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Civil Engineering Consultants

LUTTERWORTH ROAD, BLABY
TRANSPORT STATEMENT

NOVEMBER 2021

E3646-blaby-acc-tsreport-rev0



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BLABY

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REGISTRATION OF AMENDMENTS

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1 INTRODUCTION

- 1.1 Wormald Burrows Partnership Limited (WBPL) has been commissioned by Davidsons Developments Limited to prepare a Transport Statement for development proposals on land to the east of Lutterworth Road in Blaby, Leicestershire.
- 1.2 It is proposed that the land be developed for approximately 53 units of housing.
- 1.3 This Transport Assessment is provided in support of Davidsons Developments Limited forthcoming planning application for the above site.
- 1.4 The report assesses the existing conditions of the transportation network, both for public and private means of travel, and then assesses the impact the proposed development will have on the network. The assessment will be made in terms of sustainability and assurance of the transportation network against the effect of traffic from the site, environmental impact, and safety.
- 1.5 A proposed scoping for this report was submitted to Leicestershire County Council (LCC), who responded with comments against the proposed approach as given in the following table:

Wormald Burrows Proposed Approach	LHA Response
<p>It is proposed that the following junctions will be in the study area:</p> <p>Junction 1 Blaby Bypass/Lutterworth Road Junction 2 Lutterworth Road/Western Drive Junction 3 Access junction from Lutterworth Road</p>	<p>The LHA suggest that in addition to the proposed junctions as a minimum the Lutterworth Road/Heybrook Avenue and Lutterworth Road/Southway junctions are included within these assessments.</p> <p>The pdfs and LinSig models for all junctions should be permitted with any forthcoming application to allow the LHA to check assessments.</p> <p>The LHA reserves the right to ask for additional junctions to be modelled once the full impact of the development is known.</p>

<p>ATC surveys were undertaken on Lutterworth Road in 2019, allowing the access junction to be capacity assessed. However, traffic counts have not been undertaken on the junctions. Due to the current reduction in traffic levels caused by Covid-19, please can you tell us how you would like these junctions to be assessed.</p>	<p>Traffic counts should be no more than 3 years old when the applications are submitted. Please note the LHA is not currently issuing permits to undertake surveys due to the current Covid-19 situation. However, LCC has a large database of historic traffic count data. For further advice please contact NDI@leics.gov.uk</p>
<p>Personal injury accident data will also be obtained for the junctions and study assessed.</p>	<p>Person Injury Collision data should be assessed for a five-year period. This data can be obtained from ndi@leics.gov.uk. The applicant will need to identify any patterns/trends in the data and include scaled drawings of any mitigation schemes if required, which should be designed to LHDG standards, and subject to Stage 1 Road Safety Audit / Designers Response to the issue raised</p>
<p>It is proposed to use traffic growth rates from the TEMPRO 7.2 software package, NTM Dataset 7.2, Area definition Blaby 008 and RTF 2018 Scenario 1 Dataset.</p>	<p>To enable traffic flow scenarios to be checked, the Applicant should include full traffic survey results as well as summary diagrams and, if appropriate, PCU calculations. The LHA will need a full explanation of calculations and other committed developments that have been included. The latest version of TEMPRO should be used when the application is submitted.</p>
<p>It is proposed that junction analyses be conducted for the years as follows: 2019 - Existing counts (ATC) 2022 – Likely date of opening 2028 - 5 years from the likely date of opening</p>	<p>Approach agreed.</p>
<p>It is proposed that the trip rates determined from the TRICS7.7.3 database for developments of similar type and location is used for the assessment. These rates are as follows</p> <p>IN OUT AM 0.133 0.416 PM 0.379 0.157</p>	<p>Trip generation should be based on trip rates from the TRICS database for comparable sites. These should be provided for the LHA to review, to ensure that only appropriate comparison sites have been used. Trip distribution should be based on the most recent census data when the application is submitted</p>

<p>The distribution for these trips will be determined by the census data and the traffic counts.</p>	
<p>The Strategic Housing and Economic Land Availability Assessment shows sites in local area that could be allocated in the Local Plan. There are two sites that could affect the development.</p> <p>BLA007 Land north of Grove Road – 20 dwellings BLA032 Land at Glebe Farm – 306 dwellings</p> <p>Should these be considered as committed developments? Are there any other sites that we should consider as being committed development for this assessment?</p>	<p>The TS should cover any committed developments in the vicinity. The Applicant is advised to contact the LPA for details of any relevant applications in the area and include traffic flows and any schemes of mitigation from those applicants.</p>

- 1.6 A copy of LCC's full response, reference 2020/12681/01/HEN, is placed in **Appendix A.**

2 EXISTING CONDITIONS

2.1 Existing Site Information

- 2.1.1 Blaby is a village in the Blaby District in central Leicestershire, some five miles south of Leicester city centre.
- 2.1.2 Reference should be made to the site location and facilities plan, drawing E3646/105, placed in **Appendix B**.
- 2.1.3 The proposed site is to the east of Lutterworth Road, located approximately 350m north of the A426 Blaby Bypass and 730m south of the centre of Blaby.
- 2.1.4 To the north and east, the site is bordered by residential housing and to the south by Blaby Golf Centre; this comprising of a main course, a pitch & putt and a crazy golf course, and Blaby Business Park further to the south of the golf centre. To the west of Lutterworth Road there is more residential housing and Leicester Lions Rugby Football Club to the south.
- 2.1.5 The site is presently agricultural greenfield with hedges and trees. Public right of way Z56 passes east-west through the site from Winchester Road to Lutterworth Road.
- 2.1.6 The site is not within or near an Air Quality Management Area nor will it be subject to abnormal load uses.

