

Highway Technical Note

No. 29 Sapcote Road, Burbage
April 2023, RHC-22-091-TN

Introduction

Roberts Highway Consultants Limited has been commissioned by Mr J. Martin to undertake supporting transportation and highway work, in relation to a proposed residential development at No. 29 Sapcote Road, Burbage. A site layout plan is attached within **Appendix A** with a proposed site plan provided within **Plan 1**.

Plan 1: Contextual Site Location Plan



© Google Maps

The proposals seek to retain the existing bungalow within the site (No. 29), developing an additional two detached residential dwellings, with associated car parking.

The site is located within the authority of Hinckley and Bosworth Borough Council, who act as the local planning authority for the area. Leicestershire County Council are the local highway authority for the area. This report has therefore been prepared with reference to Leicestershire County Council's Highway Design Guide (LHDG).

Existing Site and Access

The development site, which is irregular in shape, currently comprises No. 29 Sapcote Road, a residential bungalow with a separate garage and associated garden space.

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The site is bound to the north by an existing residential dwelling and garden space, with the access track leading to the property forming the immediate eastern boundary of the site. Agricultural land is situated beyond. Further residential dwellings are located to the south and west of the site, as outlined within **Plan 1**.

Access into the site from the highway is taken via a private drive directly off Sapcote Road, which serves up to 10 residential dwellings, including for No. 29 Sapcote Road. The access, which measures circa 6.5m in width for the first 5m beyond Sapcote Road, is of sufficient width to cater for up to 25 residential dwellings when considering Figure DG17 of LHDG.

In addition, visibility splays of 2.4m x 43m can be achieved from the existing access when considering Table DG4 of the LHDG, which states that for speeds of 30mph, a Stopping Sight Distance (SSD) of 43m is recommended. Drawing Number RHC-22-091-01, attached within **Appendix B**, outlines the site access and visibility extents.

Sapcote Road (B4669)

Sapcote Road, from which the site takes access, is a classified B-road which predominantly fronts residential dwellings. The carriageway, which has a width of circa 8.5m, has a 30mph speed limit past the site frontage proceeding east into Burbage. Approximately 75m to the east of the access, Sapcote Road has a 40mph speed limit, proceeding eastbound out of the village.

Street-lit footways more than 2m in width are located either side of the carriageway, which facilitate pedestrian movement to the wider footway network within the village. Pedestrian refuge crossings are also situated along the carriageway to further assist with pedestrian movement.

Collision Data

A review of available collision records for the period between 01-01-2017 and 31-12-2021 outline that only two vehicle collisions occurred along Sapcote Road within 500m of the site access. Both collisions, which were classified as being 'slight' in severity, were noted at the B578 Hinckley Road/Sapcote Road junction.

With only two identified collisions within the five-year period reviewed, there are no pre-existing highway safety concerns which would be exacerbated by the development proposals.

Servicing

Refuse collection will be in keeping with existing operations associated with No. 29 Sapcote Road. Residents will be responsible for placing the relevant bins at the back line of pavement on collection day. Given the available width of the access and surplus verge space adjacent to the access onto Sapcote Road, bins can be stored in this location prior to collection.

Swept path analysis of a fire tender has been undertaken to ensure such a vehicle can access the site, being able to turn, and exit within a forward gear. Drawing Number RHC-22-091-01, attached within **Appendix C**,

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outlines this manoeuvre.

Vehicle Parking

The development proposals will provide seven car parking spaces however, there is the potential for vehicles associated with Plot 1 to tandem park, creating an additional two spaces. In addition, both Plots 1 and 2 will benefit from a garage, which could also be utilised for vehicle parking.

Vehicle Impact

To ascertain the number of vehicle movements likely to be generated from the additional two dwellings proposed at the site, an analysis of the Trip Rate Information Computer System (TRICS®), a computer program which assists in estimating trip rates to and from sites, has been undertaken.

