



Bloor Homes

**Residential Development
Long Lawford Phase 4**

Transport Assessment

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 Travis Baker are appointed by Bloor Homes to advise on the highways and transport issues affecting a proposed residential development known as Long Lawford Phase 4, on land to the south and west of Back Lane and to the north of Coventry Road, Long Lawford. The site is located at the southern outskirts of the village and would form a further extension of residential development that is currently being constructed by Bloor Homes (Long Lawford Phase 3).
- 1.1.2 The site has a total area of approximately 6.8 hectares and is currently in use as open arable land. **Figure 1** shows the location of the site in its wider context and **Figure 2** shows the site boundary and local highway network in more detail.
- 1.1.3 Rugby Borough Council (RBC) is the local planning authority for the area surrounding and including the site. The local highway authority is Warwickshire County Council (WCC).
- 1.1.4 This Transport Assessment (TA) has been prepared to support a detailed planning application for a development of 153 new residential dwellings, associated access roads and ancillary infrastructure. 25% of the total development would be allocated as affordable housing and would be available as rented or as shared ownership properties. The development layout plan is included in **Appendix A**.

1.2 Scope

- 1.2.1 This report presents the TA undertaken in respect of the above proposals. It is structured as follows:
- Relevant national and local planning and transport policies are reviewed.
 - The site and surrounding transport network are described.
 - Opportunities for access to the site by sustainable travel modes are considered.
 - The proposed development scheme and access arrangements are described.
 - The volume and distribution of development-generated trips are estimated.
 - Appropriate scheme assessment years are identified and forecast traffic flows estimated.
 - Development traffic impacts are assessed.
 - Highway capacity assessments are presented.
 - The highway and transport schemes required to support the development are confirmed.
 - Conclusions are presented.
- 1.2.2 The TA has been undertaken with due regard to national and local guidance on the preparation of Transport Assessments and advice contained within the "Manual for Streets" and WCC's published guidance. Relevant national and local transport and planning policies have also been considered.
- 1.2.3 A Residential Travel Plan (RTP) is to be provided for separate approval prior to occupation of the scheme and would be implemented as the development is occupied.

- 1.2.4 Pre-Application discussions have need held with WCC, who have advised that the development's traffic effects should also be assessed using the Rugby Wide Area (RWA) S-Paramics model. The scope of these additional assessments will be agreed separately with WCC and reported a supplementary TA in due course. A copy of the relevant pre-application correspondence with WCC is included in **Appendix B**.
- 1.2.5 The report concludes that:
- Satisfactorily vehicular access to the site can be achieved.
 - The proposed development would be accessible by a range of sustainable travel modes and would be within walking distance of a wide range of local facilities, subject to connections with the existing walking and cycling networks as proposed.
 - The impact of the proposed developments on the operation of the local highway network in the vicinity of the site would not be significant, subject to implementation of the access and mitigation strategy proposed in this report.
- 1.2.6 It is therefore concluded that the proposed development could be satisfactorily accommodated on the transport network and would comply with all relevant local planning and transport policies. On this basis, there are no transport-related issues that would prevent the granting of planning permission for the scheme as proposed

2.0 POLICY AND PLANNING BACKGROUND

2.1 Overview

2.1.1 It is considered that the most significant transport-related policies of relevance to the proposal are contained within the following documents:

- The National Planning Policy Framework (NPPF).
- The Rugby Borough Council Core Strategy (2011).
- The emerging Rugby Local Plan 2011-2036.
- The Warwickshire Local Transport Plan 3, 2011-2026 (LTP3).

2.1.2 The policy framework relevant to this TA, as set out in the above documents, is reviewed below. In addition to these policy documents, the following technical guidance documents have also been consulted during the preparation of this TA:

- Manual for Streets (DfT, 2007) and Manual for Streets 2 (CIHT, 2010).
- Relevant Local Transport Notes (LTNs).
- The DfT's Design Manual for Roads and Bridges (DMRB).

2.2 Planning Status

2.2.1 It is understood that the site has not been subject to any previous planning applications of significance.

2.3 The National Planning Policy Framework

2.3.1 The NPPF sets out the Government's policies for delivering sustainable development through the planning system. Local authorities are required to take these policies into account when formulating local development plans. They are also a material consideration when determining planning applications.

2.3.2 The NPPF's over-arching policy theme is that there is a presumption in favour of sustainable development. Local authorities are required to determine planning applications favourably where they accord with the local development plan. Where there is no current development plan policy in place, applications should be approved unless any adverse impacts that they are likely to cause would "*significantly and demonstrably outweigh the benefits*" when assessed against the NPPF as a whole.

2.3.3 In the context of transport, the NPPF guides decision makers to apply the following key principles, as shown overleaf:

- Encourage development that balances the transport system in favour of sustainable modes, recognising that policies and measures required will vary according to location.
- Encourage solutions that support reductions in greenhouse gas emissions and congestion.

