Hertfordshire

Hertfordshire Traffic and Transport Data Report

2022

Hertfordshire Transport Planning & Data Team
January 2023 | *Version 3*

Based on 2021 data

View Report

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1. Introduction

1.1 Background

1.1 Background

Home to 1.2 million residents (Census 2021), Hertfordshire has the sixth largest population of any highway authority in the country (excluding Met Counties). Instead of one dominant settlement Hertfordshire has several medium sized towns, as well as large rural areas, whilst the county's proximity to London creates large commuting flows, distorting the provision for local transport.

The settlement pattern of Hertfordshire has created a complicated pattern of movement, heavily reliant on personal motor vehicles, contributing to local congestion.

Furthermore, Hertfordshire facilitates movement to some key strategic economic areas in the UK. Issues on these networks can have serious implications for the economy, Hertfordshire residents and users of the network.

Whilst Hertfordshire County Council (HCC), as the Highway authority is responsible for A, B, C and most unclassified roads (see Appendix 8.4.3), Trunk roads (including Motorways) are operated by National Highways (formerly Highways England) (i.e. M25, M1 and the A1). However, there are some HCC roads that function as separate arteries to the Trunk road network, such as the A10. Further information on this can be viewed in the key routes section of this report (see 3.2 Key Routes).

The population growth alongside with COVID-19 leading to changes of ways of working is going to affect travel demand. Collection and analysis of meaningful travel information is therefore vital when developing travel plans and policies.

Several strategy and policy documents underpin the work that Hertfordshire County Council does. Two fundamental strategies are the Corporate Plan and the Local Transport Plan (LTP).

Hertfordshire's Corporate Plan covering 2022 – 2025 has set out 4 objectives:

- A cleaner and greener environment
- Healthy and fulfilling lives for our residents
- Sustainable responsible growth in our county
- Excellent council services for all

The Local Transport Plan (LTP), covering the period from 2018 – 2031, sets out how transport can help deliver a positive future vision of Hertfordshire.

"We want Hertfordshire to continue to be a county where people have the opportunity to live healthy, fulfilling lives in thriving, prosperous communities."

Further to this vision, the LTP is split into three themes:

Prosperity

- Better links between towns & cities
- Reduced need to travel
- Resilient and reliable network
- Less car dependent and more integrated, accessible & sustainable transport
- Increased business
- Increased business and tourism opportunities

Place

- Limited impacts of climate change
- Development and regeneration
- Improved local environment and green infrastructure
- Heritage and places of character retained
- Adequate, affordable & environmentally sensitive housing

People

- Improved quality of life
- Vibrant and healthy communities
- Active and inclusive transport
- Varied and accessible employment opportunities

Unless stated otherwise, this report outlines the main findings from traffic **data collected in 2021**, informing the LTP strategy objectives.

2.0 Vehicular Traffic

2.1 Traffic Monitoring Programme

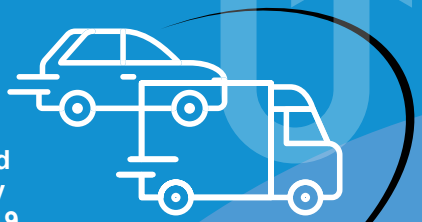
2.2 Traffic Flow by Road Class

2.3 Traffic Flow by District

2.4 Goods Vehicles

+8.6%

Hertfordshire's traffic levels have decreased significantly by 18.6% from 2019 to 2020, then rebounded up by 8.6% from 2020 to 2021.



-5.4%

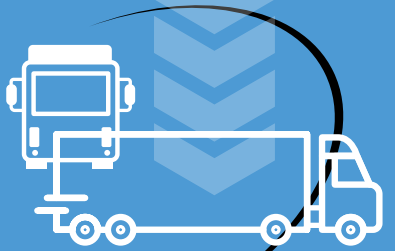
Hertfordshire Van (LGV) traffic level was down by 5.4% in 2021 as compared to pre pandemic level in 2019.

88.6%

Traffic level fell by 11.4% between 2019 and 2021, or resumed to only 88.6% of pre pandemic level.

-17.3%

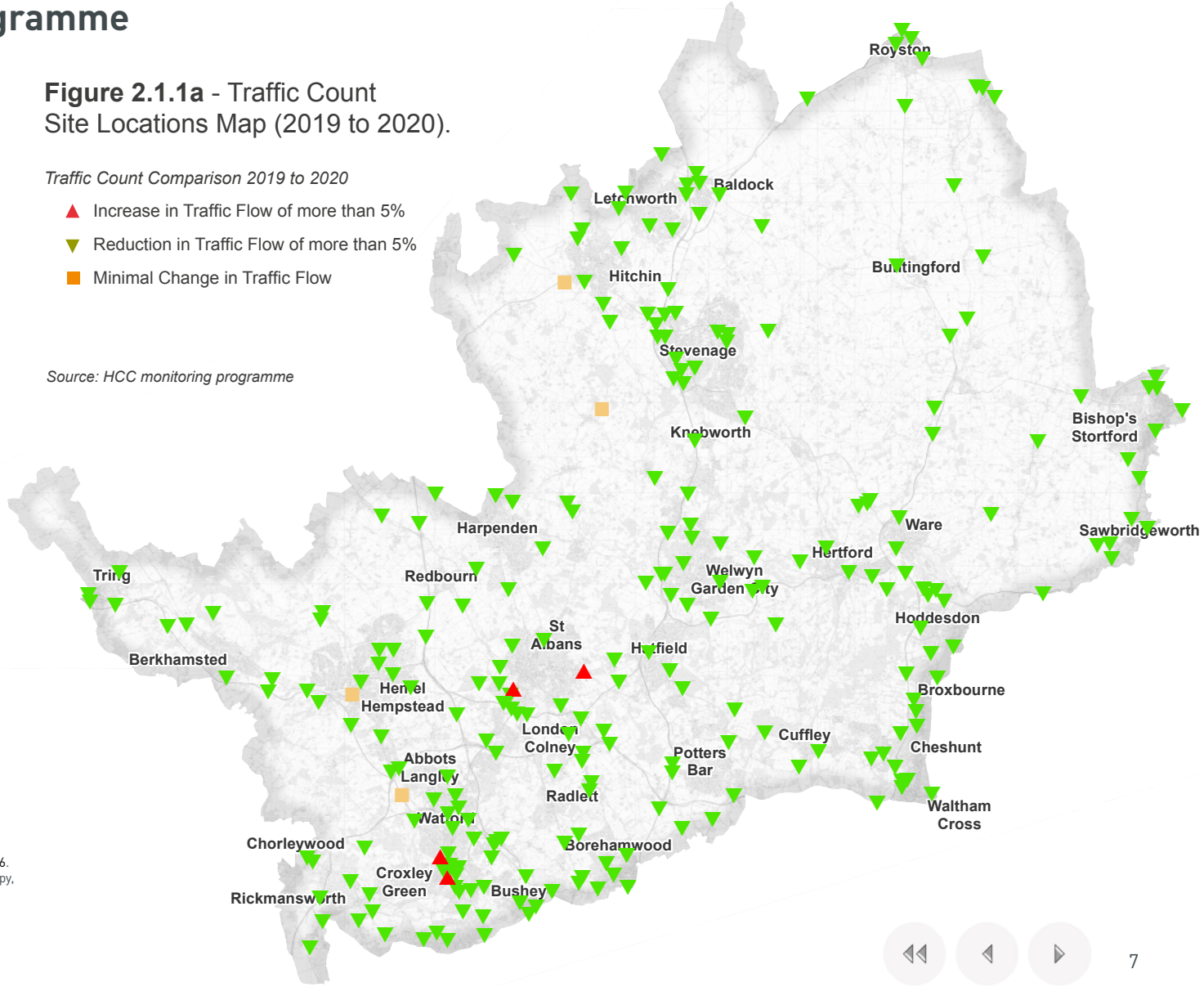
HGV traffic level decreased by 17.3% between 2019 and 2021.



2.1 Traffic Monitoring Programme

Figures 2.1.1a, 2.1.1b and 2.1.1c show the geographical distribution of the traffic count sites in the Traffic Monitoring Programme, highlighting where there have been changes in traffic flow. **Figure 2.1.1a** reveals an extensive decrease in traffic flows from 2019 to 2020 due to COVID-19 outbreak; while **Figure 2.1.1b** show a general rebound from 2020 to 2021 with a certain degree of restrictions being lifted. **Figure 2.1.1c** concludes that at most of the count sites traffic has reduced in 2021 compared with 2019 before the COVID-19 pandemic.

Figure 2.1.1a - Traffic Count Site Locations Map (2019 to 2020).

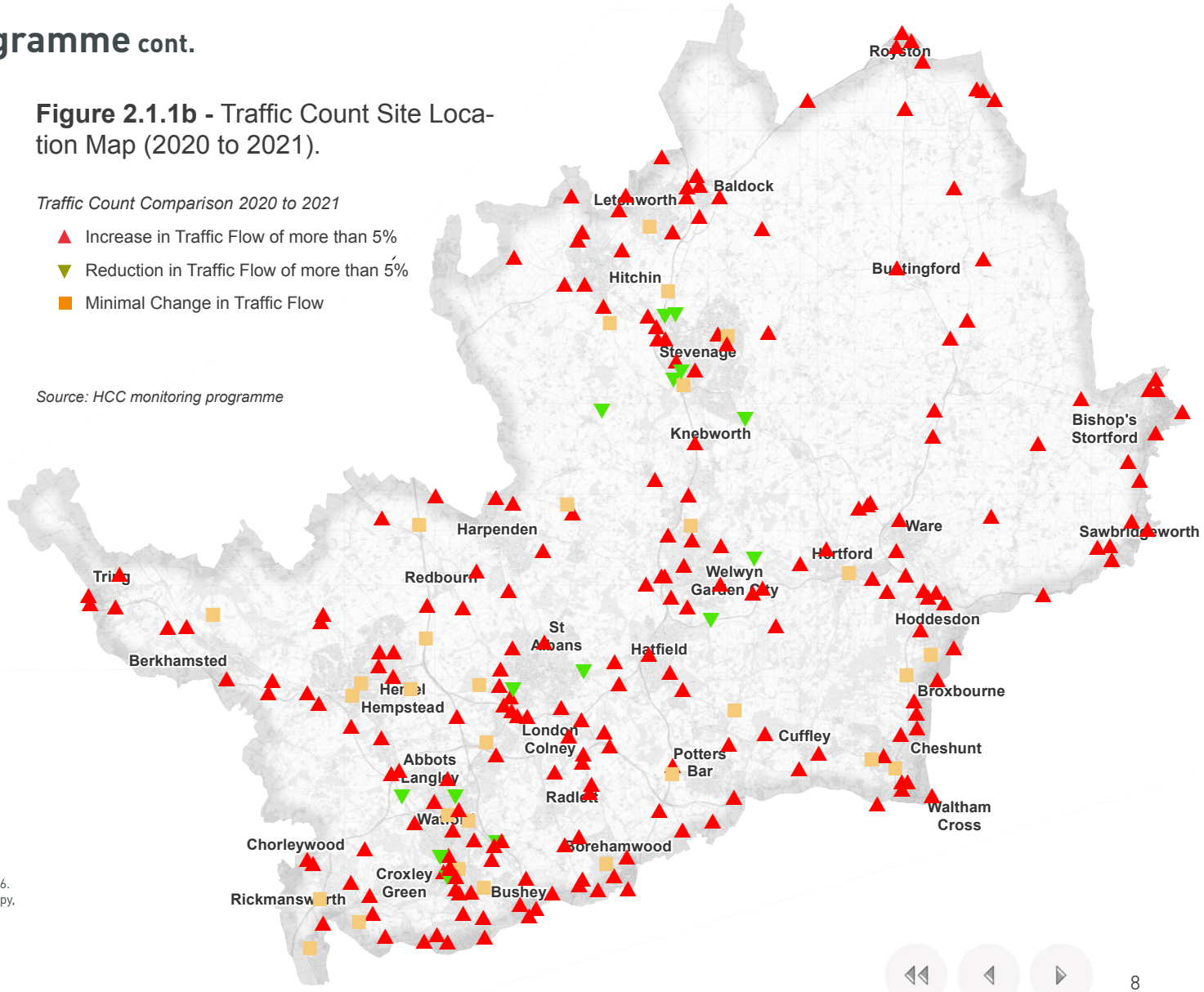


2.1 Traffic Monitoring Programme cont.

Please be aware that due to COVID-19 pandemic, 2020 and 2021 traffic data monitoring and collection exercises were affected by COVID-19 related restrictions, and there were instances of incomplete or missing data which necessitated estimates to be made.

Care should be taken when interpreting this data and comparing to other years. More information about the programme can be found in Appendices 8.4.1 and 8.4.2. Further information on site locations and daily traffic flow can be found online at: hertfordshire.gov.uk/trafficmap

Figure 2.1.1b - Traffic Count Site Location Map (2020 to 2021).



Source: HCC monitoring programme

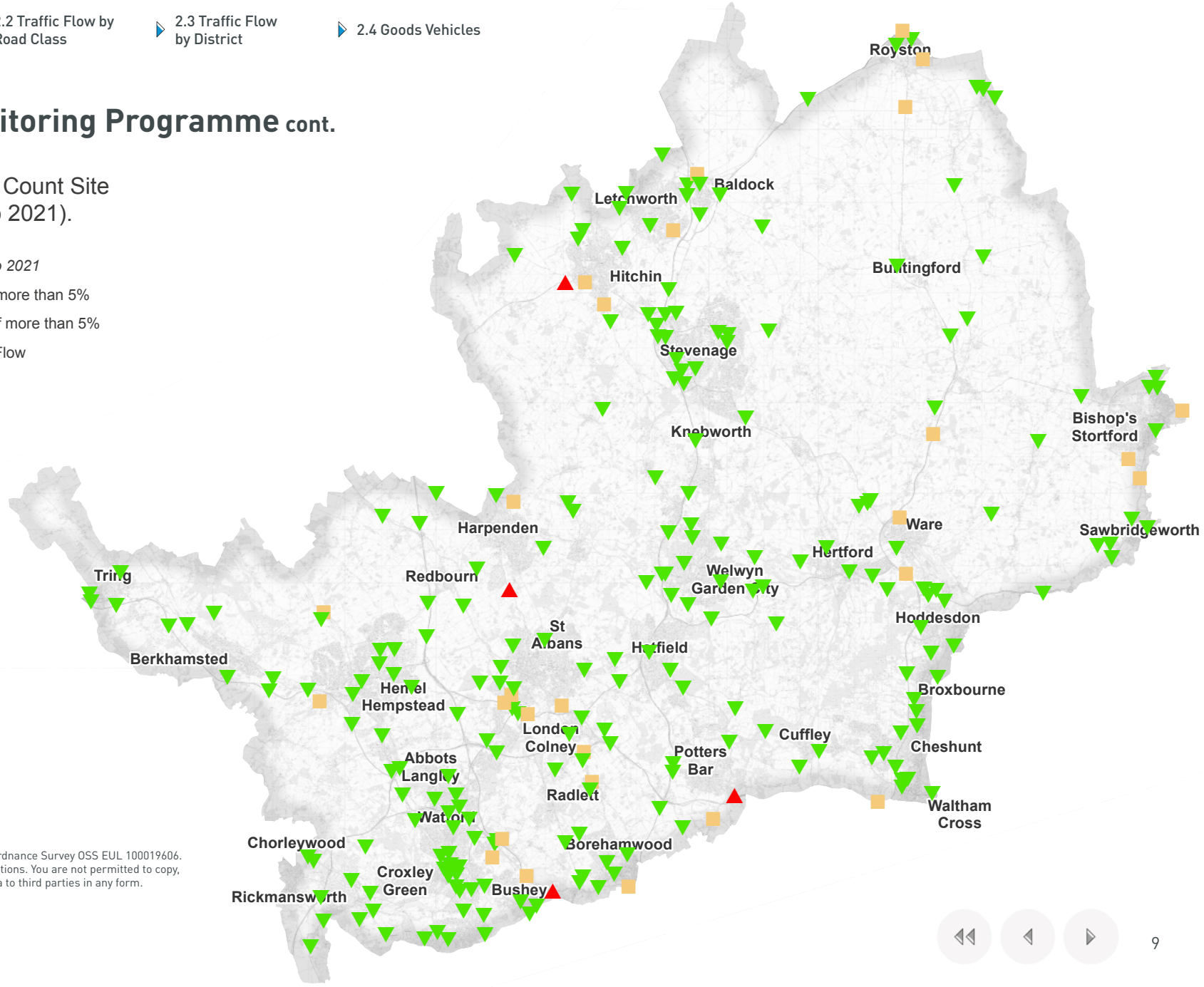
2.1 Traffic Monitoring Programme cont.

Figure 2.1.1c - Traffic Count Site Location Map (2019 to 2021).

Traffic Count Comparison 2019 to 2021

- Increase in Traffic Flow of more than 5%
- Reduction in Traffic Flow of more than 5%
- Minimal Change in Traffic Flow

Source: HCC monitoring programme

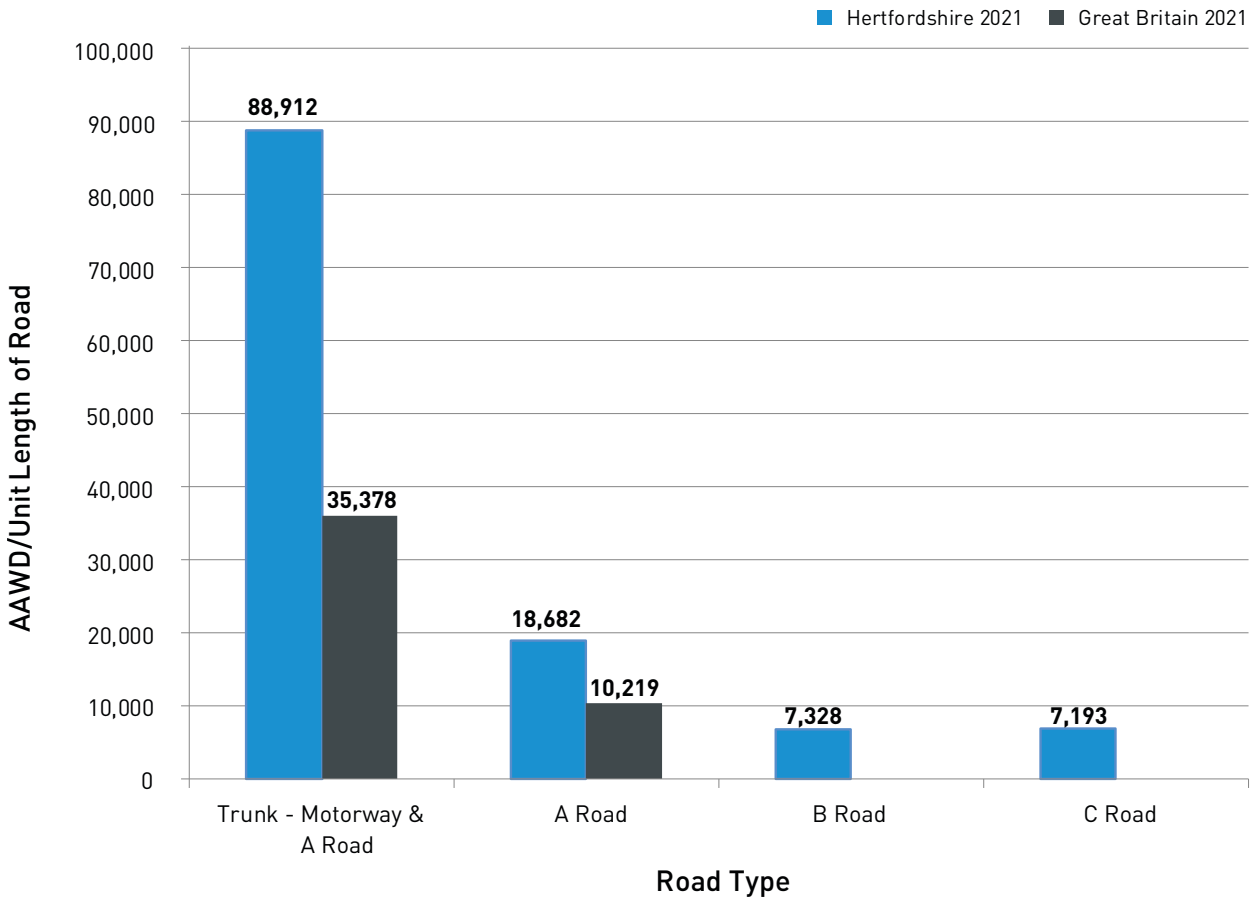


2.2 Traffic Flow by Road Class

A readily observed characteristic of traffic is flow. Two common measures are Annual Average Weekday flow (AAWD) and Annual Average Daily Traffic flow (AADT). The former is derived from observations between 06:00 and 22:00 on each weekday, whereas the latter is from the total flow observed over a year. HCC generally quotes the AAWD for a road, as peak traffic flows are better represented.

Figure 2.2.1 shows average AAWD per unit length of road by road type, both in Hertfordshire and Great Britain.

Figure 2.2.1 - Average AAWD per Unit Length of Road by Road Type



Source:

**DfT (Transport Statistics Great Britain) Tables: TRA0204, RDL0201*

HCC's TRACAS database (annual traffic count programme)

N.B Figure 2.2.1 is derived using a different calculation methodology to that of figure 2.1.3 in order for it to be comparable to Great Britain data

Footnote: Motorway figures include two new additional sites on the M25, whilst the A and B road figures include road reclassifications in the Dacorum.

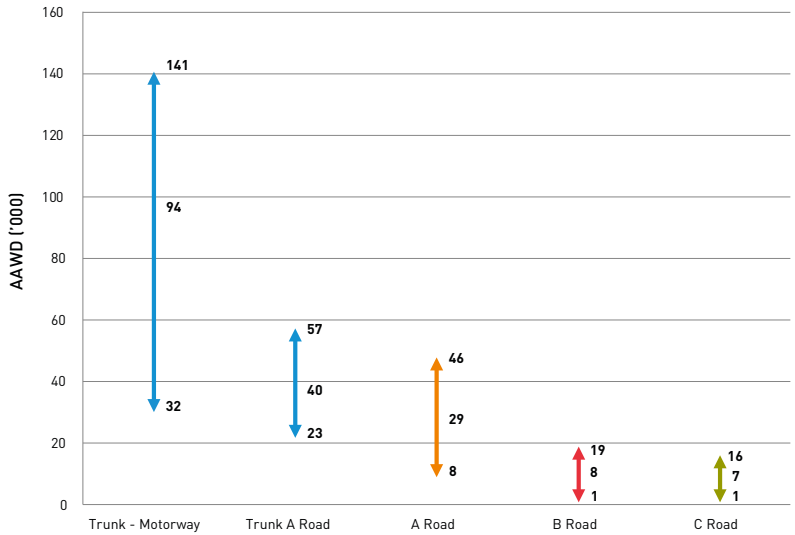
2.2 Traffic Flow by Road Class cont.

Figure 2.2.2 shows the average AAWD with the traffic flow ranges for each road classification in the county. Flows vary significantly across each road classification and this is particularly apparent on motorway and trunk road flows, where flows varied from 32,000 vehicles to 141,000 vehicles per day with the mean of 94,000 vehicles in 2021.

Vehicle kilometres are determined by multiplying the AAWD on a given road section by the total length of the road. Vehicle kilometres represents the distance travelled on each section of the road network and provides a measure of the overall daily loading. **Figure 2.2.3** shows that Hertfordshire has a classified road length in excess of 1,800 km (excluding unclassified roads), with A and C Roads making up most of The classified network.

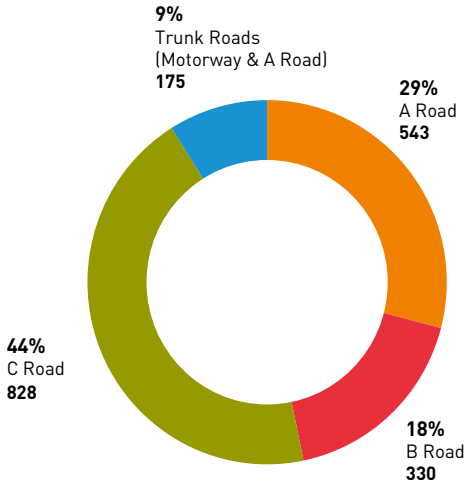
It should be noted that whilst unclassified roads make up much of the road network (see Appendix 8.4.3) there are a limited amount of monitoring sites located on these roads and therefore do not provide a representative sample. For the purposes of this report where there are traffic counts on unclassified roads these have been analysed as C roads.

Figure 2.2.2 - County Traffic Flow Ranges Graph



Source: HCC's TRACAS database (annual traffic count programme)

Figure 2.2.3 - Classified Road Length (km)

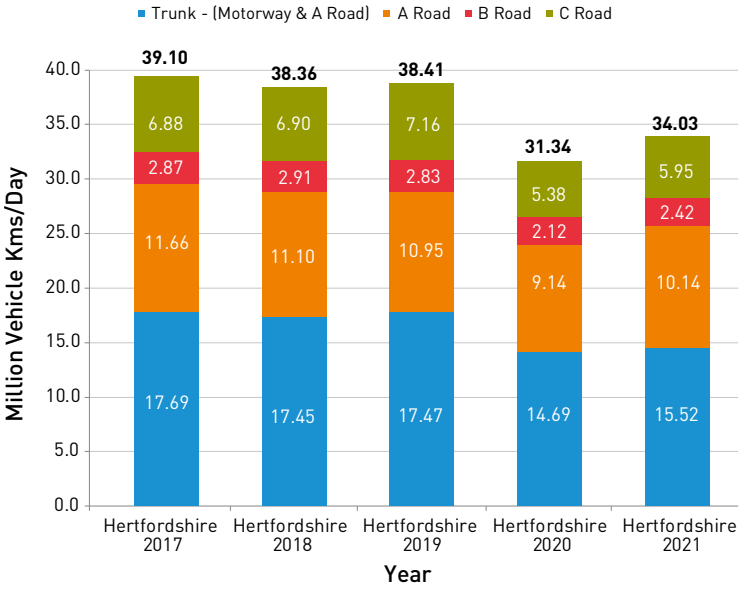


Source: HCC's TRACAS database (annual traffic count programme) - Excludes unclassified roads.

2.2 Traffic Flow by Road Class cont.

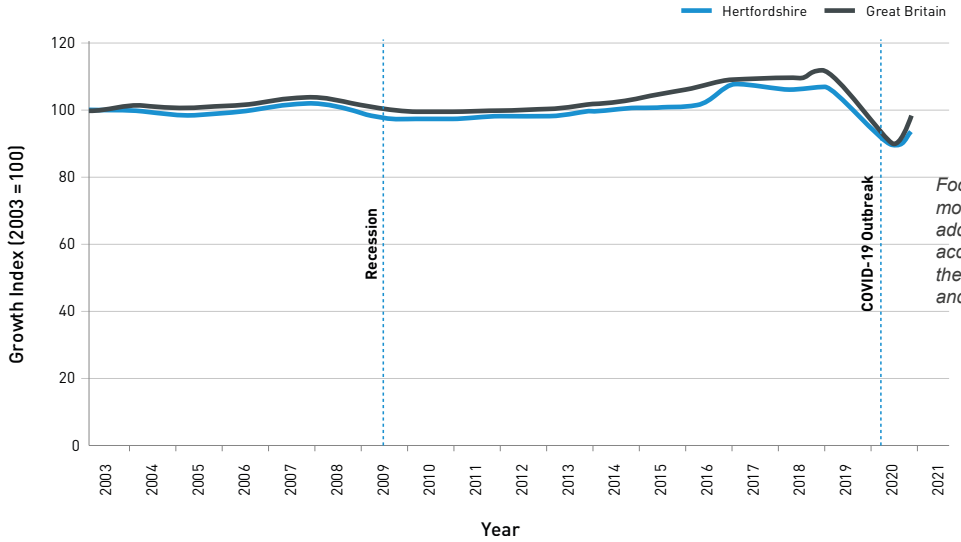
Figure 2.2.4 shows the Vehicle kilometres by road type across the county. Most kilometres travelled per day across the county in 2021 took place on a Trunk or A Road, reflecting the HCC's policy to encourage drivers to use major routes for long journeys. The C road network makes up most of the remaining kilometres travelled and shows that local roads in the county experience high traffic flows in many areas. **Figure 2.2.5** shows the overall trend over the last 19 years in Hertfordshire's traffic flow with 2003 as a base year. From 2003 traffic flows increased in the county until 2007 when there was a reduction corresponding with the UK recession. Flows continued to decline until 2013, when there was an increase in traffic flow aligning with the upturn of the UK economy until 2020, when the COVID-19 outbreak occurred. From 2020 until 2022 COVID-19 lock downs and restrictions caused a considerable impact on the economy and travel in the UK and Hertfordshire, culminating in a significant reduction in traffic of 18.4% between 2019 and 2020. In the subsequent year (2020-2021) traffic levels rebounded with an increase of 8.6%.

Figure 2.2.4 - Change in Vehicle Kilometres.



Source: HCC's TRACAS database (annual traffic count programme).

Figure 2.2.5 - Historical Trends of County and National Traffic.



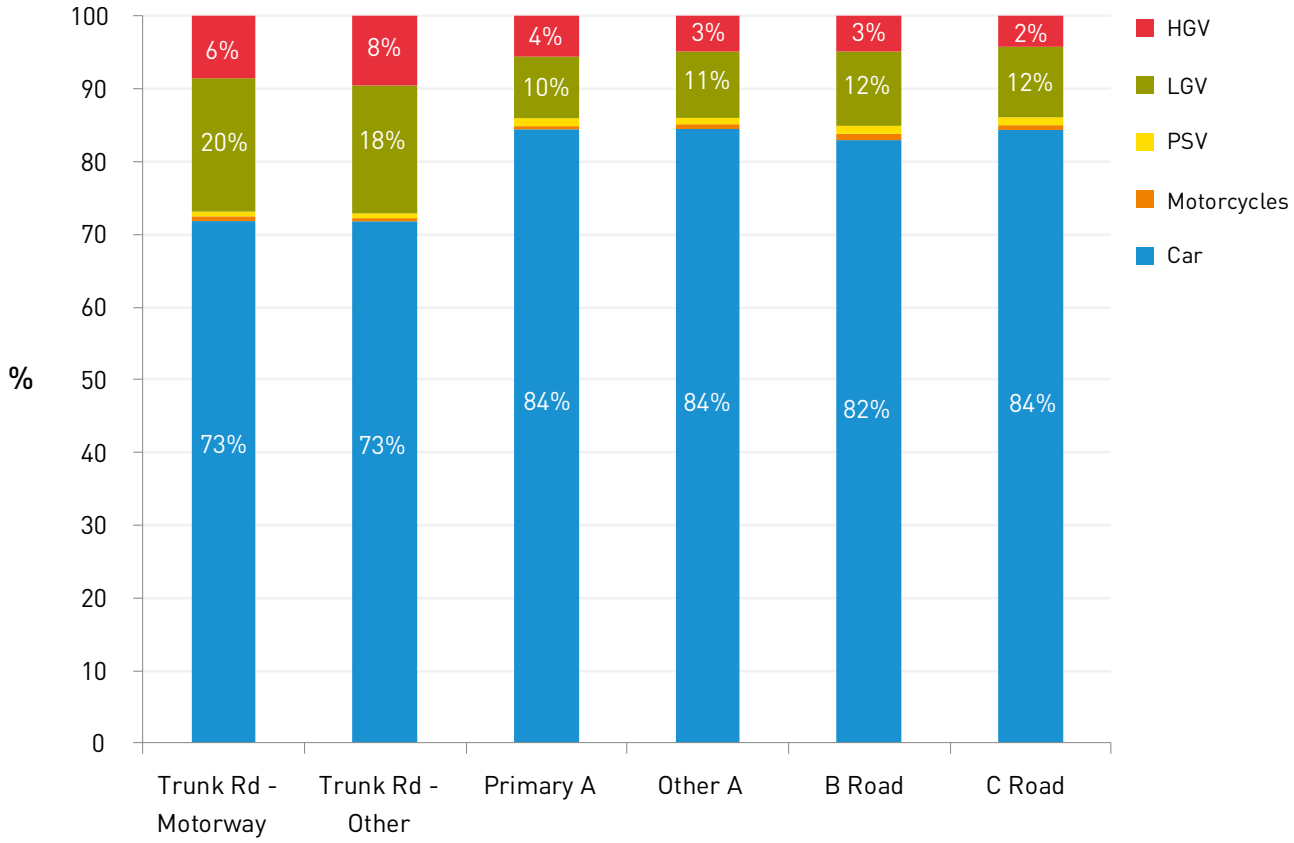
Footnote: Two new motorway sites were added in 2017 which accounts for some of the rise between 2016 and 2017.