Analysis of the TRICS® database has been undertaken using the category 'Residential – Houses Privately Owned', for sites of similar size to the proposed development. Sites located within Greater London, Ireland, Scotland and Wales were discounted from the assessment, along with all sites not situated in 'Edge of Town or Suburban' locations. Any surveys which were undertaken during the Covid 19 pandemic were also excluded from the results.

The results generated a total of seven surveys from seven separate sites. A summary of the likely trip rates and vehicle flows can be found within **Table 1**, with the full TRICS data available in **Appendix D**.

Table 1: TRICS Total Person Trip Rate Analysis for the Proposed Development

	AM Peak (8am to 9am)			PM Peak (5pm to 6pm)		
	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
Trip Rates (per dwelling)	0.309	0.926	1.235	0.559	0.235	0.794

The 2011 census modal split results for the Hinckley and Bosworth 013B Super Output Area (Lower Layer), in which the site is situated, have been applied to the total person trips presented in **Table 1** to provide a forecast of trips for each travel mode. The census data shows that there are 663 economically active people in employment within the area.

A total of 42 of the 663 economically active people within the area (6.3%) work from home. These people are still considered as having a potential travel demand to and from the area, as their circumstances may change, their employers may implement policies or practices making them more, or less able to work from home, especially after the change in working arrangements since the Covid-19 pandemic.

A review of the recently released 2021 Method of Travel to Work census data for the Hinckley and Bosworth 013B Super Output Area (Lower Layer) has been undertaken as to compare the results against the 2011 Method of Travel to Work census data. It is important to note that the 2021 census was undertaken during a period of

rapid change and that care should be taken when using this data for planning purposes. The results of the data outlined that 39% of the working population living within the Hinckley and Bosworth 013B Super Output Area (Lower Layer) worked from home, a typical result of the Covid-19 pandemic. There was also a reduction in car drivers of 27.9%.

Given travel patterns and movements were influenced by the Covid-19 pandemic during the time of the 2021 census, it is considered that the 2011 census data for Method of Travel to work is a more robust dataset when considering vehicle impacts upon the immediate highway network. This data has therefore been used as part of any assessment work within this report.

Roberts Highway Consultants Limited have provided a forecast of trips based on economically active residents who are likely to travel during the AM and PM peaks, driving a car or van (77.7%). A copy of the 2011 census data for the Hinckley and Bosworth 013B Super Output Area (Lower Layer) can be found within **Appendix E**. The resulting vehicular trip rates and trip generation for the proposals are shown in **Table 2**.

Table 2: Development Vehicle Trip Rates and Trip Generation

	Trip Rates (per unit)			Trip Generation (two units)		
	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
AM Peak (08:00-09:00)	0.240	0.719	0.959	0	1	1
PM Peak (17:00-18:00)	0.434	0.183	0.617	1	0	1

Taking into consideration the calculations above, the proposed development would generate a single vehicle movement during each of the generic weekday peak periods, which would not be considered a severe impact upon the immediate highway network.

Conclusions

This Highway Technical Note has been prepared on behalf of Mr J. Martin to undertake supporting transportation and highway work in relation to a proposed residential development at No. 29 Sapcote Road, Burbage.

The site is well located in terms of access to local amenities and facilities by foot, cycle or public transport. Access to facilities, amenities and employment areas within Burbage and surrounding area are within a suitable commute via alternative transport modes other than use of the car, adhering to both local and national planning policy.

A review of available collision data highlights that there are no road safety concerns within the study area which would be exacerbated by the development proposals.

Access to the site will continue to be taken via the existing point of access onto Sapcote Road therefore, no new point of access is proposed onto the highway. The existing access is of sufficient width (>6m adjacent to the highway) to cater for simultaneous two-way vehicle movement. Suitable visibility splays can also be achieved

from the existing drive when based on the carriageway speed limit.

Swept path analysis of the site arrangements using a fire tender confirms that the vehicle can enter, turn and exit the site within a forward gear.