- Provide strategies for the provision of viable infrastructure as required to support sustainable development, working with neighbouring authorities where necessary.

2.3.4 The NPPF states that all developments generating significant movement should be supported by a Transport Assessment or a Transport Statement. Schemes generating significant movements should also be accompanied by a Travel Plan. Plans and decisions should then take account of whether:

- Opportunities for sustainable transport have been taken up as a means of reducing infrastructure requirements.
- Safe and sustainable access can be provided for all.
- Improvements can be undertaken within the transport network that cost-effectively limit the significant impacts of the scheme.

2.3.5 The NPPF states clearly that development should only be refused or prevented where the residual cumulative impacts of the scheme are severe.

2.3.6 As in previous national guidance, there is a requirement to ensure that development generating significant movements is located where it can be accessed by sustainable travel modes. Priority should be given to walking, cycling and public transport, with conflicts between vehicles and vulnerable road users being minimised through effective layout design.

2.4 Rugby Borough Council Core Strategy (2011)

2.4.1 The Core Strategy, adopted in June 2011, provides the Council's planning policy framework and outlines the spatial vision for future development in the borough over the period 2006-2026. It aims to deliver sustainable development in the Borough whilst meeting the needs of the local communities and incorporates the saved policies from the Local Plan 2006.

2.4.2 Those Core Strategy policies that have the greatest significance to this proposed development and TA are outlined below.

2.4.3 **Policy CS1 Development Strategy.** This policy states that the location and scale of development must comply with the settlement hierarchy and that it must be demonstrated that the most sustainable locations are considered ahead of those further down the hierarchy.

2.4.4 Long Lawford village is identified as one of 8 main rural settlements that are described as having a sufficient level of services to support local communities and within which development will be permitted to support local housing needs.

2.4.5 **Policy CS10: Developer Contributions.** This policy outlines a requirement for developers to provide infrastructure contributions "on-site" or if this is not possible, commuted sums for "off-site" infrastructure. Contributions will be related to the scale, form and potential impact of a scheme on the surrounding area and the levels of existing infrastructure and community facilities available. Contributions may be required where multiple developments would give rise to a cumulative impact on the local area and require combined mitigation measures, to be delivered in advance of development. The Planning Obligations SPD provides the procedural requirements relating to developer contributions.

2.4.6 **Policy CS11 Transport and New Development.** This policy states that:

“Development will be permitted where sustainable modes of transport are prioritised and measures mitigating against the transport impacts which may arise from that development or cumulatively with other proposals are provided.”

2.4.7 It requires submission of a Transport Assessment that identifies any potential impacts and measures to address them in conjunction with, where appropriate, contributions to transport modelling work, the provision of Travel Plans and the entry into bus partnerships with the County Council and/or third parties.

2.4.8 This report demonstrates how the site will be connected to the adjacent sustainable travel network and how the impacts of the scheme will be addressed through the site access design.

2.4.9 Supplementary Planning Documents (SPDs) provide more detailed planning policy information. Of those currently available, the most relevant is the Planning Obligations SPD (2012) which contains the Council’s Parking Standards in Appendix 2. The SPD also sets the requirements for providing Air Quality Assessments stating that *“As a general rule, an air quality assessment (AQA) will be required where the development is anticipated to give rise to significant changes in air quality”*. The proposed development, by virtue of its modest scale, is not expected to give rise to significant changes in air quality.

2.5 Emerging Rugby Local Plan (2011-2031)

2.5.1 The new Local Plan is currently being prepared and will seek to shape future development for the period 2011-2031. It sets out the policies and proposals to support development within the Borough and will also include a Community Infrastructure Levy (CIL) and a collection of Supplementary Planning Documents (SPDs). The Secretary of State has appointed an inspector to provide an independent examination of the Rugby Local Plan to ensure it is sound and complies with all legal requirements. Once approved and adopted, the Local Plan will replace the Core Strategy and saved policies of the Local Plan 2006.

2.5.2 The following draft policies are considered relevant to this report:

2.5.3 **Policy GP1: Securing Sustainable Development.** This policy states that the Council will take a positive approach to development proposals that reflects the presumption in favour of sustainable development advocated in the NPPF. It further states that the Council will always work proactively with developers to find solutions that allow proposals to be approved wherever possible. Planning applications that are in accordance with Local Plan policies are to be approved without delay.

2.5.4 **Policy GP2 Settlement Hierarchy.** This policy defines the settlement hierarchy within the borough and confirms that Long Lawford is designated as a Main Rural Settlement where development will be permitted within the existing boundaries of the village.

2.5.5 **Policy DS3: Residential allocations.** This policy outlines the size and locations of residential allocations within the borough. It identifies this development site as *Ref: DS3.8 Land north of Coventry Road, Long Lawford*, which is proposed for allocation to provide a development of up to 100 dwellings.

