indicator 9: Number of people killed in collisions on rural roads

Indicator Definition: The number of people who died within 30 days from injuries received in a collision on a rural road (public highway) in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Rural roads are defined as having a speed limit of above 40 miles per hour, excluding motorways and dual carriageways.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (pdf): https://www.psni.police.uk/globalassets/inside-the-psni/our-statistics/road-traffic-collision-statistics/2021/2021-detailed-trends-report.pdf - see Page 35

Indicator data (MS Excel):

No published PSNI data available.

Indicator data (Open Data Format):

No published PSNI data available.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant. The definition of what constitutes a 'rural road' is not consistent across the UK. For this indicator, and in line with the PSNI definition, a rural road is one with "a speed limit of greater than 40mph", while in GB the definition of rural is, "Major roads and minor roads outside urban areas and having a population of less than 10 thousand." However, GB data is available by speed limit of the road, and so comparable statistics may be constructed if desired. The same will be true of Ireland and International; if data is available by speed limit of the road, comparisons can be made.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official

Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:
Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. The accuracy and reliability of this indicator is therefore regarded as high.

The data are not directly comparable with GB and ROI due to differences in the definition of 'Rural road'. Although comparable statistics may still be constructed (based on speed limit of the road - see data collection, above), this may not always be possible if the relevant data is not freely available elsewhere, or proves lengthy or complicated to put together. The coherence and comparability for this indicator would therefore be considered low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. The indicator itself is based on a clear definition.

Key Performance Indicator 10: Number of children (0-15) killed in collisions on rural roads

Indicator Definition: The number of children (aged 0-15) who died within 30 days from injuries received in a collision on a rural road (public highway) in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Rural roads are defined as having a speed limit of above 40 miles per hour, excluding motorways and dual carriageways.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (pdf): https://www.psni.police.uk/globalassets/inside-the-psni/our-statistics/road-traffic-collision-statistics/2021/2021-detailed-trends-report.pdf see Page 35

Indicator data (MS Excel):

No published PSNI data available.

Indicator data (Open Data Format):

No published PSNI data available.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant. The definition of what constitutes a 'rural road' is not consistent across the UK. For this indicator, and in line with the PSNI definition, a rural road is one with "a speed limit of greater than 40mph", while in GB the definition of rural is, "Major roads and minor roads outside urban areas and having a population of less than 10 thousand." However, GB data is available by speed limit of the road, and so comparable statistics may be constructed if desired. The same will be true of Ireland and International; if data is available by speed limit of the road, comparisons can be made. In addition, the definition of what constitutes a 'child', in terms of age range (0-15), is consistent across the UK and Ireland; however, EU statistics report age bands of 0-14 and 15-17.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

The base statistics used in its compilation have been designated as National Statistics, hence its accuracy and reliability is regarded as high.

The data are not directly comparable with GB and ROI due to differences in the definition of 'Rural road'. Although comparable statistics may still be constructed (based on speed limit of the road - see data collection, above), this may not always be possible if the relevant data is not be freely available elsewhere, or proves lengthy or complicated to put together. In addition, the definition of what constitutes a 'child', in terms of age range (0-15), is not consistent across all jurisdictions. While the UK and Ireland report on comparable age bands, EU statistics report 0-14 and 15-17. The coherence and comparability for this indicator would therefore be considered low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. The indicator itself is based on a clear definition.

Key Performance Indicator 11: Number of people killed where alcohol/drugs causation factor was attributed

Indicator Definition: The number of people who died within 30 days from injuries received in a collision on a public highway in Northern Ireland where an alcohol or drug related causation factor was recorded by police as a primary causation factor or an attributing factor. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel):

No published PSNI data available.

Indicator data (Open Data Format):

No published PSNI data available.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

There also exists some small level of uncertainty regarding the reporting of collision causation. For the reporting of this indicator, the uncertainly is present in two particular circumstances:

- Where the driver initially survives the crash, only to die thereafter, bloods from time of hospital admission may not have been obtained due to the seriousness of their condition and over time the presence of alcohol/drugs depletes thereby creating potential uncertainty in such cases. However there may be good witness evidence of alcohol consumption immediately prior to driving and this may be sufficient for police to determine it as a primary causation factor.
- For drivers who cause a fatal collision and are critically injured and the doctor judges that provision of a sample would compromise their recovery prospects, there will be uncertainty as to causation factor unless good witness evidence of unfitness to drive.

The caveat in both cases above is that such numbers are historically low and will always err on the low side.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability			✓
Coherence & comparability			✓
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.

While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. There is some small level of uncertainty regarding the reporting of collision causation, however only a very small number of cases will be affected by this. Accuracy and reliability is regarded as high.

The data are directly comparable with GB and ROI and are considered largely comparable with other international jurisdictions.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. The indicator itself is based on a clear definition.

Key Performance Indicator 12: Number of car occupants killed who were not wearing a seatbelt

Indicator Definition: The number of people who were killed in a collision on a public highway in Northern Ireland, whilst not using a restraint.

The number of people killed is defined as those who died within 30 days from injuries received. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

"Car occupants" includes occupants of either a car, car used as taxi, hackney cab, or Light Goods Vehicle (LGV).

Those who are exempt from wearing a seatbelt are included.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (pdf):

https://www.psni.police.uk/globalassets/inside-the-psni/our-statistics/road-traffic-collision-statistics/2021/2021-detailed-trends-report.pdf- see Page 30

Indicator data (MS Excel):

No published PSNI data available.

Indicator data (Open Data Format):

No published PSNI data available.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection: The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the fatality statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to recording threshold between the collision occurring and a casualty dying. However, such differences, when making comparisons with other jurisdictions, are not considered to be significant.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance: Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty: The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland. It is known that some collisions or casualties are not reported to the PSNI for a variety of reasons, although, comparison of road accident reports with death registrations shows that very few if any road accident fatalities are not reported to the police. Furthermore, this is less of a limitation when examining trends, assuming any potential under-recording remains reasonably constant over time. Users should still exercise caution when interpreting changes in trends based on small numbers of fatalities as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

There also exists a level of uncertainty regarding the reporting of fatalities who were not wearing a seatbelt. PSNI collision investigators have been working hard with colleagues in the other emergency services to emphasize if either NI Fire and Rescue Service or NI Ambulance Service is extracting a vehicle occupant who is wearing a seatbelt, then the seatbelt should be cut, thereby leaving the seatbelt clip in its holster and allowing police to report accordingly. However, where the occupant or other bystanders are initially able to free the belt, it makes it difficult to judge with certainty whether the seatbelt was in use or not.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability			✓
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification: Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is therefore deemed highly relevant.
While some collisions may go unreported to the PSNI, this is more of an issue for collisions involving casualties with lesser injuries; very few (if any) road accident fatalities are not reported. The level of uncertainty present regarding the reporting of fatalities who were not wearing a seatbelt means accuracy and reliability is regarded as medium.

The data are directly comparable with GB and ROI and are considered largely comparable with other international jurisdictions. Uncertainties present regarding the reporting of seatbelt usage will apply to comparable jurisdictions.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. The indicator itself is based on a clear definition.

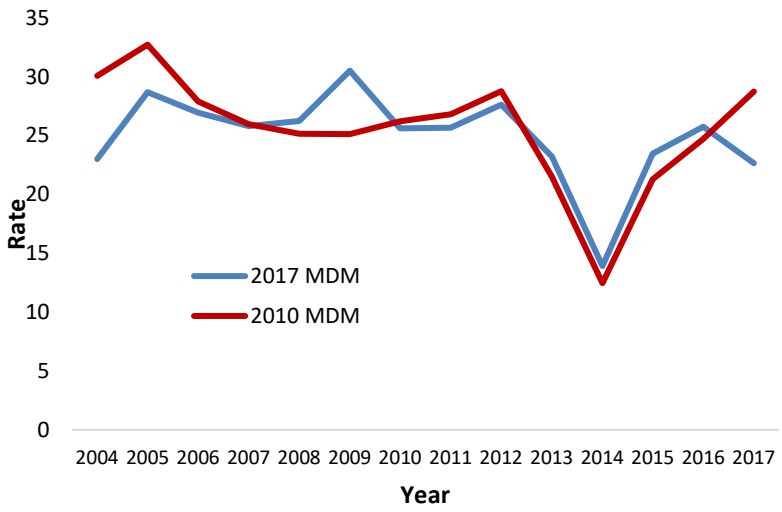
Key Performance Indicator 13: Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in (i) 10% most deprived areas (Collision SOA) and (ii) 10% least deprived areas (Collision SOA)

Please note: In 2018, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2018, one of the primary sources of data was the Northern Ireland Multiple Deprivation Measure 2010 (NIMDM2010); however, this measure was updated in 2017 and replaces the old version. See https://www.nisra.gov.uk/publications/nimdm17-results and https://www.nisra.gov.uk/statistics/deprivation/northern-ireland-multiple-deprivation-measure-2017-nimdm2017 for further information on the new measure.

As such, it has been necessary to revise this indicator based on the new deprivation measure. The tables and charts below show a comparison of the old and new measure up to the introduction of the new measure (2004-2017).

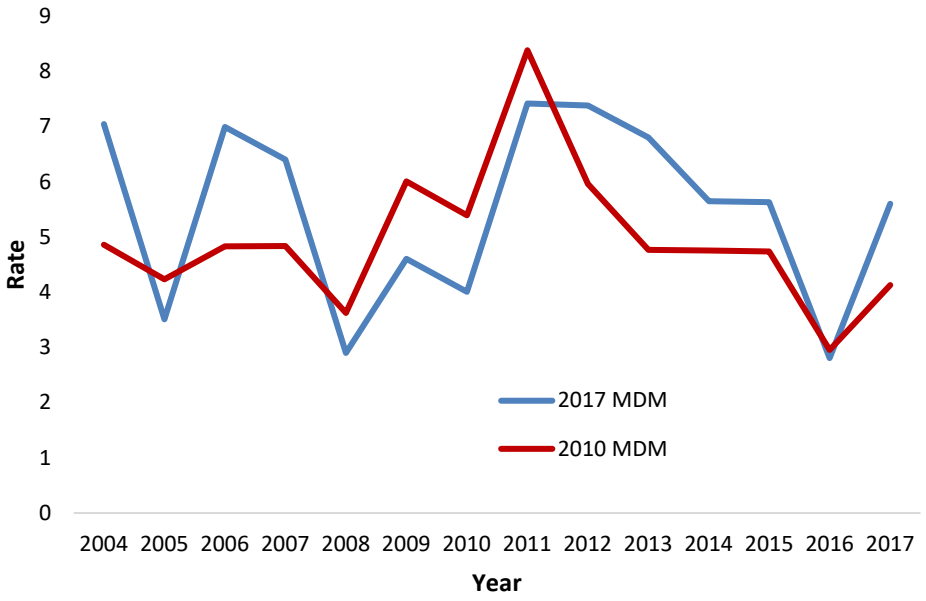
i) Rate of KSIs per 100,000 population in 10% most deprived areas (Collision SOA) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2004	50	38	166,205	165,095	30.08	23.02
2005	54	47	164,954	163,809	32.74	28.69
2006	46	44	164,782	163,207	27.92	26.96
2007	43	42	165,442	162,697	25.99	25.81
2008	42	43	166,947	163,759	25.16	26.26
2009	42	50	167,161	163,801	25.13	30.52
2010	44	42	167,765	163,933	26.23	25.62
2011	45	42	167,757	163,589	26.82	25.67
2012	48	45	166,814	162,881	28.77	27.63
2013	36	38	167,272	163,574	21.52	23.23
2014	21	23	168,441	165,177	12.47	13.92
2015	36	39	169,088	166,098	21.29	23.48
2016	42	43	169,815	166,949	24.73	25.76
2017	49	38	170,428	167,787	28.75	22.65
2004-2008 Baseline	47.0	42.8	165,666	163,713	28.37	26.14



