Average Journey Time on Key Economic Corridors

2016 - 2018

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ONE: **KEY POINTS**

- The 'Average journey time on key economic corridors' is the average time it takes for a car to travel the inter-urban sections of all five key economic corridors (KECs) in Northern Ireland in both directions during the morning peak period (07:00 to 09:30).

- The average journey time on KECs during the baseline year, 2016, was 14 hours 30 minutes. It decreased to 14 hours 28 minutes during 2017 and increased to 14 hours 30 minutes again during 2018.

- The average journey time on KECs decreased by just under one minute (51 seconds or 0.10%) from the baseline year, 2016, to 2018.

- Criteria for reporting positive, negative or no change from the baseline for the draft Programme for Government (PfG) indicator 'Average journey time on key economic corridors' has been agreed by the PfG Technical Assessment Panel (TAP) as a change of +/- two minutes in the overall average journey time on KECs since 2016.

- The estimates indicate that there has been no real change in the average journey time on KECs comparing the latest year, 2018, to the baseline year, 2016; however, the decision on whether any change has occurred is ultimately taken by the PfG TAP. Following the publication of this statistical report and TAP approval, the interactive outcomes viewer will be updated with the latest data and the status changed if appropriate.

TWO: **INTRODUCTION**

This statistical report presents an estimate of the average journey time on key economic corridors (KECs) in Northern Ireland in 2016 to 2018. It provides an estimate of the average time it takes for a car to travel the inter-urban sections of the KECs during the morning peak period (07:00 to 09:30). This is the first such official statistics report produced by the Analysis, Statistics and Research Branch (ASRB) of the Department for Infrastructure (DfI) on the average journey time on KECs. It has been produced in accordance with the Code of Practice for Statistics, complying with the pillars of Trustworthiness, Quality and Value and it will be published on an annual basis.

THREE: **BACKGROUND**

The 'Average Journey Time on Key Economic Corridors' statistical report was published following a data development project initiated when a need for data to measure the indicator 'Average journey time on key economic corridors' was identified and added to the draft Programme for Government (PfG) data development agenda.

The Outcomes Delivery Plan (ODP) 2018/19, published in June 2018, was based on the Draft Programme for Government Framework 2016-2021 and set out the actions that the Northern Ireland Civil Service (NICS) was to take forward during 2018-19 to contribute to the objective of 'Improving wellbeing for all – by tackling disadvantage and driving economic growth'. The ODP identifies 12 strategic outcomes supported by 49 indicators. The indicators are used to demonstrate performance against delivery of the outcomes, to monitor progress and to take appropriate corrective action. The Outcomes Delivery Plan 2018-19 End Year Report provides an assessment of progress on the actions contained in the ODP 2018/19. The NICS Board has agreed that the ODP 2018/19 should be extended for a further period pending the return of Ministers to the Northern Ireland Departments.

The DfI has lead responsibility for Outcome 11, 'We connect people and opportunities through our infrastructure' and the supporting indicator 'Average journey time on key economic corridors'. The focus of this indicator is on inter-urban travel during the morning peak period (precisely 07:00:00 to 09:29:59); this is a key time for travel connectivity.

In order to develop data to measure this indicator, ASRB undertook a review of potential data sources and methods and in conjunction with a DfI Working Group identified that Automatic Number Plate Recognition (ANPR) data represented the best value for money to provide robust journey time estimates.

An outline of the methodology used to estimate the average journey time is provided in the User Guidance section of this report and a Methodology report is also available which includes more detailed information about the background, the methodology applied and the quality of the data. An associated Background Quality Report is also available.

Both the methodology and baseline year of 2016 for this indicator have been agreed by the PfG Technical Assessment Panel (TAP) who were established to consider the methodological and technical quality of the population indicators used in the draft PfG. The overarching purpose of TAP is to collectively and independently come to an agreement as to the criteria for reporting a change in the PfG indicators.

This report provides a summary of the results for 2016 to 2018. The data presented enable the progress of the draft PfG indicator 'Average journey time on key economic corridors' to be monitored. Following publication, The Executive Office update the interactive outcomes viewer and highlight if there has been any change in the average journey time since the estimate recorded for the baseline year (2016).