2.5.6 **Policy HS5: Traffic Generation and Air Quality** states that development which would result in significant negative impacts on air quality within defined Air Quality Management Areas (AQMA)

should be supported by an air quality assessment and mitigation plan. The air quality impacts of the scheme are assessed in a separate report.

- 2.5.7 **Policy D1: Transport** states that development will be permitted where sustainable modes of travel are prioritised and where suitable mitigation of any adverse cumulative transport effects is provided. Large scale developments are to be accompanied by a Transport Assessment and where necessary, a Travel Plan that demonstrates practical and effective measures to avoid the adverse impacts of traffic. This TA takes into consideration the factors that this policy identifies.
- 2.5.8 **Policy D2: Parking facilities** is concerned with development parking provision and states that permission will only be granted for development that satisfactorily accommodates facilities for motorcycles, cars and people with disabilities (in accordance with the Borough Council's Parking Standards).
- 2.5.9 **Policy D3: Infrastructure and Implementation** refers to the assessment of new development on local infrastructure and confirms that planning permission will only be granted where additional capacity can be provided by existing infrastructure or where new infrastructure is provided. It also confirms that developer contributions, where required, will be sought for new infrastructure and a programme of delivery agreed before development can take place.
- 2.5.10 **Policy D4: Planning Obligations.** This policy relates to development impacts and mitigation requirements. It outlines where obligations will be sought and confirms that this will be in line with the Community Infrastructure Levy (CIL) regulations 2010.

2.6 Warwickshire Local Transport Plan

- 2.6.1 The third Warwickshire Local Transport Plan (LTP3) covers the period 2011-2026 and was adopted on 1 April 2011. It covers the five District/Borough areas of North Warwickshire Borough, Nuneaton and Bedworth Borough, Rugby Borough, Warwick District and Stratford-on-Avon District and has several objectives, which are generally in accordance with national and regional transport policy. These include tackling climate change, supporting economic growth, improving equality of opportunity and enhancing health, safety, security and quality of life. The LTP and linked County policies seek to achieve these goals by improving the reliability of transport, reducing car dependency and locating development in accessible locations.
- 2.6.2 The LTP includes strategies and measures that support the various Local Plan policies. A key priority is to integrate transport, land-use and social aspects within communities in order to minimise the need to travel by private car. The most sustainable locations for development are considered to be those where local amenities, public transport services and employment opportunities lie within walking distance and where local walking and cycling infrastructure and links are in place or can be readily provided. This TA includes a full analysis of the accessibility of the site by sustainable modes and proposes improvements where necessary.
- 2.6.3 The LTP includes an "Eastern Warwickshire Area Strategy" that includes the urban area of Rugby and the surrounding rural area (similar to that covered by the administrative Borough of Rugby Borough) and including the village of Long Lawford. It does, however exclude certain parts of the Borough to the north and west, which are predominantly covered by the North-South Corridor Strategy.
- 2.6.4 The strategy is underpinned by various sets of base data, including an analysis of travel patterns and road traffic growth, which suggests that traffic levels in the Rugby area have risen by 3.3%

over the period 2000 to 2009, centred mainly around housing, employment and retail growth at Cawston, Coton Park, Swift Valley and within the town centre. It suggests the need to actively manage the impacts of committed development contained within the LDF to ensure traffic levels do not continue to increase at similar levels.

2.6.5 The Eastern Warwickshire Area Strategy (EWAS), includes a review the transport problems and opportunities considering the wider economic, environmental and social context that transport must operate within and describes the over-arching strategy for the area, based on four key objectives:

- Bring forward measures that support the regeneration of Rugby town centre and the stability and growth of the local economy.
- Ensure that the planned housing and employment growth within Rugby is properly integrated into the existing urban area, including the provision of excellent links between the main development sites and the town centre.
- Support access to services and facilities, particularly for those without access to a car.
- Deliver improvements that reduce the environmental impact of traffic within the Borough and improve local air quality.

2.6.6 The key proposals to deliver these objectives would mostly take place within the town centre, although these and improvements to Rugby railway station would also benefit residents of the proposed development.

2.6.7 **Part B** of the LTP provides further details on how the Transport Plan will be delivered and includes policies to achieve this. Those most relevant are:

2.6.8 **Policy AS7: Development control.** This policy requires accessibility assessments to be carried out for major new development proposals and states that where improvements are required, funding will be sought from developers.

2.6.9 **Policy CS3: Helping to reduce road traffic growth.** This policy is concerned with the impacts by development on traffic growth and congestion, specifying a preference to implement measures that focus on reducing traffic growth and encourage travel by alternative modes.

2.6.10 **Policy AQA5: Integration of air quality and transport planning.** This policy discusses new development in the context of existing or emerging air quality issues and seeks to ensure that new development does not exacerbate an existing problem, is served well by public transport and is supported by a Travel Plan to maintain sustainable travel patterns.