ii) Rate of KSIs per 100,000 population in 10% least deprived areas (Collision SOA) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2004	8	12	164,657	170,230	4.86	7.05
2005	7	6	165,327	171,047	4.23	3.51
2006	8	12	165,505	171,587	4.83	6.99
2007	8	11	165,355	171,835	4.84	6.40
2008	6	5	165,511	172,490	3.63	2.90
2009	10	8	166,440	173,656	6.01	4.61
2010	9	7	166,761	174,547	5.40	4.01
2011	14	13	166,965	175,198	8.38	7.42
2012	10	13	167,663	176,009	5.96	7.39
2013	8	12	167,773	176,426	4.77	6.80
2014	8	10	168,235	177,018	4.76	5.65
2015	8	10	168,797	177,554	4.74	5.63
2016	5	5	169,222	178,091	2.95	2.81
2017	7	10	169,381	178,489	4.13	5.60
2004-2008 Baseline	7.4	9.2	165,271	171,438	4.48	5.37



The charts above show that the trends for the indicator, whether using MDM2010 or MDM2017, track each other - particularly in the 10% most deprived areas. KSI numbers in the least deprived areas tend to be much lower than in the most deprived areas, and this adds to the volatility in the trends. However, in general, they are fairly consistent, and the change in deprivation measure does not alter any conclusions.

Indicator Definition: These rates are calculated using the number of pedestrians who were killed or seriously injured on a public highway in Northern Ireland in (i) the 10% most deprived areas (Collision SOA) and (ii) 10% least deprived areas (Collision SOA); and the estimated number of people in the population in the 10% most/least deprived areas of Northern Ireland at 30 June (usually resident population).

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Pedestrians include

- Children on scooters, roller skates or skateboards;
- Children riding toy cycles on the footpath;
- Persons pushing bicycles or other vehicles or operating pedestrian-controlled vehicles;
- Persons leading or herding animals;
- Occupants of prams or wheelchairs;
- People who alight safely from vehicles and are subsequently injured;
- Persons pushing or pulling a vehicle;
- Persons other than cyclists holding on to the back of a moving vehicle

Calculation:

(i) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent most deprived areas (Collision SOA) =

$$\frac{Number\ of\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

(ii) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent least deprived areas (Collision SOA) =

$$\frac{Number\ of\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland; NISRA Mid-Year Population Estimates; and Northern Ireland Multiple Deprivation Measure (NIMDM).

Indicator data (MS Excel):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.xlsx
See sheet 'Casualty Class Pedestrian'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM17_SA%20-%20for%20publication.xls

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.ods
See sheet 'Casualty Class Pedestrian'

http://www.ninis2.nisra.gov.uk/Download/Population/Population%20Totals%20(statistical%20geographies).ods

(Prior to 2018)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202010%20(statistical%20geographies).ods

(2018 Onwards)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202017%20(statistical%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT). Collision location and casualty residence are geographically referenced (postcode) on the Collision Report Form and hence can be mapped to higher level geographies such as Super Output Area. Casualty residence is only available from 2008 onward.

The data are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).
https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Northern Ireland Multiple Deprivation Measure

The Northern Ireland Multiple Deprivation Measure 2017 provides a relative measure of deprivation in small areas across Northern Ireland. Northern Ireland is split into 890 spatial areas known as Super Output Areas (SOAs), with an average population of around 2,100 people. The number of SOAs in each of the 11 Local Government Districts (LGDs) varies, ranging from 49 in Fermanagh and Omagh to 174 in Belfast. Through interaction with a range of organisations, expert groups and the general public, a total of 38 indicators were identified to capture different types of deprivation while conforming to a number of agreed criteria that had to be met. Distinct types, or domains, of deprivation are made up from one or more indicators. The 7 domains of deprivation are:

- Income Deprivation 25%
- Employment Deprivation 25%
- Health and Disability Deprivation 15%
- Education Skills and Training Deprivation 15%
- Access to Services 10%
- Living Environment 5%
- Crime and Disorder 5%

The indicators in each domain were analysed to produce a domain specific deprivation ranking of the 890 SOAs in Northern Ireland, from 1 (most deprived) to 890 (least deprived). The ranks of the 7 domains were weighted (as shown in percentages above) and combined, to provide a ranking of multiple deprivation (MDM) for the 890 SOAs.

The NIMDM 2017 is based on the same methodology developed by the Social Disadvantage Research Centre in the University of Oxford and used in the NIMDM 2001, 2005, 2010 and multiple deprivation measures in England, Scotland and Wales.

In order to identify the collisions which occurred in the 10 per cent most and 10 per cent least deprived areas for this indicator, the NIMDM 2017 is matched to the PSNI Road Traffic Collision database based on the collision grid reference.

For more information on the seven domains of deprivation and the overall Multiple Deprivation Measure, see the documents at link: https://www.nisra.gov.uk/publications/nimdm17-results

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilized in the production of Population Estimates and Projections for Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Northern Ireland Multiple Deprivation Measure

Domain groups comprising statistical experts were formed to advise the deprivation team on the reliability of the individual indicators. All indicators included met the following criteria:

- specific to one form of deprivation;
- measures major features of deprivation available for all of Northern Ireland in a consistent form;
- direct measures or good proxies of deprivation statistically robust at the small area level; and
- as up to date as possible.

(See https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM%202017_Technical%20Report.pdf for full details).

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of

Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when “Ireland” is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Northern Ireland Multiple Deprivation Measure

Multiple deprivation is a complex concept and has been defined as being a combination of several distinct types of deprivation. The weight given to each of the types or 'domains' of deprivation takes into account the extent to which that domain is thought to measure the relevant form of deprivation, taking data quality issues into consideration.

As a direct measure of multiple deprivation does not exist it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check. That being said, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation.

The Northern Ireland Multiple Deprivation Measure 2017 results are produced as ranks allowing small areas across Northern Ireland to be compared relative to each other within domains. It is not possible to compare ranks for the Multiple Deprivation Measure or the seven domains from the NIMDM 2017, NIMDM 2010 and the NIMDM2005 to make a judgement on whether an area has become more or less deprived. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant. While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. For the NIMDM, although it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation. The accuracy and reliability of the overall indicator is therefore still regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units. Taking all this into account, coherence and comparability is classified as low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The data are freely available in the public domain from the PSNI and NISRA website (see links above). Despite ease of access to the raw data, the calculation used for the indicator is quite complex; accordingly, accessibility and clarity is regarded as medium.

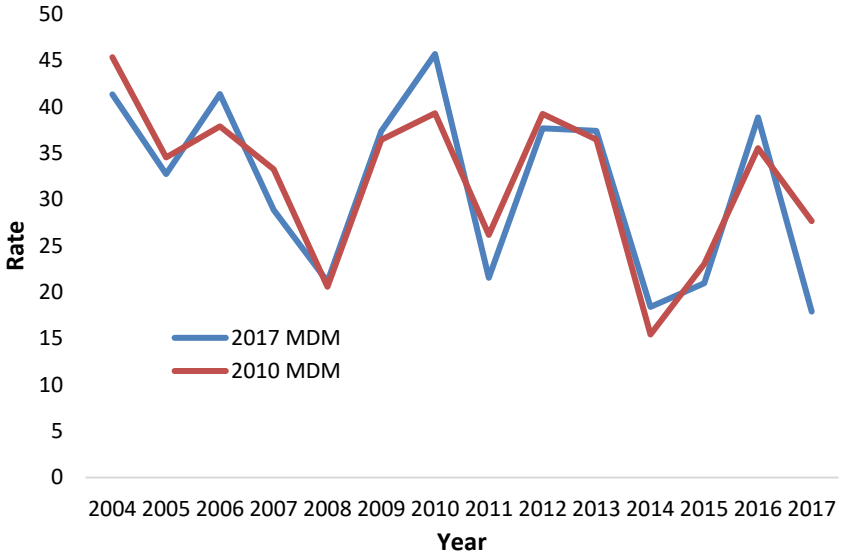
Key Performance Indicator 14: Rate of child pedestrians killed or seriously injured (KSIs) per 100,000 population in (i) 10% most deprived areas (Collision SOA) and (ii) 10% least deprived areas (Collision SOA)

Please note: In 2018, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2018, one of the primary sources of data was the Northern Ireland Multiple Deprivation Measure 2010 (NIMDM2010); however, this measure was updated in 2017 and replaces the old version. See https://www.nisra.gov.uk/publications/nimdm17-results for further information on the new measure.

As such, it has been necessary to revise this indicator based on the new deprivation measure. The tables and charts below show a comparison of before and after.