2.2 Baseline Transport Data

- 2.2.1 Reference should be made to drawings E3646/105 and 106 that are provided in **Appendix B and C** respectively, which shows the road, pedestrian and cycle networks that currently serve Blaby and the surrounding area.
- 2.2.2 Drawing E3646/106, 'Walking, Cycling and Bus Route Plan' shows that the site is sustainably located in terms of access to bus facilities and pedestrian and cycle links.
- 2.2.3 **Road Network**
- 2.2.4 Lutterworth Road is a distributor road that runs from the northern part of Blaby to Lutterworth in the south, being called Leicester Road before entering Lutterworth. In the north it joins another road called Leicester Road that heads northwards



towards Leicester. Lutterworth Road joins the A426 Blaby Bypass at a roundabout to the south of the development site, where it forms the A426 continuation to Lutterworth.

- 2.2.5 Lutterworth Road is nominally 7.3m wide as it passes the site; the road being nominally 6.5m wide north of its junction with Grove Road. When it passes the site, a 2.0m wide footway exists on its eastern side and a 3.0m wide shared cycleway on its western side. The footway joins a 1.6m wide footway to the north of the site while a drop kerb for cyclists to join the carriageway exists on the western side, north of Westfield Close: the shared cycleway then joins a nominally 1.2m wide footway.
- 2.2.6 A narrowing of Lutterworth Road exists to the south of the site formed by two islands with inside cycle lane cut-throughs. A speed cushion exists within the narrowing. To the north of the narrowing the speed limit is 30mph and to the south the speed is restricted to 40mph.
- 2.2.7 Other traffic calming features exist along the road in the form of a raised table north of Heybrook Avenue and speed cushions at a crossing point complete with a refuge island north of Western Drive.
- 2.2.8 To the north of the site, numerous roads join Lutterworth Road, the most notable ones of these in terms of routes to and from the development being;
- Western Drive, a 6m to 7m wide road that links Lutterworth Road to Winchester Road,
 - Southway, a 6.5m wide road that again links to Winchester Road, and
 - Heybrook Avenue, a 5.5m wide road that links Lutterworth Road to Grove Road, Grove Road running between Lutterworth Road and the Blaby Bypass.
- 2.2.9 Lutterworth Road joins the A426 Blaby Bypass at a four arm roundabout, with Wychwood Road being the fourth arm and joining the roundabout from the west. The speed limit at the roundabout is 30mph.
- 2.2.10 The A426 Blaby Bypass is a dual carriageway road that runs from Leicester Road to the north of Blaby to Lutterworth Road. It has two lanes in each direction, each carriageway being 8.0m wide and its speed is restricted to 50mph.

2.2.11 Lutterworth Road continues southwards from the roundabout as the A426, being dual carriageway for approximately 200m before reverting to a 7.3m wide single carriageway road. Its speed limit south of the roundabout is 50mph.

2.2.12 Walking Network

2.2.13 The Road Network section above identifies the local road network. These roads are all served with footways of varying width on either side of them that provide pedestrian links right across Blaby and even to nearby areas and villages such as Whetstone, Littlethorpe, Narborough, Countesthorpe and Aylestone.

2.2.14 There are also a number of Public Rights of Ways in the vicinity of the proposed development site and these are indicated on drawing E3646/106 'Walking, Cycling and Bus Route Plan' in **Appendix C**. The most notable for the development is Footpath Z56, which runs east-west through the site, starting from Winchester Road in the east, joining Lutterworth Road before continuing westwards along Westfield Close to west of the A426 Bypass. An uncontrolled crossing of the Bypass exists in line with the right of way. Footpath Z67 joins Z56 to the east of the site and joins Winchester Road further to the east.

2.2.15 A dropped kerb crossing that includes a pedestrian refuge island exists on Lutterworth Road north of its junction with Western Drive.

2.2.16 Uncontrolled crossings of the A426 Bypass, in addition to the crossing for Footpath Z56, exist just north of its roundabout junction with Lutterworth Road and just north of its roundabout junction with Grove Road, providing another pedestrian route to the west of the Bypass.

2.2.17 Cycle Network

2.2.18 The local road network caters for the majority of cycle trips. However, cycle facilities also exist to aid less confident cyclists, including National Cycle Route 6, a section of this running along Winchester Road.

2.2.19 A shared 3.0m wide cycle/footway and has recently been constructed on the western side of Lutterworth Road from just south of the Leicester Lions RFC to north of Westfield Close.