Source: DfT (Transport Statistics Great Britain) Table TRA0204. HCC's TRACAS database. Footnote: Two new motorway sites were added in 2017 which accounts for some of the rise between 2016 and 2017.

2.2 Traffic Flow by Road Class cont.

Figure 2.2.6 displays vehicle classifications by road type and shows that cars make up the the majority of vehicles with higher proportions found on A, B and C Roads. Conversely, HGVs and LGVs make up a quarter of vehicles on Motorway and Trunk roads and is almost double the proportion found on more minor roads.

Figure 2.2.6 - Vehicle Mode Split by Road Type



Source: MCC monitoring programme

2.3 Traffic Flow by District

Traffic flows often vary between the districts of Hertfordshire and are not always representative of overall County trends.

Figure 2.3.1 shows that compared to the previous year, traffic increased in all districts apart from Watford, with the largest changes occurring in St Albans and Hertsmere.

It should be noted that traffic data at district level is likely to have a greater degree of uncertainty in 2020 and 2021, due to incomplete or missing data as a result of COVID-19 and as mentioned in Section 2.1.

Figure 2.3.1 - Vehicle Kilometres by District

District	VKm/Day HCC Roads[1] (millions)	% Change HCC Roads 2021 vs. 2020	Highest Recorded Flow (AAWD)	Road
Broxbourne	1.12	4.6%	41,539	A10
Dacorum	2.41	9.7%	139,108	M1
East Herts	3.77	14.1%	42,969	A10
Hertsmere	1.26	15.1%	67,700	M1
North Herts	3.37	13.6%	72,709	A1(M)
St Albans	2.28	15.3%	140,685	M1
Stevenage	0.62	0.4%	51,078	A1(M)
Three Rivers	0.85	8.9%	67,700	M25
Watford	0.82	-0.6%	43,230	A4008
Welwyn Hatfield	1.50	12.9%	66,609	A1(M)

Source: HCC's TRACAS database (annual traffic count programme)

1 HCC roads = Hertfordshire County Council controlled roads, which excludes motorway and trunk roads.

2.4 Goods Vehicles

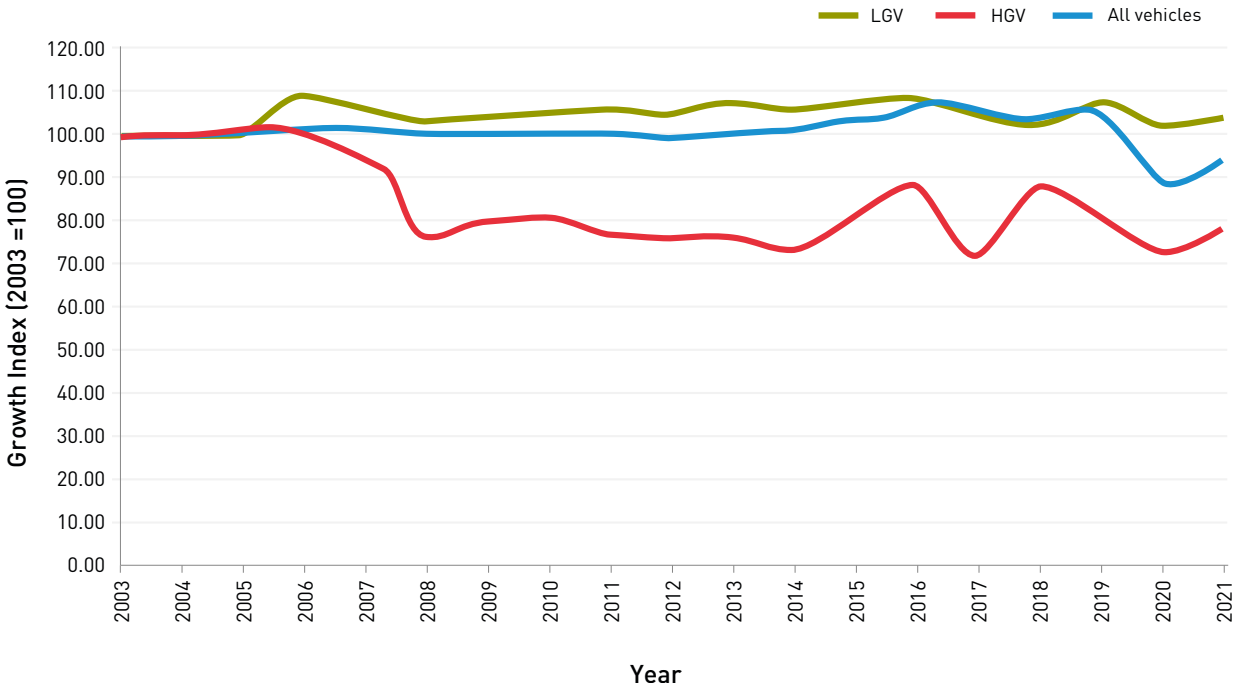
2.4.1 Freight, Goods and the Economy

The trend of goods vehicles or freight vehicles follow the changes of the economy closely. Freight vehicles, Heavy Goods Vehicles (lorries) are more efficient at moving freight between distribution centres or warehouses; while Light Goods Vehicle or Van plays a role more in the last-mile delivery or the delivery to end consumers.

Figure 2.4.1 shows the historical levels of all motor vehicles, LGV and HGV flows on roads in the county.

Prior to the recession in 2009 HGV flows were stable and LGV flows were experiencing a boom. From 2009 both HGV and LGV flows showed a gradual increase until 2018 when there was a reduction. Flows then increased until 2020 when there was a significant decrease across HGVs, LGVs and all modes due to COVID. Between 2020 and 2021 flows on all modes have rebounded somewhat as COVID restrictions were lifted, however flows have yet to reach pre pandemic levels, with decreases of 5.4% for LGV, 17.4% for HGV and 11.4% for all vehicles in 2021 against 2019.

Figure 2.4.1 - Historical Trends of All vehicles, LGV and HGV Flows.



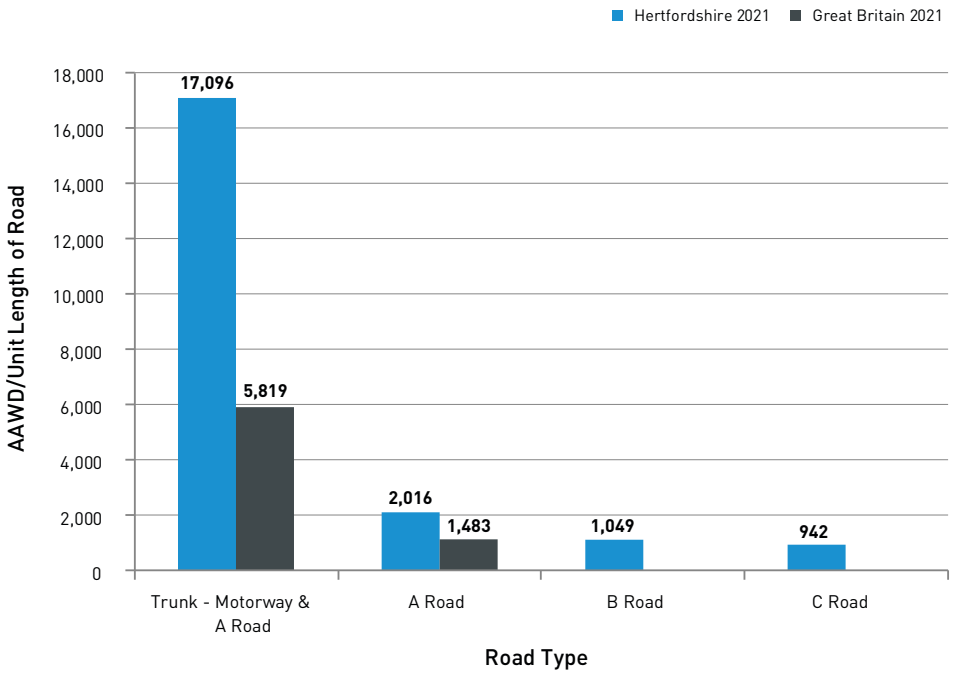
Source: HCC's database (annual traffic count programme).

2.4.2 Light Goods Vehicles (LGVs)

According to Lorry Types and Weights Guide and Provisional Road Traffic Estimates, a Light Goods Vehicle (LGV) / Light Commercial Vehicle (LCV) or Van is defined as a goods vehicle of up to 3.5 tonnes gross vehicle weight.

Figure 2.4.2 shows that Hertfordshire's trunk roads carry over three times the national levels of LGVs, whilst on A Roads the county and national levels are similar.

Figure 2.4.2 - Average Flow of LGVs by Road Type



*Source: *DfT (Transport Statistics Great Britain) table TRA0204 & RDL0201. HCC's TRACAS database (annual traffic count programme)..*

2.4.3 Heavy Goods Vehicles (HGVs)

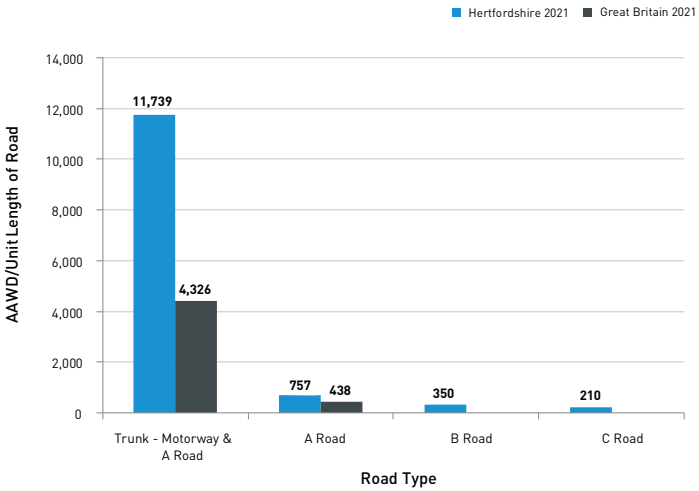
According to Lorry Types and Weights Guide and Provisional Road Traffic Estimates, a Heavy Goods Vehicle (HGV) / Lorry is defined as a goods vehicle over 3.5 tonnes gross vehicle weight.

Due to their size and weight, HGVs impose significantly more stress on road surfaces than many other vehicle types. As a result of this Policy 16 of LTP4 seeks to manage freight by "Encouraging Heavy Goods Vehicles to use the Primary Route Network".

Figure 2.4.3 demonstrates that the county's Motorway and Trunk roads carry more than the national level of HGVs, with A roads also carrying more HGVs than the national levels. Table 2.4 of the Design Manual for Roads and Bridges (CD 224 – Traffic assessment, formerly HD24/06) classifies commercial vehicles into three categories; PSV, OGV1 and OGV2. Furthermore, the DfT publishes Lorry Types and Weights Guide to assist in the correct classification. The OGV (Other Goods Vehicles) split is used to inform a variety of areas such as road and bridge design and pavement loading.

Figure 2.4.4 shows the 2021 manual classified breakdown of HGVs by type.

Figure 2.4.3 - Average Flow of HGVs by Road Type



*Source: *DfT (2018 Transport Statistics Great Britain) table TRA0204 & RDL0201. HCC's TRACAS database (annual traffic count programme).*

Figure 2.4.4 - Manual Classified Breakdown of HGVs

Road Type	LGV	PSV	HGV OGV1 HCV 2axle >3T	HGV OGV1 HCV 3axle Rigid	HGV OGV1 Total	HGV OGV2 HCV 4axle Rigid	HGV OGV2 Artic 3axle	HGV OGV2 Artic 4axle	HGV OGV2 Artic 5axle	HGV OGV2 Artic 6axle	HGV OGV2 Total	HGV Total
Trunk Rd - Motorway	19.7%	0.4%	2.7%	0.3%	3.0%	0.7%	0.0%	0.2%	1.1%	1.2%	3.3%	6.3%
Trunk Rd - Other	19.6%	0.4%	2.0%	0.4%	2.4%	1.3%	0.0%	0.3%	1.1%	0.9%	3.8%	6.1%
Primary A	10.7%	1.1%	0.1%	0.0%	0.2%	2.1%	0.0%	0.0%	1.5%	0.0%	3.7%	3.9%
Other A	11.9%	1.0%	0.6%	0.2%	0.8%	0.9%	0.0%	0.0%	0.4%	0.1%	1.5%	2.3%
B Road	12.7%	1.1%	1.7%	0.2%	1.9%	0.9%	0.0%	0.1%	0.4%	0.1%	1.5%	3.4%
C Road	13.0%	1.0%	0.4%	0.2%	0.6%	0.7%	0.0%	0.0%	0.1%	0.0%	0.8%	1.4%
All Road types	**11.7%**	**1.0%**	**0.6%**	**0.1%**	**0.7%**	**1.5%**	**0.0%**	**0.0%**	**1.0%**	**0.1%**	**2.6%**	**3.3%**

Source: HCC Monitoring Programme.

Note: Figure has been patched with "Trunk Rd - Motorway" data from 2020, due to incomplete MCC data collection programme in 2021.

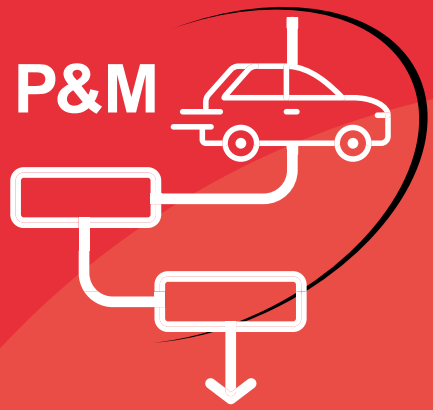
3. Network Management, Congestion and Reliability

3.1 Road Network Terminology

3.2 Key Routes

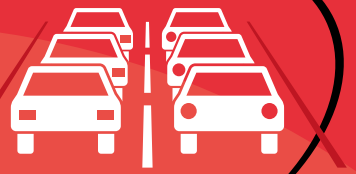
3.3 Congestion and Reliability

Place and Movement framework set up with 9 categories is an approach for recognising the needs of different road users in relation to different parts of the network, as a complement to the road hierarchy.



192

There are 192 congestion hotspots in 2021 with 67% of these located in urban areas.



TOP 5

M25, M1, A1, A41, A414 are the top 5 most heavily trafficked roads, with the AAWD in the range of 30,000 – 130,000.

Highway reliability is assessed in terms of journey time variation and route stability, covering M25, M1, A1, A41, A414, A10, A602 and A505.

3.1 Road Network Terminology

Hertfordshire's highway network caters for several different users including people walking and cycling, bus services and local traffic movements as well as longer distance traffic travelling through the county. These competing and conflicting demands for use outstrip the available capacity and therefore the network needs to be managed effectively.

The Movement function of the highway is the particular focus of the Traffic Management Act (TMA) and HCC's Network Management Duty which are aimed at ensuring the expeditious movement of all travel modes on the highway as far as possible.

Road classification

The system of roads classification is intended to direct highway users towards the most suitable routes for reaching their destination. It does this by identifying roads that are best suited for traffic.

All UK roads (excluding motorways) fall into the following 4 categories:

- A roads – major roads intended to provide large-scale transport links within or between areas
- B roads – roads intended to connect different areas, and to feed traffic between A roads and smaller roads on the network
- classified unnumbered – smaller roads intended to connect together unclassified roads with A and B roads, and often linking a housing estate or a village to the rest of the network. Similar to 'minor roads' on an Ordnance Survey map and sometimes known unofficially as C roads
- unclassified – local roads intended for local traffic. The vast majority (60%) of roads in the UK fall within this category

Strategic Road Network (SRN)

The Strategic Road Network is operated by National Highways and consists of Motorway and Trunk Roads that connect to the local road network. Signage is white lettering on a blue background.

Primary Route Network (PRN)

The primary route network (PRN) designates roads between places of traffic importance across the UK, with the aim of providing easily identifiable routes to access the whole of the country. The PRN is constructed from a series of locations (primary destinations) selected by the Department for Transport, which are then linked by roads (primary routes) selected by the local highway authority. In Hertfordshire the Primary Destinations are; Stevenage, Hemel Hempstead, Watford, St Albans and Hertford.

Primary route road signs are green with white and yellow text.

3.1 Road Network Terminology cont.

Road Hierarchy

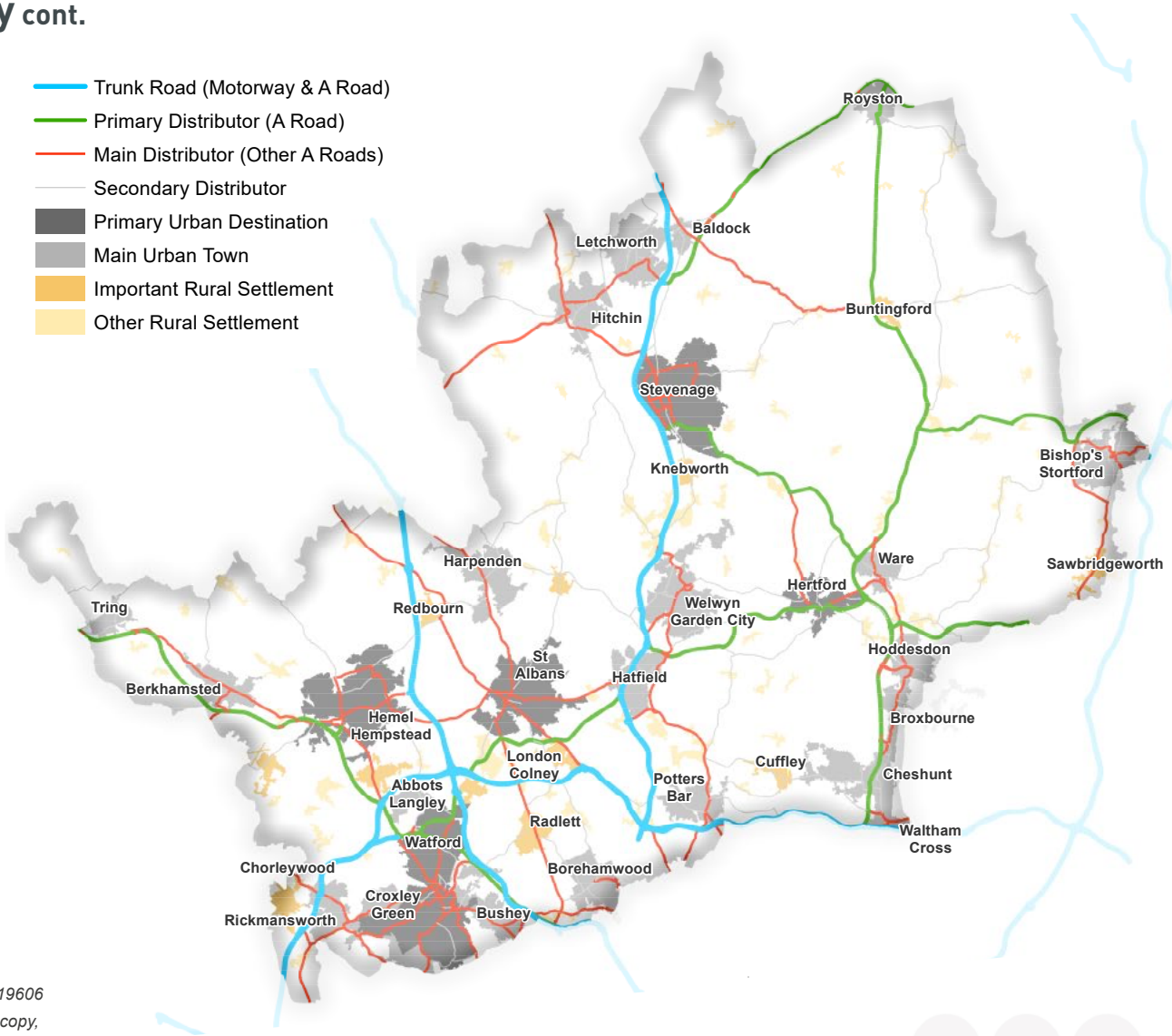
To supplement the PRN, Hertfordshire County Council's categorises roads as part of the Road Hierarchy.

- Primary Distributor (A Road) – Roads that link Primary Destinations and include important 'A' roads or called Primary 'A' roads. Signage is white lettering on a green background.
- Main Distributor (Other A Roads) – Non-Primary 'A' roads that connect the main urban towns with the Primary Route Network (PRN) and distribute traffic within towns. Signage is black lettering on a white background.
- Secondary Distributor – 'B' roads that connect important rural settlements to each other and to the main distributor network. Signage is black lettering on a white background.
- Local Roads – 'C' and Unclassified roads. Signage is black lettering on a white background (no road numbers). Local direction signs.

A map of these routes is shown in **Figure 3.1.1**.

3.1 Road Network Terminology cont.

Figure 3.1.1 - Road Hierarchy in Hertfordshire



3.1 Road Network Terminology cont.

Place & Movement

HCC have also developed a new approach of categorising their roads according to their Place and Movement function in order to ensure that the needs of different road users are recognised and taken into account. It provides a way of looking at the appropriate function of any section of highway and a basis for deciding which activities should be prioritised and in doing so provides a means to translate LTP policies into practice.

Building on the Healthy Streets™ approach developed by Transport for London (TfL), a matrix has been developed which classifies the highway network into 9 categories based on its relative place and vehicle movement function.

As shown in **Figure 3.1.2**, the matrix has been designed to complement the road hierarchy by recognising the different functionalities that the different parts of the highway network have.

All existing highways across the existing network in Hertfordshire have been assigned an appropriate category from the matrix.

The understanding of local network operation and the needs of its users will be considered when all new or improved highways are assigned an appropriate P&M category.

The P&M category shall provide the basis for prioritising and balancing the needs for the different highway users when managing the network.

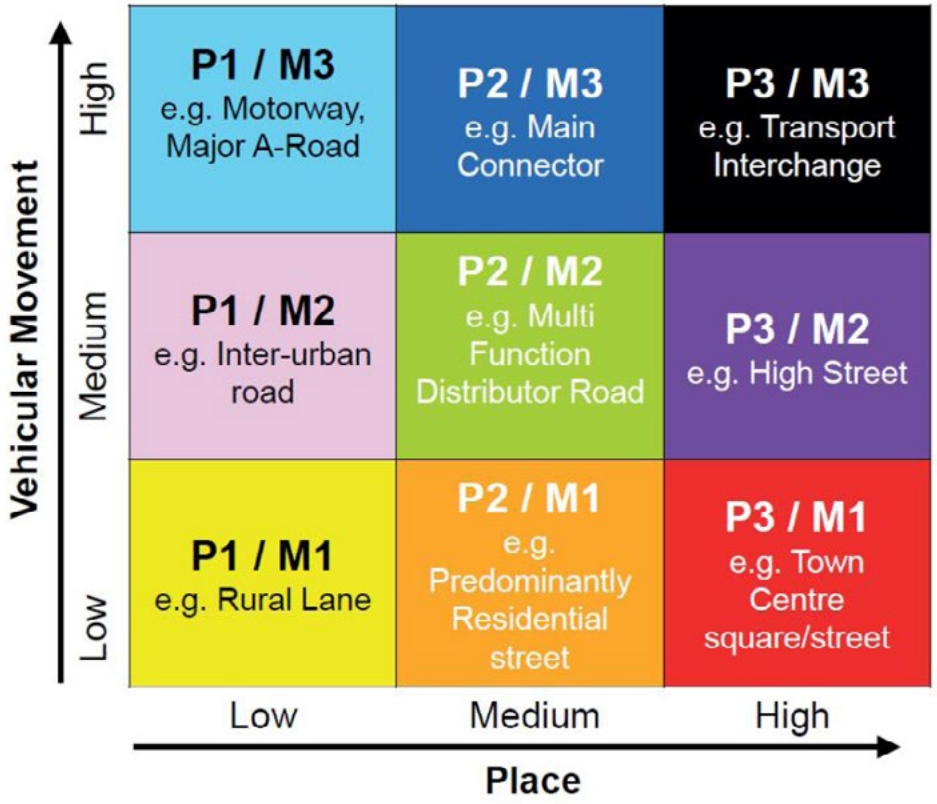
3.1 Road Network Terminology cont.

The Place & Movement framework does not replace the road hierarchy but complements and provides another way of assessing the network by identifying where roads may be being used inappropriately (e.g. residential roads being used bythrough traffic.

An online map showing road classification, including the PRN and the P&M network and urban and rural settlements can be found here:

Webmaps - Highways Traffic (hertfordshire.gov.uk)

Figure 3.1.2 - Place and Movement Category



3.2 Key Routes

There are several key transport routes in Hertfordshire that link to important economic destinations outside of the county (i.e. London, Cambridge, Peterborough, Heathrow, Stansted and Luton), as well as many key internal transport routes that connect Hertfordshire's primary destinations and main urban towns.

Figure 3.2.1 shows the top 25 busiest roads in the county in 2021 according to HCC's traffic monitoring programme, with corresponding pre-COVID data in 2019 for comparison. These figures show that whilst Trunk and A Roads make up most roads with high flows, there are a few exceptions, including the B4630 (Watford Road through Chiswell Green), Essex Road in Broxbourne and Six Hills Way in Stevenage.

Figure 3.2.1 - Hertfordshire's Most Heavily Trafficked Roads

Road	Key Links	Route Length (KM)	Flow full road length (AAWD) in 2021	Averaged flow across full road length (AAWD) in 2019 pre-Covid
M25	London, London Airports, Dover, Oxford, Essex, the South	106	129,235	145,693
M1	Maylands, London, Milton Keynes, London Airports, Dover, the North	69	121,892	147,174
A1(M)	London, London Airports, M25, Dover, the North	94	56,798	71,680
A1	London, London Airports, M25, Dover, the North	9	56,519	65,047
A41	Cross-county, Maylands, London, London Airports, Aylesbury, Oxford	80	31,136	34,937
A414	Maylands Business Park, Cross-county, Chelmsford, M1, M25, A1(M), M11	85	31,053	34,545
A4008	Watford, North London,	9	28,305	31,888
A10	London, London Airports, M25, Cambridge, Dover	95	26,817	30,302
A405	Intercounty, links to A10, A1(M)	16	26,771	31,934
A505	Cross-county, Luton, links to the M1, A10 & the M11, Cambridge	68	26,260	31,597
A602	Intercounty, links to A10, A1(M)	38	23,377	28,109
A6129	A1(M), A414, Hatfield to Welwyn GC	4	23,118	26,859
A121	M25, M11, A10	5	21,137	25,733
A1072	A1(M), Stevenage business park, A602	13	20,988	24,510
A111	Potters Bar to Barnet, M25, A10, London	2	20,881	18,474
A1250	Bishop's Stortford	5	19,408	18,714
B4630	A414, M1, M25, St Albans	3	18,667	19,526
A411	Watford, Barnet, M25, M1	21	17,903	19,692
A1081	St Albans to Harpenden, A1(M), M1, M25,A414	24	16,409	19,154
A4178	Watford	3	15,913	17,947
C137	Essex Road, Essex, A10	1	15,890	18,552
A4147	St Albans, Hemel Hempstead	14	15,729	17,422
A404	Amersham to Chorleywood to Rickmansworth to Northwood to Harrow to Wembley	9	15,446	18,033
A5135	Borehamwood	3	15,432	17,723
A120	Little Hadham, Bishop's Stortford	17	15,418	15,398

Source: HCC's TRACAS database (annual traffic count programme)

3.3 Congestion and Reliability

At its simplest, congestion is the point at which additional vehicle(s) on a road impede the progress of all existing vehicles on the same road. Congestion and its influence on individual journeys increase as demand for the available road space exceeds capacity. Capacity itself can be reduced through roadworks or closures, in addition, one-off events such as bad weather or road traffic accidents can also have a significant impact on road congestion.

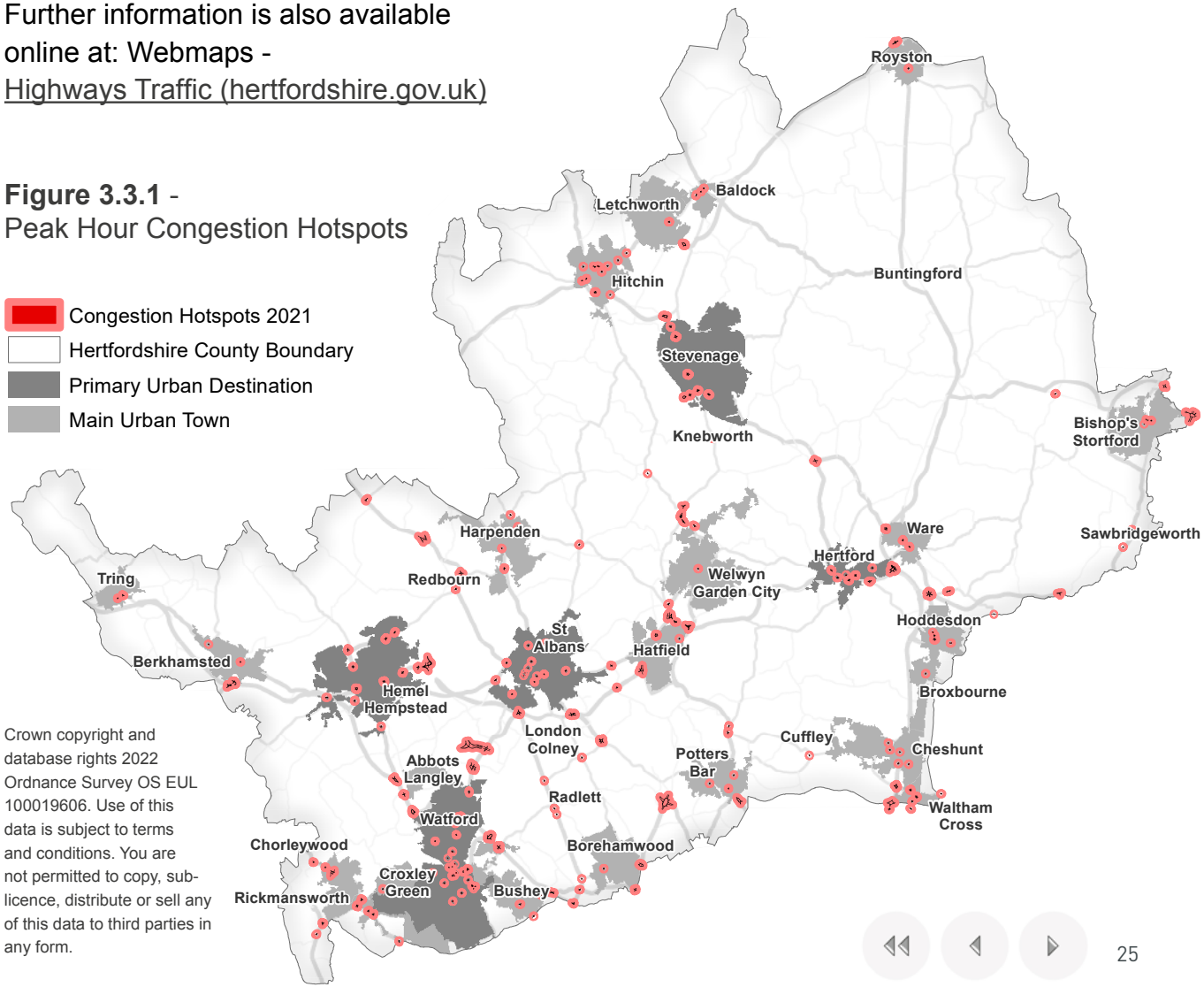
Congestion Hotspots

The metric used to assess the operation of the network are congestion hotspots. This is based on in car GPS systems data (INRIX), provided to HCC by DfT.