Although the primary need for this statistical product arose through the draft PfG, other users are likely to be identified following dissemination of this report.

FOUR: **KEY ECONOMIC CORRIDORS (KECs)**

The Regional Strategic Transport Network of Northern Ireland includes five KECs. These corridors are the top tier of the region's long distance routes connecting cities and main towns to the major regional gateways and the Belfast Metropolitan Area (BMA). The quality and reliability of a region's transport networks are recognised as key factors impacting on its competitiveness and growth potential. The estimation of the average journey time is focussed on the inter-urban sections of these routes; improving connectivity across these key corridors is seen as a driver for economic growth. Reducing journey times on the urban sections to and from towns or city centres is not an objective as the policy direction for urban areas is about modal shift from private car travel to walking, cycling and public transport.

The inter-urban sections of the five KECs, used in the estimation of the average journey time, are illustrated in the map overleaf. These KECs are commonly referred to as Key Transport Corridors (KTCs) and this terminology is used within this report when referring to individual corridors.

Figure 1: Map of Inter-urban Key Transport Corridors (KTCs) in Northern Ireland
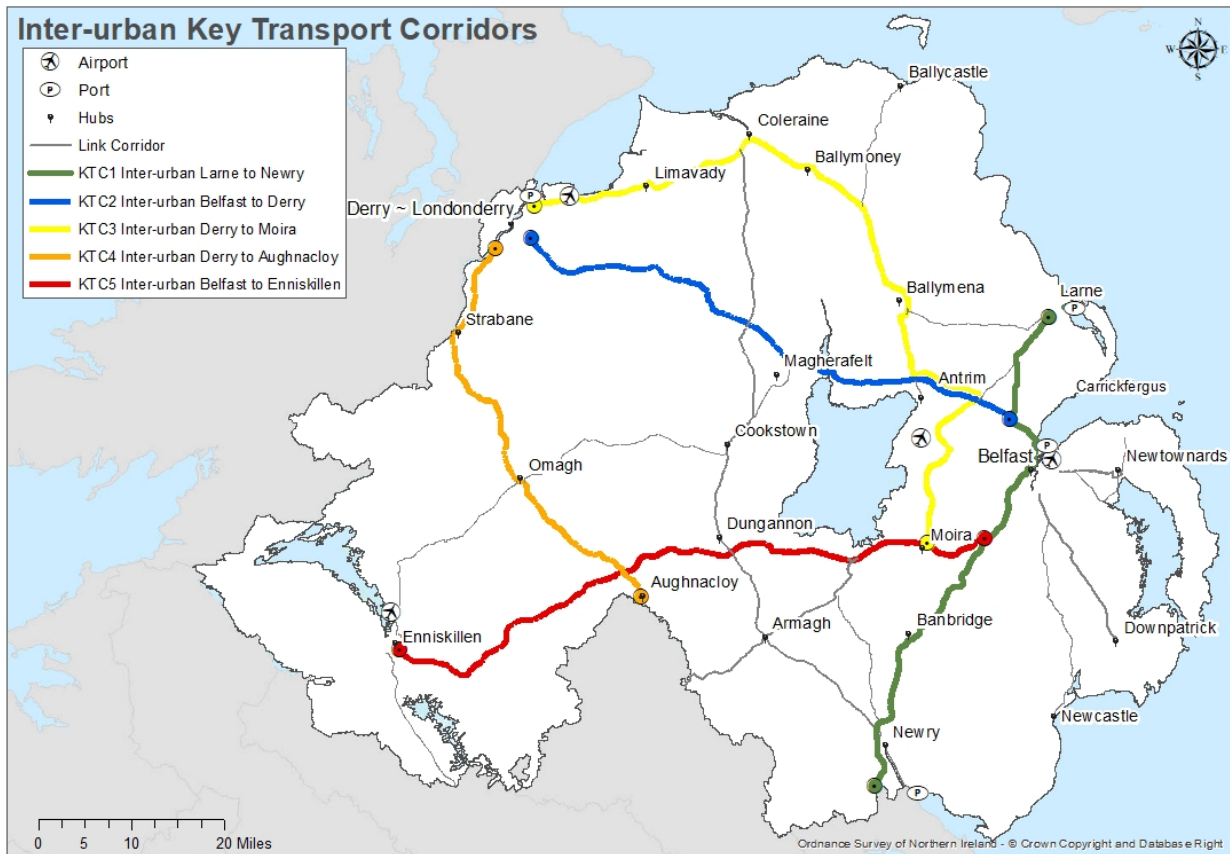
[Download Map](#) (PDF format - 404 KB)

* Inter-urban corridors as used in the estimation of the average journey time on KECs.