2.2.20 Footpath Z67, which is shown as a cycle route on LCC's 'Choose How You Move' site, links to Winchester Road where a shared foot/cycleway exists along its

eastern side. This shared cycleway forms an off-road section of National Cycle Route 6, a route that runs in sections from London to the Lake District.

2.2.21 To the south of Blaby, the shared cycleway changes to the western side of Winchester Road. Route 6 follows this cycleway to Countesthorpe. South of Countesthorpe, Route 6 heads east to Market Harborough. It also joins National Cycle Route 50 which heads southwards.

2.2.22 To the north of a Winchester Road service road, which joins the main Winchester Road to the south of Southway, National Cycle Route 6 becomes on-road for a section before being off-road again. The off-road section takes the route right to the centre of Leicester, connecting to numerous other routes and cycle facilities that Leicester has to offer.

2.2.23 Public Transport Services

2.2.24 The nearest bus stops to the development servicing the frequent services of Route 85 are located to the north along Southway. The closest stops are an approximate 580 metres walking distance from the centre of the proposed development using Footpath Z56 and roads Show Avenue and Wareham Road, or an approximate 630 metres walking distance from the centre of the proposed development via Lutterworth Road.

2.2.25 Each of the six stops along Southway have raised bus kerbs. Shelters are also provided at the westbound stop by Ripon Drive and the eastbound stop by Dundee Road.

2.2.26 Infrequent bus route X45 runs along Lutterworth Road.

2.2.27 Table 2A details the bus services that currently serve Blaby.

Table 2A. Blaby Bus Services

Service	Operator(s)	Route	Frequency		
			Monday – Saturday Daytime	Monday – Saturday Evenings	Sunday and Bank holidays
84	Arriva	BLABY - Leicester	20 mins	hourly	2 hourly
84	Arriva	BLABY – Whetstone – Cosby – Broughton Astley – Dunton	Cosby 20 mins Lutterworth hourly	hourly	2 hourly

Service	Operator(s)	Route	Frequency		
			Monday – Saturday Daytime	Monday – Saturday Evenings	Sunday and Bank holidays
		Bassett - Lutterworth			
85	Arriva	BLABY – Leicester	20 mins	hourly	2 hourly
85	Arriva	BLABY – Countesthorpe – South Wigston	20 mins	hourly	2 hourly
X45	Arriva	Thurmaston – Leicester City Centre- BLABY – Lutterworth – Magna Park	Infrequent (Monday-Friday only)	Infrequent (Monday-Friday only)	No service

2.2.28 The services and the stops are shown in drawing E3646/106 'Walking, Cycling and Bus Route Plan' in **Appendix C**. 'Blaby Bus Area guide', March 2021 from LCC's 'Choose how you move' site is also contained in **Appendix C**.

2.2.29 Rail Links

2.2.30 The nearest railway stations to the development site are Narborough, this station being able to be reached by cycle or a 40 minute walk and South Wigston. South Wigston Station can be reached by using Bus Service 85.

2.2.31 Narborough Station has covered cycle stands, a car park and a degree of step-free access to the platforms. South Wigston Station is step free but does not have cycle stands or a car park.

2.2.32 Bus service 85 also runs to the centre of Leicester where Leicester Railway Station can be reached by a short walk or cycle.

2.2.33 Leicester Station is mainly served by East Midlands Railway (EMR), with CrossCountry trains operating only on the route from Birmingham to Stansted Airport.

2.2.34 Hourly EMR services connect Leicester to Nottingham, London St Pancras, Lincoln, and Sheffield throughout the day, while CrossCountry trains run between Leicester and Cambridge, Birmingham, and Stansted Airport.

2.3 Local Facilities

- 2.3.1 A recent 'Statistical Release' document published by the Department for Transport (DfT) on 5th August 2020 titled 'National Travel Survey: England 2019' states that in 2019, before the effects of the COVID-19 pandemic on travelling behaviour, 26% of trips were made by walking that covered 3% of the distance travelled. Cycling accounted for 2% of trips and 1% of the distance travelled. The average time of a walking trip was 17 minutes and of a cycling trip 23 minutes.
- 2.3.2 The National Travel Survey table, 'Average number of trips by trip length and main mode: England, from 2002 [NTS0308a]' determines that in 2019, 82% of these trips under 1.0 mile (1.6 kilometres) were made by foot.
- 2.3.3 The following list details the main attracting facilities within a 1.0-mile walking distance of the development site:

Blaby Business Park, a 450m walking distance.

The Whittle Estate industrial area, Whetstone, a 1300m walking distance.

The Co-operative Food store, Whetstone, a 1000m walking distance.

The Co-operative Food store, Blaby, an 875 walking distance.

Lutterworth Road retail area including Aldi and Iceland superstores, a 1400m walking distance.

Hazelmere Medical Centre, a 1040m walking distance.

Blaby Dental, a 1125m walking distance.

Badgerbrook Primary School, Whetstone, a 1250m walking distance,

Blaby Stokes C of E Primary School, a 1350m walking distance.

Thirsty Meadow Community Primary, a 1350m walking distance.

Countesthorpe Academy secondary school, a 1400m walking distance.