Figure 3.3.1 shows congested junctions based on 2021 INRIX journey time data delays which occur on Primary, Main or Secondary distributor roads in the am and pm peak (8-9 and 5-6). Junctions are identified as congested when the average speed on two or more arms of the junction fall below speeds in free flow conditions.

Further information is also available online at: Webmaps - Highways Traffic (hertfordshire.gov.uk)

Figure 3.3.1 - Peak Hour Congestion Hotspots



3.3 Congestion and Reliability cont.

Based on this assessment the figure overleaf shows congestion occurs in most of Hertfordshire's towns and on some 'key' inter urban junctions such as the A5183 between Borehamwood and St Albans, A1000 and the A414.

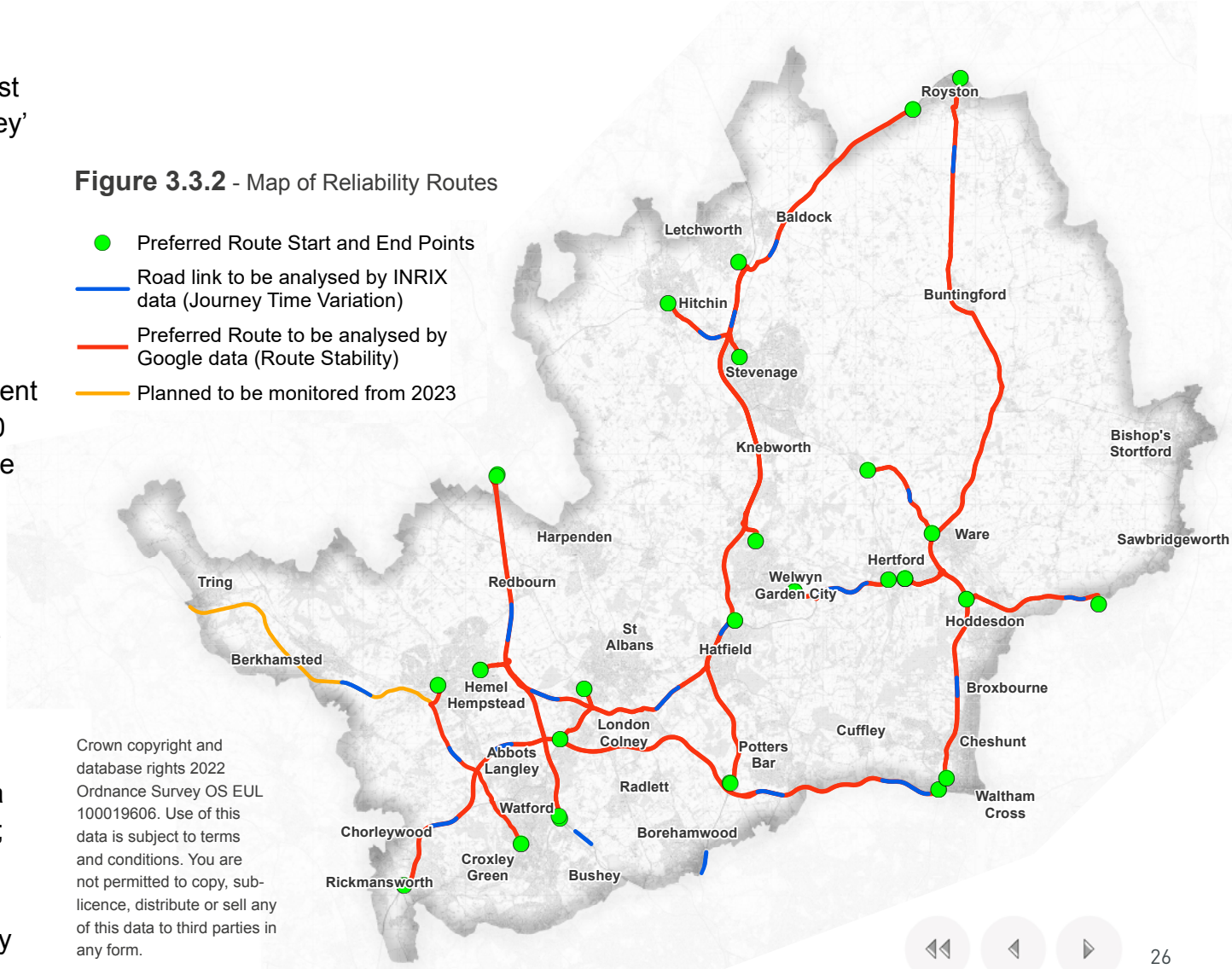
There were 192 congestion hotspots in 2021 with 67% of these located in urban areas. It should be noted that the 2021 data does not consider the impact of recent improvement schemes such as the A120 Little Hadham bypass and the A602 route improvements.

Reliability

Whilst it is important HCC manages congestion, a more meaningful measure of how the network is performing is the reliability of journey times.

Highway reliability is (i) the journey time in which traffic consistently travels with a similar amount of time in certain periods; and (ii) the frequency and quality in which traffic consistently remains on the designated road (i.e., the higher category

Figure 3.3.2 - Map of Reliability Routes



3.3 Congestion and Reliability cont.

roads in the road hierarchy and the Place and Movement categories). The more often traffic remains on the designated (preferred) road rather than transferring to more minor routes, the more reliable the road is.

Major routes coupled with start and end points have been selected based on the main movement routes as defined by Hertfordshire's Place and Movement Categorisations (i.e., P1/M3 and P2/M3 sections. These routes are illustrated in **Figure 3.3.2**). INRIX and Google API data has been used for this analysis. Further information is also available online at:

https://highway-reliability-hertscc.hub.arcgis.com

Reliability is particularly important during the am and pm peaks, as an unreliable road, is likely to cause traffic deviating from the appropriate road onto more unsuitable roads, which in turn, impacts on the operation of the highway. This is effectively known as 'rat running'.

Figure 3.3.3 - Journey Time Variation by INRIX data

Link between Locations	Road	Direction	Link ID Ref	Relative Standard Deviation of Journey Time in 2021 AM	Relative Standard Deviation of Journey Time in 2021 PM	Reliability on Journey Time in 2021
A414 - Hertford to Welwyn Garden City	A414	WB	4000000027865964A/1a	≤50%	≤50%	Reliable
A414 - Welwyn Garden City to Hertford	A414	EB	4000000027865963A/1b	≤50%	≤50%	Reliable
A414 - Park Street (M25) to Hatfield	A414	NB	4000000027866449B/11b	≤50%	≤50%	Reliable
A414 - Hatfield to Park Street (M25)	A414	SB	4000000027866448A/11a	>50%	≤50%	Unreliable
A414 - Harlow to A10	A414	WB	4000000027870272A/12b	≤50%	≤50%	Reliable
A414 - A10 to Harlow	A414	EB	4000000027866730B/12a	>50%	≤50%	Unreliable
A414 - Hemel Hempstead to St Albans	A414	EB	4000000027866418A/13a	≤50%	>50%	Unreliable
A414 - St Albans to Hemel Hemstead	A414	WB	4000000027866417B/13b	≤50%	>50%	Unreliable
A10 / A414 - M25 to Hertford	A10	WB	4000000027870175A/6b	≤50%	≤50%	Reliable
A10 / A414 - Hertford to M25	A10	EB	4000000027870176B/6a	≤50%	≤50%	Reliable
A10 - Hertford to Royston	A10	NB	4000000027865993B/7a	≤50%	≤50%	Reliable
A10 - Royston to Hertford	A10	SB	4000000027865993A/7b	≤50%	≤50%	Reliable
A1 - Letchworth to Barnet (Borehamwood)	A1	SB	4000000030076341A/9b	>50%	>50%	Unreliable
A1 - Barnet to Letchworth (Borehamwood)	A1	NB	4000000030082095B/9a	≤50%	≤50%	Reliable
A1 - Letchworth to Barnet (Hatfield)	A1	SB	4000000027866463A/9b	>50%	≤50%	Unreliable
A1 - Barnet to Letchworth (Hatfield)	A1	NB	4000000027866464B/9a	≤50%	>50%	Unreliable
A1 - Letchworth to Barnet (Stevenage)	A1	NB	4000000027869976B/9b	>50%	≤50%	Unreliable
A1 - Barnet to Letchworth (Stevenage)	A1	SB	4000000027869975A/9a	≤50%	≤50%	Reliable
M1 - Luton to Watford (Hemel Hempstead)	M1	SB	4000000027865929A/10b	≤50%	≤50%	Reliable
M1 - Watford to Luton (Hemel Hempstead)	M1	NB	4000000027865928B/10a	≤50%	>50%	Unreliable
M1 - Luton to Watford (Bushey)	M1	SB	4000000030076326A/10b	>50%	≤50%	Unreliable
M1 - Watford to Luton (Bushey)	M1	NB	4000000030076325B/10a	≤50%	>50%	Unreliable

Continued on the next page

3.3 Congestion and Reliability cont.

Rat running is a tactic used to avoid heavy traffic and long delays at junctions, by using residential side streets or any unintended short cut to bypass traffic jams. It could be broadly translated into 2 situations based on motorists' origin and destination:

1. Strategic rat running is where vehicles re-route onto non primary or strategic roads (P1/M3 and P2/M3 in the P&M Matrix)

2. Local rat running (or Town to Town) is when non-A roads are used, e.g., B, C and U roads, when the local A road should be the appropriate route.

If a primary or strategic route is available, this should be used. And use of inappropriate roads should be discouraged, through information and engineering measures.

To understand reliability on key routes (as shown in **Figure 3.3.2**) within the county, two assessment methods have been created: (i) journey time variation and (ii) route stability.

Link between Locations	Road	Direction	Link ID Ref	Relative Standard Deviation of Journey Time in 2021 AM	Relative Standard Deviation of Journey Time in 2021 PM	Reliability on Journey Time in 2021
M25 - Rickmansworth to Waltham Cross (M25) (Junction 18-19)(Rickmansworth)	M25	EB	4000000030076306A/8a	≤50%	≤50%	Reliable
M25 - Waltham Cross to Rickmansworth (M25) (Junction 19-18)(Rickmansworth)	M25	WB	4000000030076305B/8b	≤50%	≤50%	Reliable
M25 - Rickmansworth to Waltham Cross (M25)(Junction 20-21a)(Abbots Langley)	M25	EB	4000000027866316B/8a	≤50%	≤50%	Reliable
M25 - Waltham Cross to Rickmansworth (M25)(Junction 21a-20)(Abbots Langley)	M25	WB	4000000027866315A/8b	>50%	>50%	Unreliable
M25 - Rickmansworth to Waltham Cross (M25)(Junction 23-24)(Potters Bar)	M25	EB	4000000027865918B/8a	>50%	>50%	Unreliable
M25 - Waltham Cross to Rickmansworth (M25)(Junction 24-23)(Potters Bar)	M25	WB	4000000027865917A/8b	≤50%	≤50%	Reliable
M25 - Rickmansworth to Waltham Cross (M25)(Junction 24-25)(Cheshunt)	M25	EB	4000000027865922A/8a	>50%	>50%	Unreliable
M25 - Waltham Cross to Rickmansworth (M25)(Junction 25-24)(Cheshunt)	M25	WB	4000000027865921B/8b	>50%	>50%	Unreliable
A602 / A1 - Hitchin to Welwyn Garden City (Hitchin)	A602	SB	4000000027866601A/26a	≤50%	≤50%	Reliable
A602 / A1 - Welwyn Garden City to Hitchin (Hitchin)	A602	NB	4000000027866600A/26b	≤50%	>50%	Unreliable
A602 - Watton to Ware (A602)(Ware)	A602	EB	4000000027870331A/33a	≤50%	≤50%	Reliable
A602 - Ware to Watton (A602)(Ware)	A602	WB	4000000027870331B/33b	≤50%	≤50%	Reliable
A41 - Watford to Hemel Hempstead (Watford)	A41	SEB	4000000027866312A/29a	>50%	>50%	Unreliable
A41 - Hemel Hempstead to Watford (Watford)	A41	NWB	4000000027866311A/29b	≤50%	>50%	Unreliable
A505 - Stevenage to Royston (Baldock)	A505	NB	4000000028209139A/14a	≤50%	≤50%	Reliable
A505 - Royston to Stevenage (Baldock)	A505	SB	4000000028209138A/14b	≤50%	≤50%	Reliable
A41 - Hemel Hempstead to Tring (Hemel Hempstead)	A41	EB	4000000027866362B/	≤50%	≤50%	Reliable
A41 - Tring to Hemel Hempstead (Hemel Hempstead)	A41	WB	4000000027865924A/	≤50%	>50%	Unreliable

3.3 Congestion and Reliability cont.

(i) Journey time variation is where a single short road link has been assessed to observe the variation in time that vehicles using the link take ("link basis") and always sit within the wider reliability route as identified previously. Links were chosen on the basis of length and position within the route.

Relative standard deviation of journey time has been used and calculated as the ratio of standard deviation to the mean. The calculation uses INRIX journey time data (based on in car GPS systems) provided by the DfT.

For the purposes of this analysis, data has been assessed in the am and pm peaks and classified into 2 categories based on relative standard deviation, namely (a) equal or less than 50%, and (b) more than 50% (**see Figure 3.3.3**).

The lower the relative standard deviation is, the less variation of journey time with relatively higher reliability it is. There are no official standards for this assessment, the information provided is for reference only.

3.3 Congestion and Reliability cont.

Figure 3.3.4 - Route Stability by Google data

(ii) Route stability is the frequency of which a vehicle travelling from start point to end point ("origin and destination basis") use the preferred route and can be used to help identify when vehicles rat run. This metric is calculated by using Google journey time data to observe the percentage of occurrences when the route was used.

For the purposes of this analysis, data has been assessed in the am and pm peaks and classified into 3 categories based on percentage of occurrences, namely (a) equal or more than 90%, (b) equal or more than 50% and less than 90% and (c) equal or more than 10% and less than 50% (see **Figure 3.3.4**). The more often traffic remains on the designated road (preferred route), the more reliable the road is. There are no official standards for this assessment, the information provided is for reference only.

Origin and Destination	Major Road of Preferred Route	Ref ID	% of time staying in preferred route in 2021 AM	% of time staying in preferred route in 2021 PM	Reliability on staying on preferred route in 2021
Hertford to Welwyn Garden City	A414	1a	≥90%	≥90%	Reliable
Welwyn Garden City to Hertford	A414	1b	≥90%	50-90%	Partly Unreliable
Park Street to Hatfield	A414	11b	50-90%	50-90%	Partly Unreliable
Hatfield to Park Street	A414	11a	≥90%	≥90%	Reliable
Harlow to A10	A414	12b	≥90%	≥90%	Reliable
A10 to Harlow	A414	12a	≥90%	≥90%	Reliable
Hemel Hempstead to St Albans	A414	13a	10-50%	10-50%	Unreliable
St Albans to Hemel Hempstead	A414	13b	10-50%	10-50%	Unreliable
M25 to Hertford	A10	6b	≥90%	≥90%	Reliable
Hertford to M25	A10	6a	50-90%	≥90%	Partly Unreliable
Hertford to Royston	A10	7a	≥90%	≥90%	Reliable
Royston to Hertford	A10	7b	≥90%	≥90%	Reliable
Letchworth to Barnet	A1	9b	≥90%	≥90%	Reliable
Barnet to Letchworth	A1	9a	≥90%	≥90%	Reliable
Luton to Watford	M1	10b	≥90%	≥90%	Reliable
Watford to Luton	M1	10a	≥90%	≥90%	Reliable
Rickmansworth to Waltham Cross	M25	8a	≥90%	50-90%	Partly Unreliable
Waltham Cross to Rickmansworth	M25	8b	≥90%	≥90%	Reliable
Hitchin to Welwyn Garden City	A602	26a	50-90%	≥90%	Partly Unreliable
Welwyn Garden City to Hitchin	A602	26b	≥90%	≥90%	Reliable
Watton to Ware	A602	33a	≥90%	≥90%	Reliable
Ware to Watton	A602	33b	≥90%	≥90%	Reliable
Watford to Hemel Hempstead	A41	29a	≥90%	50-90%	Partly Unreliable
Hemel Hempstead to Watford	A41	29b	0-10%	0-10%	Unreliable
Stevenage to Royston	A505	14a	50-90%	50-90%	Partly Unreliable
Royston to Stevenage	A505	14b	50-90%	≥90%	Partly Unreliable
Hemel Hempstead to Tring	A41	Planned to be monitored from 2023			
Tring to Hemel Hempstead	A41	Planned to be monitored from 2023			

4. Active and Accessible Travel

4.1 Context of Active Travel

4.2 Cycling

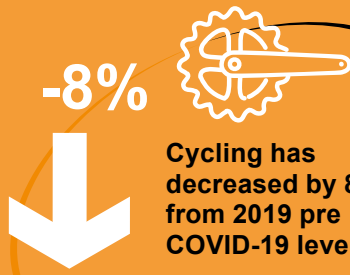
4.3 Walking

4.4 Accessible Travel

2.2% of trips are made by cycling.

32.7% of trips are made by walking.

7.4% of Hertfordshire's residents are inactive.



-8% Cycling has decreased by 8% from 2019 pre COVID-19 level.

2.1% For short trips, 2.1% of all trips under 3 miles are made by cycling.

76.0% For short trips, 76.0% of all trips under 1 mile are made by walking.

4.1 Context of Active Travel

Active travel includes trips made by walking, cycling and other micro mobility options such as scooters. Encouraging this type of travel can help tackle issues such as traffic congestion and air pollution as well as public health issues such as obesity.

Hertfordshire suffers from many public health, environment and economic issues around traffic congestion, inactivity and air pollution. Active communities, where active travel options are embedded, can help to tackle these issues.

Hertfordshire's main strategy documents, such as the Corporate Plan, The Local Transport Plan and the Sustainable Hertfordshire Strategy have been designed to address these issues through the setting of policies, objectives, and key performance indicators. These strategies are underpinned by Government policies and documents, such as the Cycling, Walking, Investment Strategy (CWIS)

The Local Transport Plan (LTP) and it's supporting strategies, sets out how the county can achieve its active travel objectives. It aims to help create places where walking and cycling are so safe and convenient that they become the natural choice for short trips. It wants to ensure that active journeys will be direct, coherent, comfortable, safe, and convenient, incorporating high quality facilities along the journey, such as cycle parking, benches, shelter, and shade.

To support active travel objectives several metrics have been devised to help monitor their success, which use existing sources like Hertfordshire's County Travel Survey (HCTS), which can be found here: www.hertfordshire.gov.uk/transportdata

Addressing short trips is key to achieving higher levels of activity. A short trip is defined as a journey that takes less than 20 minutes to complete. A cyclist riding for 20 minutes at 9mph would travel 3 miles.

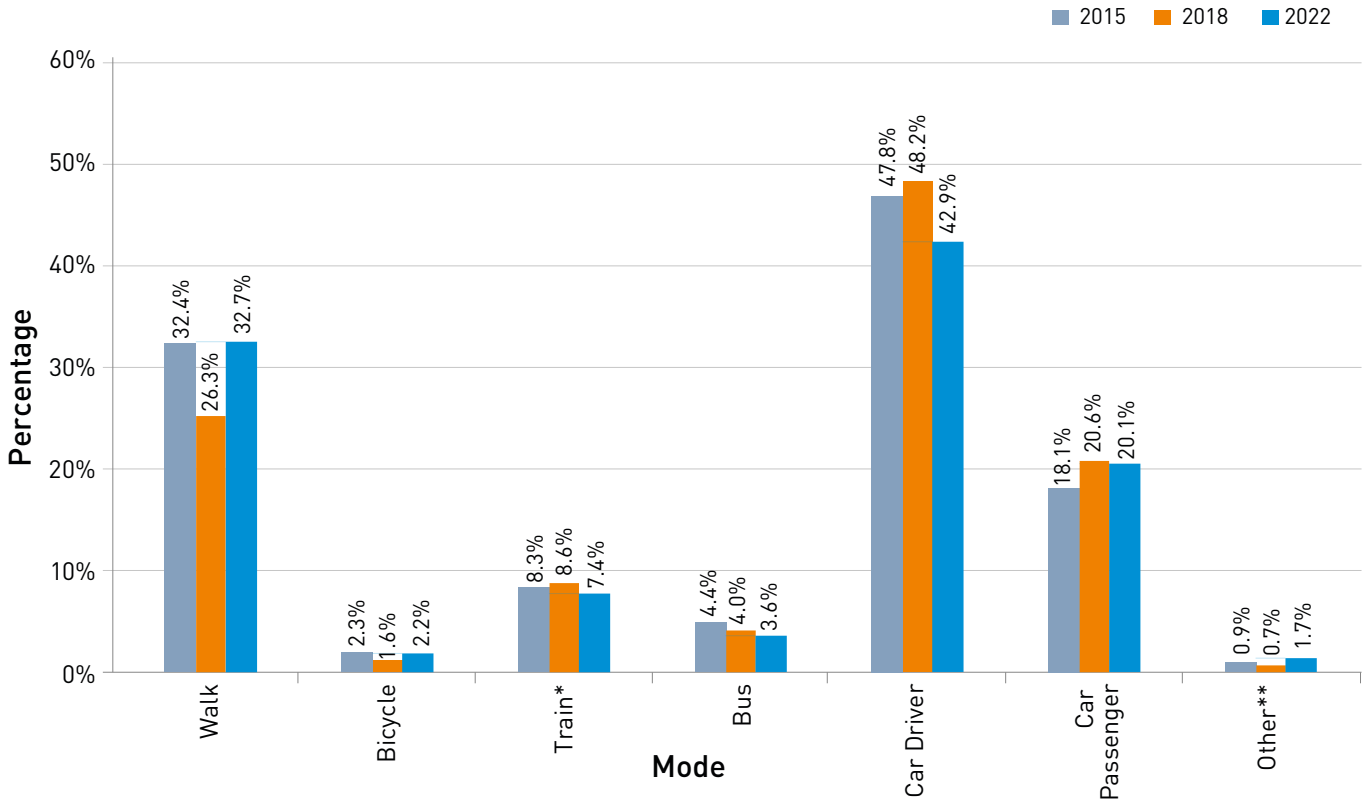
Conversely someone walking at 3mph for 20 minutes would travel 1 mile. The 2022 HCTS noted that 51% of all journeys were under 3 miles in length, which highlights a significant proportion of the resident population has the potential to convert from using the car to taking short trips by sustainable travel (walking, cycling, public transport).

4.1 Context of Active Travel cont.

Figure 4.1.1 shows the mode share of all journeys Hertfordshire residents make, captured from travel diaries in the Hertfordshire County Travel Survey. Please note percentages differ from Active Travel Strategy sites noted in **Figure 4.1.2** as this dataset does not include other trips on the network made by non-Hertfordshire residents.

Overall, there has been an increase in sustainable modes from 40.5% to 45.9% in 2022 compared to 2018.

Figure 4.1.1 - Mode Share as all or part of a Journey.



Source: 2022 HCTS Executive Summary.

**Train includes Underground.*

***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter and taxi.*

Note: The percentages do not sum to 100% due to some journeys having multiple modes used. It only refers to respondents from Hertfordshire residents.

4.1 Context of Active Travel cont.

To supplement monitoring of active travel in Hertfordshire, a programme of Active Travel Strategy sites (ATS) was developed in 2021, adapted from the previous Travelwise survey programme. This programme was designed to provide a better understanding of all transport movements including walking and cycling across the county.

The ATS programme consists of 63 sites, with 43 sites having data collected in 2021 and are mostly monitored for 12 hours on a single day, once a year, however four of the sites will continuously monitor travel. The surveys record a variety of modes such as: Pedal cyclists, Motorcycles, Pedestrians, Cars, buses, HGVs, Vans, motorised vehicle (E scooter, mobility scooter) and non-motorised vehicles (scooter, wheelchair). The sites are distributed evenly across the county on a variety of road types and locations, to give a representative sample of travel in the county. Details of these sites are available in Appendix 8.4.4.

Analysis from these sites is supplemented by the existing MCC data collection programme which dates to 2003 and provides information on walking and cycling over longer time periods.

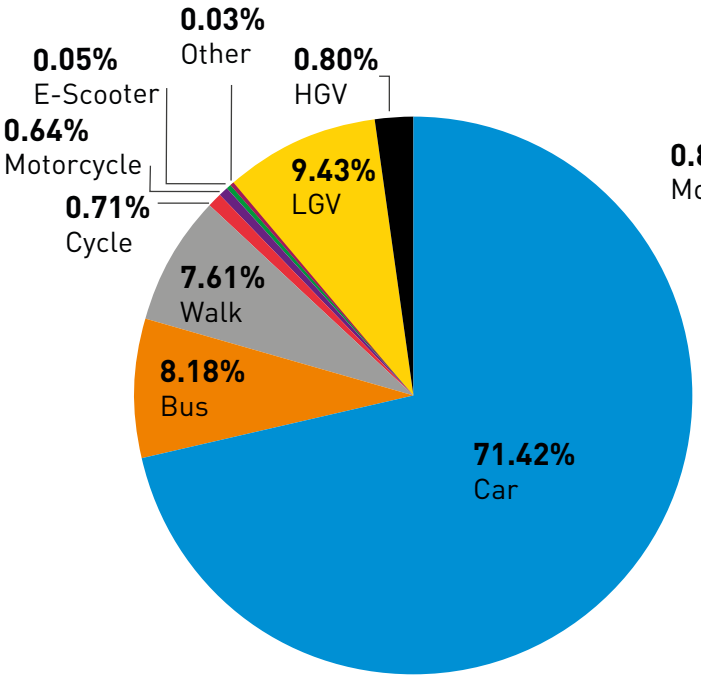
The data has been analysed in two parts; 1. People mode share and 2. Vehicle mode share. People mode share consists of all people observed within a count area and includes the number of people in buses and cars. Vehicle mode share is the proportion of transport modes only. For example, a car of four people will count as one car unit. A cyclist will count as a bike unit and a pedestrian will count as a walk unit.

4.1 Context of Active Travel cont.

Whilst no trend analysis can currently be observed, due to only one years of data being available, **Figure 4.1.2** shows that 0.7% of the people mode share among road-based users were cyclists, whilst 7.6% were pedestrians. Overall, 16.5% of road-based users were travelling sustainably.

Figure 4.1.3 shows the vehicle equivalent unit mode share among road-based transport including walking being regarded as one unit for each person.

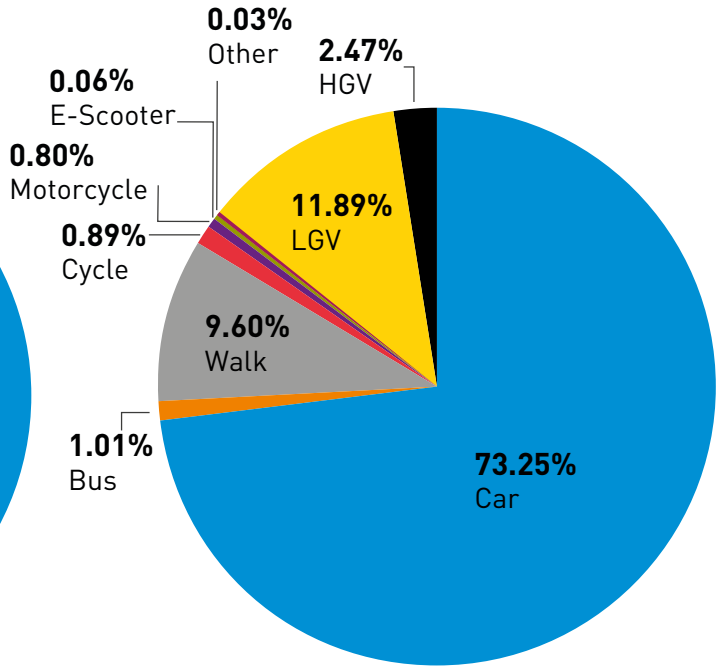
Figure 4.1.2 - People Mode Share among Road-Based Transport.



Source: Active Travel Strategy site surveys 0700-1900.

Note: Bus occupancy was 10.2 from the 2021 survey. Car occupancy of 1.23 was patched with reference to 2018 Travelwise data, due to incomplete data set being collected in 2021.

Figure 4.1.3 - Vehicle Mode Share among Road-Based Transport.



Source: Active Travel Strategy site surveys 0700-1900.

4.1 Context of Active Travel cont.

Data from the Active Lives Survey is another metric used by the Government to understand trends in pyshical activity in adults. In 2019 the Chief Medical Officer submitted updated guidelines around the levels of physical activity for adults, based on work originally in 2011. In this report, it was suggested that adults over the age of 19 should participate in at least 150 minutes (2 1/2 hours) of moderate intensity activity (such as brisk walking or cycling); or 75 minutes of vigorous intensity activity (such as running); or even shorter durations of very vigorous intensity activity (such as sprinting or stair climbing); or a combination of moderate, vigorous and very vigorous intensity activity.

In order to monitor this in Hertfordshire a new question was added to the 2022 HCTS asking on levels of physical acitivity for adults. Whilst it wasn't possible to classify the intensity, it was possible to categorise into inactive (less than 30 mins per week), fairly active (30mins to 2.5 hours per week) and active (over 2.5 hour per week). This was then compared to the England average as displayed in the Active Lives Survey, shown in **Figure 4.1.4.**

Figure 4.1.4 - Physical Activity per week for Adults.