The proposed development is likely to generate a single vehicle movement during each of the generic peak periods, which would not be considered a severe impact upon the immediate highway network.

Andrew Roberts BA (Hons), MCIHT, MTPS

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Revision History

Revision	Comments
- April 2023	Initial submission

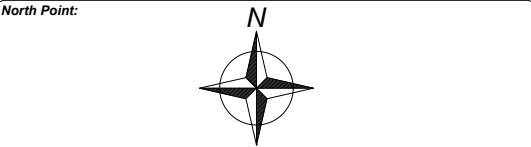
Appendices

- A – Proposed Site Plan
- B – Drawing Number RHC-22-091-01 Access Visibility Extents
- C – Drawing Number RHC-22-091-02 Swept Path Analysis (Fire Tender)
- D – TRICS Outputs
- E – Method of Travel to Work Census Data (Hinckley and Bosworth 013B)

Appendix A: -



Do not scale from this drawing, work to given dimensions. All dimensions to be checked on site. Any discrepancies with this drawing to be reported and clarified prior to commencing work on site. ADM Surveyors Ltd accept no responsibility for works not undertaken fully in accordance with this drawing and relevant specifications.
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Notes:

KEY

- Grass
- Slab paving
- Permeable block paving or bonded resin.

Plots 1 & 2.
3/4 bed 'room in the roof' bungalows with integral garage.

No. 29
Existing bungalow retained, detached garage demolished.

Revision Log:			
A	Existing access widened; landscaping alteration.	DP	27.04.23
Rev:	Description:	By:	Date:
Project: 29 Sapcote Road Burbage Hinckley LE10 2AS		Client: Andrew Granger & Co.	
Scale: 1:250		Drawing Issue: PLANNING	
Date: 28.03.2023	Drawn by: DP	Checked by: TR	Paper Size: A3
Drawing Title: Proposed Site Plan			
Drawing Number: 3794.PL02		Revision Number: A	