2.6.11 **Policy LUT2: Travel Plans.** This policy refers to the "Practice Note for Developers" and the requirement to provide a Travel Plan to support a planning application.

2.6.12 **Policy LUT3: Sustainable developments.** This policy states that the Council will promote sustainable development and that contributions will be sought from developers, where appropriate, to provide for public transport, community transport, pedestrian and cycling facilities, traffic management measures and travel packs.

2.6.13 **Policy LUT5: Transport Assessments.** This policy reinforces the requirement for Transport Assessments/Statements to be submitted in support of applications, where appropriate, confirming a commitment to scope the individual requirements for sites under assessment.

- 2.6.14 **Policy LUT6: Highway works agreements.** This policy identifies Section 184/278 agreements as the mechanism to provide alterations, connection or improvements to the highway network.
- 2.6.15 **Policy LUT7: New road adoptions.** This policy seeks to ensure that new development roads are provided to an adoptable standard and put forward for adoption via a Section 38 agreement.
- 2.6.16 **Policy LUT8: Road safety audits.** This policy requires road safety audits to accompany planning applications involving certain works within the highway.
- 2.6.17 **Policy LUT9: Obligations.** This policy seeks to ensure that new development access proposals are not detrimental to the existing highway network. It refers to developer-contributions, secured via a Section 106 agreement, to assist in improving the local and surrounding highway and transport network.
- 2.6.18 **Policy LUT10: Appropriate development.** This policy relates to design of development accesses and internal roads. It seeks to ensure that they contribute to the local area and provide suitable connectivity to alternative travel modes.
- 2.6.19 **Policies PTB4, PTPR7 and PTIS5: New developments.** These policies seek to encourage measures that enable good accessibility by bus and rail services, public interchanges and, where appropriate, seeks to secure funding from developers toward costs.
- 2.6.20 **Policy CTB3: Residential Travel Plans.** This policy outlines a commitment to work with residential developers to secure a Travel Plan. It states that residential travel plans are currently provided on a voluntary basis.
- 2.6.21 **Policy CTB6: Travel awareness campaigns.** This describes a commitment to implement a range of travel awareness initiatives specifically promoting the benefits of sustainable travel modes, in order to promote modal shift.
- 2.6.22 **Policy CTB8: Encouraging more sustainable car use.** WCC will encourage more sustainable car use by promoting car sharing and supporting the development of car clubs in the county.
- 2.6.23 **Policy W9: Planning and new developments.** This policy states that WCC will encourage measures that support pedestrian access to/from and within new developments, and will secure funding from developer contributions where appropriate.
- 2.6.24 **Policy CY8: Planning and new developments.** This policy seeks to ensure that all new developments support cycling as a practical and attractive mode of transport. This will be achieved through appropriate provision for cyclists within the site and by securing developer contributions toward cycling improvements adjacent to the site.
- 2.6.25 The TA has been prepared with due regard to the above policy requirements.

3.0 EXISTING CONDITIONS

3.1 Site Description

- 3.1.1 The site is located on land to the south and west of Back Lane and to the north of Coventry Road, Long Lawford. It is on the southern outskirts of the village and would form an extension of the residential development that is currently under construction to the north (Long Lawford 3).
- 3.1.2 The site has a total area of approximately 6.8 hectares and comprises open arable fields separated by hedgerows. It has highway frontage to the Coventry Road, which forms its southern boundary and Back Lane, which forms its eastern boundary. The northern boundary adjoins the on-going Long Lawford 3 residential development. The western boundary adjoins the rear of properties on The Green.
- 3.1.3 The site has an existing vehicular field access from Coventry Road, in the form of a dropped-kerb footway cross-over located approximately 235m west of the junction with Back Lane. There is a second field access further south on the corner of the junction with Coventry Road.