2022 HCTS											Active Lives Sport England Survey (Nov 20-21)
Level of Physical Activity	18-24	25-34	35-44	45-54	55-59	60-64	65-74	75-84	85+	Total	Total
Less than 30 minutes per week (Inactive)	8.4	6.9	5.6	5.6	8.3	5.2	6.4	12.3	25.1	7.4	27.2%
Between 30 minutes to 2.5 hours per week (Fairly active)	33.0	40.2	44.4	36.2	29.6	29.8	29.4	35.0	43.0	36.3	11.5%
Over 2.5 hours per week (Active)	58.7	53.0	50.0	58.2	62.0	65.0	64.1	52.7	31.8	56.3	61.4%

Source: 2022 HCTS and Active Lives Sport England Report November 2020-21

4.1 Context of Active Travel cont.

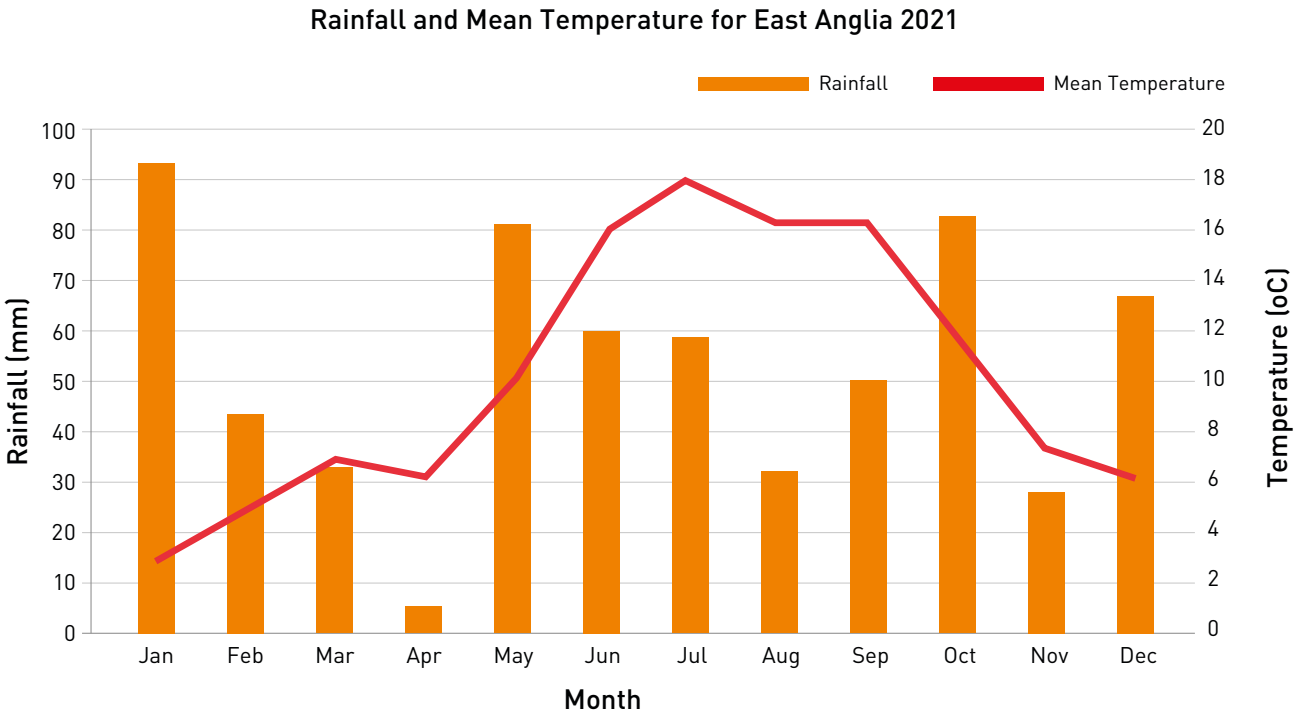
Overall Hertfordshire has lower levels of inactivity (7.4%) compared with national data (27.2%), however there is opportunity to increase the number of those that take part in more intense activity.

As this is a new metric from the HCTS, a 2022 baseline figure has been set at 92.6% by combining Faily Active and Active to monitor future progress.

It should be noted that climate affects travel behaviour on a seasonal basis, with active travel rates classically declining during periods of wetter and colder weather. The Met Office collect data on weather conditions across the UK presented by District Region, with Hertfordshire falling into East Anglia.

Regionally, as shown in **Figure 4.1.5**, the total volume of precipitation received shows the wettest month of 2021 was January, following by October and May. The lowest-mean monthly temperature was recorded in January at 3.1°C, following by February and December. These poorer weather conditions may partly explain that cycling levels seemingly decreased in Hertfordshire during the wet weather in the following section.

Figure 4.1.5 - Weather Conditions.



Source: Met Office UK and Regional Series

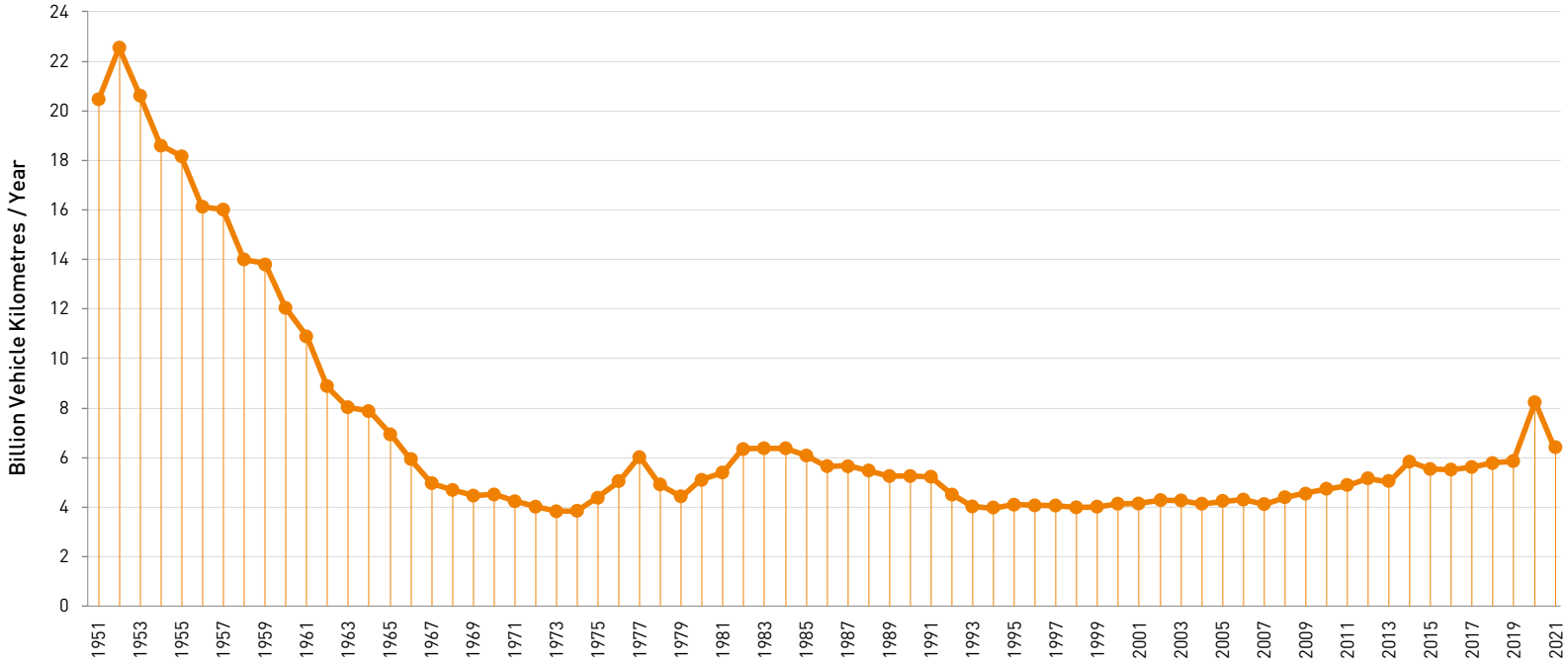
4.2 Cycling

HCC is keen to promote cycling as a healthy and sustainable alternative to travelling by car.

As shown in **Figure 4.2.1**, since the late 1950s national cycling levels have decreased sharply both in terms of numbers of trips and distances travelled and despite a slight increase from 1993 flows have still hovered around 5 billion kms per year. However, this changed significantly in 2020 when flows doubled to 8.5 billion kms due to the indirect impact of COVID (e.g., quieter roads and limited other leisure activities).

Flows in 2021 dropped to 6.8 billion kms, even though the UK was still affected by COVID and some restrictions were in place. *(DfT Road Traffic Statistics Table TRA0401.)*

Figure 4.2.1 - Historical Trends in National Cycling Levels (1951-2021)



Source: DfT (Transport Statistics Great Britain) Table - TRA0401

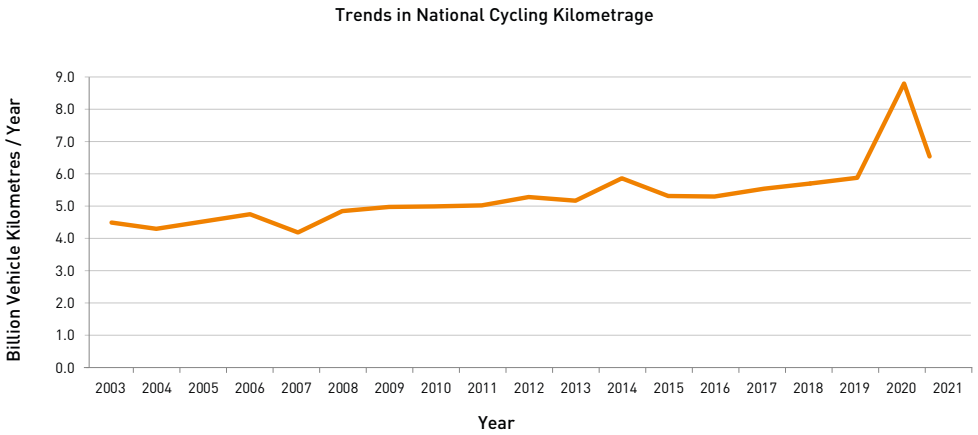
4.2 Cycling cont.

Hertfordshire has experienced some of the same changes as seen nationally from 2003, shown in **Figure 4.2.2** and **Figure 4.2.3**, with notable peaks in 2020 due to COVID and the subsequent reduction in 2021.

The council is keen to encourage more cycling, especially for shorter journeys and a cycling target was introduced through the LTP4. The target is based on the modal split percentage of cyclists where the journey length is less than 3 miles (for all journey purposes).

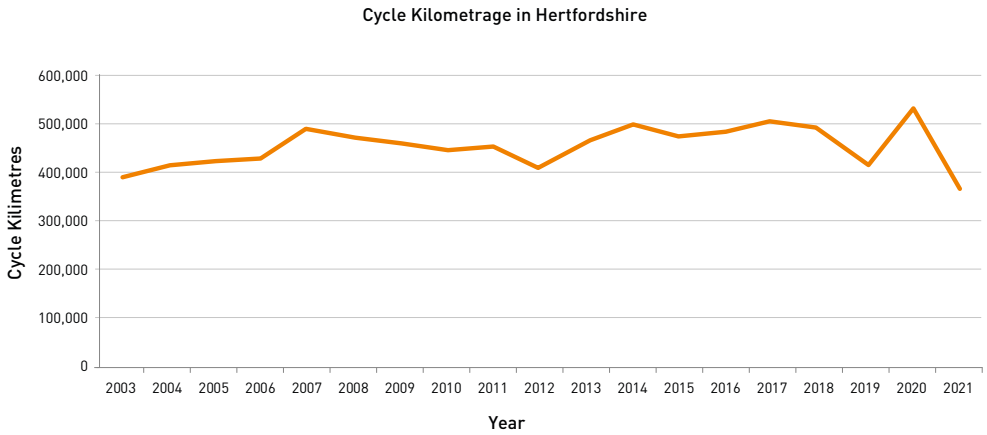
The baseline figure for this target has been calculated from the 2009 County Travel Survey and is tracked every three years.

Figure 4.2.2 - Historical Trends in National Cycling Levels (2003-2021)



Source: DfT (Transport Statistics Great Britain) Table - TRA0401

Figure 4.2.3 - Cycle Kilometrage in Hertfordshire (2003-2021)



Source: MCC programme.

**Flows on Other A, B, C and unclassified roads only. Excludes Motorway, Trunk and Primary A Roads.*

4.2 Cycling cont.

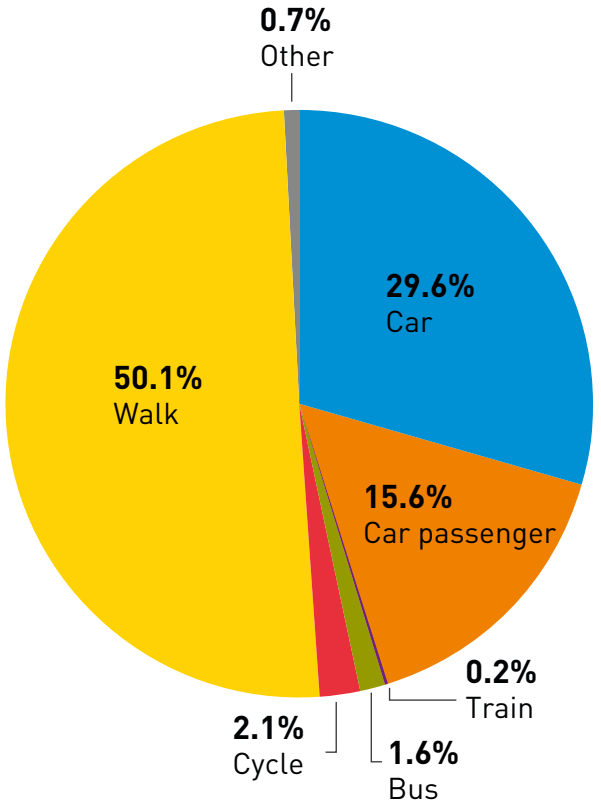
Figure 4.2.4 and **Figure 4.2.5** shows the LTP4 target along with subsequent monitoring years. The 2022 Hertfordshire County Travel Survey (HCTS) found that 2.1% of journeys less than 3 miles were undertaken by cycle which is below the 2021 target of 5%.

Figure 4.2.4 - Mode Share of Cycling Targets

Performance Indicator	2018 Current Level	2022 Current Level	2026 Target	2031 Target
% of all trips (under 3 miles) made by cycling	2.0%*	2.1%	8%	11%

**Number restated as per correction of rounding issue in 2018*
Source: 2022 HCTS Executive Summary.

Figure 4.2.5 - Mode Share of Journeys Under 3 Miles



Source: 2022 HCTS Executive Summary.
** Train includes Underground.*
***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter and taxi.*

4.2 Cycling cont.

Another method of assessing cycling levels is by defining the number of stages cycled. A cycle stage is one part of the journey, which is also referred to as a trip leg.

Using data from the County Travel Survey travel diaries it is calculated that in 2022 there were 0.0458 daily cycling stages (17 stages per year) on average per person in Hertfordshire. This compared to 0.0363 in 2018 (13 stages per year), suggesting cycling has increased across the resident population.

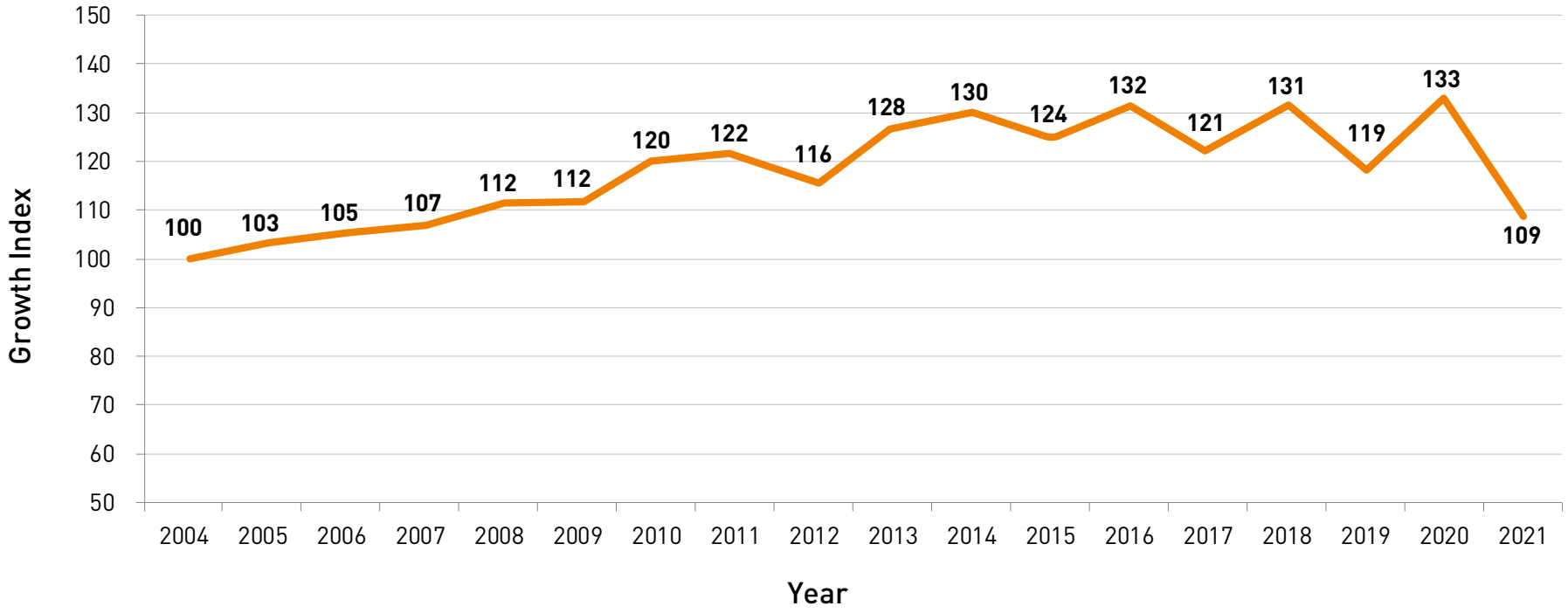
It is noted that women do not cycle as much as men. According the HCTS women cycled 0.0145 stages in 2022 (5 stages per year), compared to 0.0095 in 2018 (3 stages per year). This shows a slight increase in female cycling.

In addition to above survey findings, there is a bicycle monitoring programme to monitor cycling levels at 40 sites in Hertfordshire (see Appendix 8.4.5) using a mixture of continuous automatic count sites and manual surveys conducted on one day each year.

Based on this programme **Figure 4.2.6** shows yearly cycling growth in Hertfordshire from 2004 when the cycle monitoring programme was introduced. From 2004 to 2011 cycling increased, however flows have fluctuated between 2012 and 2021, due to several factors such as the economy, weather and COVID. Flows in 2021 have reduced from 2020 considerably and are now back in line with flows in 2008. However, caution should be applied to this data as COVID impacted the data collection process, which means there were sites without data or data missing.

4.2 Cycling cont.

Figure 4.2.6 - Cycle Level Trends.



Source: HCC's Cycling Monitoring Programme.

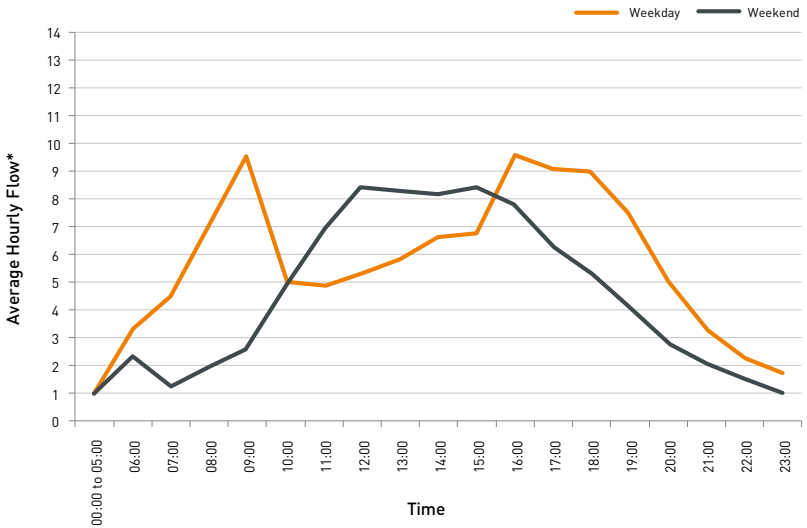
4.2 Cycling cont.

Hertfordshire County Council would like more of its residents to cycle to work. According to the 2011 Census Table QS701EW 1.2% of Hertfordshire residents travel to work by bicycle, which is lower than the national average of 1.9%.

Figure 4.2.7 shows hourly variation in cycle flow across a 24-hour period, during weekdays cycle flows are at their highest in the morning and afternoon peaks, whilst at the weekend flows are at their highest between 11am and 4pm.

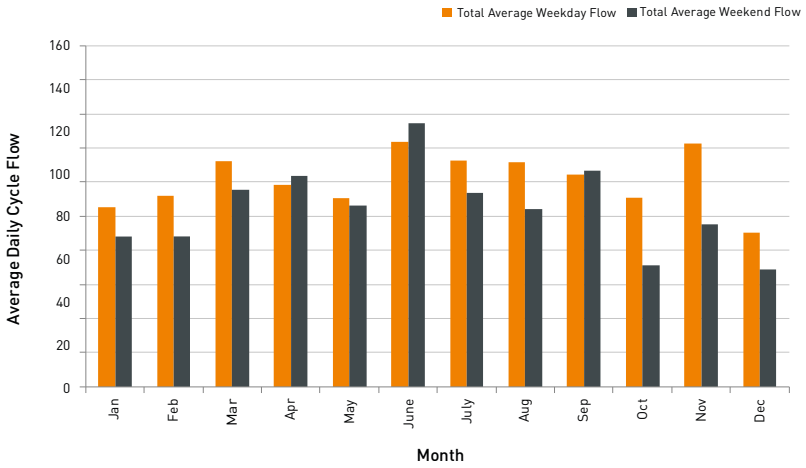
Figure 4.2.8 suggests levels of cycling are affected by seasonal factors like the weather and light, with flows lowest in winter.

Figure 4.2.7 - Weekday and Weekend Cycling Variation.



Source: HCC Annual Cycle Monitoring Programme, average flow per site. Data based on 32 continuous count sites out of a total of 40 listed in Appendix 8.4.5.

Figure 4.2.8 - Annual Average Cycling Time Flow Variant.



Source: HCC Annual Cycle Monitoring Programme, average flow per site. Data based on 32 continuous count sites listed in Appendix 8.4.5

4.3 Walking

Walking is a healthy and sustainable alternative to travelling by car for short trips and therefore the County Council has several strategies in place to make walking a more attractive alternative. Through the LTP and the Active Travel Strategy a walking target was introduced based on the modal split percentage of walking where the journey length is less than 1 mile (for all journey purposes). The baseline figure for this target has been calculated from the 2009 County Travel Survey and is tracked every three years.

Figure 4.3.1 and **Figure 4.3.2** shows the LTP4 target along with subsequent monitoring years. The 2022 Hertfordshire County Travel Survey (HCTS) found that 76.0% of journeys less than 1 mile were walked which is above the 2021 target of 68%.

Figure 4.3.1 - Mode Share of Walking Targets

Performance Indicator	2018 Current Level	2022 Current Level	2026 Target	2031 Target
% of all trips (under 1 mile) made by walking	76.3%	76.0%	73%	77%

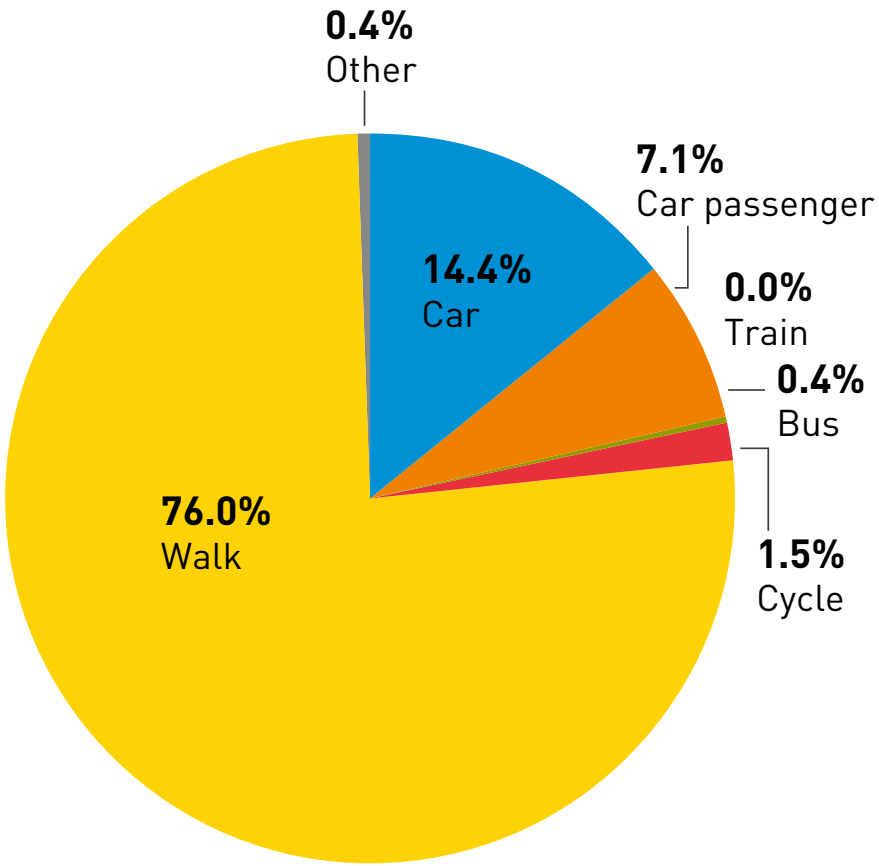
Source: 2022 HCTS Executive Summary.

4.3 Walking cont.

An alternative method of assessing walking levels is to calculate the number of stages walked. A walking stage is one part of the journey, which is also referred to as a trip leg.

In 2022 there were 0.6834 walking stages on average per person per day in Hertfordshire (249 stages per year). This compared to 0.5970 in 2018 (218 stages per year), suggesting walking has significantly increased across the resident population.

Figure 4.3.2 - Mode Share of Journeys Under 1 Mile.



Source: 2022 HCTS Executive Summary.

**Train includes Underground.*

***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter and taxi.*

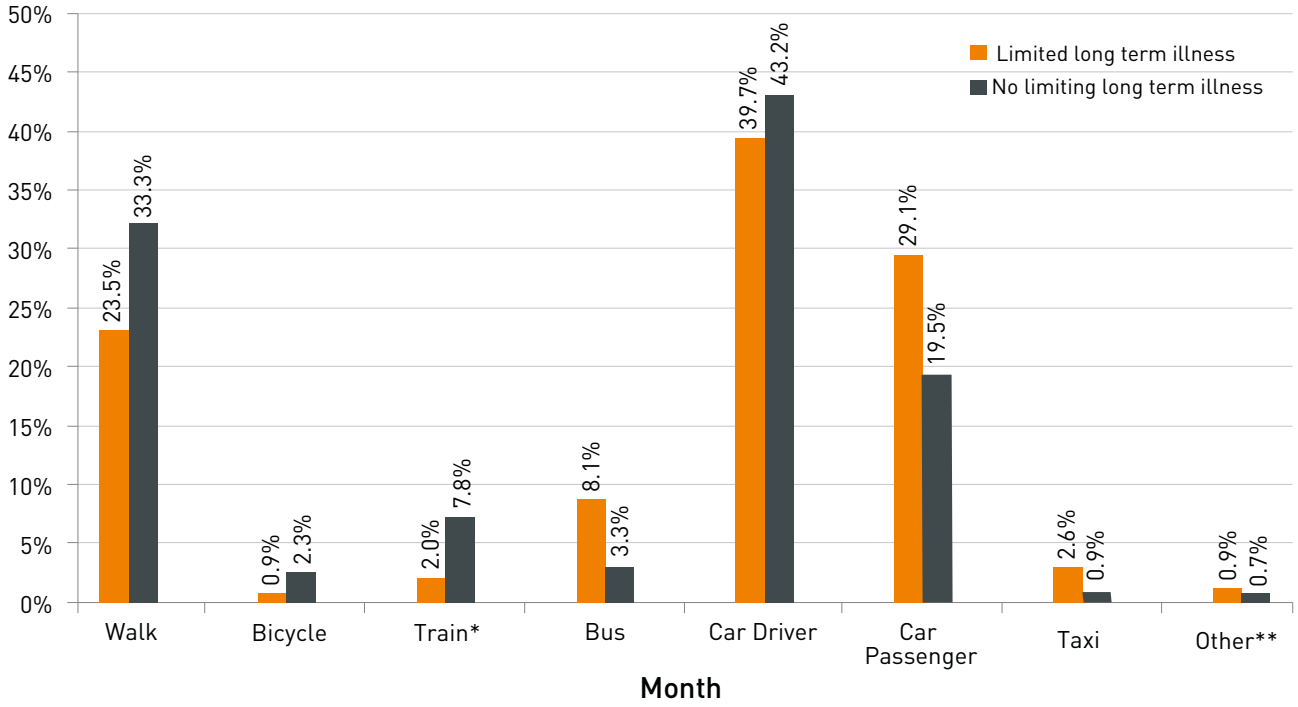
4.4 Accessible Travel

The HCTS (Table 8) shows that 9.5% of surveyed Hertfordshire residents have their day to day activities limited because of a health problem or disability in 2022.

Figure 4.4.1 shows that people with limited long term illness tends to rely less on walk and cycle compared with people without limiting long-term illness; while those with the health issue tend to rely more on car as passengers, buses and taxi.

For people with mobility or long-term health issues the car, as either a driver or passenger, is the most utilised transport mode at 69%.

Figure 4.4.1 - HCTS Mode Share for people with Limited Long-term Illness.



Source: 2022 HCTS Para. 4.11.1 Table 39

**Train includes Underground.*

***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter.*

Note: The percentages do not sum to 100% due to some journeys having multiple modes used.

4.4 Accessible Travel cont.

A blue badge is one means to facilitate people with disabilities who choose to drive and park their cars. **Figure 4.4.2** shows Hertfordshire County Council issued 21,446 new Blue Disabled badges in 2021. Dacorum had the highest number of badges at 2,974 and Watford had the lowest at 1,532.

Figure 4.4.2 - Number of New Blue Badges Issued

District	2019	2020	2021
Broxbourne	2,232	1,772	2,209
Dacorum	3,093	2,476	2,974
East Herts	2,494	2,081	2,556
Hertsmere	2,353	1,910	2,289
North Herts	2,311	1,883	2,238
St Albans	2,298	1,919	2,270
Stevenage	1,745	1,354	1,640
Three Rivers	1,878	1,449	1,704
Watford	1,619	1,372	1,532
Welwyn-Hatfield	2,101	1,654	2,034
Total	**22,124**	**17,870**	**21,446**

5. Travel Behaviour, Mode Share, Speed Monitoring and Covid-19 Impact

5.1 Vehicle Ownership

5.2 Mode Share and Trip Making

5.3 Work Journeys

5.4 School Journeys

5.5 Speed Compliance

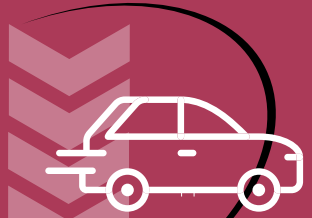
5.6 COVID-19 Impacts on Travel

1.36

Car ownership in Hertfordshire is 1.36 per household.

51%

51% of trips were made within 3 miles.



1.32

Trip rates for cars fell to 1.32 in 2022 from 1.56 in 2018.

54.2%

54.2% of working people responded work from home once a week or more in 2022, up from 22.4% in 2018.

49.6%

49.6% of primary school children walked to school in 2022, up from 46.5% in 2018.