KTC1: Inter-urban Larne to Newry (Larne/Ballymena Road to A1 Newry); approx. 60 miles.

KTC2: Inter-urban Belfast to Derry/L'derry (M2 Sandyknowes to Drumahoe/Glenshane Road); approx. 60 miles.

KTC3: Inter-urban Derry/L'derry to Moira (Maydown/Clooney Road to Moira); approx. 90 miles.

KTC4: Inter-urban Derry/L'derry to Aughnacloy (Newbuildings to Aughnacloy); approx. 50 miles.

KTC5: Inter-urban Belfast to Enniskillen (Sprucefield to Enniskillen); approx. 70 miles.

FIVE: **AVERAGE JOURNEY TIME ON KEY ECONOMIC CORRIDORS (KECs)**

The draft PfG indicator is defined as the 'Average journey time on key economic corridors'. This is the average time it takes for a car to travel all five KTCs (inter-urban) in both directions during the morning peak period (07:00 to 09:30). Table 1 below presents the estimated average journey time from 2016 to 2018.

Table 1: Average Journey Time on Key Economic Corridors (KECs), 2016-2018

AVERAGE JOURNEY TIME ON KECs (hh:mm)		
2016	2017	2018
14:30	14:28	14:30

14 hrs 30 mins average journey time on NI key economic corridors during **2018**

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* Average journey time is the time taken to travel all five KECs in both directions.
* Data relates to cars only during the morning peak period (07:00 to 09:30).
* Average journey times have been rounded to the nearest minute.

The average journey time on KECs during the baseline year, 2016, was 14 hours 30 minutes. It decreased to 14 hours 28 minutes during 2017 and increased to 14 hours 30 minutes again during 2018.

As a draft PfG indicator, the focus is on the change in journey time over the years with a reduction in journey time contributing to the overall outcome (Outcome 11) of connecting people and opportunities through our infrastructure. Table 2 below presents the change in average journey time (in minutes) and Table 3 shows the percentage change in average journey time for cars during the morning peak period between 2016, 2017 and 2018.

Table 2: Change in Average Journey Time on Key Economic Corridors (KECs), 2016-2018

CHANGE IN AVERAGE JOURNEY TIME ON KECs (mm:ss)		
2016 to 2017	2017 to 2018	2016 to 2018
-02:13	01:23	-00:51

51 secs decrease in average journey time on NI key economic corridors from **2016 to 2018**
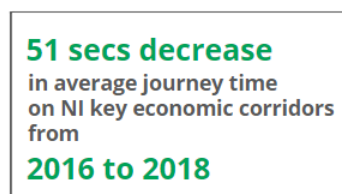
Download Table (xls format, 403 KB)

* Average journey time is the time taken to travel all five KECs in both directions.
* Data relates to cars only during the morning peak period (07:00 to 09:30).
* Change has been calculated on the unrounded figures for the relevant years.

Table 3: Percentage Change in Average Journey Time on Key Economic Corridors (KECs), 2016-2018

PERCENTAGE CHANGE IN AVERAGE JOURNEY TIME ON KECs (%)		
2016 to 2017	2017 to 2018	2016 to 2018
-0.26%	0.16%	-0.10%

0.10% decrease
in average journey time
on NI key economic corridors
from
2016 to 2018

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* Average journey time is the time taken to travel all five KECs in both directions.
* Data relates to cars only during the morning peak period (07:00 to 09:30).
* Percentage change has been calculated on the unrounded figures for the relevant years.

The results show that the average journey time on KECs decreased by just under one minute (51 seconds or 0.10%) from the baseline year, 2016, to 2018.