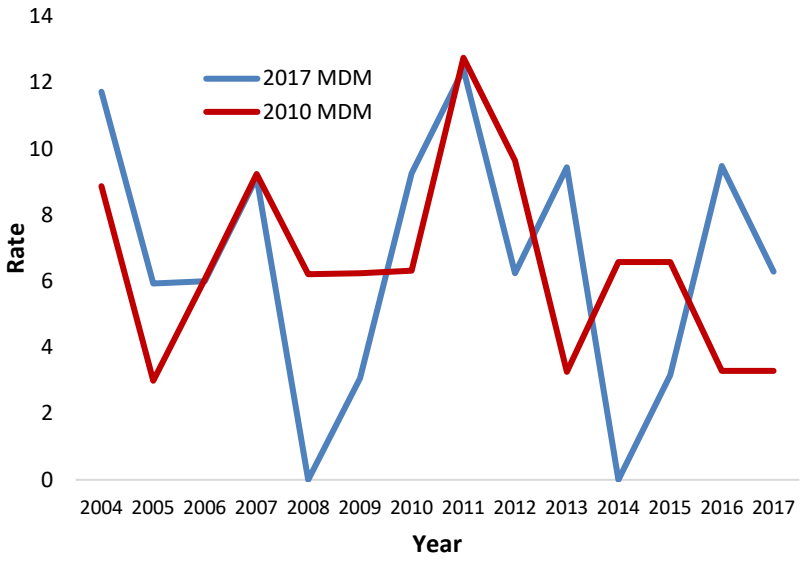
Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2004	19	17	41,895	41,122	45.35	41.34
2005	14	13	40,525	39,687	34.55	32.76
2006	15	16	39,577	38,678	37.90	41.37
2007	13	11	39,098	38,102	33.25	28.87
2008	8	8	38,881	37,865	20.58	21.13
2009	14	14	38,416	37,452	36.44	37.38
2010	15	17	38,157	37,200	39.31	45.70
2011	10	8	38,210	37,106	26.17	21.56
2012	15	14	38,241	37,155	39.22	37.68
2013	14	14	38,383	37,434	36.47	37.40
2014	6	7	38,880	37,990	15.43	18.43
2015	9	8	39,062	38,190	23.04	20.95
2016	14	15	39,387	38,605	35.54	38.86
2017	11	7	39,738	39,093	27.68	17.91
2004-2008 Baseline	13.8	13.0	39,995	39,091	34.50	33.26

i) Rate of Child KSIs per 100,000 population in 10% most deprived areas (Collision SOA) – MDM2010 Vs MDM2017



ii) Rate of Child KSIs per 100,000 population in 10% least deprived areas (Collision SOA) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2004	3	4	33,801	34,125	8.88	11.72
2005	1	2	33,413	33,739	2.99	5.93
2006	2	2	33,043	33,351	6.05	6.00
2007	3	3	32,485	32,840	9.24	9.14
2008	2	0	32,207	32,719	6.21	0.00
2009	2	1	32,022	32,590	6.25	3.07
2010	2	3	31,671	32,403	6.31	9.26
2011	4	4	31,369	32,252	12.75	12.40
2012	3	2	31,090	32,050	9.65	6.24
2013	1	3	30,687	31,784	3.26	9.44
2014	2	0	30,410	31,497	6.58	0.00
2015	2	1	30,390	31,574	6.58	3.17
2016	1	3	30,351	31,631	3.29	9.48
2017	1	2	30,355	31,809	3.29	6.29
2004-2008 Baseline	2.2	2.2	32,990	33,355	6.67	6.60



The charts above show that the trends for the indicator, whether using MDM2010 or MDM2017, track each other - particularly in the 10% most deprived areas. KSI numbers in the least deprived areas tend to be much lower than in the most deprived areas, and this adds to the volatility in the trends. However, in general, they are fairly consistent, and the change in deprivation measure does not alter any conclusions.

Indicator Definition: These rates are calculated using the number of child (under the age of 16) pedestrians who were killed or seriously injured on a public highway in Northern Ireland in (i) the 10 per cent most deprived areas (Collision SOA) and (ii) 10 per

cent least deprived areas (Collision SOA); and the estimated number of children (aged under 16) in the population in the 10 per cent most/least deprived areas of Northern Ireland at 30 June (usually resident population).

The number of children killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Pedestrians include

- Children on scooters, roller skates or skateboards;
- Children riding toy cycles on the footpath;
- Persons pushing bicycles or other vehicles or operating pedestrian-controlled vehicles;
- Persons leading or herding animals;
- Occupants of prams or wheelchairs;
- People who alight safely from vehicles and are subsequently injured;
- Persons pushing or pulling a vehicle;
- Persons other than cyclists holding on to the back of a moving vehicle

Calculation:

(i) Rate of child pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent most deprived areas (Collision SOA) =

$$\frac{Number\ of\ child\ (aged\ under\ 16)\ pedestrians\ \ killed\ or\ seriously\ injured\ on\ the\ road\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI}{Child\ population\ (aged\ under\ 16)\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

(ii) Rate of child pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent least deprived areas (Collision SOA) =

$$\frac{Number\ of\ child\ (aged\ under\ 16)\ pedestrians\ \ killed\ or\ seriously\ injured\ on\ the\ road\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI}{Child\ population\ (aged\ under\ 16)\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland; NISRA Mid-Year Population Estimates; and Northern Ireland Multiple Deprivation Measure (NIMDM).

Indicator data (MS Excel):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.xlsx
See sheet 'Casualty Class Pedestrian'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM17_SA%20-%20for%20publication.xls

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.ods
See sheet 8 'Casualty Class Pedestrian'

http://www.ninis2.nisra.gov.uk/Download/Population/Population%20Totals%20(statistical%20geographies).ods

(Prior to 2018)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202010%20(statistical%20geographies).ods

(2018 Onwards)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202017%20(statistical%20geographies).ods

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT). Collision location and casualty residence are geographically referenced (postcode) on the Collision Report Form and hence can be mapped to higher level geographies such as Super Output Area. Casualty residence is only available from 2008 onward.

The data are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough

understanding of the injury severity threshold applied in the country being compared. In addition, the definition of what constitutes a 'child', in terms of age range (0-15), is consistent across the UK and Ireland; however, EU statistics report age bands of 0-14 and 15-17.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).

https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Northern Ireland Multiple Deprivation Measure

The Northern Ireland Multiple Deprivation Measure 2017 provides a relative measure of deprivation in small areas across Northern Ireland. Northern Ireland is split into 890 spatial areas known as Super Output Areas (SOAs), with an average population of around 2,100 people. The number of SOAs in each of the 11 Local Government Districts (LGDs) varies, ranging from 49 in Fermanagh and Omagh to 174 in Belfast. Through interaction with a range of organisations, expert groups and the general public, a total of 38 indicators were identified to capture different types of deprivation while conforming to a number of agreed criteria that had to be met. Distinct types, or domains, of deprivation are made up from one or more indicators. The 7 domains of deprivation are:

- Income Deprivation 25%
- Employment Deprivation 25%
- Health and Disability Deprivation 15%
- Education Skills and Training Deprivation 15%
- Access to Services 10%
- Living Environment 5%
- Crime and Disorder 5%

The indicators in each domain were analysed to produce a domain specific deprivation ranking of the 890 SOAs in Northern Ireland, from 1 (most deprived) to 890 (least deprived). The ranks of the 7 domains were weighted (as shown in percentages above) and combined, to provide a ranking of multiple deprivation (MDM) for the 890 SOAs.

The NIMDM 2017 is based on the same methodology developed by the Social Disadvantage Research Centre in the University of Oxford and used in the NIMDM 2001, 2005, 2010 and multiple deprivation measures in England, Scotland and Wales.

In order to identify the collisions which occurred in the 10 per cent most and 10 per cent least deprived areas for this indicator, the NIMDM 2017 is matched to the PSNI Road Traffic Collision database based on the collision grid reference.

For more information on the seven domains of deprivation and the overall Multiple Deprivation Measure, see the documents at link: https://www.nisra.gov.uk/publications/nimdm17-results

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
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The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

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Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

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Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at:
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This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

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Domain groups comprising statistical experts were formed to advise the deprivation team on the reliability of the individual indicators. All indicators included met the following criteria:

- specific to one form of deprivation;
- measures major features of deprivation available for all of Northern Ireland in a consistent form;
- direct measures or good proxies of deprivation statistically robust at the small area level; and
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(see https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM%202017_Technical%20Report.pdf for full details).

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics
The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
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Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of Migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when “Ireland” is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Northern Ireland Multiple Deprivation Measure

Multiple deprivation is a complex concept and has been defined as being a combination of several distinct types of deprivation. The weight given to each of the types or 'domains' of deprivation takes into account the extent to which that domain is thought to measure the relevant form of deprivation, taking data quality issues into consideration.

As a direct measure of multiple deprivation does not exist it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check. That being said, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation.

The Northern Ireland Multiple Deprivation Measure 2017 results are produced as ranks allowing small areas across Northern Ireland to be compared relative to each other within domains. It is not possible to compare ranks for the Multiple Deprivation Measure or the seven domains from the NIMDM 2017, NIMDM 2010 and the NIMDM2005 to make a judgement on whether an area has become more or less deprived. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. For the NIMDM, although it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation. The accuracy and reliability of the overall indicator is therefore still regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in age bandings and the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units. Taking all this into account, coherence and comparability is classified as low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The data are freely available in the public domain from the PSNI and NISRA website (see links above). Despite ease of access to the raw data, the calculation used for the indicator is quite complex; accordingly, accessibility and clarity is regarded as medium.

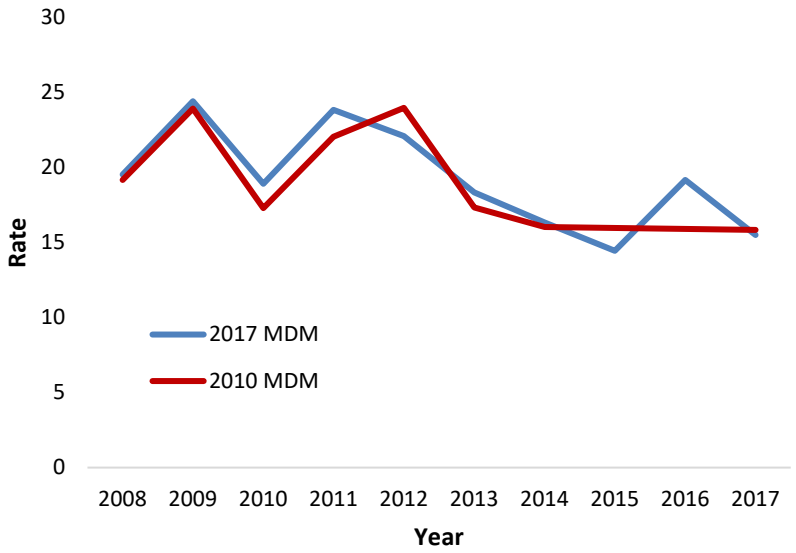
Key Performance Indicator 15: Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in (i) 10% most deprived areas (Casualty Address SOA) and (ii) 10% least deprived areas (Casualty Address SOA)

Please note: In 2018, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2018, one of the primary sources of data was the Northern Ireland Multiple Deprivation Measure 2010 (NIMDM2010); however, this measure was updated in 2017 and replaces the old version. See https://www.nisra.gov.uk/publications/nimdm17-results for further information on the new measure.

As such, it has been necessary to revise this indicator based on the new deprivation measure. The tables and charts below show a comparison of before and after.