5-10%

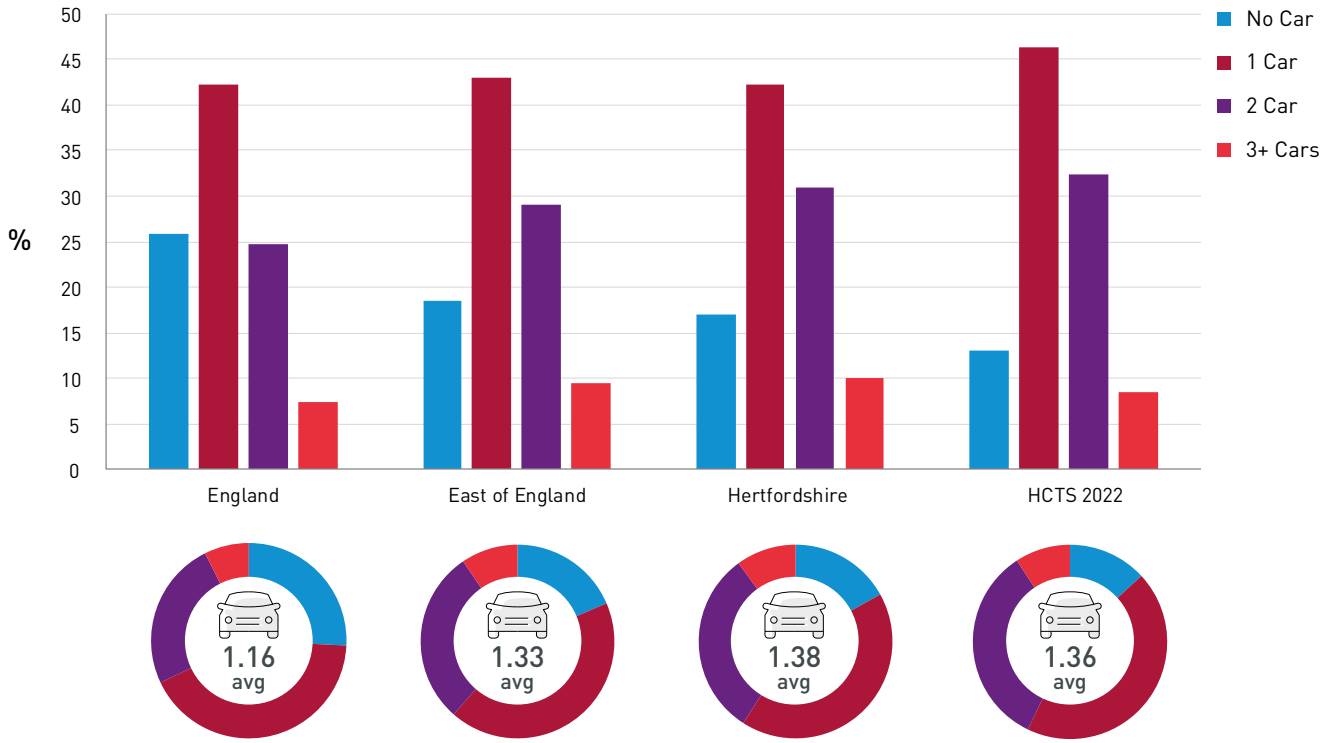
After pandemic, motor vehicle traffic in Hertfordshire has hovered between 5 and 10% below pre pandemic levels.

5.1 Vehicle Ownership

Vehicle ownership can provide an indicator of socio-economic status in an area and personal perception of the quality of other transport modes.

Figure 5.1.1 provides a breakdown of car ownership levels both nationally and county-wide based on census and HCTS data. Levels of multiple car ownership in Hertfordshire are higher than both national and regional averages, and Hertfordshire households without access to a car is lower than both national and regional. According to HCTS, the average car ownership per household has been changed to 1.36 in 2022 from 1.40 in 2018.

Figure 5.1.1 - Breakdown of Car Ownership.



Source: Census 2011 Table - KS404EW and 2022 HCTS Table 11

5.1 Vehicle Ownership cont.

Figure 5.1.2 shows the average car ownership per household across districts in Hertfordshire. Watford has the lowest level while East Hertfordshire has the highest level.

Figure 5.1.2 - Car Ownership Levels by District.

	No car	1 car	2 cars	3 cars or more	Cars per household
Broxbourne	14%	42%	34%	11%	1.41
Dacorum	10%	46%	32%	12%	1.47
East Hertfordshire	9%	45%	39%	8%	1.45
Hertsmere	12%	47%	33%	9%	1.37
North Hertfordshire	15%	50%	30%	6%	1.27
St. Albans	9%	49%	36%	6%	1.39
Stevenage	18%	45%	31%	6%	1.25
Three Rivers	11%	48%	32%	9%	1.39
Watford	19%	50%	25%	6%	1.18
Welwyn Hatfield	14%	44%	32%	10%	1.38
Total	**13%**	**47%**	**33%**	**8%**	**1.36**

Source: 2022 HCTS Table 11

5.2 Mode Share and Trip Making

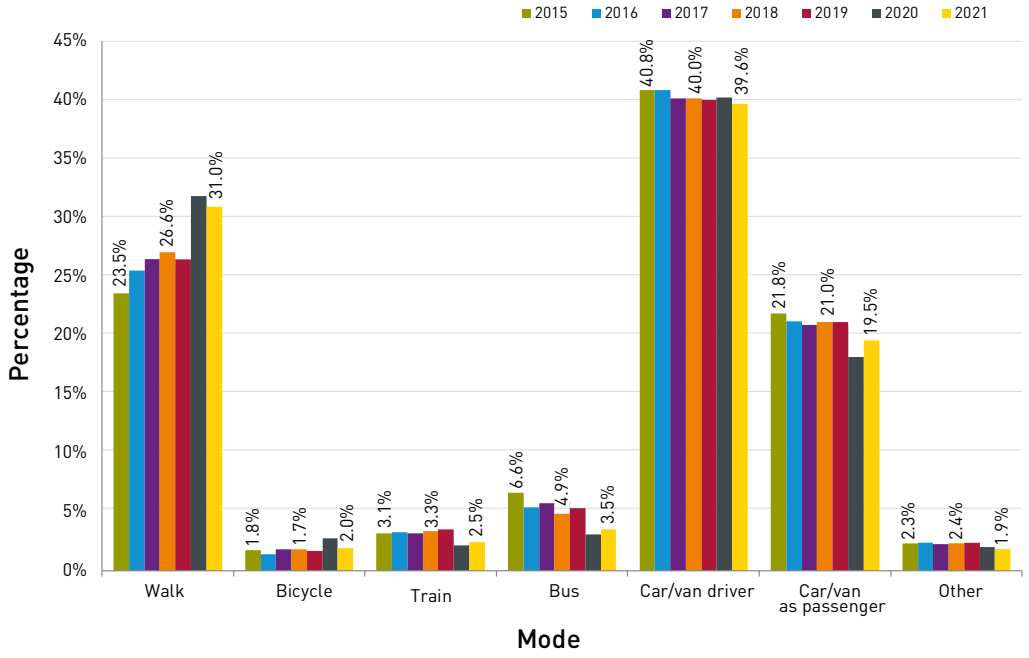
Mode Share

Figure 5.2.1 shows the main mode share in terms of average trips per person in England. This figure illustrates that walking and cycling modes have increased while car as both drivers and passengers have decreased.

In Hertfordshire a travel survey was carried out to understand the mode share from a road user perspective. **Figure 5.2.2** shows the changes in main mode share from the 2015 County Travel Survey (HCTS) to the 2022 HCTS. The mode share as all or part of a journey has been shown in **Figure 4.1.1**.

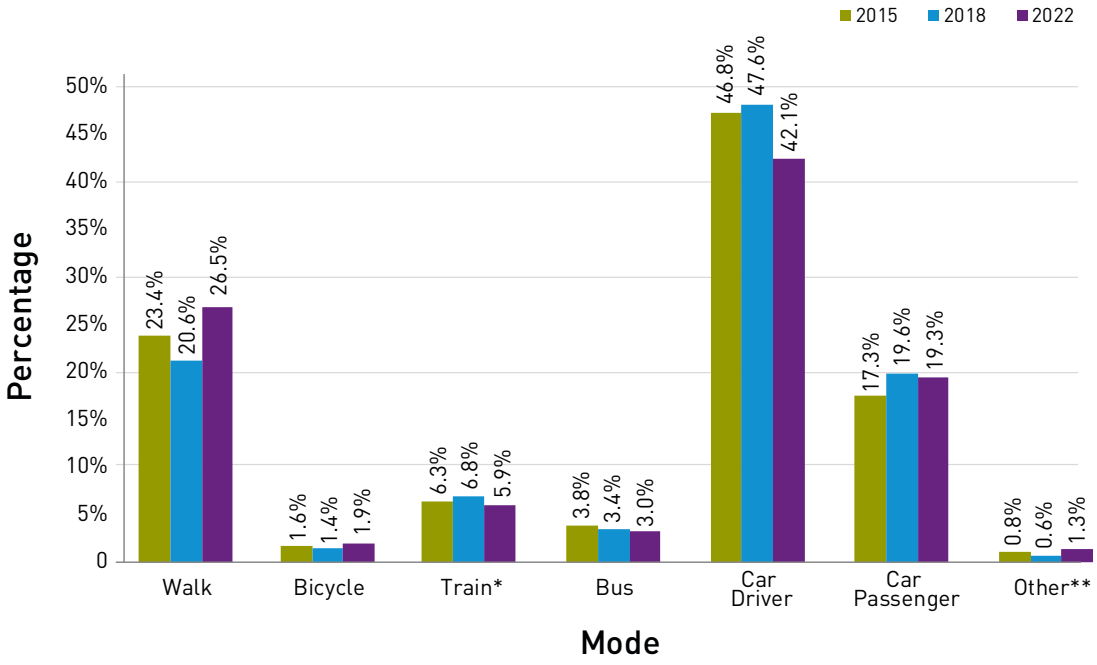
5.2 Mode Share and Trip Making cont.

Figure 5.2.1 - Main Mode Share Trends in England.



Source: DfT (National Travel Survey) Table - NTS0303.

Figure 5.2.2 - Main Mode Share Trends in Hertfordshire.



Source: 2022 HCTS Executive Summary.

**Train includes Underground.*

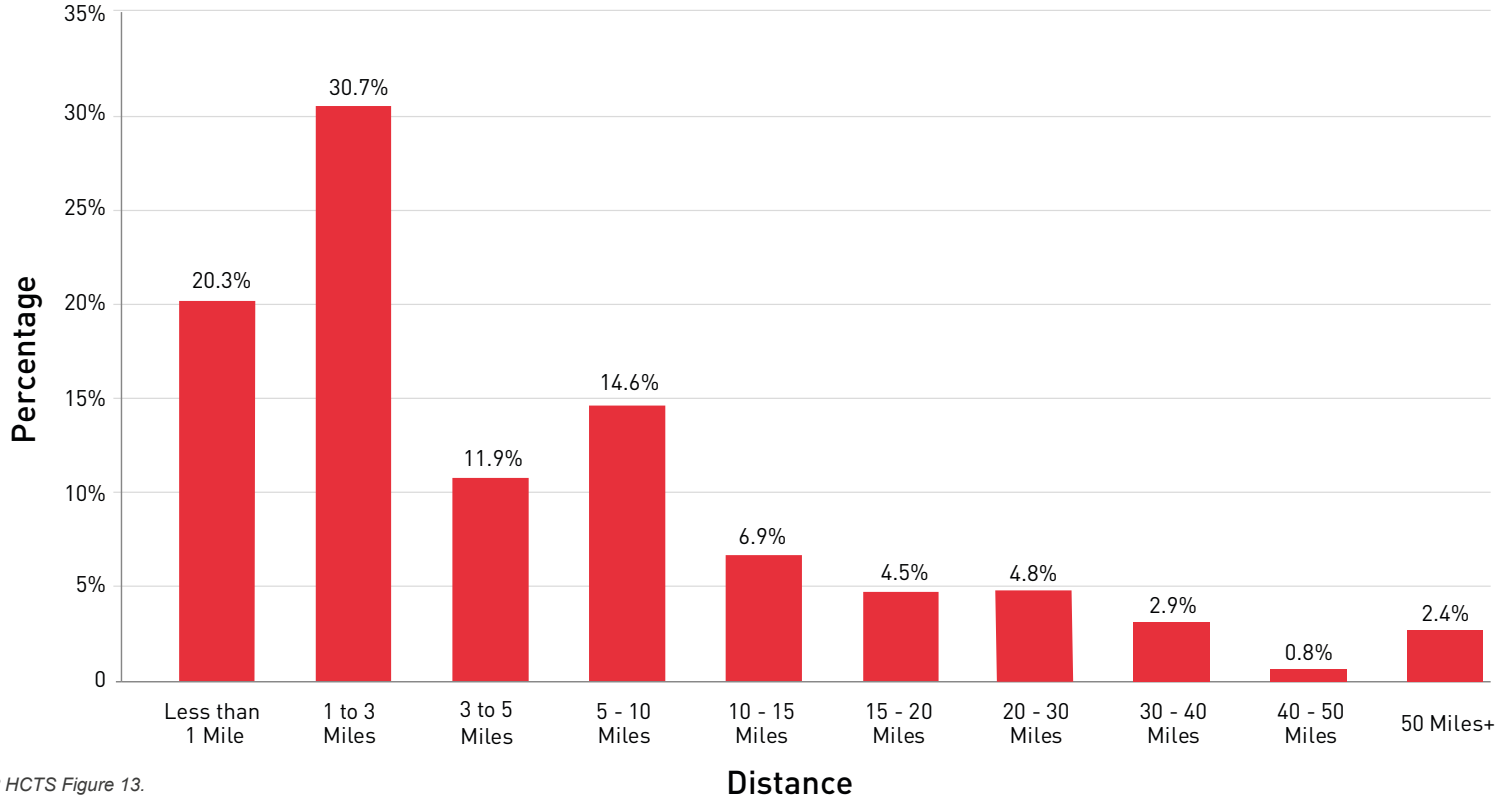
***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter and taxi.*

5.2 Mode Share and Trip Making cont.

Trip distance

Based on HCTS, **Figure 5.2.3** shows that majority (77.5%) of trips made were under 10 miles whilst, half (51.0%) of trips made were under three miles, of which a fifth (20.3%) were less than a mile. The mean trip distance was 7.7 miles with a median distance of 2.6 miles.

Figure 5.2.3 - Distribution of Trip Distance.

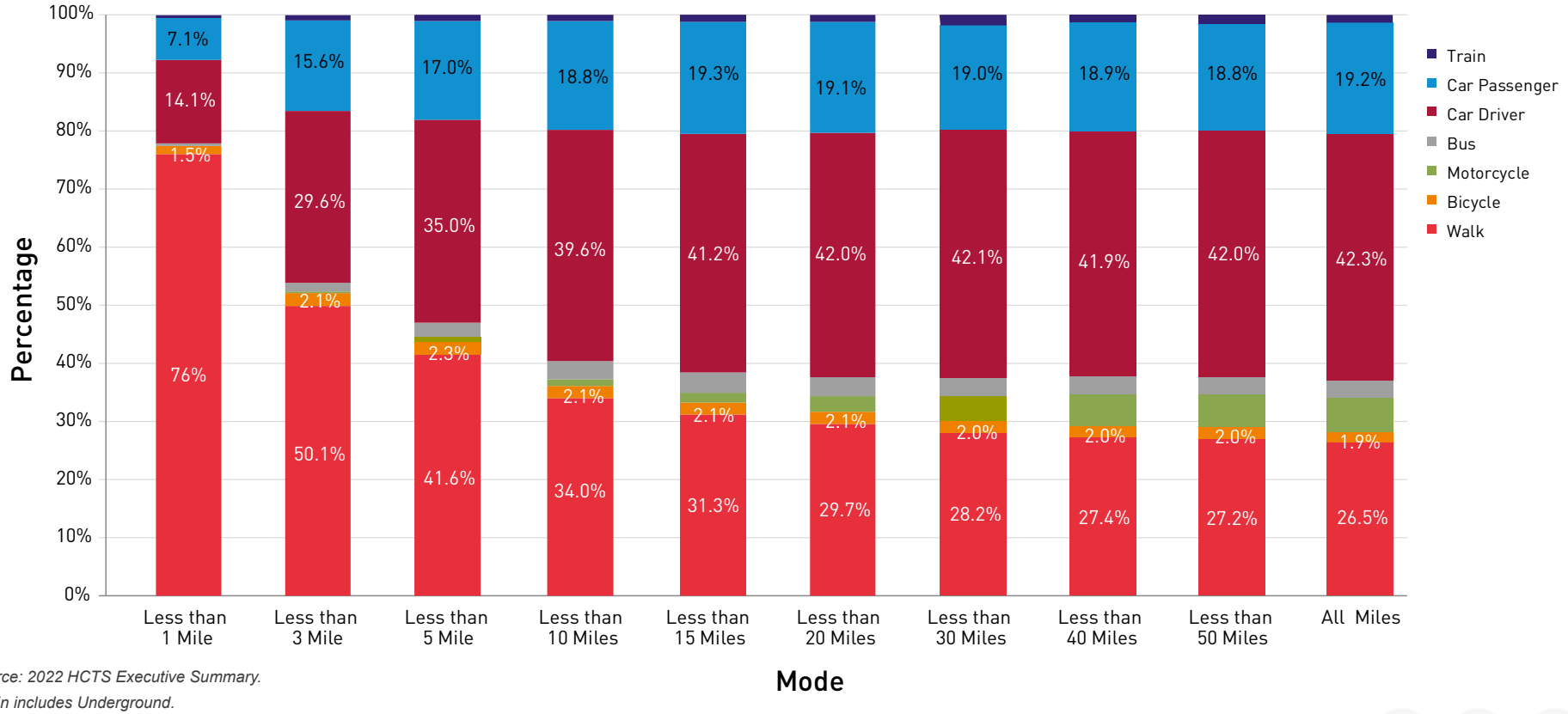


Source: 2022 HCTS Figure 13.

5.2 Mode Share and Trip Making cont.

Figure 5.2.4 shows mode share by distance and highlights that 50% of trips less than 3 miles are made by walking but 30% are still made by car as the driver.

Figure 5.2.4 - Mode Share by Distance Catchment.



Source: 2022 HCTS Executive Summary.

**Train includes Underground.*

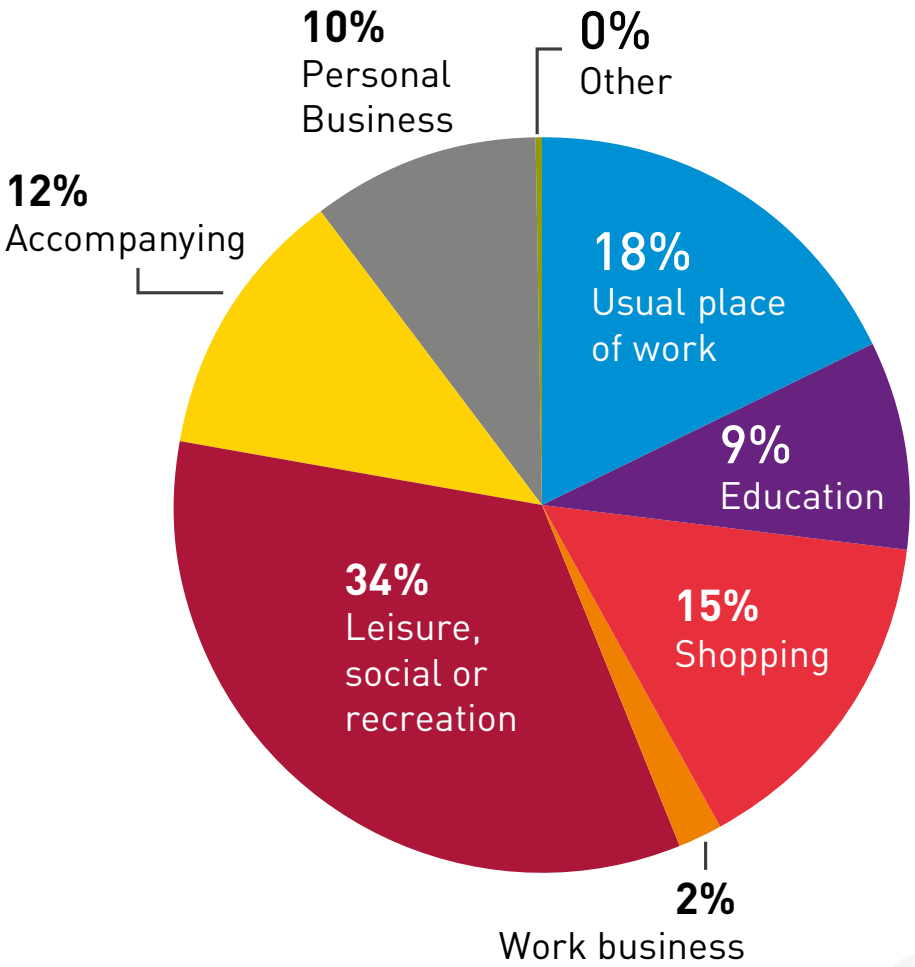
***Other refers to rest of modes, including motorcycle/moped, scooter/e-scooter and taxi.*

5.2 Mode Share and Trip Making cont.

Trip Purpose

Figure 5.2.5 shows that most trips were for leisure, social or recreation purposes (34%), followed by combing usual place of work and work business (20%) and then shopping (15%). Accompanying another person accounted for 12% of the share and includes escorting journeys such as those to educational establishments (i.e. the school run).

Figure 5.2.5 - Trip Purpose.



Source: 2022 HCTS Table 31: Trip Purpose

5.2 Mode Share and Trip Making cont.

Trip Making

The National Travel Survey (NTS) NTS0303 shows that there were 757 trips per person per year in 2021, translating to 2.07 trips per person per day; while there were 2.70 trips per person per day in 2018.

In Hertfordshire respondents of the HCTS made on average 2.09 trips per day in 2022, compared to 2.27 in 2018.

Figure 5.2.6 shows the car trip rate per person per day in Hertfordshire, trips rates have been reduced to 1.32 in 2022 from 1.56 in 2018. Friday is the day of the week with the highest rate with 1.41 in 2022, compared to 1.72 in 2018.

For active travel, counting walking or cycling stages allows us to include journeys that involve walking or cycling but where this is not the main form of transport (for example, cycling to a railway station to catch the train to work). Based on HCTS, walking stages per person per day have been increased to 0.683 in 2022 from 0.597 in 2018; while cycling stages per person per day have been increased to 0.046 in 2022 from 0.036 in 2018.

Figure 5.2.6 - Number of Car Trips by Day.

DAYS	2018	2022
Monday	1.56	1.35
Tuesday	1.64	1.20
Wednesday	1.53	1.35
Thursday	1.49	1.33
Friday	1.72	1.41
All Weekday	**1.59**	**1.33**
Saturday	1.57	1.38
Sunday	1.43	1.22
All Weekend	**1.50**	**1.30**
Total	**1.56**	**1.32**

Source: 2022 HCTS Table 54a

5.3 Work Journeys

Journeys to work make up a significant proportion of journeys travelled in Hertfordshire and vehicular trips to work often occur during the peak hours, causing congestion. Through a variety of business networks and Local Transport Plan policies Hertfordshire County Council is working towards improving the safety and sustainability of journeys to work.

Figure 5.3.1 shows that over 65% of people aged 16 – 74 in Hertfordshire used the car (either as the driver or passenger) as their main mode of transport to work. Hertfordshire residents travel to work less by bus, bicycle and bus than nationally but have higher proportions travelling by rail reflecting the commute into London.

Figure 5.3.2 shows the HCTS results for the distance travelled to work by Hertfordshire residents. The distances travelled vary and this shows that many residents do not reside in the same town they work. However, it should be noted that about a third of work trips are less than 5 miles.

Figure 5.3.1 - Regional Work Journeys.

Area	Car Driver	Car Passenger	Rail/ Underground	Bus	Motorcycle	Walk	Bicycle	Other	Total
England 2011	60.1%	5.5%	10.1%	8.2%	0.9%	10.9%	3.2%	1.1%	100%
Hertfordshire 2011	63.8%	4.5%	15.1%	3.5%	0.8%	9.6%	1.8%	0.9%	100%
2022 HCTS	61.0%	4.9%	19.5%	2.8%	0.6%	7.7%	2.2%	1.3%	100%

Source: Census 2011 Table - CT0015 and 2022 HCTS Table D.30 - Employed trip makers (in order to ensure a 'like-for-like' comparison work from home was removed from the Census 2011 analysis).

Figure 5.3.2 - Distance travelled to work.

Distance	% of people in 2018	% of people in 2022
<3 Miles	25.4	19.8
3 - 5 Miles	8.8	12.4
5 - 10 Miles	17.2	18.0
10 - 15 Miles	12	12.8
15 - 20 Miles	**9.9**	**11.1**
20 - 30 Miles	16.4	12.7
30 - 40 Miles	6.4	8.4
40 - 50 Miles	**1.7**	**2.1**
>50 Miles	**2.2**	**2.7**

Source: 2022 HCTS Table D.29: Distance travelled to work by home district (Col %)

5.3 Work Journeys cont.

According to the County Travel Survey, there has been a significant increase in the proportion of respondents stating they work from home once a week or more from 22.4% in 2018 to 54.2% in 2022 as shown in **Figure 5.3.3**.

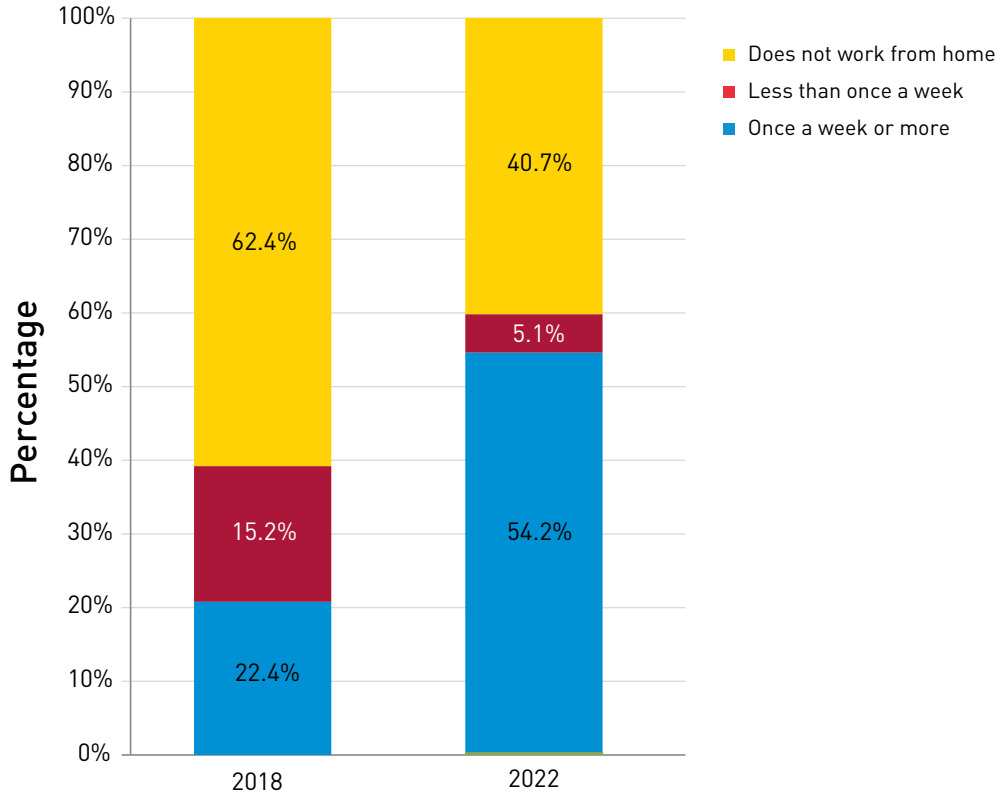
It should be noted that the survey was conducted in the second quarter of 2022 and therefore it is likely working from home behaviours may have been different before and since.

The number of trips per person per day made for commuting changed from 0.278 (0.364 on weekdays and 0.050 at weekends) in 2018 to 0.217 (0.284 on weekdays and 0.051 at weekends) in 2022.

The average journey to a usual place of work took 34 minutes and was 13.6 miles.

Monday and Friday were the two most popular days to work from home.

Figure 5.3.3 - Frequency of Working from Home.



Source: 2022 HCTS Figure 8: Working from Home Comparison between 2018 and 2022

5.4 School Journeys

The Safe and Sustainable Journeys Unit at HCC has been created to encourage the use of sustainable transport. For school journeys this is done through travel plans and practical initiatives which are set out in the School Travel webpage.

Figure 5.4.1 shows the breakdown of mode share in Hertfordshire. The key difference is a decrease in the level of car usage in 2022 against 2018.

Figure 5.4.2 shows the mode share by ages. The incidence of walking is high reflecting the smaller catchment areas usually at primary level. Secondary education level has higher proportion of bus and train uses than primary ones.

Promoting walking rather than car use is considered to be more effective in primary education due to smaller catchment areas, and this also provides a fundamental benefit by getting them used to travel sustainably before they move to secondary and higher education. This indicator is set out as follows:

- **Increase the percentage of children aged 5-10 that usually walk to school**

Figure 5.4.1 - Change in Travel to School Mode

Mode	2015	2018	2022
Walk	45%	42%	42%
Cycle	3%	3%	3%
Bus	9%	8%	10%
Train	2%	2%	3%
Car	40%	43%	40%
Other	1%	1%	2%

*Source: HCTS 2022 Table D.40: Main mode to school by home district (Col %) all children *Due to a change in the 2015 HCTS methodology the 2015 column should not be compared directly with previous years, and only should be used as a broad comparison.*

Figure 5.4.2 - Mode of Travel to School by Age.

Mode	Primary (5 to 10 year olds)	Secondary (11-15 year olds)	16 to 17 year olds*
Walk	49.6%	42.9%	34.9%
Cycle	3.6%	3.4%	1.1%
Bus	1.8%	13.8%	16.6%
Train	0.0%	3.2%	6.8%
Car	43.8%	35.4%	38.1%
Other	1.2%	1.3%	2.5%

Source: 2022 HCTS Executive Summary.

5.5 Speed Compliance

Excessive speed continues to be a contributory factor towards traffic accidents in Hertfordshire. This includes misjudging speed and distance, going too fast for the conditions and driving over the speed limit.

HCC's Speed Management Strategy helps to address the safety and environmental impacts of inappropriate speed. The strategy sets out a framework to enable a consistent approach to implementing speed limits, and a toolkit for ensuring that speed limits are respected and enforced.

In 2012 as a further attempt to reduce the number of speeding vehicles and resultant casualties, the Hertfordshire Safety Camera Partnership was set up between HCC, Hertfordshire Police and the Magistrates' Court. Further details about this partnership and other programmes for casualty reduction can be found in Hertfordshire's Road Safety Strategy.

HCC produce an annual accident and casualty fact sheet that document the annual trends. The latest fact sheet based on 2021 and 2020 data is available online.

The Local Transport Plan includes an indicator on speed compliance, which is tracked annually through the speed monitoring programme. This was established in 1996 to monitor the changing patterns of traffic speed in the county. The current programme consists of 31 speed monitoring sites covering different levels of the road hierarchy across all districts. The indicator is based on the level of weekday compliance at all monitoring sites (including safety camera sites) and is noted in the LTP as follows:

Speed limit compliance – percentage showing compliance to speed limits

Unfortunately, due to COVID lockdowns, it was not possible to collect speed data during 2020 and 2021, therefore it has not been possible to record this indicator, however **Figure 5.5.1** shows the previous level of compliance against the future targets, and shows that compliance is just under the target of 84%.

Figure 5.5.1 - Speed Limit Compliance Target.

Source: Based on levels of weekday speed compliance at HCC monitoring and safety camera sites across all speed limits

Performance Indicator	Baseline Level 2009	2019 level	Target 2025/26	Target 2030/2031
Weekday Speed Compliance	81%	80%	84%	85%

5.5 Speed Compliance cont.

The Speed Management Strategy (SMS) is a supporting document of the LTP and provides more detail about speed compliance and the setting of speed limits in the county. The strategy sits alongside the Road Safety Strategy (RSS), , which is also a supporting strategy of the LTP as is currently being updated.

Both documents acknowledge the benefits of lower speeds (including 20mph links) in terms of active travel on roads with the appropriate environment (including Place and Movement category).

Another method used to assess speeds is from the Inrix journey time data provided to HCC by the DfT, which provides journey time data based on car GPS systems.

Figure 5.5.2 shows the summary of the average weekday and weekend speeds for 2021 by speed limit. The data from Inrix includes not only vehicles travelling mid-sections of the roads and tending to be at a relatively higher speed; but also vehicles slowing for junctions and speeding up and slowing down at the ends of roads. The average speeds are weighted by road length and traffic flows.