2.4 Personal Injury Accident Records

- 2.4.1 Non-confidential Personal Injury Accident Data for the local study area, that covers the five year period from 1 January 2015 to 25 October 2020, has been supplied by LCC. A copy of the accident location plot is placed in **Appendix D**, along with the listed accident details and summary tables covering the local road network.



- 2.4.2 An inspection of the records shows that in the past five years, four personal injury accidents occurred in this period, none being fatal, one being serious with the others being recorded as slight.
- 2.4.3 Each of these four accidents occurred on different roads and involved different manoeuvres. Therefore, no common cause to the accidents is apparent in the data.

2.5 Committed Development

- 2.5.1 Blaby District Council was contacted for a list of developments that would be considered committed for this assessment. However, they were unable to supply a list, apologising that they do not currently have capacity to offer a pre-application advice service.
- 2.5.2 The Blaby District Strategic Housing and Economic Land Availability Assessment was therefore consulted. This lists sites in local area that could be allocated in the local plan. There are two sites that could affect the development, these being:
- BLA007 Land north of Grove Road – 20 dwellings.
- BLA032 Land at Glebe Farm – 306 dwellings.
- 2.5.3 The impact of traffic generated by other developments in Blaby that are remote from the Lutterworth Road development will be allowed for in the traffic impact analysis by the use of background traffic growth factors produced by TEMPRO. These have been determined later in this report.

3 PROPOSED DEVELOPMENT

3.1 Introduction

- 3.1.1 A site layout proposal for the residential development on land to the east of Lutterworth Road in Blaby has been produced by Nineteen47. A copy of the proposal drawing n1063 007 A is placed in **Appendix E**.

3.2 Housing

- 3.2.1 Approximately 53 units of housing are proposed for the site. The composition of the housing is likely be a mixture of one-bedroom maisonettes and two to five bedroom homes.
- 3.2.2 The site extends to approximately 6.2 hectares.

3.3 Site Access

- 3.3.1 Reference should be made to the 'Means of Access' drawing E3646/700 placed in **Appendix E**.
- 3.3.2 The proposed site will take vehicular access from Lutterworth Road. The residential access road will have a carriageway width of 5.5m with 2.0m wide footways along either side, as required for residential developments over of over 50 dwellings. It joins Lutterworth Road at a simple priority T-junction.

3.4 Pedestrian Access

- 3.4.1 Pedestrian access will be via the site access road in the west of the site, a pedestrian link to Lutterworth Road in the north-western corner of the site and from a pedestrian access in the east of the site. These last two access points are on the line of Footpath Z56 and allows it to continue to transverse the site.

3.5 Internal Road Layout

- 3.5.1 The access road extends into the site before a left hand bend and then a right hand bend before reaching the eastern end of the site. Two minor access roads with an overall corridor width of 7.5m are proposed to join the main access road.
- 3.5.2 Private drives to the dwellings join the minor access roads, these being shared use in nature.

- 3.5.3 Footpath Z56 is proposed to run from the north-western corner to the southern boundary of the site after crossing the access road and then to the south-western corner. A path will also link Footpath Z56 to the end of the access road.

3.6 Development Parking

- 3.6.1 Vehicle car parking and cycle parking and storage will be provided to LCC's Highway Design Guide Part 3 'Design Guidance' and the requirements of Blaby District Council.

3.7 Trip Rates

- 3.7.1 The number of vehicle trips generated by a housing development is influenced by a variety of factors, the main one being the location of the site and its relation to local facilities such as schools, retail, employment and leisure facilities. The housing mix and the transportation network are also important. Therefore, the generation of vehicle trips can be highly localised and specific to certain developments.
- 3.7.2 To determine the vehicular trip rates for the proposed development, the TRICS 7.7.3 database was used. This is in accordance with the requirements specified by LCC during the scoping exercise. Surveys that represent similar development and locations to the site were carefully selected from the database. The resulting trip rate calculation sheet has been placed in **Appendix H** and the peak hour rates given in Table 3A.

Table 3A. Residential Dwellings Peak Hour Trip Rates

	Arrivals	Departures	Total
AM Peak Hour	0.133	0.416	0.549
PM Peak Hour	0.379	0.157	0.536

- 3.7.1 For 53 units of housing, the predicted vehicular trip rates produce the following number of vehicular trips for the morning and evening peak hours, as shown in the table below:

Table 3B. Residential Dwellings Peak Hour Vehicle Trips

	Arrivals	Departures	Total
AM Peak Hour	7	22	29
PM Peak Hour	20	8	28

3.7.2 Committed Development

3.7.3 For the 20 dwellings proposed of the committed development BLA007 Land north of Grove Road, the predicted vehicular trip rates produce the following number of vehicular trips for the morning and evening peak hours as shown in the table below:

Table 3C. Residential Dwellings Peak Hour Vehicle Trips

	Arrivals	Departures	Total
AM Peak Hour	3	8	11
PM Peak Hour	8	3	11

3.7.4 For the 306 dwellings proposed of the committed development BLA032 Land at Glebe Farm, the predicted vehicular trip rates produce the following number of vehicular trips for the morning and evening peak hours as shown in the table below:

Table 3D. Residential Dwellings Peak Hour Vehicle Trips

	Arrivals	Departures	Total
AM Peak Hour	41	127	168
PM Peak Hour	116	48	164

3.8 Trip Distribution

3.8.1 In order to determine the distribution and assignment of vehicular trips generated by the proposed development, a review was undertaken of the 2011 Census data for Blaby E41000161 for 'WU03UK - Location of usual residence and place of work by method of travel to work'.