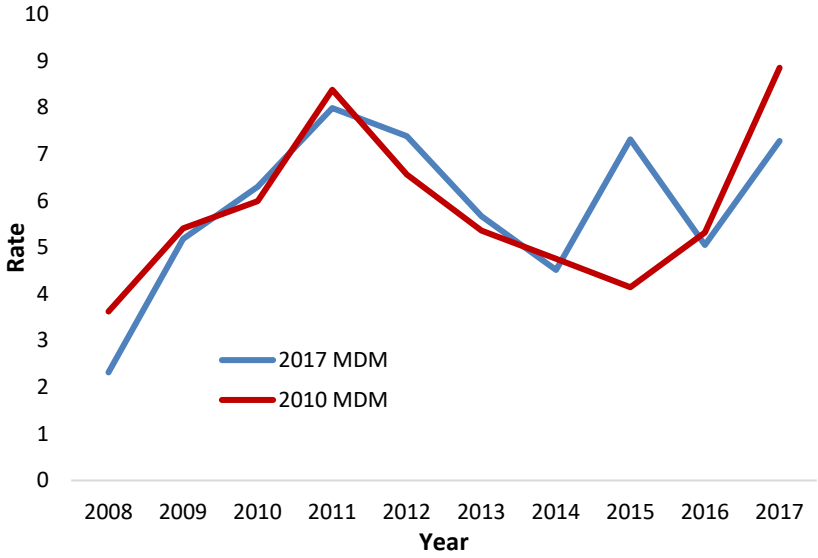
i) Rate of KSIs per 100,000 population in 10% most deprived areas (Casualty Address) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2008	32	32	166,947	163,763	19.17	19.54
2009	40	40	167,161	163,801	23.93	24.42
2010	29	31	167,765	163,929	17.29	18.91
2011	37	39	167,757	163,590	22.06	23.84
2012	40	36	166,814	162,884	23.98	22.10
2013	29	30	167,272	163,575	17.34	18.34
2014	27	27	168,441	165,179	16.03	16.35
2015	27	24	169,088	166,098	15.97	14.45
2016	27	32	169,815	166,949	15.90	19.17
2017	27	26	170,428	167,787	15.84	15.50
2008-2012 Baseline	35.6	35.6	167,289	163,593	21.28	21.76



ii) Rate of KSIs per 100,000 population in 10% least deprived areas (Casualty Address) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2008	6	4	165,511	172,490	3.63	2.32
2009	9	9	166,440	173,656	5.41	5.18
2010	10	11	166,761	174,547	6.00	6.30
2011	14	14	166,965	175,198	8.38	7.99
2012	11	13	167,663	176,009	6.56	7.39
2013	9	10	167,773	176,426	5.36	5.67
2014	8	8	168,235	177,018	4.76	4.52
2015	7	13	168,797	177,554	4.15	7.32
2016	9	9	169,222	178,091	5.32	5.05
2017	15	13	169,381	178,489	8.86	7.28
2008-2012 Baseline	10.0	10.2	166,668	174,380	6.00	5.85



The charts above show that the trends for the indicator, whether using MDM2010 or MDM2017, track each other - particularly in the 10% most deprived areas. KSI numbers in the least deprived areas tend to be much lower than in the most deprived areas, and this adds to the volatility in the trends. However, in general, they are fairly consistent, and the change in deprivation measure does not alter any conclusions.

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Indicator Definition: These rates are calculated using the number of pedestrians killed or seriously injured on a public highway in Northern Ireland, whose home address is in (i) the 10% most deprived areas (Casualty Address SOA) and (ii) the 10% least deprived areas (Casualty Address SOA); and the estimated number of people in the population in the 10% most/least deprived areas of Northern Ireland at 30 June (usually resident population).

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Pedestrians include

- Children on scooters, roller skates or skateboards;
- Children riding toy cycles on the footpath;
- Persons pushing bicycles or other vehicles or operating pedestrian-controlled vehicles;
- Persons leading or herding animals;
- Occupants of prams or wheelchairs;
- People who alight safely from vehicles and are subsequently injured;
- Persons pushing or pulling a vehicle;
- Persons other than cyclists holding on to the back of a moving vehicle

Calculation:

(i) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent most deprived areas (Casualty Address SOA) $=$

$$\frac{Number\ of\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ NI,\ whose\ address\ is\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

(ii) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent least deprived areas (Casualty Address SOA) $=$

$$\frac{Number\ of\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ NI,\ whose\ address\ is\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland; NISRA Mid-Year Population Estimates; and Northern Ireland Multiple Deprivation Measure (NIMDM).

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.xlsx
See sheet 'Casualty Class Pedestrian'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM17_SA%20-%20for%20publication.xls

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.ods
See sheet 8 'Casualty_Class-Pedestrian'

http://www.ninis2.nisra.gov.uk/Download/Population/Population%20Totals%20(statistical%20geographies).ods

(Prior to 2018)

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Indicator Baseline: 2008 – 2012

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT). Collision location and casualty residence are geographically referenced (postcode) on the Collision Report Form and hence can be mapped to higher level geographies such as Super Output Area. Casualty residence is only available from 2008 onward.

The data are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics.

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Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

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Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
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In order to identify the collisions which occurred in the 10 per cent most and 10 per cent least deprived areas for this indicator, the NIMDM 2017 is matched to the PSNI Road Traffic Collision database based on the collision grid reference.

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The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Northern Ireland Multiple Deprivation Measure

Multiple deprivation is a complex concept and has been defined as being a combination of several distinct types of deprivation. The weight given to each of the types or 'domains' of deprivation takes into account the extent to which that domain is thought to measure the relevant form of deprivation, taking data quality issues into consideration.

As a direct measure of multiple deprivation does not exist it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check. That being said, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation.

The Northern Ireland Multiple Deprivation Measure 2017 results are produced as ranks allowing small areas across Northern Ireland to be compared relative to each other within domains. It is not possible to compare ranks for the Multiple Deprivation Measure or the seven domains from the NIMDM 2017, NIMDM 2010 and the NIMDM2005 to make a judgement on whether an area has become more or less deprived. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. For the NIMDM, although it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation. The accuracy and reliability of the overall indicator is therefore still regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units. Taking all this into account, coherence and comparability is classified as low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

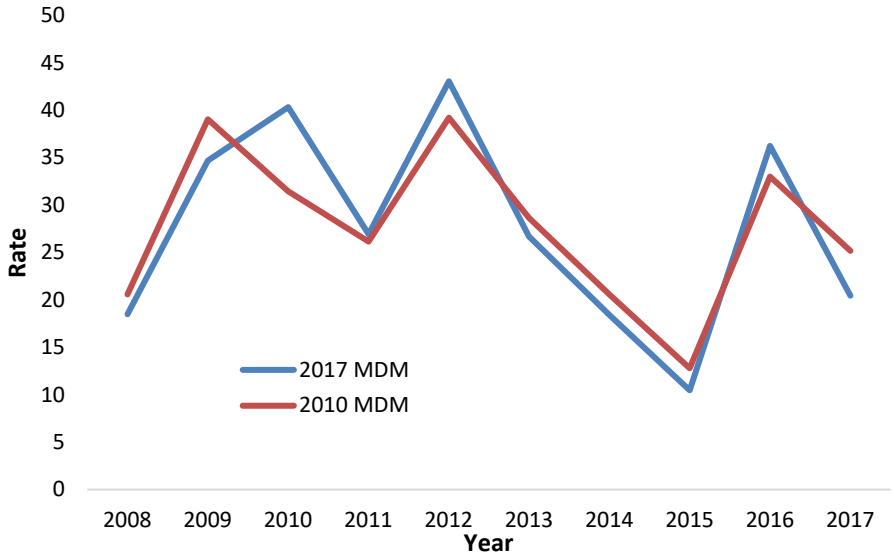
The data are freely available in the public domain from the PSNI and NISRA website (see links above). Despite ease of access to the raw data, the calculation used for the indicator is quite complex; accordingly, accessibility and clarity is regarded as medium.

Key Performance Indicator 16: Rate of child pedestrians killed or seriously injured (KSIs) per 100,000 population in (i) 10% most deprived areas (Casualty Address SOA) and (ii) 10% least deprived areas (Casualty Address SOA)

Please note: In 2018, there was a change in the source data used to calculate the rates used in this indicator. Prior to 2018, one of the primary sources of data was the Northern Ireland Multiple Deprivation Measure 2010 (NIMDM2010); however, this measure was updated in 2017 and replaces the old version. See https://www.nisra.gov.uk/publications/nimdm17-results for further information on the new measure. As such, it has been necessary to revise this indicator based on the new deprivation measure. The tables and charts below show a comparison of before and after.

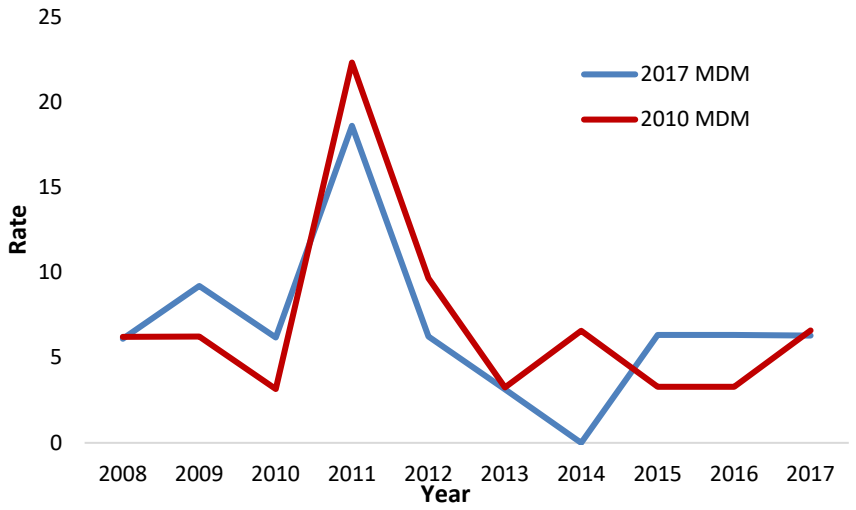
i) **Rate of child KSIs per 100,000 population in 10% most deprived areas (Casualty Address) – MDM2010 Vs MDM2017**

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2008	8	7	38,881	37,865	20.58	18.49
2009	15	13	38,416	37,452	39.05	34.71
2010	12	15	38,157	37,200	31.45	40.32
2011	10	10	38,210	37,106	26.17	26.95
2012	15	16	38,241	37,155	39.22	43.06
2013	11	10	38,383	37,434	28.66	26.71
2014	8	7	38,880	37,990	20.58	18.43
2015	5	4	39,062	38,190	12.80	10.47
2016	13	14	39,387	38,605	33.01	36.26
2017	10	8	39,738	39,093	25.16	20.46
2008-2012 Baseline	12.0	12.2	38,381	37,356	31.27	32.66



ii) Rate of child KSIs per 100,000 population in 10% least deprived areas (Casualty Address) – MDM2010 Vs MDM2017

Year	Number of KSIs		Population		KSIs per 100,000 population	
	MDM 2010	MDM 2017	MDM 2010	MDM 2017	MDM 2010	MDM 2017
2008	2	2	32,207	32,719	6.21	6.11
2009	2	3	32,022	32,590	6.25	9.21
2010	1	2	31,671	32,403	3.16	6.17
2011	7	6	31,369	32,252	22.32	18.60
2012	3	2	31,090	32,050	9.65	6.24
2013	1	1	30,687	31,784	3.26	3.15
2014	2	0	30,410	31,497	6.58	0.00
2015	1	2	30,390	31,574	3.29	6.33
2016	1	2	30,351	31,631	3.29	6.32
2017	2	2	30,355	31,809	6.59	6.29
2008-2012 Baseline	3.0	3.0	31,672	32,403	9.47	9.26



The charts above show that the trends for the indicator, whether using MDM2010 or MDM2017, track each other - particularly in the 10% most deprived areas. KSI numbers in the least deprived areas tend to be much lower than in the most deprived areas, and this adds to the volatility in the trends. However, in general, they are fairly consistent, and the change in deprivation measure does not alter any conclusions.