3.2 Local Highway Network

- 3.2.1 **Coventry Road** is part of the A428 inter-urban route that connects Rugby to the east with Coventry to the west. Locally, it passes to the south of Long Lawford but provides access to it via the cross-roads junctions with Back Lane/Bilton Lane (to the east) and The Green (to the west). The centre of Long Lawford lies approximately 400m north of the A428.
- 3.2.2 Along the site frontage, Coventry Road is of single carriageway standard and semi-rural character, with infrequent side road junctions or accesses and little existing frontage development. It has street lighting and is subject to a 40mph speed limit. Along the eastern half of the site frontage, double white solid lines are provided in the centre of the carriageway, which prohibit overtaking in both directions of travel. These road markings coincide with a more tortuous horizontal alignment throughout which forward visibility is more restricted than on the section to the west. The vertical alignment of the road is, however, relatively flat.
- 3.2.3 Coventry Road has an existing carriageway width of approximately 6m. There are grass verges of varying width on both sides of the carriageway and the northern verge incorporates a narrow footway. There is no footway on the southern side of the road opposite the site.
- 3.2.4 To the east of the site, Coventry Road has a cross-roads junction with Back Lane (to the north) and Bilton Lane (to the south). The Bilton Lane entry to the junction is controlled by a "Stop" sign and road markings. A pelican crossing of Coventry Road is located immediately to the east of the junction, which connects the northern footway with a recently constructed southern footway, and thus provides a link to a westbound bus stop.
- 3.2.5 To the west of the site, Coventry Road has a further cross-roads junction with The Green (to the north) and Lawford Heath Lane (to the south). There is a bus stop and layby on the south-west side of the junction but no footway is provided on that side of Coventry Road.
- 3.2.6 **Back Lane** is a single carriageway road that connects Coventry Road with the centre of Long Lawford, via a bridge that crosses the main railway line. It is a single carriageway road that provides access to existing residential dwellings opposite the site frontage and also to the current and

previous Long Lawford phases via Tee Tong Road and a new access further to the west. Back Lane is subject to a 30mph speed limit and has street lighting.

- 3.2.7 The width of the carriageway varies, but is generally at least 4.8m wide and, along the short section of frontage to the land in question, is at least 5m wide. To the north of this frontage, local widening has been carried out to form a ghost-island right turn lane into Tee Tong Road.
- 3.2.8 Back Lane has bends in the vicinity of its junction with Tee Tong Road and at the railway bridge. There is a continuous footway along the western and southern side of the route from Coventry Road to a point some 50m from the railway bridge bend, where a dropped-kerb crossing switches pedestrians onto a footway along the north side of the road. The vertical alignment of Back Lane is mostly flat, but rises to cross the railway line before entering the village centre.
- 3.2.9 The junctions of Back Lane with Tee Tong Road and Long Lawford Phase 3 are simple priority layouts. There are bus stops on both sides of the road between the two junctions. Alternative bus stops are provided to the south of the railway line and on Coventry Road immediately to the east of Back Lane.
- 3.2.10 **Green Lane** provides an alternative route from Coventry Road to Long Lawford village centre. It is a single carriageway road with frequent direct accesses to mainly residential properties and footways to either side. It becomes Chapel Street before crossing the railway line to enter the village centre.

3.3 Study Area

- 3.3.1 The primary study area considered in this TA is shown on **Figure 3** and comprises the following junctions:
- J1: A428 Coventry Road/Back Lane/Bilton Lane.
 - J2: A428 Coventry Road/The Green/Lawford Heath Lane.
 - J3: A428 Coventry Road/Townsend Lane.
 - J4: Back Lane/ School Street/Railway Street.
- 3.3.2 A wider area beyond the above primary study area has also been considered for the purpose of assessing the accessibility of local facilities from the site by walking, cycling and public transport.

3.4 Existing Traffic Flows

- 3.4.1 Data on existing traffic flows and speeds was obtained from two Automatic Traffic Count (ATC) surveys undertaken over the period Wednesday 6 December to Tuesday 12 December 2017.
- 3.4.2 The first ATC was positioned on the A428 Coventry Road (west) at OS Grid Reference coordinates 52.37647,-1.31042 which is approximately 52m east of the junction with the Green.
- 3.4.3 The second ATC (East) was positioned at OS Grid Reference coordinates 52.37591,-1.30751 approximately 255m east of the junction with the Green.
- 3.4.4 Full details of the ATC survey data is presented in **Appendix C**. The key results are summarised in **Table 3.1**.

Table 3.1: Recorded Traffic Flows and Speeds (6th December to 12th December 2017)

A428 Coventry Road West			
Direction	AM Peak Hour (08:00-09:00) Weekday Average	PM Peak Hour (17:00-18:00) Weekday Average	24-hours (Weekday Average)
Flow (vehicles)			
Westbound	247	235	4154
Eastbound	221	235	3678
Average speeds			
Westbound	-	-	35.0mph
Eastbound	-	-	34.0mph
85th Percentile speeds			
Westbound	-	-	43.0mph
Eastbound	-	-	40.0mph
A428 Coventry Road East			
Direction	AM Peak Hour (08:00-09:00) Weekday Average	PM Peak Hour (17:00-18:00) Weekday Average	24-hours Weekday Average
Flow (vehicles)			
Westbound	244	235	4121
Eastbound	222	236	3689
Average speeds			
Westbound	-	-	40.0mph
Eastbound	-	-	38.0mph
85th Percentile speeds			
Westbound	-	-	45.0mph
Eastbound	-	-	43.0mph

- 3.4.5 The survey results suggest that Coventry Road carries some 4,100 vehicles per weekday in at least one direction of travel. The recorded average vehicle speeds taken at the eastern site (furthest away from a junction) are generally around the 40mph speed limit whilst the 85th percentile speeds are 45mph travelling westbound and 43mph travelling eastbound.
- 3.4.6 Peak period manual classified turning counts were undertaken at Junctions 1 to 4 on Wednesday 6th December 2017, when local schools were understood to be in session. Queues on the approaches to each junction were also recorded at 15-minute intervals, and these have been used to check the accuracy of the junction capacity assessment models detailed later in the report.
- 3.4.7 The results of these traffic surveys, including calculations undertaken by Travis Baker to convert the traffic flows into PCUs are also provided in **Appendix C**.