3.8.2 Table 3E below details the place of work (if generating more than 100 vehicular trips) for the usual place of residence as Blaby for the 'driving a car or van' method of travel to work:

Table 3E: Location of Usual Place of Residence and Place of Work for the 'Driving a Car or Van' Method of Travel to Work for Blaby from 2011 Census Data

Usual Place of Work	Driving a Car or Van	Percentage of total
Leicester	13,849	34.7
Blaby	12,068	30.2
Harborough	2,439	6.1

Usual Place of Work	Driving a Car or Van	Percentage of total
Hinckley and Bosworth	2,310	36.7
Oadby and Wigston	2,131	32.0
Charnwood	1,400	6.5
North West Leicestershire	747	6.1
Coventry	552	5.6
L Rugby	410	3.7
Birmingham	284	2.0
Nuneaton and Bedworth	243	1.5
Nottingham	226	1.1
Northampton	209	0.8
Daventry	192	0.6
Warwick	180	0.6
Melton	146	0.6
Rutland	123	0.5
Derby	119	0.5
Solihull	101	0.4
Total	13,517	100%

3.8.3 To calculate the trip distribution, these percentages were then assigned to the most likely routes from the development that drivers would take to reach the listed destinations determined from traffic counts and the recommended routes given by the route planner in Google Maps. The resulting distribution spreadsheet is given in **Appendix H**.

3.8.4 The predicted trip generation by the development was then assigned to this distribution. It is assumed that the traffic distribution in the evening peak is a reverse of the distribution in the morning peak. Drawing E3828/802, which is provided in **Appendix H**, details the resulting trip assignment.

3.8.5 Committed Development

- 3.8.6 The trips that will be generated by the committed development have been distributed in the same way as Lutterworth Road development trips. This distribution has been placed in drawings E3646/803 and 804 for the Land north of Grove Road and Land at Glebe Farm respectively, these drawing being placed in **Appendix I**.

4 TRAFFIC IMPACT

4.1 Introduction

- 4.1.1 The junctions adjacent to the site were analysed to ascertain the impact of the new development upon the surrounding road network.

4.2 Traffic Surveys

- 4.2.1 The existing vehicular traffic flows were surveyed by a classified traffic count on Wednesday 5th May 2021 at four locations:

Junction 1 A426 Blaby Bypass/Lutterworth Road/Wychwood Road Roundabout

Junction 2 Lutterworth Road/Heybrook Avenue

Junction 3 Lutterworth Road/Southway

Junction 4 Lutterworth Road/Western Drive

- 4.2.2 Automatic traffic counts for one week were also taken along Lutterworth Road. The traffic count data are supplied in **Appendix F**.

- 4.2.3 Summaries of the classified traffic count surveys are shown on drawings E3646/800 for the AM and PM peak hour flows. These drawings are provided in **Appendix G**.

- 4.2.4 The survey was undertaken under a licence from LCC Network Data & Intelligence. Due to the effects of COVID-19 pandemic restrictions at the time of the survey, an indexed uplift table was supplied by LCC to provide factors to increase the surveyed flows to the volumes that LCC would normally expect on the network. This table is supplied in **Appendix F** and the uplifted traffic flows are shown in drawing E3646/801 in **Appendix G**.

4.2.5 Peak Hours

- 4.2.6 The traffic counts indicate that the network morning peak hour occurs between 07:45 and 08:45 and the evening peak hour between 17:00 and 18:00. These hours will therefore be used in the analysis.

- 4.2.7 For the morning peak, the highest trip rates determined by TRICS occur between 08:00 and 09:00. These will be applied to the surveyed traffic flows of between 07:45 and 08:45 for robustness.



4.3 Lutterworth Road

- 4.3.1 Inspection of the traffic count information at the site access junction indicates maximum two-way flows after applying the COVID-19 uplift factor of 618 vehicles in the AM peak, and 700 vehicles in the PM peak, on Lutterworth Road.
- 4.3.2 To put the above flows into perspective, TA 79/99 “Traffic Capacity of Urban Roads” gives an indication of flow capacities for different road categories. Based upon Tables 1 and 2 of that document, the following general capacities are generated:

	One Way 60%	One Way 40%	Total Two Way Flow
Single c/w width 6.1m	900	600	1500
Single c/w width 6.75m	1110	740	1850
Single c/w width 7.3m	1300	867	2167
Dual 7.3 c/w	3600	3600	7200

- 4.3.3 From the above information, current flows on Lutterworth Road, which is nominally 7.3 metres wide, lie substantially within its road type environmental capacity.