Criteria for reporting positive, negative or no change from the baseline for this indicator has been agreed by the PfG TAP as a change of +/- two minutes in the overall average journey time on KECs since 2016. The estimates indicate that there has been no real change in the average journey time on KECs comparing the latest year, 2018, to the baseline year, 2016; however, the decision on whether any change has occurred is ultimately taken by TAP. Following the publication of this statistical report and TAP approval, the interactive outcomes data viewer will be updated with the latest data and the status changed if appropriate.

SIX: **AVERAGE JOURNEY TIMES BY KEY TRANSPORT CORRIDOR (KTC)**

Table 4 provides a summary of the average journey times estimated on each of the five KTCs in each direction for the years 2016, 2017 and 2018.

The average journey time in one direction is the average time it takes for a car to travel from the start of the KTC to the end (inter-urban) during the morning peak period (07:00 to 09:30). The journey time for travelling the full KTC in both directions is simply the aggregation of the average journey times in each direction.

Table 4: Average Journey Time on Inter-urban Key Transport Corridors (KTCs) by direction, 2016-2018

KTC	ROUTE	AVERAGE JOURNEY TIME (hh:mm)			CHANGE IN AVERAGE JOURNEY TIME	
		2016	2017	2018	2016 to 2018 (mm:ss)	2016 to 2018 (%)
KTC1	Larne to Newry	01:18	01:16	01:16	-01:19	-1.70%
	Newry to Larne	01:24	01:21	01:21	-03:34	-4.21%
	Both directions	**02:42**	**02:37**	**02:37**	**-04:53**	**-3.01%**
KTC2	Belfast to Derry	01:14	01:14	01:15	00:48	1.09%
	Derry to Belfast	01:16	01:15	01:17	00:22	0.47%
	Both directions	**02:30**	**02:29**	**02:32**	**01:10**	**0.77%**
KTC3	Derry to Moira	02:08	02:05	02:06	-02:11	-1.70%
	Moira to Derry	02:06	02:04	02:07	00:33	0.43%
	Both directions	**04:15**	**04:09**	**04:13**	**-01:38**	**-0.64%**
KTC4	Derry to Aughnacloy	01:14	01:14	01:15	01:13	1.64%
	Aughnacloy to Derry	01:13	01:24	01:15	01:40	2.29%
	Both directions	**02:27**	**02:38**	**02:29**	**02:53**	**1.96%**
KTC5	Belfast to Enniskillen	01:16	01:17	01:19	03:16	4.31%
	Enniskillen to Belfast	01:21	01:19	01:19	-01:39	-2.04%
	Both directions	**02:37**	**02:36**	**02:38**	**01:38**	**1.04%**
ALL KTCs (Draft PfG Indicator)		14:30	14:28	14:30	-00:51	-0.10%

Download Table (xls format, 403 KB)

* Data relates to cars only during the morning peak period (07:00 to 09:30).
* Data relates to the inter-urban sections of the KTCs only – see Figure 1 for further information.
* Average journey times have been rounded to the nearest minute.
* Change has been calculated on the unrounded figures and has been presented in minutes and seconds.
* Totals may not always exactly equal the sum of individual components, due to rounding.

Figure 2: Average Journey Time on Inter-urban Key Transport Corridors (KTCs) both directions, 2016-2018
(Non-zero y-axis)
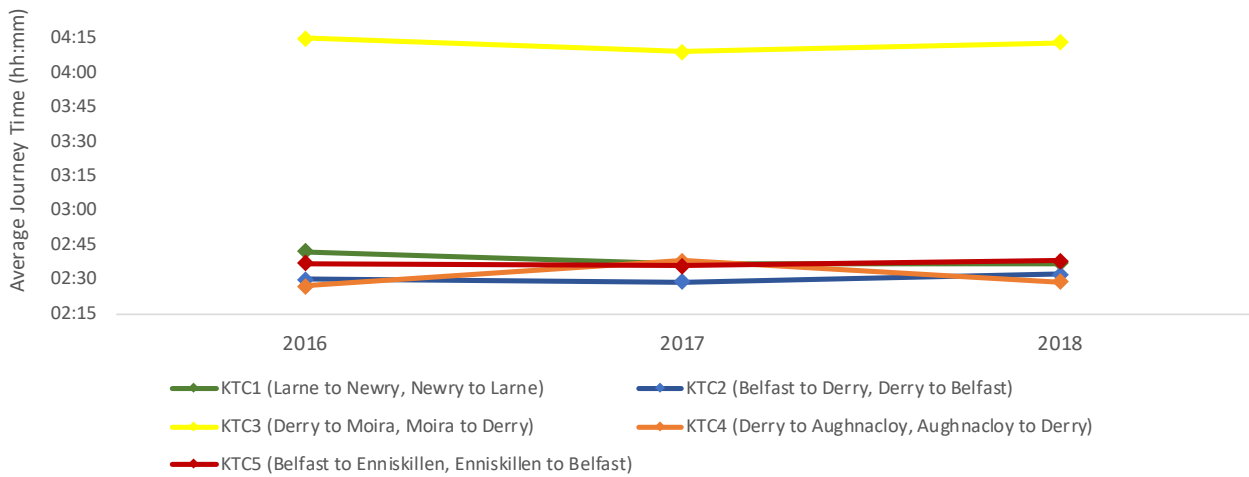
Download Chart (xls format, 403 KB)