3.5 Road Accident History

- 3.5.1 Records of Personal Injury Collisions (PICs) were requested from WCC for the most recent complete 5-year period available at 11 December 2017. Data was supplied by WCC for the period 28 June

2012 to 6 October 2017, which includes just over 3 additional months of data. The collision data therefore represents a 63 month period and is robust.

- 3.5.2 The collision study area is shown on **Figure 3** and includes those parts of the highway network listed previously. The purpose of examining the road accident history is to identify if any parts of the study area that currently exhibit a poor road safety record and to ensure that any proposals put forward by this application would not exacerbate any exiting problem identified.
- 3.5.3 A summary of the collision data received from WCC is included in **Appendix D**. A review of the data shows that a total of 27 PICs were recorded within the study area during the 63 month study period. These are summarised by year and severity in **Table 3.2**.

Table 3.2: Summary of Accidents by Year

Year	Slight	Serious	Fatal	TOTAL
2012 (part)	3	1	-	4
2013	5	-	-	5
2014	3	1	-	4
2015	6	1	-	7
2016	3	1	-	4
2017 (part)	1	2	-	3
Total	21	6	0	27

- 3.5.4 Of the 27 PICs recorded, the majority (21) involved slight injury and 6 involved serious injury. There were no fatal accidents. The available records show that the overall frequency of collisions in the area is relatively modest, averaging just over 4 collisions per year. Given that the study area includes a significant length of the A428, which carries a 2 way 24 hour weekday flow of some 8,000 vehicles per day and three major junctions, this level of collisions is not considered unduly high.
- 3.5.5 The data has also been examined to identify the number of PICs involving Vulnerable Road Users (VRUs). VRUs include pedestrians, cyclists and motorcycle riders. **Table 3.3** summarises VRU collisions by year and type of VRU.

Table 3.3: Summary of VRU Accidents by Type

Year	Motorcyclist	Cyclist	Pedestrian	Other	TOTAL
2012 (part)	1	1	-	-	2
2013	-	-	-	-	0
2014	1	1	-	-	2
2015	1	-	-	-	1
2016	-	-	-	-	0
2017 (part)	-	2	-	-	2
Total	3	4	0	0	7

3.5.6 VRU accidents are has also been examined in terms severity, as summarised in **Table 3.4**.

Table 3.4: Summary of VRU Accidents by Severity

Road User	Slight	Serious	Fatal	TOTAL
Pedestrian	-	-	-	0
Pedal Cycle	3	1	-	4
Motor Cycle	1	2	-	3
Other	-	-	-	0
Total	4	3	0	7

- 3.5.7 The analysis shows that 7 (26%) of all recorded PICs involved a VRU, averaging 1 per year. Of these, 4 involved pedal cycles and 3 involved motor cycles. There were no pedestrian casualties recorded. Of all VRU collisions, 3 (43%) resulted in serious injury and the remainder (57%) resulted in slight injury.
- 3.5.8 Of all VRU accidents recorded, 3 occurred at study area Junction 1 (A428 Coventry Road/Back Lane/Bilton Lane cross-roads). Two involved motorcyclists travelling eastbound who collided with vehicles pulling out into their path from Back Lane. A third involved a vehicle turning into Back Lane across the path of the cycle travelling eastbound.
- 3.5.9 Two VRU collisions occurred at study area Junction J2 (A428 Coventry Road/The Green/Lawford Heath Lane), one of which resulted in a serious injury. Both collisions involved cyclists travelling from west to east on the A428 Coventry Road colliding with vehicles travelling north to south or south to north. Contributory factors were recorded as driver failure to see or give way to the cyclists.
- 3.5.10 A single VRU occurred at study area Junction J3 (A428 Coventry Road/Townsend Lane), which involved a vehicle turning right from the A428 and failing to give way to a motorcyclist travelling from west to east.
- 3.5.11 The final VRU collision occurred on The Green and resulted from an overtaking manoeuvre. The recorded details suggest that a cyclist veered into the path of the vehicle that was overtaking it.
- 3.5.12 Accident cluster sites can be defined as specific locations at which 3 or more PICs and/or at least one fatal or serious injury were recorded. **Table 3.5** identifies cluster sites by location and severity. Collisions are identified as having occurred at a junction if they are at or within 20m of the junction area.