4.4 Assessment Years and Traffic Growth

- 4.4.1 It is anticipated that building works will start on site in 2022, therefore 2023 has been chosen as the base year and 2028 selected as the horizon assessment year.
- 4.4.2 To project traffic volumes at these junctions for 2022 and 2028, traffic growth factors were determined using the Road Traffic Forecast 2018 forecasts in conjunction with the TEMPRO version 7.2b computer software package, developed by the Department for Transport.
- 4.4.3 The alternative assumptions tool was used to avoid double counting of the trips generated by the proposed housing considered as committed development in this report. This resulted in the number of households provided in TEMPRO for both 2023 and 2028 being the same as in 2021.
- 4.4.4 The resulting growth factors for the surrounding road network, based on the growth expected in Blaby, are detailed in the table below:

Table 4A: Traffic Growth Factors

Period	Growth
2021 to 2023 AM	0.9884
2021 to 2023 PM	0.9868
2021 to 2028 AM	0.9843
2021 to 2028 PM	0.9847

4.5 Traffic Impact

4.5.1 The TRL software package Junctions 9 was used to model the junctions to determine their capacity in relation to the proposed development using flows converted to passenger car units (pcu) and 'one hour' traffic flow profiles. Growth factors were then applied to the existing flows to growth them to 2023 and 2028. The resulting flows were used in conjunction with the proposed development flows and committed development flows to determine future demand on the junctions.

4.5.2 As such, the AM and PM peak hours of each junction were assessed for the following scenarios:

2023 Base Year: the 2021 surveyed flows with the uplift factor applied, growthed to 2023.

2023 Post Development: the 2021 surveyed flows with the uplift factor applied, traffic growthed to 2023, plus the site development flows plus committed development flows.

2028 Pre-Development: 2021 surveyed flows with the uplift factor applied growthed to 2028.

2028 Post Development: 2021 surveyed flows with the uplift factor applied, growthed to 2028, plus the site development flows plus committed development flows.

4.5.3 The resulting forecasted flows are shown in drawings E3646/805, 806, 807, 808, 809 and 810, which are provided in **Appendix J**.

4.5.4 Junction 1: A426 Blaby Bypass/Lutterworth Road/Wychwood Road Roundabout

4.5.5 Junction 1 Blaby Bypass Roundabout was modelled for the scenarios listed in paragraph 4.4.2 above using the ARCADY Module of Junctions 9. The full results have been placed in **Appendix K** and a summary of the results of the AM and PM peak hour analysis is shown in Table 4C below:

Table 4C: Junctions 9 Results Summary Table

Summary Results								
Show Columns								
	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
2021-Surveyed								
Arm 1	D1	0.4	2.33	0.28	D2	0.4	2.23	0.27
Arm 2		0.5	5.58	0.33		0.6	5.57	0.36
Arm 3		0.3	1.84	0.24		0.4	1.93	0.26
Arm 4		0.3	3.32	0.25		0.3	3.20	0.22
2021-Uplifted								
Arm 1	D3	0.5	2.47	0.31	D4	0.5	2.42	0.31
Arm 2		0.6	6.22	0.38		0.8	6.70	0.44
Arm 3		0.4	1.91	0.26		0.4	2.08	0.30
Arm 4		0.4	3.55	0.28		0.3	3.53	0.26
2023-Growthed								
Arm 1	D5	0.4	2.45	0.30	D6	0.4	2.40	0.31
Arm 2		0.6	6.13	0.37		0.8	6.54	0.43
Arm 3		0.4	1.90	0.26		0.4	2.06	0.30
Arm 4		0.4	3.51	0.27		0.3	3.49	0.25
2023-Growthed+Comm Dev								
Arm 1	D7	0.5	2.55	0.31	D8	0.5	2.43	0.31
Arm 2		0.7	6.41	0.39		1.0	7.33	0.49
Arm 3		0.4	2.02	0.30		0.5	2.11	0.32
Arm 4		0.4	3.80	0.29		0.4	3.59	0.26
2023-Growthed+Comm Dev+DH								
Arm 1	D9	0.5	2.56	0.32	D10	0.5	2.54	0.34
Arm 2		0.7	6.59	0.41		1.0	7.83	0.51
Arm 3		0.5	2.03	0.30		0.5	2.12	0.32
Arm 4		0.4	3.83	0.30		0.4	3.60	0.26

2028-Growthed								
Arm 1	D11	0.4	2.44	0.30	D12	0.4	2.40	0.31
Arm 2		0.6	6.09	0.37		0.8	6.54	0.43
Arm 3		0.4	1.90	0.26		0.4	2.06	0.30
Arm 4		0.4	3.51	0.27		0.3	3.49	0.25
2028-Growthed+Comm Dev								
Arm 1	D13	0.5	2.55	0.31	D14	0.5	2.52	0.33
Arm 2		0.6	6.38	0.39		1.0	7.75	0.50
Arm 3		0.4	2.02	0.30		0.5	2.11	0.31
Arm 4		0.4	3.79	0.29		0.4	3.59	0.26
2028-Growthed+Comm Dev+DH								
Arm 1	D15	0.5	2.55	0.31	D16	0.5	2.54	0.34
Arm 2		0.7	6.55	0.41		1.0	7.82	0.51
Arm 3		0.4	2.03	0.30		0.5	2.12	0.32
Arm 4		0.4	3.82	0.30		0.4	3.60	0.26

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Note: RFC is the ratio of demand flow to capacity (maximum flow rate of traffic) on an arm of a junction.