* Data relates to cars only during the morning peak period (07:00 to 09:30).
* Average journey times have been rounded to the nearest minute.
* Data relates to the inter-urban sections of the KTCs only – see Figure 1 for further information.

SEVEN: **USER GUIDANCE**

Data Source

The data source is the Police Service of Northern Ireland's (PSNI) Automatic Number Plate Recognition (ANPR) system. The road network in Northern Ireland is well monitored with ANPR cameras to promote and protect the safety of everyone in the community and there is good coverage of these cameras along each of the five KTCs. ANPR works by scanning vehicle registrations as they pass individual cameras; the observed vehicle registration is recorded along with the date and time it passes the camera and stored in a secure database. The ANPR system is therefore a rich data source from which the average journey time on KECs can be estimated. Further information on ANPR is available on the PSNI website.

Methodology

A journey time between two consecutive ANPR cameras can be calculated by matching the vehicle registration at both cameras and using the time of day the vehicle passed these two points.   In this way, the journey time over a KTC is calculated.

A journey time application was developed to process the high volume of data and calculate the average journey time between consecutive ANPR cameras on each of the KTCs. The most appropriate ANPR cameras located along the inter-urban sections of the KTCs were used as the start and end points of the KTCs. The application was developed according to an agreed specification and it processed the ANPR data based on criteria input by the user as outlined below:

- Only cars were included in the analysis. All other vehicle types were excluded to reduce the risk that any observed change in journey times were due to changes in the vehicle mix, for example, a change in the proportion of vehicles which have speed delimiters. It is reasonable to assume that any observed change in journey times experienced by cars, which make up the vast majority of vehicles on our roads, will be similarly experienced by other vehicle types.

- In line with Transport Analysis Guidance, the analysis was based on a Monday to Thursday period during three neutral months of the calendar year. Weekends, bank holidays or school holiday periods were not used, therefore the dates vary year on year. Note also that the dates/ neutral months may differ for KTCs in a particular year. The specific dates used are detailed in the associated Methodology report. A Process Map

has also been published to highlight the consistent and transparent approach followed when selecting data.

- A maximum journey time field is included in the journey time application to exclude journey times on links within the KTCs which take longer than 1.5 hours. The limit of 1.5 hours was agreed within DfI and with the PfG TAP – it gives sufficient time during the morning peak period for a driver to complete the longest link (approx. 25 miles) within the KTC so that valid journeys are not excluded; at the same time this limit reduces the potential for including journey times where the driver has stopped along the link or deviated and returned to the link at a later stage.

- The average journey time and standard deviation were calculated for each link between two successive ANPR cameras on the KTC and only link journey times within 3 standard deviations of the mean were included in the results. Again this was to reduce the potential inclusion of invalid journeys, particularly on shorter links which were unlikely to take 1.5 hours to drive. This criteria was agreed within DfI and with the PfG TAP.

The average journey time for a full KTC, in one direction, was calculated by aggregating the journey times for each link. The average journey times were then calculated along all five KTCs in both directions. The overall average journey time on KECs is then simply the sum of the average journey times on the five KTCs. Detailed information on how the average journey time estimates were produced is available in the associated Methodology report.