Figure 5.5.2 - Average speed (mph) by speed limit

Speed Limit	Week day (mph)	Weekend (mph)
20 mph	10.0	10.7
30 mph	19.6	21.7
40 mph	26.8	29.5
50 mph	31.5	34.8
60 mph	35.4	38.2
70 mph	49.2	51.9

Source: INRIX

5.6 COVID-19 Impacts on Travel

5.6.1 Background

On the 23rd March 2020, Great Britain entered its first national lockdown due to the coronavirus (Covid-19) pandemic. Throughout the following year, the introduction or easing of lockdown measures, saw the closure and reopening of different services and amenities, including restaurants and non-essential shops, with educational establishments also closing for several months of the year.

Resultant changes in lifestyle caused by the pandemic, influenced how and why people travelled across Hertfordshire and Great Britain. Remote working for many reduced the need to travel, whilst the number of people walking and cycling increased, with national bicycle sales reaching an all-time high. Conversely, public transport usage decreased, dropping by up to 90% in some areas and Government guidance on travel, temporarily advised avoiding public transport when possible or at peak hours.

To understand the lasting impacts of Covid-19 on transport will require long-term monitoring. However, data from 2020 and 2021 is atypical and prevents trend analysis. Recognising the need to analyse data collected during the pandemic, this new section has been incorporated into the Hertfordshire Traffic and Transport Data Report.

5.6.2 COVID impacts on travel in the UK

Providing a picture of national trends, the Department for Transport (DfT) has collected statistics on daily transport usage by mode in Great Britain since the 1st March 2020. The dataset covers

- Road traffic
- Rail passenger journeys
- Transport for London tube and bus routes
- Bus travel (excluding London); and
- Cycling (in England only)

5.6 COVID-19 Impacts on Travel cont.

Figure 5.6.1 visualises the DfT data between the 1st March 2020 to the 31st October 2022.

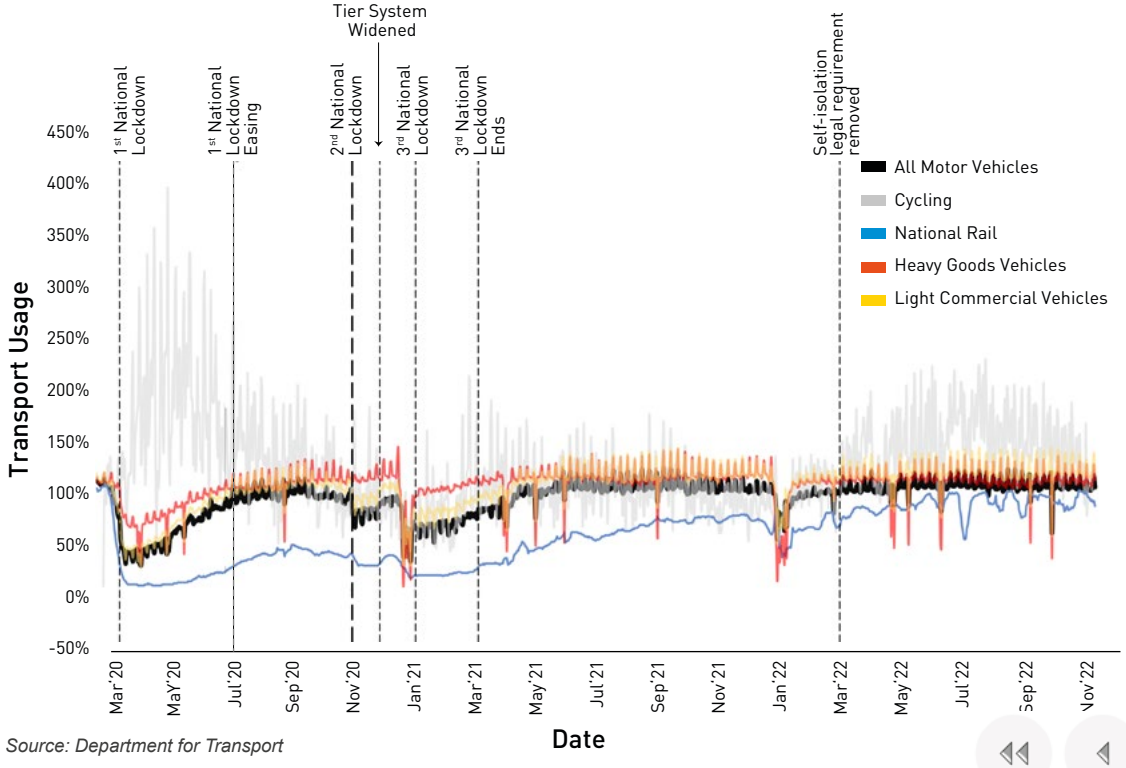
Daily motor vehicle usage decreased rapidly at the start of the pandemic, reaching less than half the level observed in February 2020.

For the remainder of the year, motor vehicle trends have reflected the easing of, or reintroduction of restrictive measures, with usage reaching pre-pandemic levels in September 2020 when several lockdown restrictions were lifted. Unlike motor vehicle usage, the re-uptake of public transport has been slower, and levels are consistently lower. Whilst national rail travel reached an all-time low of 4%, cycling rates peaked at over three times the observed pre-pandemic data and have been consistently high.

Since the 3rd National lockdown ended in March 2021 all motor vehicles (cars, LGVs and HGVs) have generally been around 5-10% below pre pandemic levels, apart from increases in travel behaviour (reaching and exceeding pre pandemic levels) around June 2021 due to a combination of a lifting of restrictions, school holidays and the Euro's football tournament. There was also a drop in Jan 2022 when the Omicron variant caused many people to reduce their travel.

To view the full dataset or methodology, please visit: statistics/transport-use-during-the-coronavirus-covid-19-pandemic

Figure 5.6.1 - Changes in traffic volume in the UK.



Source: Department for Transport

5.6 COVID-19 Impacts on Travel cont.

5.6.3 COVID impacts on travel in Hertfordshire

One of the most noticeable impacts of the pandemic on county-wide travel patterns, was an overall reduction in the volume of motor vehicles compared to pre-pandemic conditions. Differences in traffic volume across Hertfordshire were first noticed by live traffic counting sites on the 16th March 2020, a week before the first national lockdown was introduced.

Presenting data from monitoring sites across Hertfordshire on a weekly basis **(Figure 5.6.2)**, highlights changes in all motor vehicle traffic volume during the pandemic (when compared to a February 2020 baseline,) mirror national trends. The largest percentage drop in motor vehicle traffic volume occurred during the first national lockdown period in April 2020, when they dropped to 65% below pre pandemic levels. Levels increased over the summer, attributed to the reopening of certain services and amenities, before rapidly dropping in December 2020 (55% below pre pandemic levels), likely reflecting Hertfordshire's entry into Tier 3 restrictions.

Since April 2021, and like the UK shown in **Figure 5.6.1**, motor vehicle traffic in Hertfordshire has hovered between 5 and 10% below pre pandemic levels, apart from an increase in travel coinciding with lifting of restrictions, school holidays and the Euro's football tournament in June 2021. There was also a reduction in travel behaviour in January 2022 (28% below pre pandemic levels) because of the Omicron variant.

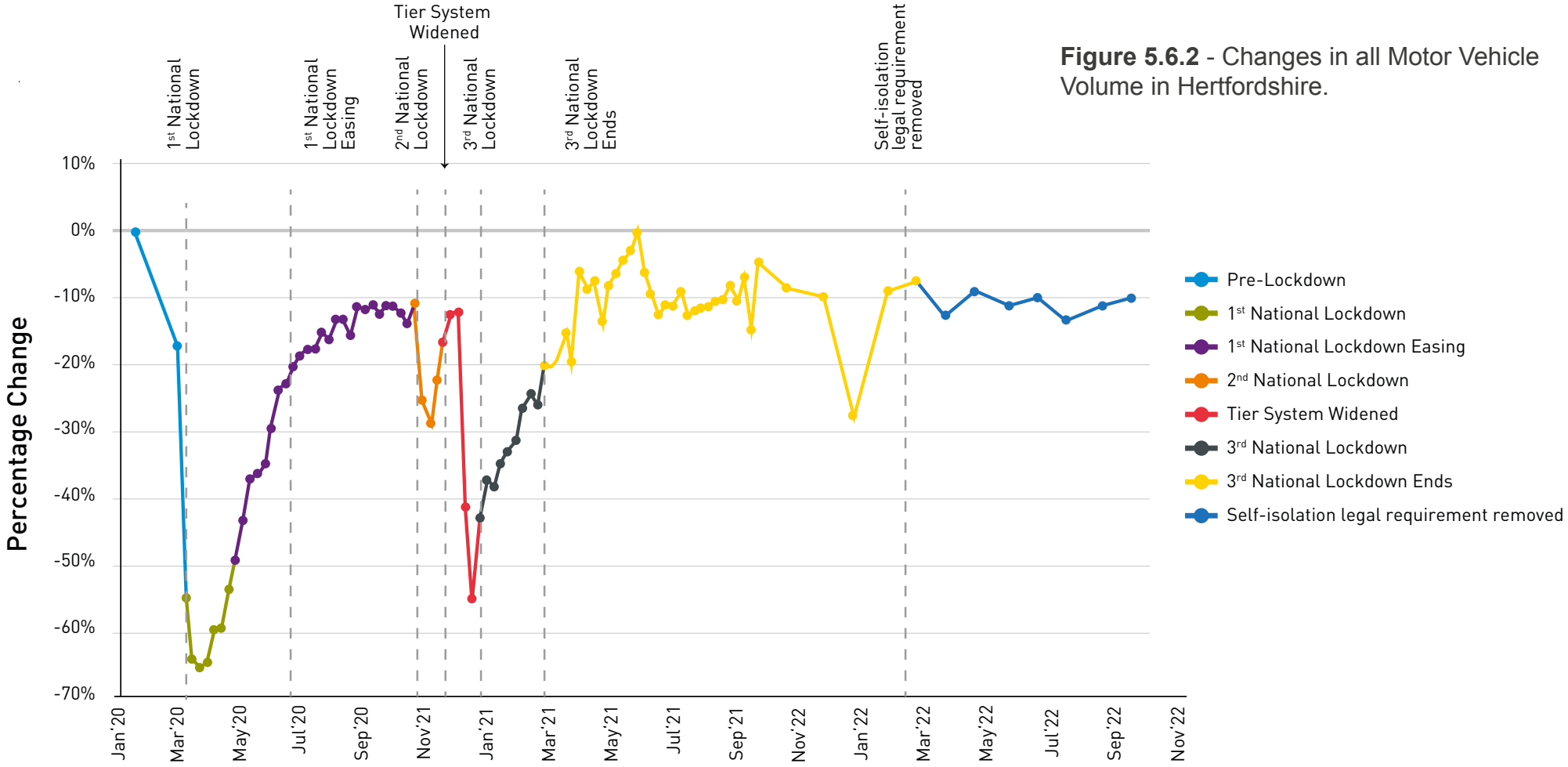


Figure 5.6.2 - Changes in all Motor Vehicle Volume in Hertfordshire.

Source: HCC's Traffic Count Programme (ITS Sites)

5.6 COVID-19 Impacts on Travel cont.

Since the implementation of COVID lockdown measures and subsequent easing, travel patterns during the day have also changed. **Figure 5.6.3** shows that whilst the pattern over time matches **Figures 5.6.1** and **5.6.2**, there are differences between the am (8-9), pm (5-6) and interpeak (12-1) periods. The latest trends show that interpeak traffic is more likely to have recovered to pre-pandemic level than am and pm peaks.

From Jan 2020 to Oct 2022, the biggest reductions in motorised vehicle travel generally occurred in the am peak, followed by the pm peak and then the interpeak. For example, in Jan 2021 average daily flows were down on pre pandemic levels by around 55% **(see Figure 5.6.2)**. However, during this same period, am peak flows were down 70%, interpeak were down 30% and pm peak flows were down 60%. This trend is evident since COVID restrictions first came into effect in March 2020, however there are periods where this is more pronounced, such as between April and August 2022.

Peak flow variation is likely due to people having more flexibility in their working schedule, that enables them to travel in at different times, or because of hybrid working, which allows them to start work earlier or later than the am peak. The consequence of this is likely to be more peak spreading, which is where traffic flows are busier outside of the classic peak periods.

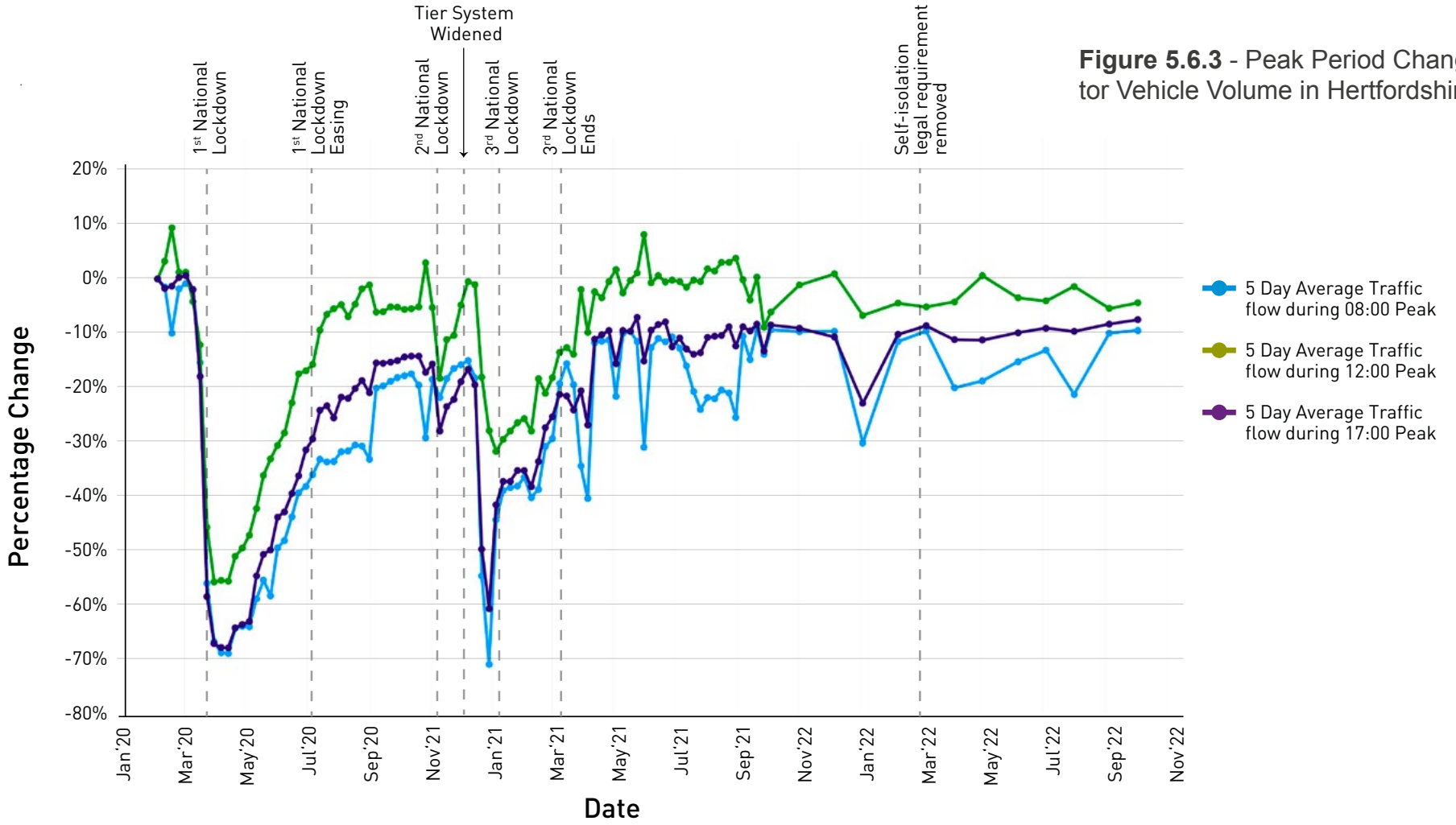


Figure 5.6.3 - Peak Period Changes in all Motor Vehicle Volume in Hertfordshire.

Source: HCC's Traffic Count Programme (ITS Sites)

5.6 COVID-19 Impacts on Travel cont.

5.6.4 COVID impacts on journey purpose in Hertfordshire

Most outbound trips in Hertfordshire have historically been for leisure or social purposes, followed by commuting for work. However, with the closing of office spaces, shops and other services, reasons for travel in Hertfordshire during 2020 also changed.

Google Mobility data is captured by Google and provided to HCC through a license. Monitoring from a county-baseline in February 2020, **Figure 5.6.4** shows the percentage increase or decrease in trips and time spent at a location based on the six location types.

From March 2020 until November 2020, more people in Hertfordshire were visiting 'Parks' than in pre-pandemic conditions, peaking at a 150% increase in mid-May. Reflecting the closure of non-essential shops and amenities, the number of trips to 'Grocery or Pharmacy' locations was consistently higher than to 'Retail and Recreation', with the later showing a minor resurgence between July 2020 and September 2020 as lockdown easing measures were introduced.

The number of trips to workplaces and transit stations in Hertfordshire has not yet increased to pre-pandemic levels, reaching an all-time low in May 2020, when there was an 82% decrease in trip to workplaces compared to February 2020. Since Jan 2020 workplaces and transit stations have generally been down about 35% on pre pandemic levels, highlighting increases in working from home and other more flexible workings options.

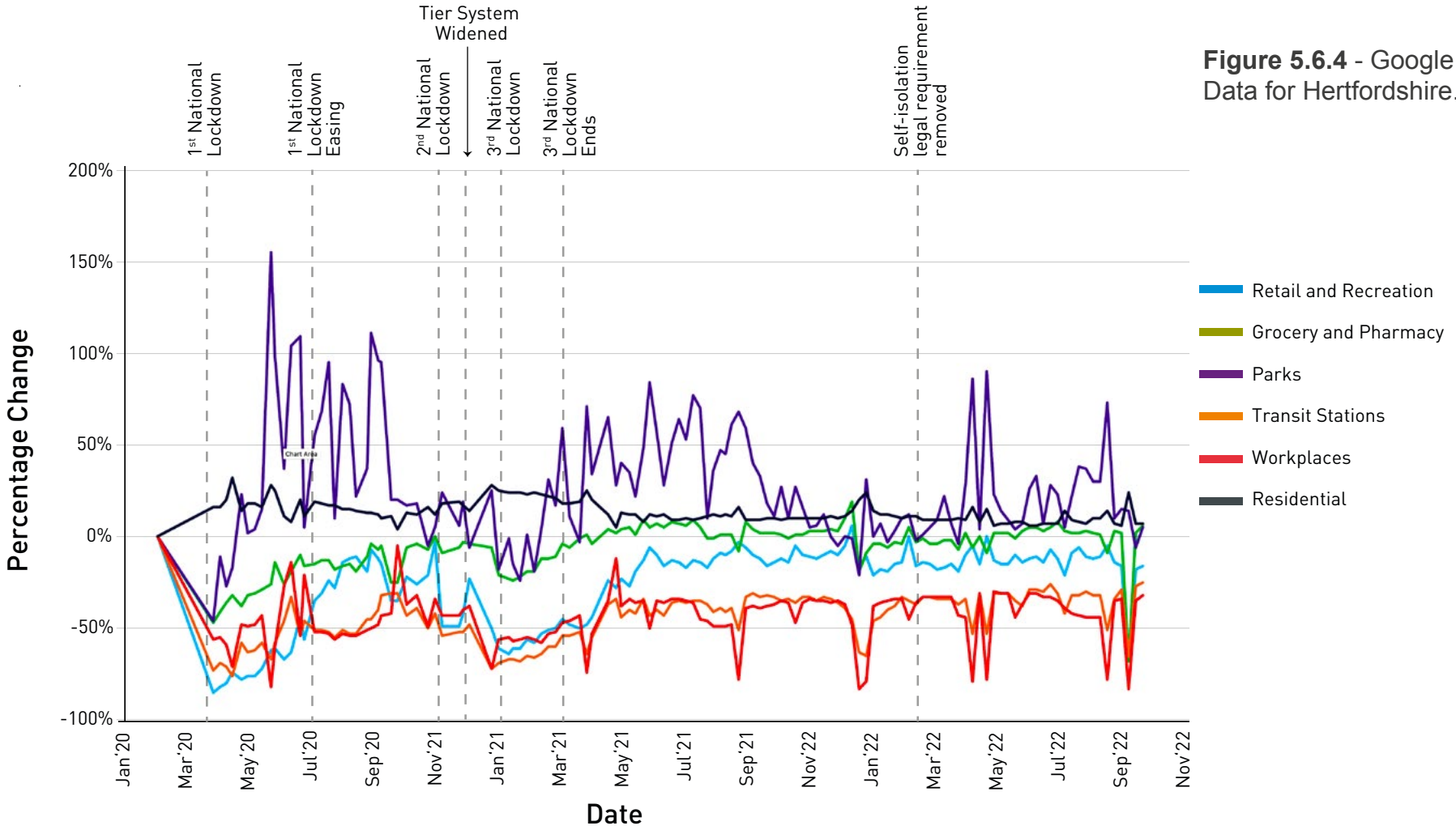


Figure 5.6.4 - Google Mobility Data for Hertfordshire.

Source: Google's COVID-19 Community Mobility Report

5.6 COVID-19 Impacts on Travel cont.

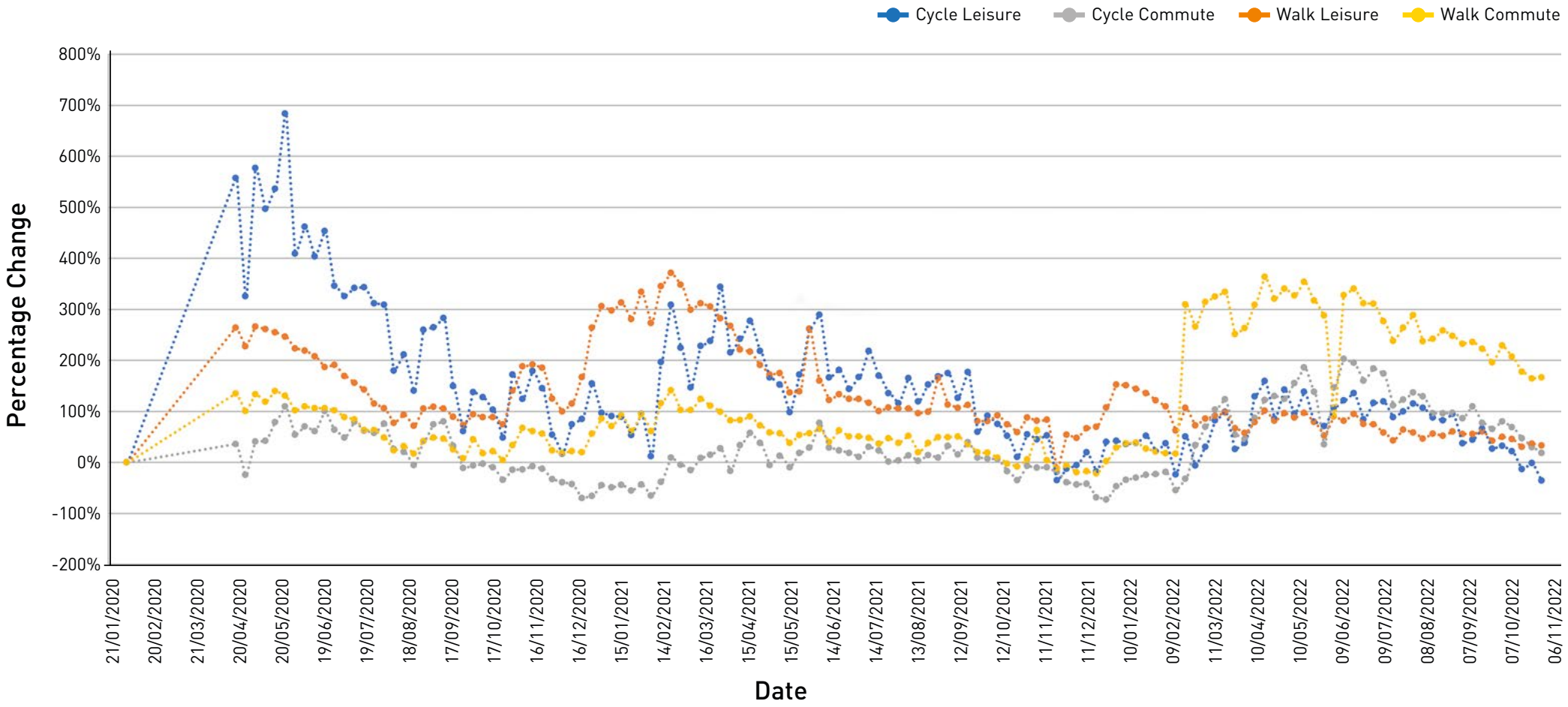
Strava Metro™ data is collected by Strava devices or the Strava app. It uses GPS to track users and provides data on patterns of people moving around Hertfordshire. The app user decides whether the trip is for commuting or leisure purposes and the app user is responsible for entering the demographic information. Stava app is a fitness app in which the amount of information collected depending on how many users using the app. Nevertheless, it is considered this activity-based data collected from the app users would provide some indications over recent trends. Care should be taken when interpreting this data and comparing to other sources of data.

Figure 5.6.5 shows Strava mobility data for Hertfordshire between January 2020 and November 2022. The data consists of four types of mobility: leisure walking, leisure cycling, commuter walking and commuter cycling.

The figure reveals that there are similar trend patterns to that of previous figures within this section, highlighting that leisure cycling peaked in June 2020, with levels 700% greater than pre pandemic levels. This spike coincided with the first lockdown and hot dry weather during that time. Leisure walking peaked at 400% above pre pandemic levels during the 3rd national lockdown in January 2021. Prior to February 2022 commuter walking was relatively stable, with flows between 0% and 150% of pre pandemic levels. However, from February to August 2022 commuter walking surged to 350% of pre pandemic levels in Hertfordshire.

Throughout 2021 commuter cycling dropped between 0% and 100% of pre pandemic levels, which supports evidence in the Active Travel section of this report, which shows cycling significantly reduced during 2021. However, similar to commuter walking, commuter cycling has experienced another spike between May and August 2022, with flows reaching 200% of pre pandemic levels.

Figure 5.6.5 - Strava Mobility Data for Hertfordshire.



Source: Strava

6. Bus and Rail

-69%

In Hertfordshire bus passenger journeys decreased by 69% between 2019/20 and 2020/21.

-77%

In 2020/21 Hertfordshire's rail passenger journeys decreased by 77% from 2019/20

6.1 Buses

6.2 Rail

6.1%

Bus share is 6.1% for the journey length ranging from 3 to 10 miles.

21.4%

Rail share is 21.4% for the journey length ranging from 10 to 40 miles.

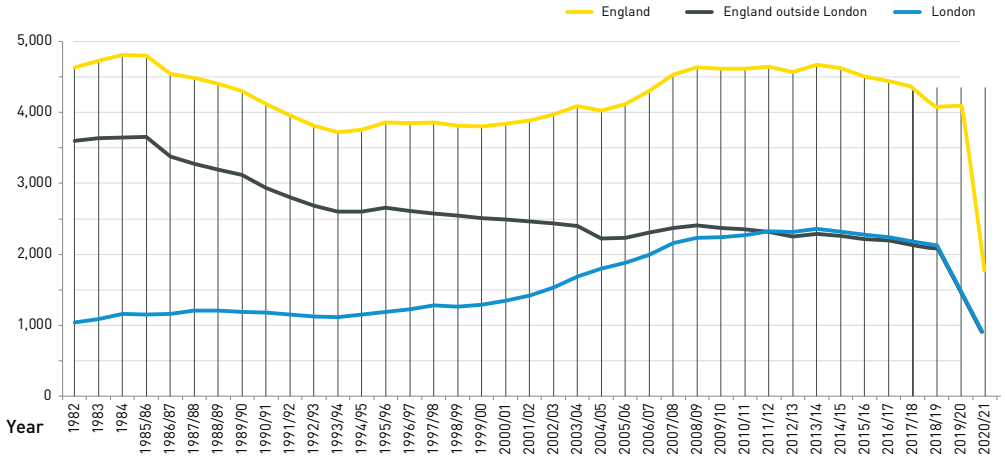
6.1 Buses

According the 2021 NTS Table NTS0308 86% all journeys in England are less than 10 miles in length, whilst 88% of bus journeys (excluding London) are less than 10 miles. Whilst most of these trips are made by car, some could be made by public transport instead. This would help reduce congestion and would help the UK reach its climate change goals.

The 2011 Census (Table QS701EW) and **Figure 5.3.1** of this report identified that bus, minibus and coach trips accounted for 8% of the total mode for journeys to work in England, whilst in Hertfordshire bus trips make up 3.5% (2011 Census).

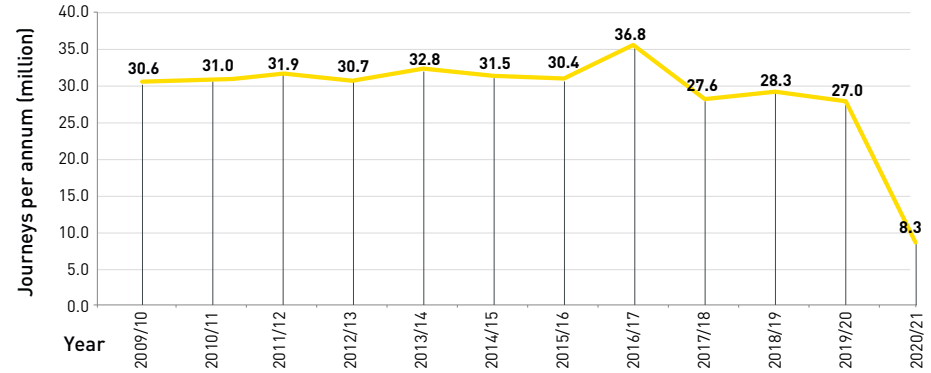
Figure 6.1.1 shows local bus passenger journeys from 1982 (Table BUS0103). Bus journeys in England in 2020/21 has significant decrease with more than 50% than the year before due to Covid-19 impact. **Figure 6.1.2** shows local passenger journeys on Hertfordshire's bus services and shows that percentage change between 2019/20 and 2020/21 is a 69% decrease.

Figure 6.1.1 - Historical Trends in Bus Passenger Journeys



Source: DfT 'Table BUS0103 Passenger journeys on local bus services by metropolitan area status and country'.

Figure 6.1.2 - Passenger journeys on Hertfordshire bus services



Source: DfT 'Table BUS0109a Passenger Journeys on Local Bus Services by Local Authority.

6.1 Buses cont.

The English National Concessionary Travel Scheme is a DfT scheme in conjunction with local authorities that provides free travel to the elderly and disabled and travellers. Concessionary travel makes up 32% of bus passenger journeys in England in 2020/21 (Table BUS0105).