ADM

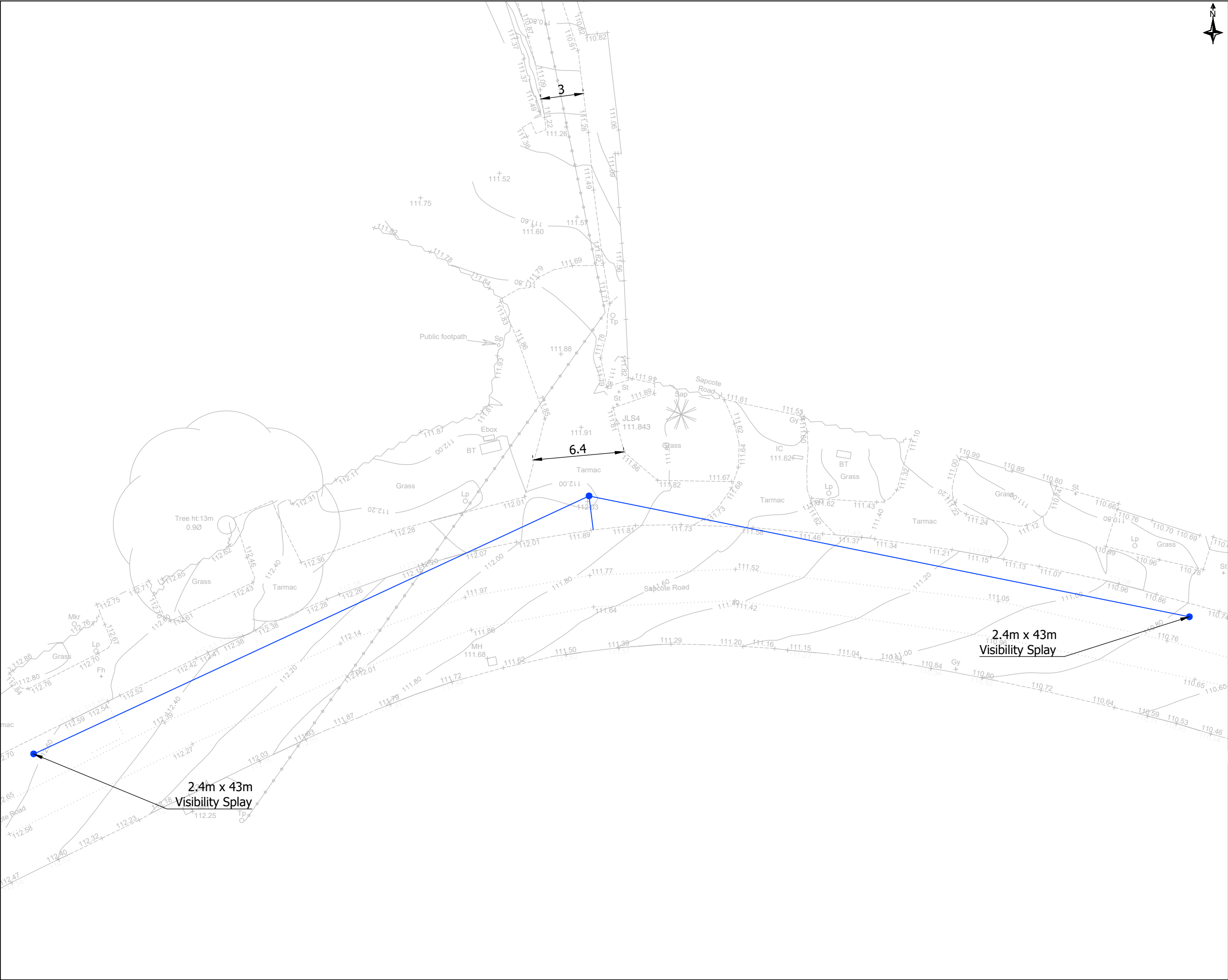
Surveyors

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CHARTERED PRACTICE

Appendix B: -



- Notes:
1. Do Not Scale This Drawing Unless For Planning Purposes Only. Any Dimensions Shown Are Indicative Only And Are Subject To Verification Onsite.
 2. Contractor To Check All Dimensions & Report Any Omissions Or Errors.
 3. Visibility Splays Of 43m Shown In Accordance With Table DG4 Of The Leicestershire County Council Highway Design Guide Document For 30mph Speed Limit Roads.



Carriageway Speed Limit Past Access

Rev	Description	Date
Client: Mr J. Martin		
Project: No. 29 Sapcote Road Burbage Leicestershire		
Drawing Title: Access Visibility Extents		
Drawing Number: RHC-22-091-01		
Revision: -	Sheet Size: A3	Scale: 1:250
Drawn & Checked By: AR	Date: 15/03/2023	Status: Information