Indicator Definition: These rates are calculated using the number of child (under the age of 16) pedestrians who were killed or seriously injured on a public highway in Northern Ireland, whose home address is in (i) the 10% most deprived areas (Casualty Address SOA) and (ii) 10% least deprived areas (Casualty Address SOA); and the estimated number of children (aged under 16) in the population in the 10% most/least deprived areas of Northern Ireland at 30 June (usually resident population).

The number of children killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

Pedestrians include

- Children on scooters, roller skates or skateboards;
- Children riding toy cycles on the footpath;
- Persons pushing bicycles or other vehicles or operating pedestrian-controlled vehicles;
- Persons leading or herding animals;
- Occupants of prams or wheelchairs;
- People who alight safely from vehicles and are subsequently injured;
- Persons pushing or pulling a vehicle;
- Persons other than cyclists holding on to the back of a moving vehicle

Calculation:

(i) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent most deprived areas (Casualty Address SOA) $=$

$$\frac{Number\ of\ child\ (aged\ under\ 16)\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ NI, whose\ address\ is\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ most\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

(ii) Rate of pedestrians killed or seriously injured (KSIs) per 100,000 population in 10 per cent least deprived areas (Casualty Address SOA) $=$

$$\frac{Number\ of\ child\ (aged\ under\ 16)\ pedestrians\ killed\ or\ seriously\ injured\ on\ the\ road\ in\ NI, whose\ address\ is\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI}{Population\ in\ the\ 10\ per\ cent\ least\ deprived\ areas\ in\ NI\ (100\ ,000)}$$

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland; NISRA Mid-Year Population Estimates; and Northern Ireland Multiple Deprivation Measure (NIMDM).

Indicator data (MS Excel):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.xlsx
See sheet 'Casualty Class Pedestrian'

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-POP-TOTAL.xlsx

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM17_SA%20-%20for%20publication.xls

Indicator data (Open Data Format):

https://www.psni.police.uk/sites/default/files/2022-08/2021-supplementary-tables-spreadsheet.ods
See sheet 8 'Casualty_Class-Pedestrian'

http://www.ninis2.nisra.gov.uk/Download/Population/Population%20Totals%20(statistical%20geographies).ods

(Prior to 2018)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202010%20(statistical%20geographies).ods

(2018 Onwards)

http://www.ninis2.nisra.gov.uk/Download/Deprivation/Northern%20Ireland%20Multiple%20Deprivation%20Measure%202017%20(statistical%20geographies).ods

Indicator Baseline: 2008 – 2012

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT). Collision location and casualty residence are geographically referenced (postcode) on the Collision Report Form and hence can be mapped to higher level geographies such as Super Output Area. Casualty residence is only available from 2008 onward.

The data are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough

understanding of the injury severity threshold applied in the country being compared. In addition, the definition of what constitutes a 'child', in terms of age range (0-15), is consistent across the UK and Ireland; however, EU statistics report age bands of 0-14 and 15-17.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Mid-Year Estimates

At the Northern Ireland level, population estimates are updated each year using the cohort component method. In simple terms the previous year's population estimate is "aged on" by one year (births added and deaths removed). Net migration is also accounted for. The following formula is thus applied to update the population:

Previous year's population estimate aged on

+ Births to mothers resident in Northern Ireland;

- Deaths;

+ Net migration (including movement of armed forces personnel)

Further information on the methodology and source data used to calculate the mid-year estimates can be found in the following methodology paper:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Methodology-2020.pdf

Mid-Year Estimates produced for England, Scotland and Wales use the same main methodological approach and while there are some variations in the detail of the data sources and methodology used for each of the individual components of population change, a paper produced by ONS (link provided below) suggests that the differences across jurisdictions are important, yet inevitable, and should not prevent the use of the population estimates as comparable statistics across the UK (see limitations section for further information on these differences).

https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/consistencyofmethodsusedforpopulationstatisticsacrossukcountries/consistencyofpopulationstatisticsacrossthefourcountriesoftheunitedkingdomfinal27.01.2016.pdf

Equivalent data released for ROI uses mid-April as a reference point, rather than 30 June, as is used by all UK administrations. Note there is not one standard EU or International methodology by which all population estimates are compiled. Users are therefore advised to check the individual metadata to assess comparability.

Northern Ireland Multiple Deprivation Measure

The Northern Ireland Multiple Deprivation Measure 2017 provides a relative measure of deprivation in small areas across Northern Ireland. Northern Ireland is split into 890 spatial areas known as Super Output Areas (SOAs), with an average population of around 2,100 people. The number of SOAs in each of the 11 Local Government Districts (LGDs) varies, ranging from 49 in Fermanagh and Omagh to 174 in Belfast. Through interaction with a range of organisations, expert groups and the general public, a total of 38 indicators were identified to capture different types of deprivation while conforming to a number of agreed criteria that had to be met. Distinct types, or domains, of deprivation are made up from one or more indicators. The 7 domains of deprivation are:

- Income Deprivation 25%
- Employment Deprivation 25%
- Health and Disability Deprivation 15%
- Education Skills and Training Deprivation 15%
- Access to Services 10%
- Living Environment 5%
- Crime and Disorder 5%

The indicators in each domain were analysed to produce a domain specific deprivation ranking of the 890 SOAs in Northern Ireland, from 1 (most deprived) to 890 (least deprived). The ranks of the 7 domains were weighted (as shown in percentages above) and combined, to provide a ranking of multiple deprivation (MDM) for the 890 SOAs.

The NIMDM 2017 is based on the same methodology developed by the Social Disadvantage Research Centre in the University of Oxford and used in the NIMDM 2001, 2005, 2010 and multiple deprivation measures in England, Scotland and Wales.

In order to identify the collisions which occurred in the 10 per cent most and 10 per cent least deprived areas for this indicator, the NIMDM 2017 is matched to the PSNI Road Traffic Collision database based on the collision grid reference.

For more information on the seven domains of deprivation and the overall Multiple Deprivation Measure, see the documents at link: https://www.nisra.gov.uk/publications/nimdm17-results

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Mid-Year Estimates

Changes over time and annual population estimates are compared to several administrative data sources. These include those used in the estimation process, but also the active medical cards, the electoral roll, benefit claimants, and the number of domestic properties. Any significant differences found are examined further.

In line with the Code of Practice for Official Statistics, NISRA has published an Administrative Data Quality Document for Population Estimates and Projections for Northern Ireland. Using the UK Statistics Authority's Administrative Data Quality Assurance Toolkit, the document details the administrative data sources that are utilised in the production of Population Estimates and Projections for

Northern Ireland. It also outlines quality management actions undertaken to ensure that the data is suitable for this purpose. The document is available to view at:
https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Population-DataQuality_1.pdf

This level of assurance follows UK statistical best practice and overall population estimates are therefore deemed to be highly robust.

Northern Ireland Multiple Deprivation Measure
Domain groups comprising statistical experts were formed to advise the deprivation team on the reliability of the individual indicators. All indicators included met the following criteria:

- specific to one form of deprivation;
- measures major features of deprivation available for all of Northern Ireland in a consistent form;
- direct measures or good proxies of deprivation statistically robust at the small area level; and
- as up to date as possible.

(See https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NIMDM%202017_Technical%20Report.pdf for full details).

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics
The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at:
https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Mid-Year Estimates

The main limitation to the mid-year estimates is the collection of migration data as it is the most difficult component of population change to measure. The United Nations definition of a long-term migrant based on a 12 month residency rule is used in Northern Ireland. However the administrative sources used in the creation and quality assurance of migration statistics may use different definitions for recording migration.

It is recognised that the medical card source used in the production of population and migration estimates is deficient in recording certain groups of the population, such as young adult males, whilst not all people who leave the country have their medical card deregistered. Data is adjusted and scaled up accordingly.

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, however, NISRA are unable to use this source due to issues relating to the land border between Northern Ireland and the Republic of Ireland, and the uncertainty introduced when “Ireland” is given in response to survey. While this means there is a methodological inconsistency for the international migration estimates of Northern Ireland and the rest of the UK, NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results. Furthermore, Northern Ireland migration statistics have been previously assessed by UKSA, who found them to be fit for purpose.

The population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. These estimates are not comparable at an International level due to methodological differences.

Northern Ireland Multiple Deprivation Measure

Multiple deprivation is a complex concept and has been defined as being a combination of several distinct types of deprivation. The weight given to each of the types or 'domains' of deprivation takes into account the extent to which that domain is thought to measure the relevant form of deprivation, taking data quality issues into consideration.

As a direct measure of multiple deprivation does not exist it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check. That being said, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation.

The Northern Ireland Multiple Deprivation Measure 2017 results are produced as ranks allowing small areas across Northern Ireland to be compared relative to each other within domains. It is not possible to compare ranks for the Multiple Deprivation Measure or the seven domains from the NIMDM 2017, NIMDM 2010 and the NIMDM2005 to make a judgement on whether an area has become more or less deprived. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability for the PSNI data is therefore regarded as medium. With regards to the mid-year estimates, although migration estimates are deficient in recording certain groups of the population, the methodology in place to adjust and scale up the data is deemed sufficiently robust. For the NIMDM, although it is not possible to directly compare the NIMDM outputs to another source by way of a consistency check, high correlations exist between the indicators within domains, giving an indication that they are consistent measures of deprivation. The accuracy and reliability of the overall indicator is therefore still regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in age bandings and the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). There is a methodological inconsistency between the international migration estimates of Northern Ireland and the rest of the UK, however NISRA is content that the data sources used in Northern Ireland to estimate migration yield robust results and population estimates for each of the UK constituent countries are deemed to be comparable as the main methodological approach for producing the estimates for each country is the same. It is not possible to compare the ranks for the NI Multiple Deprivation Measure to similar measures in England, Scotland and Wales due to difference in reference years, different component indicators and geographical units. Taking all this into account, coherence and comparability is classified as low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The data are freely available in the public domain from the PSNI and NISRA website (see links above). Despite ease of access to the raw data, the calculation used for the indicator is quite complex; accordingly, accessibility and clarity is regarded as medium.