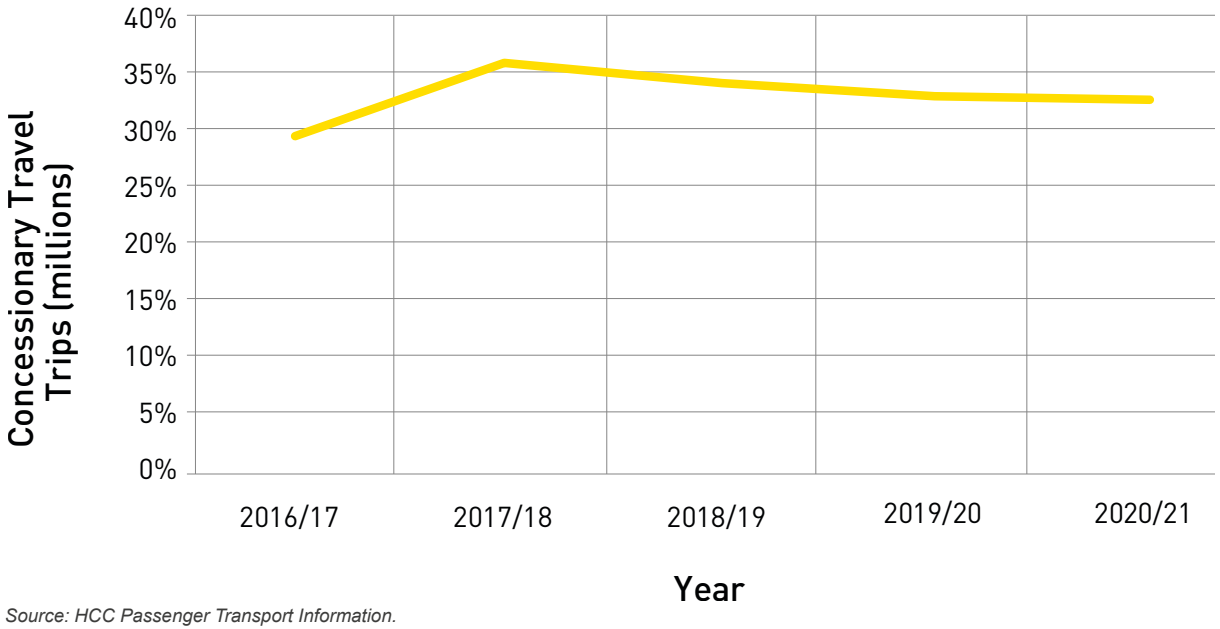
Figure 6.1.3 shows the percentage of concessionary trips in Hertfordshire for the last five years.

There were 2.8% of work journeys made by bus/coach/minibus as the main mode, as shown in previous **Figure 5.3.1.**

The 2022 HCTS appendices (Table D.53) shows mode share by district, with bus mode share being greatest in Hertsmere (5.7%), Watford (5.3%) and Three Rivers District (4.8%), whilst this is lowest in Broxbourne (1.8%) and East Herts (1.9%).These district differences assist in identifying locally based strategies to help tackle congestion.

The 2022 HCTS (Table 50) highlights that majority of bus trips (87%) are between 1 to 15 miles, with the highest between 3 and 10 miles (53%).

Figure 6.1.3 - Percentage of Concessionary Trips in Hertfordshire

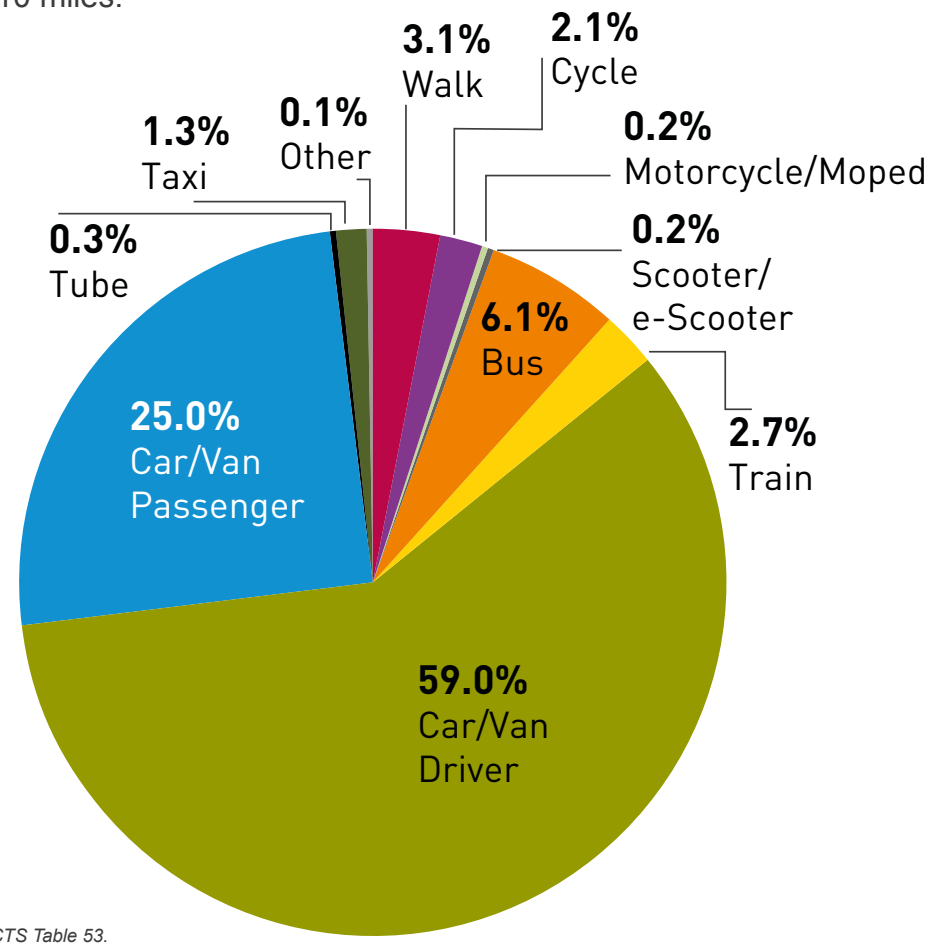


Source: HCC Passenger Transport Information.

6.1 Buses cont.

Figure 6.1.4 shows the mode share, with bus accounting for 6.1% of journeys between 3 and 10 miles. In addition, the 2022 HCTS (Table 50) illustrates that the mean distance for bus trips (all purposes) is 7.3 miles. This highlights that bus is a viable alternative to the car for medium length journeys, as compared to walking (1.1 miles) or cycling (5.2 miles).

Figure 6.1.4 - Mode share of all journeys from 3 to 10 miles.



Source: 2022 HCTS Table 53.

6.2 Rail

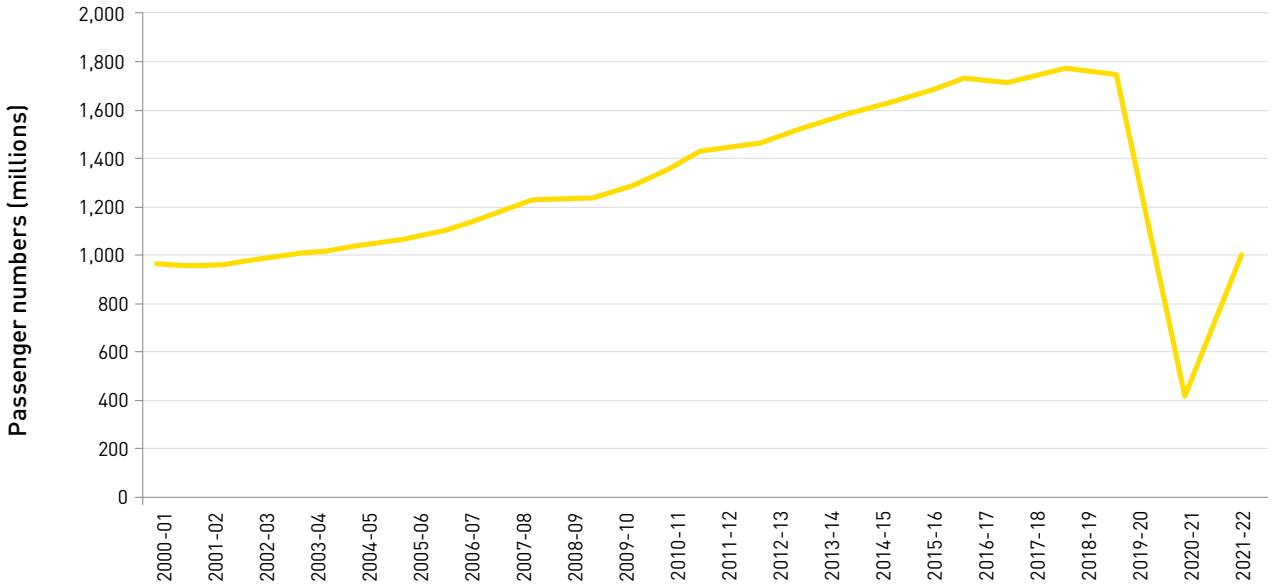
Rail plays an important role in moving people around the country in an efficient and sustainable way and helps relieve pressure on our roads. Furthermore, rail freight is an equally efficient, sustainable and cost-effective way of moving goods to key locations throughout the country that supports economic growth.

The 2011 Census identified that each day 1.4 million people (5.2%) in the UK commute to work by train (excluding underground, metro, light train and tram). Between 2001 and 2011 the Southeast, had the largest increase in public transport commuting with most of this being due to an increase in train trips (up from 5.6% in 2001 to 7.0% in 2011).

Figure 6.2.1 shows national rail passenger journeys from 2000/01. It generally shows an increasing trend over years with the peak in 2018/19 with 1,753 million rail journeys in Great Britain.

Due to COVID-19 outbreak, there was a tremendous drop in 2020/21 with only 388 million rail journeys (or a decrease of 78%), although there was a rebound in 2021/22 with 990 million rail journeys (or an increase of 155%) in Great Britain.

Figure 6.2.1 - National Rail Passenger Journeys



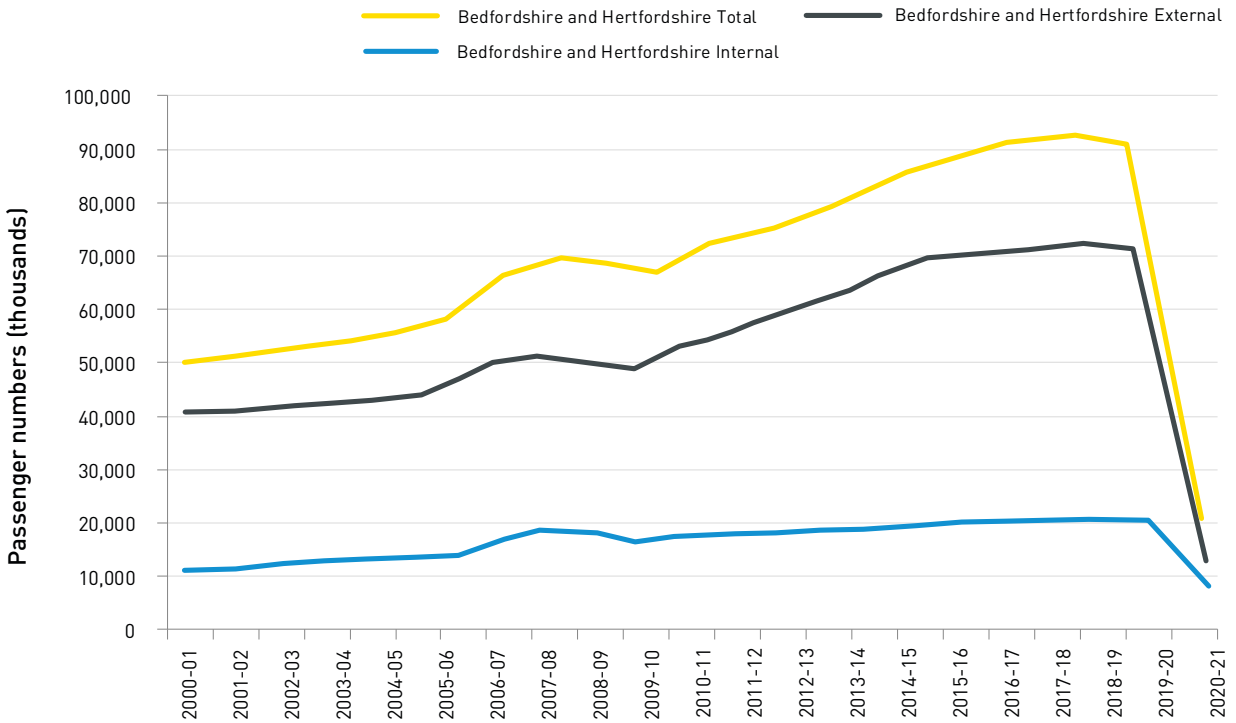
Source: ORR Table 1220

6.2 Rail cont.

Figure 6.2.2 shows regional rail passenger journeys from 2000/01. The figure shows both internal (Bedfordshire & Hertfordshire only) journeys as well as external journeys (i.e. trips to London).

Similar to Great Britain, Bedfordshire & Hertfordshire peaked in 2018/19 with 92,789 thousand passengers and experienced a tremendous decrease in 2020/21 with only 20,594 thousand passengers due to COVID-19 outbreak.

Figure 6.2.2 - Regional Rail Passenger Journeys



Source: ORR 'Table 1545 Regional Passenger Journeys – East of England'.

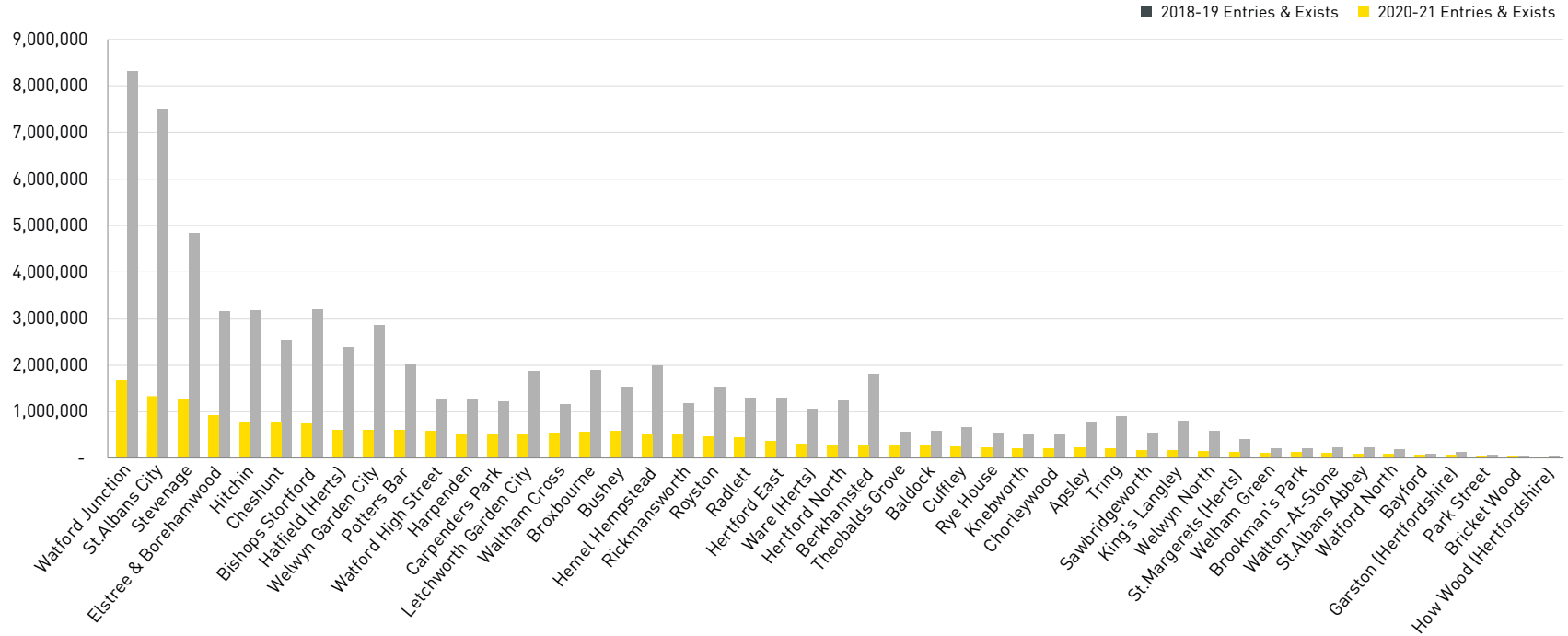
6.2 Rail cont.

Figure 6.2.3 shows station usage figures within Hertfordshire. Overall station use had substantial decrease in 2020/21 across all Hertfordshire stations due to COVID-19 outbreak.

In 2020/21 the busiest three stations in Hertfordshire were: Watford Junction (1.68 million pa), St Albans City (1.35 million pa) and Stevenage (1.23 million pa).

The 2022 HCTS (Table 50) highlights that majority of rail trips (85%) are between 5 to 40 miles, with the highest between 10 and 40 miles (77%). This illustrates that people travel with rail primarily for medium-to-long length journeys.

Figure 6.2.4 - Busiest Stations Breakdown

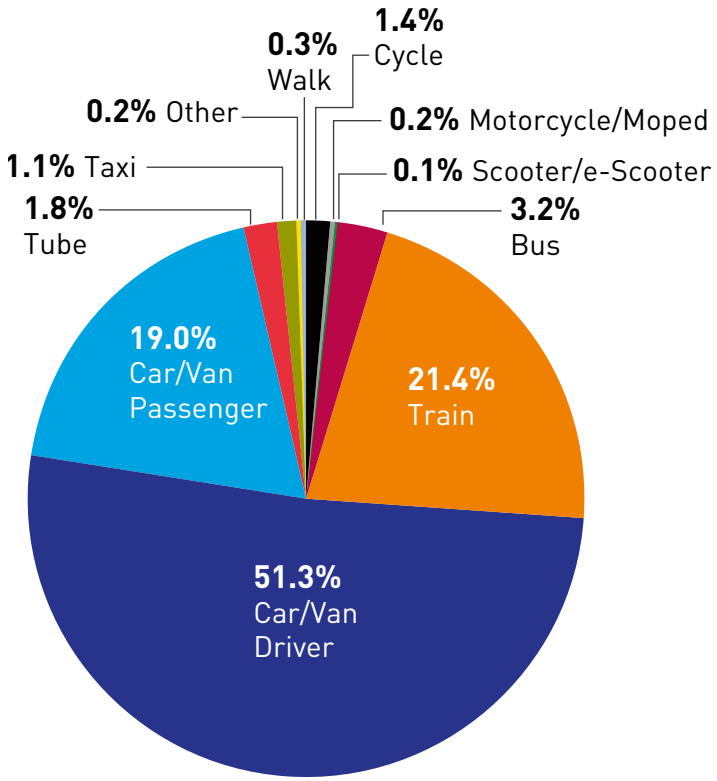


Source: ORR 'Estimates of Station Usage'. Note: Figures do not include TFL entries & exit data for the underground stations in Hertfordshire.

6.2 Rail cont.

Figure 6.2.4 shows the mode share, with rail accounting for 21.4% of journeys between 10 and 40 miles. In addition, the 2022 HCTS (Table 50) illustrates that the mean distance for rail trips (all purposes) is 24.3 miles.

Figure 6.2.5 - Mode share of all journeys from 10 to 40 miles



Source: 2022 HCTS Table 53.

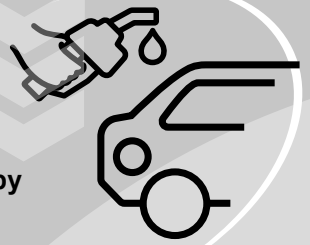
7. Clean Air, Low Emission Vehicles and Future Mobility

7.1 Clean Air

7.2 Low Emissions Vehicles

7.3 Future Mobility Priorities

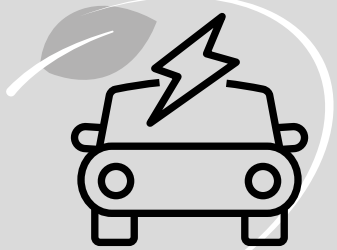
-10%
The new registration of petrol cars fell by 10% in 2021.



+74%
Plug-in vehicle cars newly registered in UK has increased by 74% in 2021.

-36%
The new registration of diesel cars was down by 36% in 2021.

3.3%
The EV ownership is still low, with 3.3% of households having fully electric cars in 2022.



7.1 Clean Air

Air pollution impacts on everyone individual's health. There is no safe level for exposure. Children, the elderly and those with underlying health conditions may suffer a greater health impact from exposure to air pollution making this a health inequalities challenge.

Part IV of the Environment Act 1995 requires local authorities in the UK to review and assess air pollution in their area. This function is carried out by District and Borough Councils. The Local Air Quality Management (LAQM) Regime provides technical and policy guidance as well as tools to enable local authorities to carry out their duties. Where pollutant limits are exceeded an air quality management area (AQMA) must be declared and an action plan produced. Hertfordshire County Council has a duty as the Highways Authority to cooperate in forming plans and working toward taking the necessary action to bring about improvements.

Hertfordshire County Council also has a duty to consider the public health impact of air quality.

In 2022 there were 22 AQMAs in Hertfordshire: 15 on local roads, 7 on National Highways roads as shown in **Figure 7.1.1.** All these AQMAs have an elevated nitrogen dioxide (NO_2) aspect. Further information on local air quality data can be found within the Hertfordshire and Bedfordshire - Air Quality monitoring service (airqualityengland.co.uk) webpages and in District and Borough Council Annual Status Reports. The impact of measures put in place to protect the population from Covid had a significant impact on results in 2020 with significantly reduced levels of NO_2 and some of these effects have been carried into 2021.

7.1 Clean Air cont.

Figure 7.1.1 - AQMA Location Table

District	Title	Road	Town	Pollutant	Responsiblity
Broxbourne	Extension to AQMA 1	Arlington Crescent to Abbey Gardens	Waltham Cross	NO_2 PM_{10}	NH & District
Broxbourne	AQMA No. 4 Eleanor Cross Road / Monarchs Way	Eleanor Cross Road / Monarchs Way	Waltham Cross	NO_2	HCC & District
Broxbourne	AQMA 6 Great Cambridge Road (A10)	Great Cambridge Road / College Road	Cheshunt	NO_2	HCC & District
Dacorum	AQMA No 1 Hemel Hempstead	Lawn Lane	Hemel Hempstead	NO_2	HCC & District
Dacorum	AQMA No 2 Apsley	London Road	Apsley	NO_2	HCC & District
Dacorum	AQMA No 3 Northchurch	High Street	Northchurch	NO_2	HCC & District
East Herts	Bishops Stortford AQMA	Hockerill	Bishop's Stortford	NO_2	HCC & District
East Herts	Hertford AQMA	A414	Hertford	NO_2	HCC & District
East Herts	AQMA Sawbridgeworth	London Rd/ Cambridge Rd	Sawbridgeworth	NO_2	HCC & District
Hertsmere	Hertsmere AQMA No. 1	Barnet Road	Potters Bar	NO_2	NH & District
Hertsmere	Hertsmere AQMA No. 2	Charleston Paddocks	South Mimms	NO_2	NH & District
Hertsmere	Hertsmere AQMA No. 3	Blanche Lane	South Mimms	NO_2	NH & District
Hertsmere	Hertsmere AQMA No. 4	Hartspring Lane	Hertsmere	NO_2	NH & District
Hertsmere	Hertsmere AQMA No. 5	Watling Street/High Street	Elstree	NO_2	HCC & District
Hertsmere	Hertsmere AQMA No. 6	High Street	Potters Bar	NO_2	HCC & District
North Herts	NHDC Air Quality Management Order No.1 2012	Stevenage Road	Hitchin	NO_2	HCC & District
North Herts	NHDC AQMA Order No.2 2016 - Paynes Park Roundabout, Hitchin	Paynes Park Roundabout	Hitchin	NO_2	HCC & District
St Albans	St Albans AQMA No. 1	Peahen	St Albans	NO_2 PM_{10}	HCC & District
Three Rivers	Chorley Wood NO2 AQMA	River Chess	Chorleywood	NO_2	NH & District
Three Rivers	Chorleywood PM10 AQMA	River Chess	Chorleywood	NO_2 PM_{10}	NH & District
Watford	AQMA No.2 (Vicarage Rd)	Vicarage Road/Farraline Road	Watford	NO_2	HCC & District
Watford	AQMA 3A Chalk Hill and Pinner Road	Chalk Hill	Watford	NO_2	HCC & District

Note: The information is taken from Defra's website at a point in time. Therefore the information is subject to change and that up to date information can be found on the website https://uk-air.defra.gov.uk.

Source: Defra

7.1 Clean Air cont.

In Hertfordshire the most important pollutants of concern are nitrogen dioxide (NO_2) and particulates (PMs). Particulates can be split down into further classification by size such as PM10 and PM2.5s which refer to particles that have a diameter of 10 or 2.5 microns or less respectively. Available data suggests the smaller the PM fraction the greater the potential health impact. This is expected to be due to the ability for smaller fractions to access deeper in lung tissue when breathed in where it can then pass into the blood.

Nationally non naturally occurring air pollution is expected to cause 36,000 attributable deaths annually. Transport sources are responsible for large amounts of total source air pollution. Studies carried out in Hertfordshire have shown that local transport sources contribute 70 - 80% of the NO2 monitored at some AQMAs. For this reason, many Hertfordshire County Council policies and strategies are seeking to promote newer less polluting vehicles on the network and fewer vehicles. This will impact positively by producing cleaner air, reducing congestion, and reducing climate change impact of our transport system.

Air pollution is not constant and depends on factors such as prevailing weather conditions and traffic levels. Therefore an automatic urban rural monitoring network (AURN) has been established. This data feeds into the UK Daily Air Quality Index (DAQI) which can be found at : Pollution forecast - Defra, UK

The DAQI tells you about levels of air pollution. It also provides health advice in the form of recommended actions you may wish to take, according to the level of air pollution. The index is numbered 1-10 and divided into four bands, low (1) to very high (10), to provide detail about air pollution levels in a simple way.

Hertfordshire local authorities also have a local tool available to inform on current levels of air pollution (Hertfordshire and Bedfordshire - Air Quality monitoring service. An air quality alert service is also available and can be accessed at: Local Authority Data - Air Quality monitoring service.

Future legislative levels are being considered by central government through the coming into force of the Environment Act 2021. A consultation exercise has been carried out. Hertfordshire County Council place comments which are reflected in the UK100 response to the consultation which the council were signatories to. The letter can be found at: Mayors and Local Leaders Joint Letter to DEFRA about PM2.5 target (uk100.org).

7.2 Low Emission Vehicles

The electric vehicle (EV) market is fast-evolving, with sales of vehicles growing rapidly. An increasing range of electric models are available, providing greater choice for consumers at a range of price points.

There are two major types of EVs in the market:

- Battery Electric vehicle (BEVs): A vehicle that runs on electricity only, using a powerful electric motor(s) and large battery to power the vehicle, which needs to be charged by the user.
- Plug-in Hybrid vehicles (PHEVs): A vehicle that has a petrol or diesel engine combined with an electric motor, but with a larger battery to provide an electric-only range. This needs plugging-in to recharge. Typically, PHEVs have an electric-only range of 30 to 40 miles, and fuel economy suffers if battery is not regularly charged.

Ultra-low emission vehicles (ULEVs) are any vehicle that emits less than 75g per km of CO_2 from the exhaust when driving, and include BEVs and PHEVs.

Hybrid vehicles, including 'mild' or self-charging hybrids, are not classed as ULEV, EVs or zero emission (ZE) vehicles as they have very small batteries and no or very limited zero emission ranges. They are refuelled with petrol and diesel and cannot be plugged into an EV Chargepoints.

In 2021, total vehicle registrations (including cars, HGVs, LGVs, buses etc) based on Vehicle Licensing Statistics (Table VEH1153) were up 5%, with a 77% increase in plug in vehicles (i.e. battery electric, plug-in hybrid electric and range extended electric) in the UK, equating to 327,000 vehicles registered for the first time as shown in **Figure 7.2.1**.

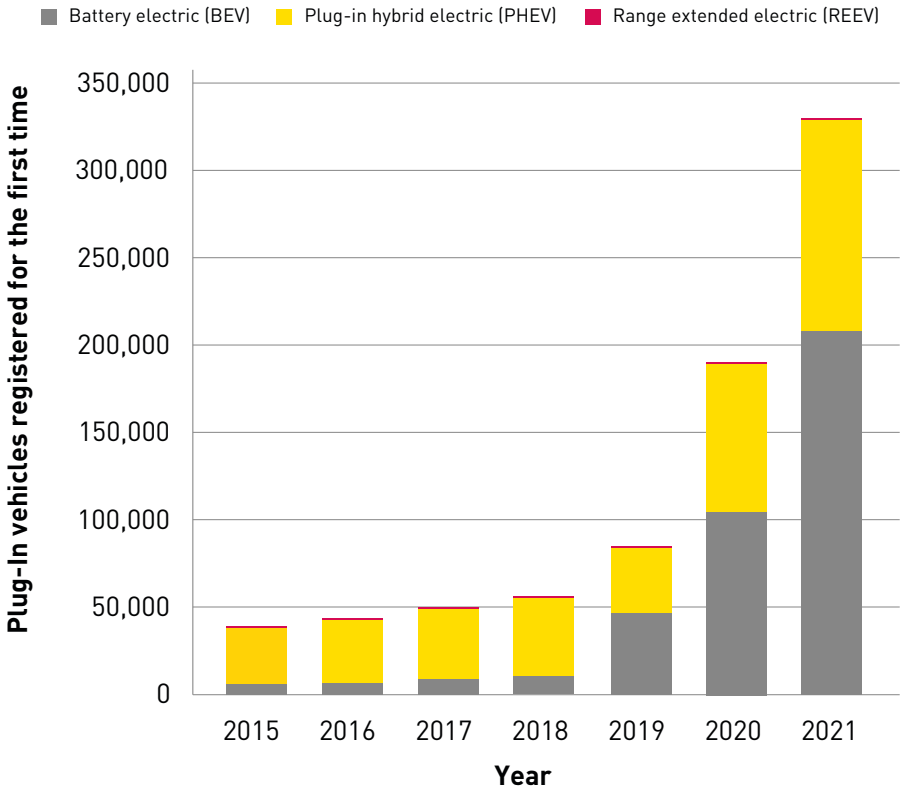
7.2 Low Emission Vehicles cont.

Just focusing on new car registrations in the UK, this comprised of:

- 912,000 (54%) petrol cars
- 264,000 (16%) HEV cars (hybrid electric vehicle)
- 195,000 (12%) diesel cars
- 190,000 (11%) BEV cars (Battery electric vehicle)
- 114,000 (7%) PHEV cars (plug-in hybrid electric vehicle)
- 2,000 (0.1%) using other fuel types

Figure 7.2.2 shows cars registered for the first time by fuel type in the UK. In 2021, Vehicle Licensing Statistics (Table VEH1153) shows that there was a continued decline in new diesel car registrations in Great Britain, falling by 36% compared to 2020. Over the same period, new petrol car registrations fell 10%. By contrast, new registrations of plug-in vehicle cars increased sharply by 74% in 2021 compared to 2020. More new plug-in vehicle cars (305 thousand) were registered this year than new diesel cars (195 thousand).