Table 3.5: Summary of PIC Cluster Locations

Cluster Ref.	Location	Slight	Serious	Fatal	TOTAL
C1:	J1: A428 Coventry Road/Back Lane/Bilton Lane.	7	2	-	9
C2:	J2: A428 Coventry Road/The Green/Lawford Heath Lane	4	1	-	5
C3:	J3: A428 Coventry Road/ Townsend Lane	6	1	-	7
C4:	The Green, 30m north of J2	-	1	-	1
C5:	Back Lane at 90 degree bend	-	1	-	1
OTHER:	Non-cluster locations	4	-	-	4
Total		21	6	0	27

- 3.5.14 It can be seen that a total of 9 collisions occurred at Location C1, the A428/Back Lane/Bilton Lane crossroads junction, averaging almost nearly 2 per year. Of these, 2 involved serious-injury and 3 involved VRUs. The main contributory factors include minor road drivers failing to give-way to vehicles on the main carriageway and shunt-type collisions between vehicles waiting to turn at the junction. These type of collisions are not uncommon at cross-roads junctions, particularly in rural areas. WCC's road safety team have also identified this junction as a cluster site and have confirmed that the site access option submitted as part of these proposals to re-align Back Lane and create a left-right stagger junction would be their preferred solution for reducing collisions.
- 3.5.15 At Location C2 (also a cross-roads junction), 5 collisions were recorded, of which one resulted in a serious injury. This equates to on average just under 1 collision per year over the 63-month period. Two of the collisions involved VRUs as described above and all but one involved minor road drivers failing to give way to vehicles travelling on the A428. There is no evidence of highway or geometry conditions having contributed to these incidents and the traffic levels that are forecast to be generated by the proposed development are considered unlikely to give rise to detrimental road safety impacts.
- 3.5.16 Location C3 is the A428/Townsend Lane junction, where a total of 7 collisions was, one of which involved a VRU and one in serious injury. The serious-injury collision resulted from a vehicle turning right into Townsend Lane across the path of a vehicle travelling west to east on the A428. Of the remaining collisions, 4 resulted from similar manoeuvres and 2 were shunt-type collisions involving vehicles turning right into Townsend Lane. The available visibility for vehicles turning right into Townsend Lane appears to be adequate for the posted speed limit of the road. No additional traffic generated by the proposed development is forecast to turn right into Townsend Lane from the A428, and therefore the frequency of collisions is not expected to increase significantly as a result of the proposed development.
- 3.5.17 Locations C4 and C5 are isolated sites at which a collision resulted in a serious injury. The collision at location C4 resulted from the loss of control of a vehicle travelling southbound on The Green in wet and dark conditions. The collision at location C5 was between a road sweeper reversing from a site entrance into the path of a stationary delivery vehicle. Both collisions are clearly isolated incidents.
- 3.5.18 A further 4 slight-injury collisions occurred at isolated locations throughout the study area, of which 1 involved a VRUs (pedal cycle). There is no strong common theme to these incidents.

-
- 3.5.19 One accident appears to have occurred at the proposed Long Lawford 3 site access junction (location C5), but appears to have involved construction-related vehicles.
- 3.5.20 No accidents were recorded at Back Lane in the vicinity of Tee Tong Road or the proposed main site access junction (see Section 5).

3.6 Road Safety Summary

- 3.6.1 The available data provides no strong evidence of specific local accident problems that might be related to traffic conditions or road geometry on most parts of the study area highway network. However, following a review of existing highway conditions, the A428/Back Lane/Bilton Lane junction has been identified as a cluster site and would be the location that would be used by a significant proportion of development traffic. The development access scheme therefore include the realignment of Back lane to create a left-right staggered junction at this location, replacing the existing cross-road junction. This access solution has been accepted in-principle by WCC's road safety team.
- 3.6.2 Having regard to the above, it is considered that subject to implementation of the access strategy to an agreed detailed design, the proposed development would not give rise to any significant increase in the risk of road traffic accidents in the local area.

4.0 SUSTAINABLE TRAVEL OPPORTUNITIES

4.1 Walking

4.1.1 Guidance on preferred maximum walking distances to amenities is given in the Chartered Institution of Highways and Transportation (CIHT) document, "Providing for Journeys on Foot" (2000). The Guidelines indicate that a walking distance of 400m is acceptable for trips to bus stops and local shops, with 800m being the preferred maximum. The corresponding walking distances for trips to work and school are given as 500m and 1km respectively. A preferred general maximum walking distance of 2km is identified.

4.1.2 The Manual for Streets (MfS) reinforces this advice, stating that "walkable neighbourhoods" have a range of facilities within 800m. However, this is not regarded as the upper limit for walking journeys and MfS uses the criterion that walking offers the greatest potential to replace short car trips, particularly those under 2km.