Data Quality

Following the inclusion of 'Average journey time on key economic corridors' on the PfG data development agenda, DfI produced a data development options paper which considered the advantages and disadvantages of potential data sources; these included Moving Observer Survey data, GPS data and ANPR data. It was agreed by a DfI Working Group that use of the ANPR data was the best value for money to produce robust journey time estimates.

The results have been quality assured using various data sources, including GPS data and Moving Observer Survey data, and notable changes over time have been investigated. This included analysing PSNI road traffic collisions data, extracts from the Trafficwatch NI roadworks database and historical weather information.

The methodology and baseline results have been agreed by the PfG TAP. This panel deemed the results fit for purpose as a population indicator in the draft PfG. Both the methodology and

criteria used for the 2016-2018 reference period are consistent and allow for robust comparisons overtime.

For further information relating to the pillars and principles of the Code of Practice for Statistics, including information on data source strengths and limitations, see the detailed Background Quality Report and Methodology report.

Data Confidentiality

The nature of the ANPR data means that access to the dataset is restricted and has only been available to a small number of security cleared statistical staff in DfI. This means that validation was carried out at an aggregated level though several sanitised dip samples were examined to ensure the journey time application was processing the ANPR data in line with the agreed specification. The aggregate data are held on a secure server or within DfI's secure record management system (HPRM) with access restricted to those involved in the publication of the statistics. The access to the ANPR dataset is managed through a Service Level Agreement between the PSNI and ASRB.

ASRB's Data Governance and Confidentiality Statement is available on the DfI website.

Revisions Policy

The data presented in this bulletin are revised by exception; therefore any revisions to the figures in this report will typically be as a result of definitional/ methodological changes or corrections to errors and the impact will be quantified where possible.

The Revisions and Errors Policy for statistics produced by DfI is available on the DfI Website.

Rounding

- All calculations have been undertaken on the basis of unrounded figures.
- Average journey time figures presented in Table 1 have been rounded to the nearest minute.
- Changes in average journey times between years presented in Tables 2 and 3 have been calculated using unrounded figures.
- It should be noted that, in some instances, individual table cells may not perfectly sum to the total due to rounding.

Draft Programme for Government (PfG) Framework

DfI has lead responsibility for Outcome 11 'We connect people and opportunities through our infrastructure'. Six population indicators are used to quantify progress against this outcome:

• Average journey time on key economic corridors;

• Percentage of all journeys which are made by walking/cycling/public transport;

• Proportion of premises with access to broadband services at speeds at or above 30Mbps;

• Usage of online channels to access public services;

• Overall Performance Assessment (NI Water);

• Gap between the number of houses we need, and the number of houses we have.

The ODP 2018/19 highlights that improving journey times on KECs is seen as a priority as in the absence of rail freight in the region, all goods and services essentially travel along our road network alongside passenger transport. Enhancing the flow of traffic on key routes between population centres will therefore not only benefit the individual road user but also enhance economic growth and reduce environmental hotspots as a result of traffic congestion. It is a key enabler for economic growth.

Increasing usage of public transport and active travel is also a priority as in isolation, road improvements will also drive an increase in road traffic, generating further congestion and poorer air quality. Incentivising more sustainable and efficient ways of travelling such as walking, cycling and public transport as choices will reduce traffic congestion particularly in the peak am/pm commuter period and encourage healthier, more environmentally sustainable lifestyles which will be of wider benefit (ODP 2018/19). The indicator 'percentage of all journeys which are made by walking, cycling or public transport' is monitored using Travel Survey for Northern Ireland (TSNI) data for single years and the latest results are reported in the TSNI headline report 2016-2018.

Progress on the PfG outcomes and indicators can be viewed in the interactive outcomes data viewer.

Accessibility

This statistical report and associated documents are available to download free of charge at:
https://www.infrastructure-ni.gov.uk/articles/average-journey-time-key-economic-corridors

If any document is not in a format that meets your needs, please contact ASRB with your requirements.

User Feedback

We welcome feedback from users on this statistical report. Please send any comments you may have to ASRB@nisra.gov.uk.

Users can also provide feedback through our ongoing ASRB Customer Survey.

In line with the Statistics User Engagement Strategy, ASRB will ensure that this statistical report remains relevant to users.