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Appendix C: -

Appendix D: -

Calculation Reference: AUDIT-608801-230315-0334

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

04	EAST ANGLIA	
	NF NORFOLK	1 days
	PB PETERBOROUGH	1 days
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	WK WARWICKSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
08	NORTH WEST	
	AC CHESHIRE WEST & CHESTER	1 days
	MS MERSEYSIDE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 6 to 15 (units:)
 Range Selected by User: 6 to 15 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 16/06/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	3 days
Wednesday	2 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	6
Edge of Town	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	7
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This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AC-03-A-02	DETACHED		CHESHIRE WEST & CHESTER
	WHITCHURCH ROAD			
	CHESTER			
	BOUGHTON HEATH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	11		
	Survey date: TUESDAY	22/05/12	Survey Type: MANUAL	
2	MS-03-A-03	DETACHED		MERSEYSIDE
	BEMPTON ROAD			
	LIVERPOOL			
	OTTERSPOOL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	15		
	Survey date: FRIDAY	21/06/13	Survey Type: MANUAL	
3	NF-03-A-03	DETACHED HOUSES		NORFOLK
	HALING WAY			
	THETFORD			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	10		
	Survey date: WEDNESDAY	16/09/15	Survey Type: MANUAL	
4	NY-03-A-13	TERRACED HOUSES		NORTH YORKSHIRE
	CATTERICK ROAD			
	CATTERICK GARRISON			
	OLD HOSPITAL COMPOUND			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	10		
	Survey date: WEDNESDAY	10/05/17	Survey Type: MANUAL	
5	PB-03-A-03	DETACHED		PETERBOROUGH
	PETERBOROUGH			
	THORPE PARK ROAD			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	9		
	Survey date: TUESDAY	18/10/11	Survey Type: MANUAL	
6	SF-03-A-04	DETACHED & BUNGALOWS		SUFFOLK
	NORMANSTON DRIVE			
	LOWESTOFT			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	7		
	Survey date: TUESDAY	23/10/12	Survey Type: MANUAL	
7	WK-03-A-01	TERRACED / SEMI / DET.		WARWICKSHIRE
	ARLINGTON AVENUE			
	LEAMINGTON SPA			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	6		
	Survey date: FRIDAY	21/10/11	Survey Type: MANUAL	

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
HF-03-A-04	Covid
KC-03-A-09	Covid

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.76

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	10	0.221	7	10	0.632	7	10	0.853
08:00 - 09:00	7	10	0.309	7	10	0.926	7	10	1.235
09:00 - 10:00	7	10	0.206	7	10	0.397	7	10	0.603
10:00 - 11:00	7	10	0.382	7	10	0.324	7	10	0.706
11:00 - 12:00	7	10	0.353	7	10	0.382	7	10	0.735
12:00 - 13:00	7	10	0.456	7	10	0.515	7	10	0.971
13:00 - 14:00	7	10	0.353	7	10	0.485	7	10	0.838
14:00 - 15:00	7	10	0.397	7	10	0.309	7	10	0.706
15:00 - 16:00	7	10	0.647	7	10	0.368	7	10	1.015
16:00 - 17:00	7	10	0.603	7	10	0.382	7	10	0.985
17:00 - 18:00	7	10	0.559	7	10	0.235	7	10	0.794
18:00 - 19:00	7	10	0.412	7	10	0.265	7	10	0.677
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.898			5.220			10.118

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix E: -

QS701EW - Method of travel to work

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population All usual residents aged 16 to 74
 units Persons
 area type 2011 super output areas - lower layer
 area name E01025828 : Hinckley and Bosworth 013B
 rural urban Total

Method of Travel to Work	2011	%age
All categories: Method of travel to work	1,051	
Work mainly at or from home	42	6.3%
Underground, metro, light rail, tram	2	0.3%
Train	10	1.5%
Bus, minibus or coach	12	1.8%
Taxi	0	0.0%
Motorcycle, scooter or moped	2	0.3%
Driving a car or van	515	77.7%
Passenger in a car or van	34	5.1%
Bicycle	19	2.9%
On foot	26	3.9%
Other method of travel to work	1	0.2%
Not in employment	388	

Dwellings
2
Total
663

Working
 Population

TRICS PERSON RATES PEAK			
	Arr	Dep	Two-Way
AM	0.309	0.926	1.235
PM	0.559	0.235	0.794
Day	4.898	5.22	10.118

Arrive AM	Arrive PM	Day Arrive	Dep AM	Dep PM	Day Dep
1	1	10	2	0	10

0	0	1	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	1	8	1	0	8
0	0	1	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

CENSUS VEHICLE RATES PEAK			
	Arr	Dep	Two-Way
AM	0.240	0.719	0.959
PM	0.434	0.183	0.617
Day	3.805	4.055	7.859

In order to protect against disclosure of personal information, records have been swapped between different geographic areas.
 Some counts will be affected, particularly small counts at the lowest geographies.