Key Performance Indicator 17: Number of KSIs resulting from collisions involving drivers under the age of 25

Indicator Definition: The number of people who were killed or seriously injured in a collision on a public highway in Northern Ireland that involved at least one car driver under the age of 25.

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

"Car driver" includes drivers of either a car, car used as taxi, hackney cab, or Light Goods Vehicle (LGV).

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland

Indicator data (MS Excel):

No published PSNI data available.

Indicator data (Open Data Format):

No published PSNI data available.

Indicator Baseline: 2004 – 2008

Indicator Monitoring: Annual and trend assessed using 5-year rolling average

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics

The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland

and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is

on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this target is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Accuracy and reliability is therefore regarded as medium.

The PSNI KSI data are directly comparable with GB and ROI but are not generally considered comparable with other international jurisdictions due to significant differences in the grading of severity of injury which can be applied (this is currently being addressed at EU level with a common serious injury definition having been proposed for EU reporting purposes). Taking this into account, coherence and comparability is classified as medium.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via Excel and in machine readable format. The indicator itself is based on a clear definition.

Key Performance Indicator 18: Number of KSI casualties resulting from collisions involving a novice driver

Indicator Definition: The number of people who were killed or seriously injured on a public highway in Northern Ireland in a collision which involved at least one novice driver (of a car). The data are split between those collisions for which the novice driver was deemed responsible and those for which they were not.

The number of people killed is defined as those who died within 30 days from injuries received in a collision on a public highway in Northern Ireland. Confirmed suicides and any person who dies from natural causes (e.g. heart attack) which are not as a result of the collision are excluded.

A serious injury is defined as an injury for which a person is detained in hospital as an 'in-patient', or any of the following injuries whether or not the person is detained in hospital: fractures, concussion, internal injuries, crushings, burns, severe cuts and lacerations or severe general shock requiring medical treatment.

"Car" includes either a car, car used as taxi, hackney cab, or Light Goods Vehicle.

A "novice driver" is one who passed their driving test within 24 months prior to the collision they were involved in. The data are presented in five categories based on the length of time the novice driver had held their licence at the time of the collision:

- 0-6 months;
- 7-12 months;
- 13-18 months;
- 19-24 months; and
- 0-24 months.

Source: Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland and Driver and Vehicle Agency (DVA) Driving Test Data.

Methodology:
When considering the data for this indicator, firstly all cars, vans or LGV's involved in KSI collisions are identified. Each of these vehicles are classified by whether they have a valid Northern Ireland licence number attributed to them. If all other vehicles in the same collision also have a valid licence number, then they are included in the sample for matching with DVA records (otherwise all records associated with that collision are excluded in order to minimise the possibility of sampling bias).

Once DVA records have been matched against the selected vehicles, it is possible to calculate the length of time that the driver had held their licence at the time of the collision. This allows any vehicle with a novice driver to be identified, and furthermore, categorised into a novice driver time banding. These vehicles are then linked to the casualties file in order to identify the KSI casualties resulting from a collision involving novice drivers. For further information, see link below:

https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-road-safety-strategy-to-2020-developing-a-novice-indicator.pdf

Indicator data (MS Excel):
No published PSNI data available.
No published DVA data available.

Indicator data (Open Data Format):
No published PSNI data available.
No published DVA data available.

Indicator Baseline: 2008 – 2010
Indicator Monitoring: 3-year rolling average (it was not possible to produce results by single year due to an insufficient number of cases)

Data Collection:

Police Recorded Injury Road Traffic Collision Statistics
The data are collected at the scene of a collision by police officers in accordance with the STATS20 guidance from the Department for Transport (DfT) and are directly comparable with the serious injury statistics in Great Britain (GB) and Republic of Ireland (ROI). Outside of the UK, countries will apply different counting rules, particularly with respect to the definition of what constitutes a serious injury. For this reason, this element of the indicator is generally not regarded as comparable outside of the UK and ROI without a thorough understanding of the injury severity threshold applied in the country being compared.

Police Recorded Injury Road Traffic Collision Statistics for Northern Ireland are collated and produced by statisticians seconded to the PSNI from the Northern Ireland and Statistics Research Agency (NISRA), working to the Code of Practice for Official Statistics. The UK Statistics Authority has designated the PSNI's injury road traffic collision statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Driver and Vehicle Agency (DVA) Driver and Vehicle Testing Data
A dataset containing all drivers who passed their Category B driving test data from 2006 was initially provided by the Driver and Vehicle Agency from the NI Driver Licensing System (NIDLS) to enable novice drivers to be identified in the PSNI road traffic collision records. An updated dataset with the details of the new drivers who have passed their test is provided annually. The NIDLS is populated using data from a DVA administrative system called Booking Services Project (BSP) which is managed and maintained under contract by an external vendor.

Comparability with other jurisdictions

While both the PSNI KSI and DVA Driver Testing source data may be comparable with GB and ROI, the overall indicator is not directly comparable as no similar methodology for producing output relating to KSIs involving a novice driver has been developed in these regions. If KSI statistics are available for collisions involving drivers and their length of time post-driving test, then comparisons may be constructed, however no such data are currently available online. ROI are currently undertaking a study on the delivery of their National Driving Test Service which will examine the efficiency and effectiveness of the delivery of this service. One of the metrics that they plan to examine is the accident rates per driver type, which will include novice drivers. It is unclear as yet how close the methodology will mirror the one used for this indicator as development work is still in the early stages, but ASRB will track the progress of the study and provide guidance where possible.

Quality Assurance:

Police Recorded Injury Road Traffic Collision Statistics

Detailed quality assurance checks have been developed over the years to ensure that the RTC statistics produced in Northern Ireland are accurate, of high quality and meaningful. Information from each individual injury collision is checked for accuracy and completeness by staff within the PSNI's Statistics branch before being validated and becoming a National statistic. Further details are available at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

The DfI's Analysis, Statistics and Research Branch (ASRB) carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level statistics already published by PSNI for current and previous years. This independent cross-checking of sources minimises the possibility of computational errors occurring when extracting and manipulating the PSNI data.

Driver and Vehicle Agency (DVA) Driver and Vehicle Testing Data

NI vehicle and driver testing data derived from the BSP administrative system are underpinned by well-established quality assurance procedures, manuals and audit controls. Trend analysis is carried out on each vehicle and driver testing series. There is no set measure of tolerance in terms of quarterly/annual percentage change which triggers a query back to the DVA providers, but back series comparisons are used to judge if particular data are consistent with historical trend. Where possible, DVA statisticians use external sources of data/surveys or relevant economic indicators to validate finalised statistical trends. GB comparisons are also used although differences in legislation and/or testing procedures can limit their usefulness.

Limitations and Uncertainty:

Police Recorded Injury Road Traffic Collision Statistics

The PSNI road traffic collision statistics are not based on a sample survey and are not, therefore, subject to sampling error. However, their main limitation is the extent to which they represent the true level of collisions and casualties, resulting in injury, that occur in Northern Ireland.

Research examining admissions to hospitals in NI following a road traffic collision is carried out annually by ASRB. The data show that a significant proportion (around 30%) of serious injury casualties are not known to the police. Users should therefore keep this in mind when using the data. https://www.infrastructure-ni.gov.uk/articles/clinically-serious-injured-mais-3-road-casualties-northern-ireland

Similar research carried out in GB using hospital, survey and compensation claims corroborates results in NI; however it would appear that the issue of under-reporting in police data is an increasing problem for England, whereas in NI the trend is more stable.

Further research into addressing the discrepancy specifically in Northern Ireland between PSNI road traffic collisions statistics and hospital admission information is on-going and will involve statisticians in the Department for Infrastructure (DfI NI), Department of Health (DoH NI) and PSNI, alongside traffic statistician colleagues in GB, ROI and Europe. More background on this can be found at: https://www.psni.police.uk/sites/default/files/2022-08/traffic-statistics-user-guide---2016-review---final.pdf

Whilst not perfect, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties, particularly for monitoring trends over time. Users should still exercise caution when interpreting changes in trends based on small numbers of serious injuries/fatalities (as related to young persons), as single year changes may simply be a result of random variation. The 5-year rolling average provides a much more robust picture of the underlying trend.

The PSNI dataset for drivers involved in collisions where there was a fatal or serious casualty holds, in the majority of cases, a driver licence number; it is important to be aware that this particular field is not validated so there are some accuracy and completeness issues with regard to this data item.

Driver and Vehicle Agency (DVA) Driver and Vehicle Testing Data

Data quality for these statistics is high. Statisticians have full access to all vehicle and driver testing systems, data and reports. There are standard booking procedures and online access controls help to minimise the risk of data manipulation and there is

standardisation of driver and vehicle testing systems across DVA test centres. Data suppliers and producers work in close proximity aiding understanding of processes and facilitating resolution of issues. Data can often be used as part of the legal process which helps ensure accurate recording should customers challenge test outcomes or make complaints.
There is, however, some potential for distortion of driver test outcomes through inconsistent application of test standards by examiners. However, the DVA proactively monitor test outcomes using robust statistical analysis both within and between test centres. Any evidence of non-random patterns of outcomes are closely scrutinised and DVA management take remedial action should this be required. This is not considered to be a significant issue with respect to data quality, and moreover, the data which are utilised for this key performance indicator (licence number and driving test pass date) are unaffected by this limitation.

For more information, see the data quality assessment:
https://www.infrastructure-ni.gov.uk/sites/default/files/publications/doe/dvani-data-quality-assessment-15-10-2015.pdf

The dataset provided to ASRB is limited to tests carried out in Northern Ireland only. This could result in novice driver casualties being slightly underestimated. The issue would arise if any drivers who had taken their test outside NI were subsequently involved in a collision in their first two years of driving within the jurisdiction. Any such cases would inevitably be missed in the data matching process although this is only regarded as a minor issue.

As it was not practical to obtain, and then attempt to match, on the full DVA test file, only records with a test pass date of 2006 onwards were used. This time period was chosen as anyone with a pass date earlier than 2006 would have to have been driving for a minimum of 2 years before the KSI analysis period which began in 2008. A key assumption was made, therefore, that any collision record that could not be matched in the restricted DVA test dataset was because the driver had at least 2 years driving experience, post-test, at the time of the collision. This assumption was tested using a random sample of non-matched collision records and was shown to be robust.