4.5.6 The results determine that the access junction has sufficient capacity in 2028 for the expected demand on it from the Lutterworth Road residential development.

4.5.7 Junction 2: Lutterworth Road/Heybrook Avenue

4.5.8 Junction 2 was modelled for the scenarios listed in paragraph 4.4.2 above using the PICADY module of Junctions 9. The full results have been placed in **Appendix K** and a summary of the results of the AM and PM peak hour analysis is shown in Table 4D below:

Table 4D: Junctions 9 Results Summary Table

Summary Results

Show Columns

	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
2021-Surveyed								
Stream B-AC	D1	0.3	8.23	0.21	D2	0.4	9.68	0.29
Stream C-AB		0.6	6.09	0.29		0.5	6.03	0.28
2021-Uplifted								
Stream B-AC	D3	0.3	8.60	0.23	D4	0.5	10.84	0.35
Stream C-AB		0.7	6.34	0.33		0.7	6.42	0.33
2023-Growthed								
Stream B-AC	D5	0.3	8.56	0.23	D6	0.5	10.63	0.34
Stream C-AB		0.7	6.30	0.32		0.7	6.36	0.33
2023-Growthed+Comm Dev								
Stream B-AC	D7	0.3	8.87	0.23	D8	0.5	10.88	0.35
Stream C-AB		0.7	6.43	0.33		0.8	6.29	0.34
2023-Growthed+Comm Dev+DH								
Stream B-AC	D9	0.3	8.92	0.24	D10	0.5	10.93	0.35
Stream C-AB		0.7	6.45	0.34		0.8	6.28	0.35
2028-Growthed								
Stream B-AC	D11	0.3	8.53	0.23	D12	0.5	10.60	0.34
Stream C-AB		0.7	6.28	0.32		0.7	6.35	0.33
2028-Growthed+Comm Dev								
Stream B-AC	D13	0.3	8.84	0.23	D14	0.5	10.85	0.35
Stream C-AB		0.7	6.42	0.33		0.8	6.27	0.34
2028-Growthed+Comm Dev+DH								
Stream B-AC	D15	0.3	8.90	0.23	D16	0.5	10.89	0.35
Stream C-AB		0.7	6.43	0.33		0.8	6.26	0.34

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Note: RFC is the ratio of demand flow to capacity (maximum flow rate of traffic) on an arm of a junction.

4.5.9 The results in the tables above show that the Heybrook Avenue junction with Lutterworth Road will have ample spare capacity in 2028 after the development is completed.

4.5.10 Junction 3: A606 Lutterworth Road/Southway

4.5.11 Junction 3 was modelled for the scenarios listed in paragraph 4.4.2 above using PICADY. The full results have been placed in **Appendix K** and a summary of the results of the AM and PM peak hour analysis is shown in Table 4E below:



Table 4E: Junctions 9 Results Summary Table

Summary Results								
Show Columns								
	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
2021-Surveyed								
Stream B-AC	D1	1.0	14.02	0.49	D2	0.7	13.43	0.42
Stream C-AB		0.2	5.00	0.12		0.6	6.51	0.30
2021-Uplifted								
Stream B-AC	D3	1.2	16.06	0.54	D4	1.0	16.38	0.50
Stream C-AB		0.2	5.03	0.14		0.8	7.05	0.37
2023-Growthed								
Stream B-AC	D5	1.1	15.69	0.53	D6	1.0	16.15	0.49
Stream C-AB		0.2	5.02	0.13		0.8	6.99	0.36
2023-Growthed+Comm Dev								
Stream B-AC	D7	1.2	16.37	0.55	D8	1.1	17.53	0.52
Stream C-AB		0.3	4.90	0.15		0.9	7.23	0.38
2023-Growthed+Comm Dev+DH								
Stream B-AC	D9	1.2	16.55	0.55	D10	1.1	17.81	0.53
Stream C-AB		0.3	4.89	0.15		0.9	7.27	0.39
2028-Growthed								
Stream B-AC	D11	1.1	15.65	0.53	D12	1.0	15.98	0.49
Stream C-AB		0.2	5.02	0.13		0.8	6.99	0.36
2028-Growthed+Comm Dev								
Stream B-AC	D13	1.2	16.34	0.55	D14	1.1	17.33	0.52
Stream C-AB		0.3	4.90	0.15		0.9	7.22	0.38
2028-Growthed+Comm Dev+DH								
Stream B-AC	D15	1.2	16.51	0.55	D16	1.1	17.59	0.52
Stream C-AB		0.3	4.90	0.15		0.9	7.27	0.39

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Note: RFC is the ratio of demand flow to capacity (maximum flow rate of traffic) on an arm of a junction.