Figure 7.2.1 - Plug-in vehicles registered for the first time in UK

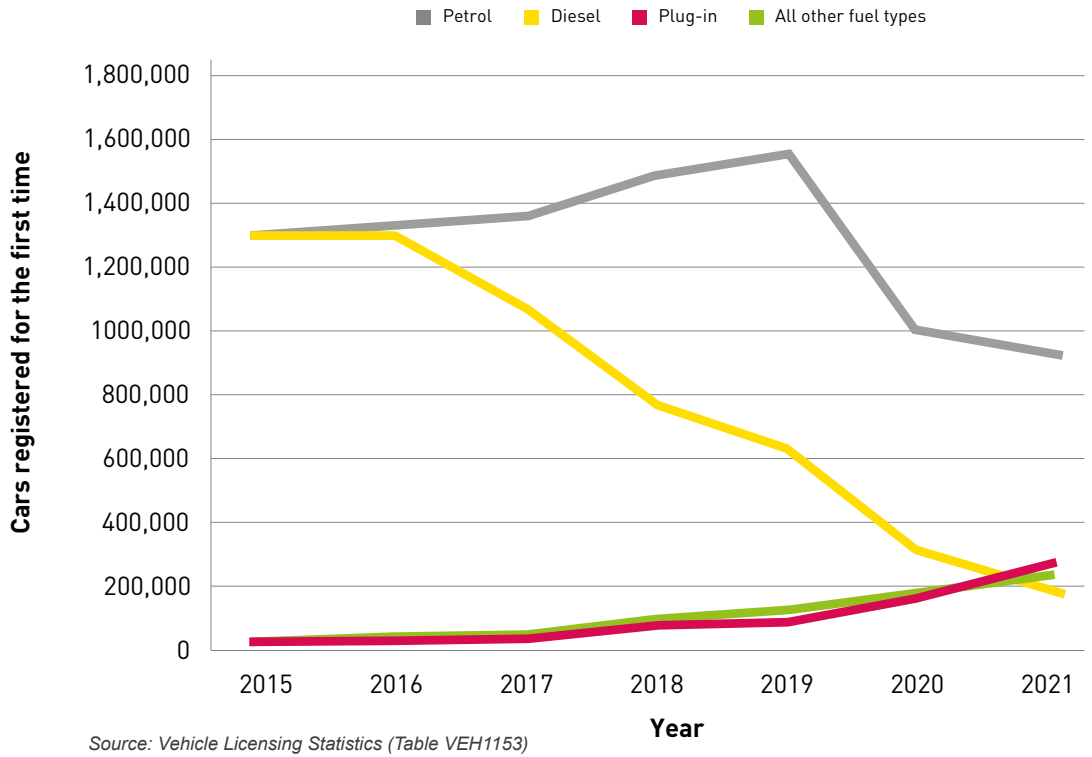


Source: Vehicle Licensing Statistics (Table VEH1153)

7.2 Low Emission Vehicles cont.

In Hertfordshire there are 12,342 licensed plug in vehicles as at the end of 2021 based on Vehicle Licensing Statistics (Table VEH0142). **Figure 7.2.3** shows the plug in vehicles by Hertfordshire district in 2021.

Figure 7.2.2 - Cars registered for the first time by fuel type in the UK



Source: Vehicle Licensing Statistics (Table VEH1153)

Figure 7.2.3 - Licensed Plug-in Vehicles in Hertfordshire

District	Private Keepership	Company Keepership	Total Vehicles
Broxbourne	509	114	623
Dacorum	1288	365	1,653
East Hertfordshire	1237	352	1,589
Hertsmere	1068	376	1,444
North Hertfordshire	1046	273	1,319
St Albans	1603	301	1,904
Stevenage	327	106	433
Three Rivers	994	229	1,223
Watford	481	467	948
Welwyn Hatfield	872	334	1,206
Total in Hertfordshire	**9,425**	**2,917**	**12,342**

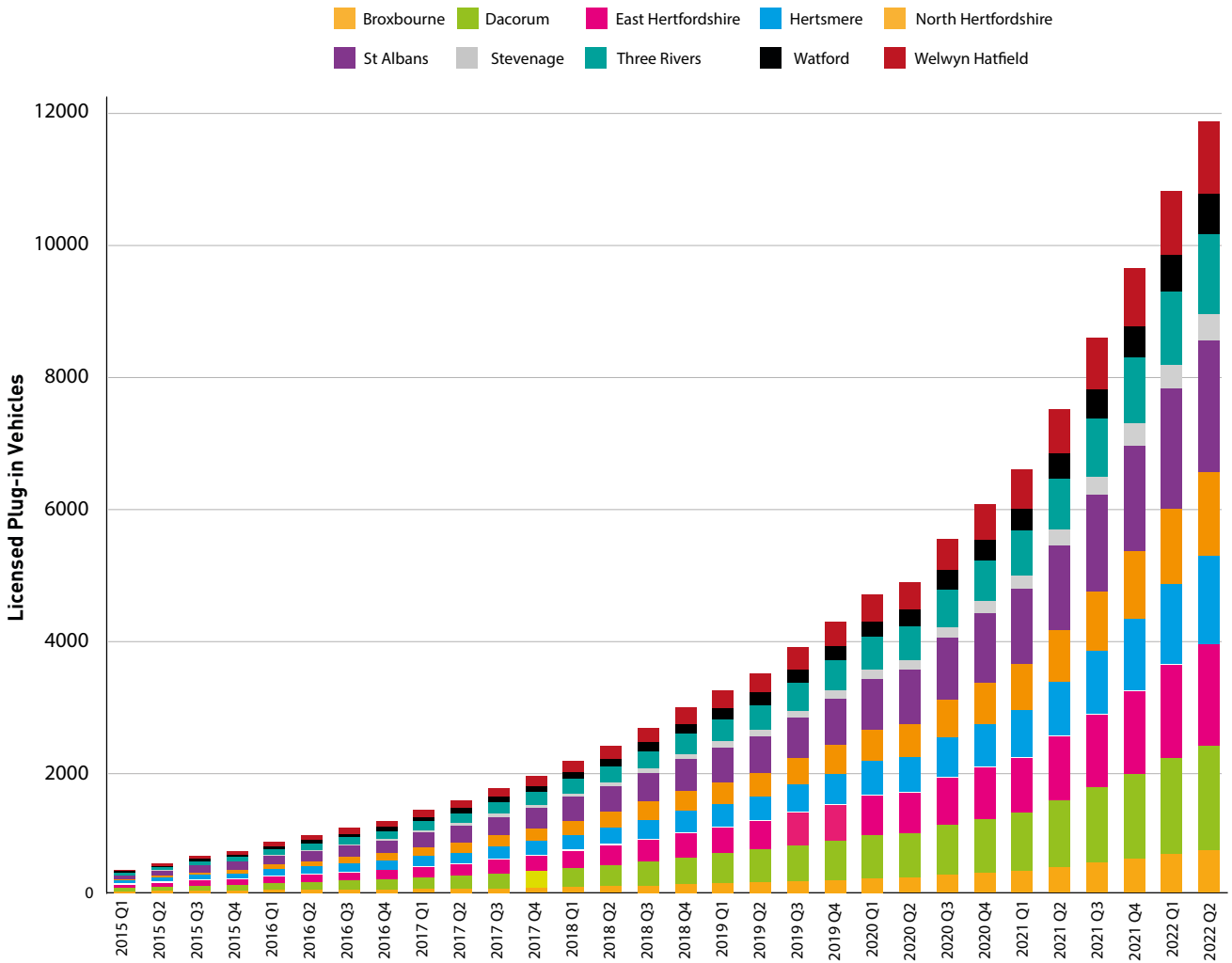
Source: Vehicle Licensing Statistics (Table VEH0142)

7.2 Low Emission Vehicles cont.

Figure 7.2.4 shows the uptake in plug-in vehicles has continued to increase by district for private ownership.

The proportion of EV ownership in the county is however still low. The County Travel Survey (June 2022) identified that 8.2% of respondents owned a hybrid vehicle (up from 3.5% in 2018) with 69% saying that their vehicle did not require charging. 3.3% of respondents had a fully electric vehicle (up from 0.7% in 2018).

Figure 7.2.4 - Licensed Plug-in Vehicles for Private Keepership by District.



Source: Vehicle Licensing Statistics (Table VEH0142)

7.2 Low Emission Vehicles cont.

Chargepoint Network

The latest published data suggest there are currently 477 publicly available chargepoints (including 78 rapid chargepoints) in Hertfordshire. Roll out appears to be accelerating with 110 chargers implemented between April 22 and July 22.

Figure 7.2.5 illustrates the recent installation trajectory in Hertfordshire and neighbouring local authority areas.

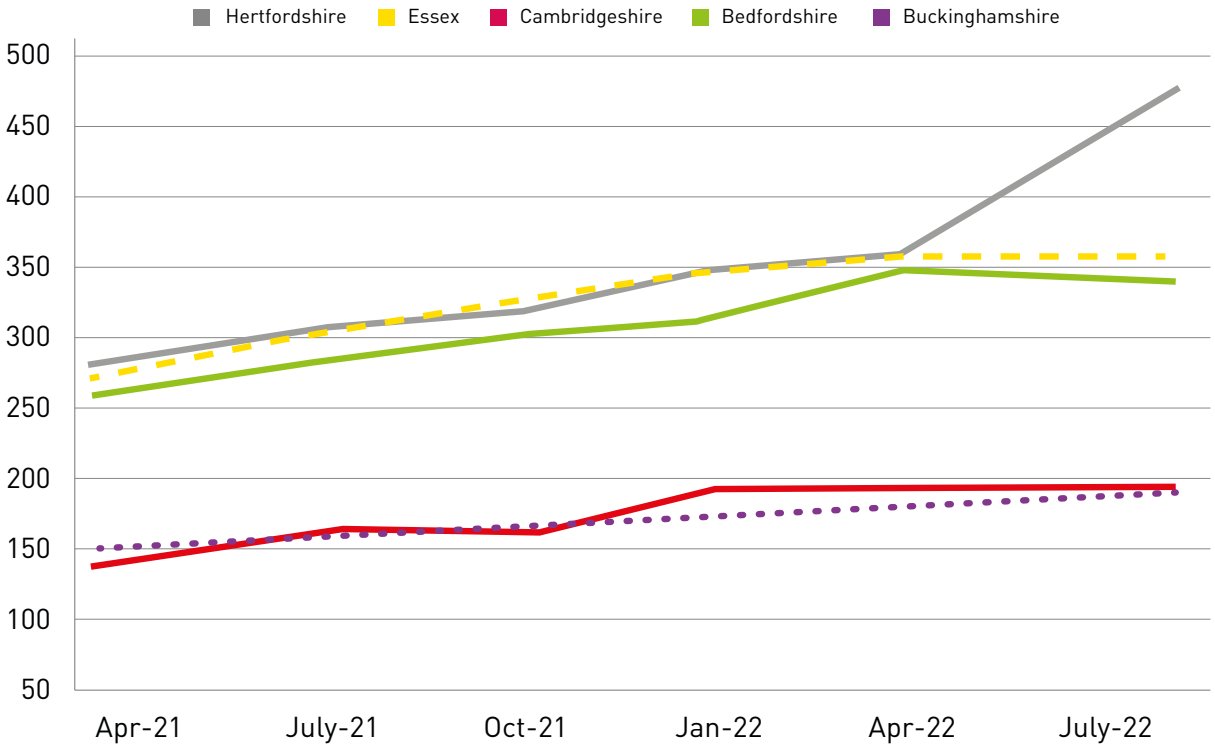
In terms of districts, Welwyn Hatfield has shown the biggest increase from 2019, which has increased from 11 in 2019, to 53 in 2021, to 112 in 2022. The district has shown the most growth out of all the authorities in the UK between 2019 and 2022.

The County Council is working with district and boroughs to deliver a more comprehensive, accessible and efficient EV charging network across Hertfordshire.

Further information on our approach along with links to interactive maps showing the current charging network can be found at www.hertfordshire.gov.uk/electricvehicles

Interactive maps showing the charging network by type can be accessed via www.hertfordshire.gov.uk/electricvehicles.

Figure 7.2.5 - Number of Chargepoints by Local Authority



Source: government statistics/electric vehicle charging device

7.3 Future Mobility Priorities

Whilst there is a move towards more sustainable and environmentally travel as part of the Local Transport Plan, the private vehicle is still one of the most used modes to travel as seen in Section 5.2 of this report.

The way that people travel is changing and will continue to change due to, technology, lifestyles, the economy, the environment, and personal circumstances. These aren't only related to the private car, but to all forms of transport including bus, rail, taxi, scooter, and bicycles.

Changes will not just be in how individuals travel, but the entire transport system around a user will evolve and will integrate with other technologies, such as smart phones and the internet of things. Some of these changes are already happening and now form part of our everyday lives.

Currently the biggest anticipated changes to future mobility are zero emission vehicles, micro mobility (small vehicles such as scooters), driverless vehicles and demand responsive transport (transport that come to you).

As a result of this evolution, Hertfordshire needs to prepare and adapt for change. Hertfordshire also would like to position itself at the forefront of transport innovation and future mobility and is doing this through various initiatives like the Hertfordshire Living Lab (testing, piloting, and implementing future transport solutions through a Living Lab approach), the deployment of Electric Vehicle charging infrastructure, HERT (Hertfordshire & Essex Rapid Transit) and Connected Autonomous Vehicle (CAV) trials.

Hertfordshire believes that future mobility will potentially bring big benefits for its residents, which could align with the objectives set out in the corporate plan:

- A cleaner greener environment
- Healthy and fulfilling lives for our residents
- Sustainable responsible growth in our county
- Excellent Council Services for all

For instance, the benefits could include improved safety, supporting independent living, improving lives for disabled and vulnerable transport users, improving accessibility, environment benefits including carbon reduction, improving the local and national economy, job creation in Hertfordshire, congestion reduction and an optimised and more available transport network for all.

However, it is important that in some cases Hertfordshire remains neutral or ambivalent to the benefits of future mobility. This is so that the authority can objectively review any potential benefits, to see if they do in fact benefit the residents and users of Hertfordshire.

7.3 Future Mobility Priorities cont.

The Hertfordshire Living Lab, Hatfield Business Park

Since April 2021, the Hertfordshire Living Lab (HLL) Consortium - HCC, Ocado, BT, the University of Hertfordshire and Ringway - has developed the essential tools and processes to provide the foundations for the further development of HLL Use Cases for Phase 2. Phase 1 includes:

- A network of sensors in and around the Hatfield Business Park (HCC)
- A 5G communications network (BT)
- A Drone survey to create 3D digital maps of area (Ringway)
- A Prototype Digital Twin (Ocado)
- Installation of a weather station
- A Governance Framework (manage projects, IP, partners, decisions) (Ocado)
- The Establishment of a Data Trust
- A digital platform to store, process and visualise the data

The HLL is now approaching **Phase 2**. This involves the development of 'Use Case' projects such as Mobility Hubs and Smart Junctions and will test these concepts using the aforementioned data.

Outputs and data will be shown in future editions of the TTDR under the future mobility section.

8. Appendices

8.1 Data Sources

8.2 Glossary

8.3 Urban and Rural Definitions

8.4 Technical Data

8.5 Contact Details

8.1 Data Sources

Local Transport Plan (LTP)

The Local Transport Plan and its supporting strategies set out the overarching transport strategy and framework for Hertfordshire. LTP4 is the current version of the LTP and sets out a programme of policies and schemes that the County Council and its partners intend to deliver.

County Travel Survey (HCTS)

The County Travel Survey was first conducted in Hertfordshire in 1999 by HCC, primarily to support work on the Local Transport Plan. The survey was repeated during October and November in 2002, 2005, 2009, 2012, 2015 and 2018. The latest one was conducted during April and June in 2022 where questionnaires were posted randomly to selected households across Hertfordshire.

Census 2011

The national census is carried out every 10 years by the Office of National Statistics (a Central Government organisation) and provides a wide range of demographic information for the UK population. The main transport related statistics focus on method and distance travelled to work and vehicle ownership levels. For Census 2021, the first results from Census 2021 for England and Wales are only available at the time of writing this report, where data related to transport are not available.

HCC Corporate Plan (2022-2025)

The Corporate Plan sets out Hertfordshire's vision over the next few years and identifies key priorities to enable this vision.

National Travel Survey (NTS)

National Travel Survey (NTS) is a household survey designed to monitor long-term trends in personal travel.

Active Lives Survey

Active Lives Survey measures participation, sports spectating and volunteering. Sports England is responsible for the survey providing data for important measures of public health and active travel.

HCC Tracas Database

Database developed to hold traffic data and used to produce various figures within this report.

Transport Statistics Great Britain (DfT)

Describes the major statistical trends in the British transport sector.

INRIX

INRIX is a company on behalf of DfT to provide journey time data based on car GPS systems.

8.1 Data Sources cont.

Traffic Count Programme

The Council's main source of information is obtained from the ongoing Traffic Count Programme which primarily monitors road traffic levels and vehicle type. Automatic Traffic Counters (ATCs) are located across the county, spread across all road types. These sites are monitored annually and are supplemented by National Highways sites on the motorway network. The council also has monitoring programmes for both speed and cycling. Information on all of these programmes is within this report.

Active Travel Strategy (ATS) Surveys

The Active Travel Strategy Surveys are carried out annually for all major towns across 10 districts in Hertfordshire. The number of people travelling by car, bus, motorcycle, LGV, HGV, bicycle, and on foot is monitored at count sites between the hours of 07:00 – 19:00 on a single weekday in a neutral month (i.e. one which avoids any events that significantly affect traffic flow, such as school holidays), or continuously by cameras. Some sites also conduct car and bus occupancy surveys.

8.2 Glossary

Annual Average Daily Traffic (AADT) –
Total flow observed over a year divided by 365.

Annual Average Week Day flow (AAWD) –
The deseasonalised average flow representing the typical volume of vehicles passing a count site between 06:00 - 22:00 hrs on a weekday. This is roughly equivalent to the AADT. Since the AAWD excludes those periods of the week more likely to be affected by 'unusual' events (short-term roadworks, public gatherings, car boot sales), it is believed to provide a more reliable average when counts are only conducted once or twice a year at a particular site.

Automatic Traffic Count (ATC) –
A traffic count measured by an automatic device, commonly consisting of a coiled wire buried in the road which generates a small magnetic field in order to detect the number of vehicles passing.

Census –
Carried out every ten years by the Office of National Statistics and provides a wide range of demographic information for the UK population. The main transport related statistics focus on method and distance travelled to work (Key Statistics 15), and car/ van ownership levels (Key Statistics 17).

Cordon –
A ring of survey points drawn around an area of interest for the purpose of carrying out a traffic survey.

County Travel Survey (HCTS) –
Carried out in 1999, 2002, 2005, 2009, 2012, 2015, 2018 and 2022 where households across the county are sent a questionnaire about their travel behaviour.

Deseasonalised Data –
Raw data which has been factored (multiplied by a seasonal factor) to compensate for those variations in traffic flow which are purely seasonal, i.e. occur at the same time each year. The technique allows sample counts taken from one week in the year to be used to estimate AAWD flows and allow comparisons with other counts taken from a different month or day of the week.

Department for Transport (DfT) –
A Central Government organisation responsible for setting and delivering national transport plans and policies.

Driver and Vehicle Licensing Agency (DVLA) –
An executive agency of the DfT responsible for general vehicle law enforcement such as maintaining registers of vehicles and the collection of vehicle excise duty.

National Highways –
An executive agency of the DfT responsible for managing England's motorway and trunk roads. (previously known as the Highways England).

8.2 Glossary cont.

Local Transport Plan (LTP) –

A document setting out the County Council's transportation strategy and policies for the years ahead. The fourth Hertfordshire Local Transport Plan (LTP4) is a statutory document which sets out the county council's vision and strategy for the long-term development of transport in the county. It provides the framework for transport's support of economic and social development of Hertfordshire in the years 2018 and 2031.

Manual Classified Count (MCC) –

Traffic measured by observation, recorded and classified by vehicle type and time period.

Office of National Statistics (ONS) –
A Central Government organisation responsible for collecting, analysing and publishing demographic data for the UK.

Performance Indicators –

The Government requires all local authorities to set out a range of performance indicators and associated targets to measure progress towards implementing transport plans and policies.

Rights of Way Improvement Plans –
Assesses whether footpaths, byways, bridle paths and other rights of way meet criteria, and implements a plan for improvement.

Road Safety Strategy –

Sets out aspirations for casualty reduction and prevention.

Road Traffic Reduction Act (RTRA) –
Requires local authorities to undertake a review of existing and forecast levels of traffic on local roads and to set targets for reducing the level of local traffic or the rate of growth in their area.

STATS19 & CRASH –
Nationally collected set of data required by the DfT for Personal Injury Accidents (CRASH will supersede paper forms).

Vehicle Kilometre –
Calculated by multiplying the AADT on each road by the roads length. Provides a measure of the overall 'loading' on the road network on a daily basis.

85th Percentile –
For a more stable indicator, speeds are recorded at the 85th percentile (speed below which 85% of vehicles are travelling) as this is more resistant to differences in local conditions and only significant changes in traffic behaviour will alter the results.

8.3 Urban and Rural Definitions

Urban Areas –
Connected built up areas (BUA) identified by Ordnance Survey mapping that have resident populations above 10,000 people (2011 Census).

Urban Roads –
Major and minor roads within an urban area with a population of 10,000 or more. The definition is based on the 2001 Communities and Local Government definition of Urban Settlements.

Rural Areas –
Those areas that are not urban, i.e. consisting of settlements below 10,000 people or are open countryside.

Rural Roads –
Major and minor roads outside urban areas

8.4 Technical Data

Figure 8.4.1 - Traffic Count Programme - Automatic Sites

District	Trunk (Highways England)	Primary A	Other A	B Road	C Road	U Road	Grand Total
Broxbourne	1	2	4	8	2	1	18
Dacorum	1	7	9	6	3	0	26
East Herts	0	9	11	16	5	1	42
Hertsmere	1	2	13	9	4	0	29
North Herts	3	5	10	12	6	0	36
St Albans	4	3	11	8	5	0	31
Stevenage	1	1	6	3	1	3	15
Three Rivers	1	0	10	3	4	0	18
Watford	1	4	14	0	3	0	22
Welwyn Hatfield	2	1	7	8	2	1	21
Grand Total	**15**	**34**	**95**	**73**	**35**	**6**	**258**

Source: HCC's TRACAS database (annual traffic count programme)

Figure 8.4.2 - Traffic Count Programme - Manual Survey Sites

District	Trunk Rd - Motorway	Trunk Rd - Other	Primary A	Other A	B Road	C Road	U Road	Grand Total
Broxbourne	1	0	2	1	2	0	0	6
Dacorum	0	0	5	3	2	1	0	11
East Herts	0	0	5	2	4	1	1	13
Hertsmere	0	1	1	2	5	1	0	10
North Herts	0	0	2	6	7	2	0	17
St Albans	1	1	1	3	3	1	0	10
Stevenage	1	0	1	4	1	0	1	8
Three Rivers	0	0	0	2	1	2	0	5
Watford	1	0	3	7	0	0	0	11
Welwyn Hatfield	0	0	0	3	4	0	1	8
Total	**4**	**2**	**20**	**33**	**29**	**8**	**3**	**99**

Source: HCC's TRACAS database (annual traffic count programme)

Figure 8.4.3 - County Road Lengths (km)

District	National Highways Roads		HCC Roads				Total
	Motorway Trunk Road	Principal Trunk A Road	A Road	B Road	C Road	Unclassified Road	
Broxbourne	0.00	0.00	30.15	17.98	13.55	222.99	284.67
Dacorum	6.12	0.49	76.35	34.70	109.38	464.07	691.11
East Herts	0.00	0.00	122.46	93.57	227.85	500.78	944.66
Hertsmere	34.59	4.87	45.88	25.76	47.58	255.63	414.31
North Herts	15.22	0.00	72.91	62.01	212.34	459.34	821.82
St Albans	38.73	7.86	58.06	40.12	77.84	407.79	630.40
Stevenage	9.35	0.00	27.06	6.15	4.95	226.72	274.23
Three Rivers	29.22	0.66	34.10	5.81	56.83	238.93	365.55
Watford	1.32	0.00	34.88	0.18	14.05	166.36	216.79
Welwyn Hatfield	25.57	0.55	40.87	43.62	63.18	303.96	477.75
Total	**160.12**	**14.43**	**542.72**	**329.90**	**827.55**	**3,246.57**	**5,121.29**

Source: HCC's TRACAS database (annual traffic count programme)

Source: HCC's TRACAS database (annual traffic count programme)

8.4 Technical Data cont.

Figure 8.4.4 - Active Travel Strategy Survey Sites

ATS ID	Road Name	Town	District	Data to be collected in 2021 (for 2022 TTDR) (Y/N)	Data to be collected in 2022 onwards
AT1	Letchworth Road	Baldock	North Herts	Y	Y
AT2	Lower Kings Road	Berkhamsted	Dacorum	Y	Y
AT3	South Street	Bishops Stortford	East Herts	Y	Y
AT4	Elstree Way	Borehamwood	Hertsmere	Y	Y
AT5	Theobald Street	Borehamwood	Hertsmere	Y	Y
AT6	Furzehill Road	Borehamwood	Hertsmere	Y	Y
AT7	Park Lane	Broxbourne	Broxbourne	Y	Y
AT8	Station Road, Buntingford	Buntingford	East Herts	Y	Y
AT9	London Road	Buntingford	East Herts	N	Y
AT10	High Street	Bushey	Hertsmere	Y	Y
AT11	Windmill Lane	Cheshunt	Broxbourne	N	Y
AT12	High Street / Turners Hill	Cheshunt	Broxbourne	N	Y
AT13	Crossbrook Street, Cheshunt	Cheshunt	Broxbourne	Y	Y
AT14	College Road	Cheshunt	Broxbourne	N	Y
AT15	Sun Lane	Harpenden	St Albans	Y	Y
AT16	Wellfield Road	Hatfield	Welwyn Hatfield	Y	Y
AT17	Cavendish Way	Hatfield	Welwyn Hatfield	Y	Y
AT18	St Albans Road East	Hatfield	Welwyn Hatfield	Y	Y
AT19	Queensway	Hemel Hempstead	Dacorum	Y	Y
AT20	Boundary Way, Hemel Hempstead	Hemel Hempstead	Dacorum	Y	Y
AT21	Adeyfield Road	Hemel Hempstead	Dacorum	Y	Y
AT22	Lawn Lane	Hemel Hempstead	Dacorum	Y	Y
AT23	Warners End Road	Hemel Hempstead	Dacorum	Y	Y
AT24	Cowbridge	Hertford	East Herts	Y	Y
AT25	North Road	Hertford	East Herts	Y	Y
AT26	Bancroft	Hitchin	North Herts	Y	Y
AT27	Paynes Park	Hitchin	North Herts	Y	Y
AT28	Brocket Road	Hoddesdon	Broxbourne	Y	Y
AT29	High Street	Hoddesdon	Broxbourne	Y	Y
AT30	Bridge Road	Letchworth	North Herts	Y	Y

Continued overleaf

8.4 Technical Data cont.

ATS ID	Road Name	Town	District	Data to be collected in 2021 (for 2022 TTDR) (Y/N)	Data to be collected in 2022 onwards
AT31	Norton Way South	Letchworth	North Herts	Y	Y
AT32	High Street	London Colney	St Albans	Y	Y
AT33	Mutton Lane	Potters Bar	Hertsmere	N	Y
AT34	Darkes Lane	Potters Bar	Hertsmere	N	Y
AT35	Watling Street	Radlett	Hertsmere	Y	Y
AT36	Shenley Hill	Radlett	Hertsmere	Y	Y
AT37	Old North Road, Royston	Royston	North Herts	N	Y
AT38	Station Road	Sawbridgeworth	East Herts	Y	Y
AT39	Old London Road, St Albans	St Albans	St Albans	Y	Y
AT40	Victoria Street	St Albans	St Albans	Y	Y
AT41	Hatfield Road	St Albans	St Albans	Y	Y
AT42	London Road	St Albans	St Albans	Y	Y
AT43	Fairlands Way	Stevenage	Stevenage	N	Y
AT44	North Road	Stevenage	Stevenage	Y	Y
AT45	Six Hills Way, Stevenage	Stevenage	Stevenage	N	Y
AT46	Frogmore Street	Tring	Dacorum	Y	Y
AT47	Eleanor Cross Road	Waltham Cross	Broxbourne	Y	Y
AT48	Bridge Foot	Ware	East Herts	Y	Y
AT49	Hempstead Road, Watford	Watford	Watford	N	Y
AT50	St Albans Road	Watford	Watford	N	Y
AT51	Whippendell Road	Watford	Watford	N	Y
AT52	Eastbury Road	Watford	Watford	N	Y
AT53	Vicarage Road	Watford	Watford	N	Y
AT54	Rickmansworth Road	Watford	Watford	N	Y
AT55	Hunters Bridge	Welwyn Garden City	Welwyn Hatfield	Y	Y
AT56	Rickmansworth Road	Chorleywood	Three Rivers	Y	Y
AT57	Station Approach	Knebworth	North Herts	Y	Y
AT58	Station Road	Rickmansworth	Three Rivers	N	Y
AT59	Homestead Road	Rickmansworth	Three Rivers	Y	Y
AT60	London Road	Stevenage	Stevenage	Y	Y
AT61	Stanborough Road	Welwyn Garden City	Welwyn Hatfield	Y	Y
AT62	High Street	Watford	Watford	N	Y
AT63	Bedford Road	Hitchin	North Herts	N	Y

8.4 Technical Data cont.

Figure 8.4.5 - Cycle Monitoring Programme

District	Description	Site no	Type	Number of Counts	Average Cyclists per Day 2021
Broxbourne	Crossbrook Street, Waltham Cross	249	MCC	x1 16 hour	293
	High Street, Hoddesdon	139	ACL	Continuous	59
	Theobalds Lane, Cheshunt	812	ACL	x1 16 hour	59
Dacorum	Two Waters Road, Hemel Hempstead	349	ACL	Continuous	206
	Station Road, Tring	801	ACL	Continuous	112
	Site 818 - Minoan Drive Footway, Hemel Hempstead	818	ACL	Continuous	30
	Site 819 - Heath Lane, Hemel Hempstead	819	ACL	Continuous	41
	Site 820 - Station Road, Hemel Hempstead	820	ACL	Continuous	51
	Site 821 - Redbourn Road, Hemel Hempstead	821	ACL	Continuous	52
	Site 822 - Briary Way, Hemel Hempstead	822	ACL	Continuous	44
East Herts	Market Street Hertford	543	MCC	x1 16 hour	34
	Cole Green Way	828	ACL	Continuous	83
Hertsmere	Cycle Track, Shenley Road, Borehamwood	802	ACL	Continuous	43
North Herts	Baldock Road, Letchworth	433	MCC	x1 16 hour	62
	Old North Road, Royston	167	MCC	x1 16 hour	62
	Royston Rail Crossing, Royston	813	ACL	Continuous	107
St Albans	Alban Way Cycle Track, St Albans	804	ACL	Continuous	371
	Lea Valley Walk, Harpenden	814	ACL	Continuous	62
	Nickey Line, Harpenden	817	ACL	Continuous	35
	Site 823 - Batchwood Drive, St Albans	823	ACL	Continuous	49
	Site 824 - Lemsford Road (Sandpit Lane), St Albans	824	ACL	Continuous	27
	Site 825 - London Road, St Albans	825	ACL	Continuous	87
	Site 826 - Westminster Lodge, St Albans (Verulamium Park)	826	ACL	Continuous	39
	Cottonmill Lane, St Albans	827	ACL	Continuous	303
Stevenage	Six Hills Way, Stevenage*	811	ACL	Continuous	23
	North Road Stevenage	366	MCC	x1 16 hour	41
Three Rivers	Prestwick Road, South Oxhey	351	MCC	x1 16 hour	84
	Scots Hill, Rickmansworth	216	MCC	x1 16 hour	96
	Uxbridge Road, Rickmansworth	815	ACL	Continuous	69
	Gallows Hill, Abbotts Langley	816	ACL	Continuous	28

Continued overleaf

8.4 Technical Data cont.

Figure 8.4.5: Cycle Monitoring Programme. (continued)					
Watford	Hempstead Road, Watford	1	ACL	Continuous	418
	Radlett Road, Watford	2	ACL	Continuous	92
	Dalton Way, Watford	3	ACL	Continuous	120
	Tolpits Lane, Ebury Way Cycle Track	4	ACL	Continuous	206
Welwyn Hatfield	Cycle Track nr Black Fan Road	807	ACL	Continuous	97
	Alban Way Cycle Track, Galleria	805	ACL	Continuous	122
	Chequers, Welwyn GC	808	ACL	Continuous	96
	Travellers Lane, Hatfield	809	ACL	Continuous	122
	Bessemer Road, Welwyn GC*	364	ACL	Continuous	55
	Gresley Close, Welwyn GC	806	ACL	Continuous	81
Average number of cyclists across the 40 monitoring sites 06:00 - 22:00 on weekdays					**102**

HCC's annual cycle count programme

8.5 Contact Details and Translation

Transport Planning and Data

2022 (2021 Data) Traffic and Transport Data Report

Transport Planning & Data Team

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