Overall Indicator

Due to the accuracy and completeness issues with regards to the licence numbers in the PSNI collisions file, only those vehicles in collisions where all drivers have a valid licence number are included in the sample used for analysis.

The sample size has varied between 60 and 68 per cent of the total number of KSI collisions involving a car, van or LGD. However checks have been carried out on key characteristics of the sample to ensure that it is representative of the overall pool of records. The number of casualties from the sample has been weighted up reflect the true totals. Furthermore, three years of data have been combined to ensure survey estimates are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. For this indicator 95% confidence intervals are used. This means there is a 95% probability that the true population value is contained within the range of values given. As with all survey estimates, this degree of error must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following table gives the 95% confidence intervals for the estimated number of KSIs involving a novice driver by responsibility of the driver, 2008-2021.

95% confidence interval around novice driver KSI casualties
Northern Ireland (2008-2021)

		Novice Drivers - time held licence[1,2]				
		Sampling errors +/- around published estimates				
	Year	0-6 months	7-12 months	13-18 months	19-24 months	*0-24 months*
Novice driver responsible	2008-2010	4	3	3	3	*6*
	2009-2011	4	3	3	2	*6*
	2010-2012	3	3	2	2	*5*
	2011-2013	3	2	2	2	*5*
	2012-2014	3	2	2	2	*5*
	2013-2015	3	2	2	2	*4*
	2014-2016	3	2	2	2	*4*
	2015-2017	3	2	2	2	*4*
	2016-2018	2	2	2	2	*4*
	2017-2019	2	2	2	2	*4*
	2018-2020	2	2	1	2	*3*
	2019-2021	2	1	1	2	*3*
	2008-2010 Baseline	4	3	3	3	*6*
Novice driver not responsible	2008-2010	3	2	2	2	*4*
	2009-2011	2	2	2	1	*4*
	2010-2012	2	2	2	2	*3*
	2011-2013	1	2	2	1	*3*
	2012-2014	1	2	2	2	*3*
	2013-2015	1	2	2	2	*3*
	2014-2016	1	2	1	2	*3*
	2015-2017	1	1	1	1	*2*
	2016-2018	1	1	1	1	*2*
	2017-2019	1	1	1	1	*2*
	2018-2020	1	1	1	1	*2*
	2019-2021	1	1	1	1	*2*
	2008-2010 Baseline	3	2	2	2	*4*
Novice driver involved	2008-2010	5	4	3	3	*7*
	2009-2011	4	3	3	3	*6*
	2010-2012	4	3	3	3	*6*
	2011-2013	4	3	2	3	*5*
	2012-2014	3	3	3	3	*5*
	2013-2015	3	3	3	3	*5*

	2014-2016	3	3	2	3	*5*
	2015-2017	3	2	2	3	*5*
	2016-2018	3	2	2	2	*4*
	2017-2019	3	2	2	2	*4*
	2018-2020	2	2	2	2	*4*
	2019-2021	2	2	2	2	*4*
	2008-2010 Baseline	5	4	3	3	*7*

[1] Source: Police Service of Northern Ireland (PSNI) Road Traffic Casualty Statistics
[2] Source: Driver Vehicle Agency, Department for Infrastructure
***This table refers to KSI casualties resulting from a collision which involved a driver of a car, car used as taxi, hackney cab, or Light Goods Vehicle (LGV) who had held their licence for 24 months or less at the time of the collision.*

There were a number of other minor methodological issues which could have impacted on the robustness of this indicator. These were tested and were not deemed to be significant sources of error.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity	✓		

Justification:
Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

While some collisions and casualties may go unreported to the PSNI, police data on road traffic collisions remains the most detailed, complete and reliable single source of information on road traffic casualties. Furthermore, assuming any potential under-recording remains reasonably constant over time, the 5-year rolling average provides a robust picture of the underlying trend. Driver licence numbers are not validated so there are some accuracy and completeness issues with regard to this data item. As a result, only a sample of collisions is available for use. The data are weighted up to the true population, and three years of data pooled to ensure the data are robust. The accuracy and reliability for the PSNI data is still regarded as medium. The accuracy and reliability of the DVA data is regarded as high, with data collection and quality assurance being highly robust. The methodology for developing the overall indicator and the quality assurance process in place are deemed sufficiently robust that the accuracy and reliability of the overall indicator is medium.
While both the PSNI KSI and DVA Driver Testing source data may be comparable with GB and ROI, the overall indicator is not directly comparable due to a lack of methodology elsewhere against which to compare. Coherence and comparability is therefore regarded as low.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain; however, KSI data is available upon request directly from the PSNI. In addition, the data within the Road Safety Strategy to 2020 Statistical Report are available via excel and in machine readable format. Although the indicator definition itself is reasonably clear, the calculation used in its construction is very complex; accordingly, accessibility and clarity is regarded as low.

Key Performance Indicator 19: Proportion of vehicles exceeding the speed limit by road type

Indicator Definition: The proportion of vehicles exceeding the speed limit. The data are split by road type (built up roads (up to 40 mph); single carriageways (above 40 mph); dual carriageways; and motorways), as well by time (24 hour; 11pm-7am (free running); and 7am – 11pm).

Source: Transport NI C2 – Cloud Traffic Data and DfI Traffic and Travel Information report

Methodology: Transport NI provides data on an annual basis for traffic flow at all the permanent traffic counters which collect speed data. On receipt of this data for the first time, a manual exercise was carried out using GIS and Google Street View to establish the road speed limit and road type, and to remove counters which were positioned on a part of the road which might restrict driver behaviour (e.g. near a roundabout or on a bend etc.). Following this initial exercise, a traffic and speed counter file was established and used as a template for each year.

When a new file is received, it is checked for new counters, as well as any changes in the trends previously recorded for existing counters. In some instances, a traffic counter will return abnormally high or low speeding counts for a particular year. In each case, the data is closely scrutinised to establish if this is a true count (i.e. road speed has changed) or if the data for that year should be removed.

Once the data file is cleaned, the proportion of traffic exceeding the speed limit at each counter can be computed. These proportions are calculated in the following time bands:

- 24 hour
- 11pm – 7am (free running)
- 7am – 11pm

A weight is then applied based on the 24 hour Annual Average Daily Traffic (AADT) flows for each traffic counter and tables are produced for annual speeding rates by road type.

For further information on the methodology used, see link below:
https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-road-safety-strategy-to-2020-developing-a-speed-indicator.pdf

Indicator data (PDF):

https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/2021-traffic-travel-information-report.pdf

No published data available for the speed data.

Indicator data (MS Excel):

No published data available.

Indicator data (Open Data Format):

No published data available.

Indicator Baseline: 2010

Indicator Monitoring: Annual

Data Collection: Statistics used in this indicator are derived from an in-house Transport NI administrative system. Traffic data are collected from 351 automatic traffic counting sites (census points) located throughout the road network in Northern Ireland. While these sites primarily count traffic flow, some sites also capture speed. In total, there were around 130 permanent counters, on different road types, which captured speed and from which speed data were initially extracted. Speed bin reports were extracted by Transport NI staff for these sites and sent to the DfI's Analysis, Statistics and Research Branch (ASRB).

During 2016, a number of traffic counters were deactivated, whilst new counters were activated mid-year, resulting in only a small number of counters reporting a full year's data. Following guidance from Transport NI, and wide ranging consistency checking by ASRB, partial year's data from a larger number of counters were deemed fit for purpose and 154 counters (10 of which had full year's data) were used to produce the outputs for the speeding indicator.

In 2017, a large number of traffic counters were deactivated, while a small number of new counters were activated mid-year, meaning there were a much smaller number of counters available for analysis this year (76). This reduced further still to 60 counters in 2021, 61% lower than the 154 counters used in 2016. Considering though that DFT use just over 100 counters in reporting speed compliance for Great Britain, the 68 counters used in Northern Ireland represents good coverage of roads and also a fair representation of the types of roads used throughout the Province

The table below gives the number of counters which had valid quality assured data for each year during the reporting period by type of road they are situated on.

Number of Traffic Counters on Each Type of Road

Year	Built up 30/40 mph*	Dual Carriageway	Motorway	Single Carriageway	All Roads
2010	21	13	17	61	112
2011	20	15	18	66	119
2012	17	12	16	57	102
2013	17	13	15	51	96
2014	21	11	18	60	110
2015	20	11	14	58	103
2016	41	22	11	80	154
2017	25	9	12	30	76
2018	23	9	14	24	70
2019	20	8	14	20	62
2020	20	8	14	26	68
2021	15	7	14	24	60

Source: TransportNI, C2-Cloud Traffic Data

*Traffic counters on roads with 30mph and 40mph speed limits are combined due to the small number of them on 30mph roads

The average annual traffic flow data is broken down by time of day (hourly bands). This allows for, not only, the overall rate of speeding to be reported, but also the rate of speeding between the hours of 11pm and 7am where there is likely to be no congestion on the roads, thus allowing a rate to be calculated for **free flowing** traffic.

Comparability with other jurisdictions

Data collection procedures are broadly in line with that of DfT (but not RoI), however differences in methodology, particularly with regards to the management of congestion and reporting by vehicle type, as well as differences in the reporting of road types, means the indicator data are not directly comparable. However, the methodological differences are not regarded as a major issue but rather something to bear in mind if making comparisons. For more information about the methodology of this indicator and comparability, please see below link:
https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-road-safety-strategy-to-2020-developing-a-speed-indicator.pdf

Quality Assurance: All quality assurance of the speed data is carried out by ASRB; none is carried out by Transport NI before the speed bin reports are forwarded. This was an influencing factor in the methodological change applied to the indicator in the 2016 publication, as a decision was made to weight the data using the 24 hour Annual Average Daily Traffic (AADT) flows, which are sourced from the same traffic counters, but are quality assured and published in the Traffic and Travel Information Report.

A manual exercise was carried out in the first year of reporting (2014) using GIS and Google Street View to establish the road speed limit and road type; the positioning of counters was also considered and the counter removed if it was believed that its location might restrict driver behaviour, for example approaching a bend or a roundabout. Once a traffic and speed counter file was established for each year, the proportion of traffic exceeding the speed limit at each counter was computed. Further validations were then carried out on the data to ensure the counter had no specific issues that would impact on the free flow speed of the vehicles passing.