- 4.5.1 The results in the tables above show that the Southway junction with Lutterworth Road will still have ample spare capacity in 2028 after the development is completed.
- 4.5.2 **Junction 4: A606 Lutterworth Road/Western Drive**
- 4.5.3 Junction 4 was modelled for the scenarios listed in paragraph 4.4.2 above using PICADY. The full results have been placed in **Appendix K** and a summary of the results of the AM and PM peak hour analysis is shown in Table 4F below:



Table 4F: Junctions 9 Results Summary Table

	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
2021-Survey								
Stream B-C	D1	0.8	14.70	0.43	D2	0.9	16.54	0.49
Stream B-A		1.1	23.79	0.54		1.2	25.44	0.55
Stream C-AB		0.3	6.98	0.25		0.3	6.79	0.20
2021-Uplifted								
Stream B-C	D3	1.1	19.50	0.53	D4	2.1	32.88	0.69
Stream B-A		1.7	31.79	0.63		2.5	48.64	0.74
Stream C-AB		0.4	7.33	0.27		0.3	7.30	0.24
2023-Growthed								
Stream B-C	D5	1.0	18.46	0.51	D6	1.9	29.44	0.66
Stream B-A		1.6	30.12	0.61		2.3	44.14	0.71
Stream C-AB		0.4	7.28	0.27		0.3	7.24	0.24
2023-Growthed+Comm Dev								
Stream B-C	D7	1.2	20.92	0.55	D8	3.4	50.68	0.80
Stream B-A		1.8	35.23	0.65		3.6	69.85	0.82
Stream C-AB		0.5	7.76	0.31		0.3	7.48	0.25
2023-Growthed+Comm Dev+DH								
Stream B-C	D9	1.2	21.51	0.56	D10	3.9	56.17	0.83
Stream B-A		1.9	36.31	0.66		3.9	75.90	0.83
Stream C-AB		0.5	7.82	0.32		0.3	7.51	0.26
2028-Growthed								
Stream B-C	D11	1.0	18.38	0.51	D12	1.8	28.92	0.66
Stream B-A		1.5	29.95	0.61		2.2	43.42	0.71
Stream C-AB		0.4	7.26	0.27		0.3	7.22	0.24
2028-Growthed+Comm Dev								
Stream B-C	D13	1.2	20.81	0.55	D14	3.3	49.06	0.79
Stream B-A		1.8	35.00	0.65		3.5	68.01	0.81
Stream C-AB		0.5	7.73	0.31		0.3	7.46	0.25
2028-Growthed+Comm Dev+DH								
Stream B-C	D15	1.2	21.38	0.56	D16	3.7	54.21	0.82
Stream B-A		1.8	36.06	0.66		3.8	73.75	0.83
Stream C-AB		0.5	7.79	0.32		0.3	7.49	0.25

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Note: RFC is the ratio of demand flow to capacity (maximum flow rate of traffic) on an arm of a junction.

- 4.5.4 The results in the tables above show that in 2028 when the development is completed, the Lutterworth Road junction with Western Drive will still have sufficient capacity.

4.5.5 Access Junction with Lutterworth Road

4.5.6 The access junction was modelled for the post development years above using PICADY. The full results have been placed in **Appendix K** and a summary of the results of the AM and PM peak hour analysis is shown in Table 4G below:

Table 4G: Junctions 9 Results Summary Table

Summary Results								
Show Columns								
	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
2023-Post Development								
Stream B-AC	D1	0.1	8.43	0.05	D2	0.0	9.17	0.02
Stream C-AB		0.0	4.38	0.01		0.0	4.54	0.03
2028-Post Development								
Stream B-AC	D3	0.1	8.42	0.05	D4	0.0	9.16	0.02
Stream C-AB		0.0	4.38	0.01		0.0	4.55	0.03

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Note: RFC is the ratio of demand flow to capacity (maximum flow rate of traffic) on an arm of a junction.

4.5.7 The results in the tables above show that the access junction when the development is completed will have ample spare capacity.

4.5.8 Mitigation

4.5.9 The junction and road analyses above have determined that no off-site mitigation works are required to accommodate the addition trips on the network that will be generated by the Lutterworth Road development.

5 CONCLUSIONS

- 5.1 Davidsons Developments Limited is proposing a residential development on land to the east of Lutterworth Road in Blaby, comprising of 53 units of housing.
- 5.2 Vehicular access to the site will be via a junction with Lutterworth Road. Footways on either side of the junction will provide pedestrian access to the site, along with links to the public right of way Z56 that runs through the development site. Cycle access is gained via the carriageway of the access or using footpath Z67 to reach Winchester Road and National Cycle Route 6 that runs along it.
- 5.3 The site is very sustainably located with access to bus services on Southway, cycle routes and cycleways along Lutterworth Road and Winchester Road, and with many local amenities within walking distance for an able body person.
- 5.4 No improvements to off-site junctions are required, as they all have sufficient spare capacity to accommodate additional traffic generated by the development.
- 5.5 In conclusion, the proposed development of the site to provide 53 units of housing is easily accommodated in terms of its sustainable location, availability of non-car modes of transport and closeness of facilities. The housing is also accommodated in terms of the traffic capacity of the proposed access arrangements and the existing road junctions.



APPENDICES