Each year, ASRB carry out additional checks when merging the files containing the data for a new year. Such checking involves verifying the data against the high level speeding statistics published in previous years, as well as overall traffic count data published by Transport NI for the current year. In some instances, a traffic counter will return abnormally high or low speeding counts for a particular year. In each case, the data is closely scrutinised to establish if this is a true count or if the data for that year should be removed. This cross-checking of data ensures that the indicator is fit-for-purpose. For more information, see:
https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-road-safety-strategy-to-2020-developing-a-speed-indicator.pdf

Limitations and Uncertainty: Transport NI Cloud Traffic Data are not available for all roads in Northern Ireland; additionally some roads that do have data are excluded (see quality assurance section). The available data are therefore a sample, and of chief concern would be whether the sample is representative of the road network as a whole. For that reason, consistency checks are put in place to compare counters on similar road types, with any outliers fully investigated. In addition, the traffic counts for each site are deemed to be of a high enough volume to ensure population level speeding estimates are robust. Moreover, all differences are tested for statistical significance before being highlighted in the main Statistical Report. That said, further work will be taken forward to ensure that there is good geographical coverage across NI in the final counter data set and that this coverage has been reasonably consistent across time. In addition, the larger data set may, subject to further quality assurance, provide for the separate reporting of 30mph and 40 mph roads in future for the first time.

The 60 counters in 2021 were the fewest available in a calendar year with the second fewest of 62 occurring in 2019. Proportionally speaking, there are now a greater number of counters on built up roads (25% in 2021, 19% in 2015), and fewer on single and dual carriageways (52% in 2021, 67% in 2015) – however, this is more in line with the kilometres travelled on each road type. In 2012-2014 (the last years of available data), 35% of kilometres travelled were on built-up roads and 57% were on rural roads. For this reason, the estimates included in this report for 2021 are deemed fit for purpose; however, it is advisable to use caution when making comparisons with other years.

No adjustments are made to the raw data to take account of congestion issues. Instead, the data are grouped into time-bands, with users advised that the free running data (11pm to 7am) is considered to be when vehicles will be unimpeded by other vehicles. It should be noted that, although this time band will take congestion out of the equation, average speeds will likely be reduced to some extent in darkness compared to under daylight conditions.

Results are based on all vehicles captured and reported at an 'all vehicle' level. This has no impact on lower speed roads where all vehicle types have the same speed restriction. However, on roads with speed limits of 50mph or higher, different legal speed limit restrictions are applied to certain vehicles (for example HGVs). This means that the speed compliance estimates, because they are based on the road type rather than being specific to the vehicle, underestimate compliance with legal speed limits for these same road types. However, given that cars will make up the greatest proportion of traffic volume it is not regarded as a major issue but rather a difference to be aware of.

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability		✓	
Timeliness & punctuality			✓
Accessibility & clarity	✓		

Justification: Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this indicator is deemed highly relevant.

Although the data used in this indicator are a sample, the high volume of data and the quality assurance in place ensures that the indicator is sufficiently robust. The accuracy and reliability of the overall indicator is regarded as medium.

Data collection procedures are broadly comparable with other jurisdictions in GB; however differences in methodology means the indicator data are not directly comparable. Differences are not regarded as a major issue but rather something to be aware of, therefore coherence and comparability is assessed as medium.

The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not freely available in the public domain. However, the data within the Road Safety Strategy to 2020 Statistical Report are available via Excel and in machine readable format. Although the indicator definition itself is reasonably clear, the calculation used in its construction is very complex; accordingly, accessibility and clarity is regarded as low.

Key Performance Indicator 20: Road Safety Perception: Reasons why respondents feel unsafe when walking/cycling on the road

Indicator Definition: The road safety perception question about walking by the road was asked of people who indicated they walked at least once a year. The road safety perception question about cycling on the road was asked of people who had ridden a bike during the last 12 months.

Source: Travel Survey for Northern Ireland (TSNI)

Indicator data: Not yet available

Indicator Baseline: 2012 – 2014

Indicator Monitoring: Annual (three-year average)

Data Collection: The TSNI is based on the National Travel Survey (NTS), which was a GB wide survey up to 2012 but, since 2013, has only been used to collect data for England. At the request of statisticians in DfI, Road Safety Perception questions were added to the Travel Survey in Northern Ireland for the first time in 2012 as the survey was deemed the most appropriate method to gather data for the indicator. We are not aware of any comparable data elsewhere in GB and ROI.

Information for the survey is collected using two methods - a Computer Aided Personal Interview and a seven-day travel diary, however information on road safety perception was only collected from the personal interview. An initial interview with each sampled household asks the Household Reference Person or other responsible person questions about the household composition and some general background information. The interviewer then asks the other individuals of the household a set of questions.

Road safety perception questions are asked only of those who walk by and/or cycle on the road. Respondents were asked to identify from a list of possible reasons, why they feel unsafe when walking by or cycling on the road. Some respondents spontaneously said they always feel safe or that they never walk or cycle on the road.

Full methodology is available in the technical report:
https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Quality Assurance: Data are collected by the Central Survey Unit (CSU) using a sample selected to be representative of the Northern Ireland population and various validation checks are applied to the data as part of the processing. CSU is the leading social survey research organisation in Northern Ireland and is one of the main business areas of the Northern Ireland Statistics and Research Agency (NISRA), an Agency within the Department of Finance and Personnel. The Unit has a long track record and a wealth of experience in the design, management and analysis of behavioural and attitude surveys in the context of a wide range of social policy issues.

CSU procedures are consistent with the Code of Practice for Official Statistics - https://www.statisticsauthority.gov.uk/code-of-practice/.

The validated CSU datasets are passed to independent statisticians in ASRB who carry out their own validation, double-checking accuracy and completeness. This independent sense checking of the data provides assurance that they are fit-for-purpose and errors have not been made during the production of the statistics.

Limitations and Uncertainty: The sample size in the Travel Survey for Northern Ireland is relatively small (it has varied between 856 and 1,037 households interviewed); therefore three years of data is combined to ensure survey data are sufficiently robust.

As estimates made from a sample survey depend upon the particular sample chosen, they may differ from the true values of the population. This variance from the true population value is measured using a confidence interval. The confidence intervals published for TSNI data are 95% confidence intervals. This means there is a 95% probability that the true population value is contained within the range of values given.

All survey estimates are subject to a degree of error and this must be taken account of when considering results. This error will be reasonably small for the majority of Northern Ireland level results but care should be taken when looking at results based on smaller breakdowns.

The following tables give the 95% confidence interval for the reasons people feel unsafe when walking by or cycling on the road.

95% confidence interval around reasons why people feel unsafe when walking by the road
Northern Ireland (2012-2019)

	Percentage of Respondents*					
	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
No footpath	37%	37%	36%	35%	34%	37%
Heavy traffic	27%	28%	28%	29%	28%	28%
Traffic travelling above the speed limit	28%	27%	26%	25%	25%	27%
Motorists driving without consideration of pedestrians	29%	29%	28%	27%	25%	26%
If footpath is not well lit at night	23%	22%	22%	21%	22%	23%
Bad weather	20%	20%	21%	21%	22%	22%
Narrow footpath	21%	20%	20%	20%	19%	20%
Walking on my own especially at night	22%	22%	22%	20%	19%	18%
If condition of footpath is poor	13%	14%	15%	15%	15%	16%
If footpaths are not kept clear	11%	12%	12%	12%	13%	13%
Worry about crime/personal safety	15%	15%	15%	14%	13%	13%
Cyclists, Scooters, Skateboarders on the footpath	11%	12%	13%	13%	12%	11%
Roadworks	11%	11%	11%	12%	11%	11%
Normal traffic even if travelling within the speed limit	7%	7%	7%	8%	9%	10%
Other	2%	2%	1%	1%	1%	1%
Always feel safe	*13%*	*14%*	*16%*	*17%*	*19%*	*18%*
Do not walk by the road	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
Base	2,698	2,620	2,686	2,605	2,622	2,666

[1] Source: Travel Survey for Northern Ireland, Department for Infrastructure
* Users should note that percentages will not add to 100 as respondents could give multiple answers

95% confidence interval around reasons why people feel unsafe when cycling on the road
Northern Ireland (2012-2019)

	Percentage of Respondents*					
	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Heavy traffic	55%	55%	54%	55%	55%	56%
Motorists driving without consideration of cyclists	50%	51%	51%	49%	48%	49%
If road condition is poor	35%	36%	39%	36%	38%	40%
Buses or lorries	44%	42%	44%	42%	39%	37%
Traffic travelling above the speed limit	38%	39%	38%	36%	35%	37%
Bad weather	36%	37%	38%	33%	32%	34%
Not enough cycle lanes	28%	30%	30%	28%	29%	32%
Narrow roads	22%	25%	26%	24%	25%	28%
Normal traffic even if travelling within speed limit	17%	18%	20%	18%	21%	22%
If the roads are not well lit at night	20%	20%	21%	20%	20%	20%
Cycle lanes not kept clear	16%	18%	20%	17%	18%	19%
Roadworks	13%	11%	12%	11%	14%	15%
Worry about crime/personal safety	6%	7%	8%	9%	10%	9%
Other	1%	1%	1%	1%	0%	1%
Always feel safe	*5%*	*6%*	*5%*	*6%*	*7%*	*6%*
Do not cycle on the road	*3%*	*4%*	*4%*	*4%*	*6%*	*6%*
Base	623	564	568	516	529	558

[1] Source: Travel Survey for Northern Ireland, Department for Infrastructure
* Users should note that percentages will not add to 100 as respondents could give multiple answers

Further details on the Travel Survey methodology and associated sampling errors can be found in their technical report:

https://www.infrastructure-ni.gov.uk/articles/travel-survey-northern-ireland

Indicator quality statement:

	Low	Medium	High
Relevance			✓
Accuracy & reliability		✓	
Coherence & comparability	✓		
Timeliness & punctuality			✓
Accessibility & clarity		✓	

Justification:

Based on equivalent road safety metrics used elsewhere in GB, and agreed with relevant stakeholders in NI, this target is deemed highly relevant.

With regards to the Travel Survey in Northern Ireland, the relatively small sample size can be an issue for certain sub-groups. As can be seen from the confidence intervals presented above, the accuracy/reliability of the estimates for the newly included questions varies markedly by category of response and by respondent type (pedestrian or cyclist). Generally the estimates are more precise for the higher frequency response categories which themselves are highest for the pedestrian group (as these comprise a larger sample sub-group than cyclists). Due to this variability in the robustness of the central estimates, accuracy and reliability is regarded as medium.

At the request of statisticians in DfI, Road Safety Perception questions were added to the Travel Survey in Northern Ireland for the first time in 2012 as the survey was deemed the most appropriate method to gather data for the indicator. We are not aware of any comparable data elsewhere in GB and ROI.

The only available data for this indicator thus far is 2012-2019, however it is anticipated that the indicator will be available annually, going forward. The report is produced annually, in September, for the previous calendar year; the publication date is pre-announced and to date there has been no gap between the planned and actual publication date.

The base data are not yet freely available in the public domain. However, the data within the Road Safety Strategy to 2020 Statistical Report are available via Excel and in machine readable format. The indicator itself is based on a clear definition.