4.1.3 **Figure 4** shows detailed 400m, 1km and 2km pedestrian isochrones centred on the proposed development site, equivalent to approximately 5, 12 and 24-minute walk times respectively. It also shows the key local facilities that lie within these walking distances.

4.1.4 The isochrones have been prepared on the basis that pedestrians would utilise the available footways and public footpaths, together with proposed links to the Long Lawford 3 development. All footways in the local area are well lit and in good condition.

4.1.5 Bus stops on the A428 Coventry Lane are both within 400m walking distance from the centre of the site.

4.1.6 **Figure 4** shows that the following amenities lie within 1km (approximately 12 minutes) or less walking distance of the centre of the site:

- Bus stops on The Green
- A Post Box
- The Lawford Arms Public House
- Caldecott Arms Public House
- Long Lawford Primary School
- Hairdressers
- King George V Playing Fields incl.
 - Play Area
 - Skate Park
 - MUGA Court
 - Sports Pitches
 - Co-op Food

4.1.7 In addition the following local facilities can be reached within the 2km (approximately 24 minutes) walking distance or less:

- Henry Hinde Junior School
- Busy Bees Day Nursery
- Henry Hinde Infant School
- 11th Rugby Scouts Group
- Frobisher Road Park
- Paynes Lane Industrial Estate
- One Stop convenience store
- Open space with play area and sports pitches
- Freemantle Road Recreation Ground with play area and green gym
- Lawford Road Industrial Estate
- Somers Road Industrial Estate

- 4.1.8 In addition to the facilities mentioned above, Rugby town centre also has a wide range of amenities that are located just beyond the 2km walking distance. Large employment areas are located on the northern and western outskirts of the Rugby area, some of which are within a reasonable walking distance of the development.
- 4.1.9 All roads adjoining the site have footways and are well lit. A comprehensive network of footways and paths permeate the surrounding residential area and provide links to local amenities, as shown on Figure 4. The proposed development would be connected to the existing pedestrian network via the main site accesses onto Back Lane. Two pedestrian links would provide access to the A428 Coventry Road and to Back Lane (via the Long Lawford Phase 3 development).
- 4.1.10 Having regard to the above, it is considered that the site would be well connected to the existing pedestrian network. A range of local facilities and amenities is available within reasonable walking distances of the site, resulting in the potential for some development trips to be made on foot, without the need to use a private car.

4.2 Cycling

- 4.2.1 The previous PPG13 guidance provided advice on cycling journey lengths. Although PPG13 has since been superseded, it is still commonly accepted that cycling offers strong potential to substitute for car trips for many journeys under 5km or those made as part of a multi-modal trip that includes cycling and public transport. A 5km distance is equivalent to a typical cycling time of 15 to 20 minutes.
- 4.2.2 **Figure 5** shows an indicative 5km cycle catchment radius centred on the site. The general topography of the local built up area surrounding Rugby is relatively flat allowing for all residents to take advantage of a range of on and off-road cycle routes that are present throughout Rugby town centre and the surrounding area. A number of advisory routes are also identified on the WCC local cycle map, providing off-street and quiet routes to the town centre and various employment areas, including the Glebe Farm industrial Estate and Rugby railway station. A copy of this map is included in **Appendix E**.
- 4.2.3 National Cycle Network (NCN) Routes 41 and 53 can also be reached within the 5km catchment area providing a combination of on and off-street signed connections to the wider Rugby Borough area and beyond.
- 4.2.4 The following areas can be reached within the 5km catchment distance:
- Rugby town centre to the east including the railway station.
 - Glebe Farm Industrial estate to the north-east.
 - Bilton to the south-east.
 - Dunchurch and Thurlaston to the south.
 - Church Lawford to the west.
- 4.2.5 Rugby town centre provides a wide range of amenities that would be attractive to residents of the proposed development, including employment opportunities and various retail and leisure facilities.
- 4.2.6 Based on the above assessment, it is considered that there is significant potential for some trips generated by the development to be made by cycle.

4.3 Bus Services

- 4.3.1 The site is located around 400m from the nearest bus stops, which are on the A428 Coventry Road to the east and west of the site.
- 4.3.2 The existing bus stops are both marked by a flag and pole with timetable information. The westbound stop also has a bus shelter and a bus layby. These stops are served by bus route 86, which is operated by Stagecoach. An additional service, route 3A, can be accessed at a bus stop located on The Green, a walk of approximately 450m from the site. The bus stops and routes are illustrated on **Figure 6**.
- 4.3.3 A summary of the local bus services is provided in **Table 4.1**. Bus times were correct as of the date of issue of this report, but if required a copy of the timetables can be made available upon request. A copy of the Rugby bus route map information is provided in **Appendix E**.

Table 4.1: Summary of Local Bus Services

Route No.	Service Provider	Route	Nearest Stop	Service Frequency (minutes)		
				Mon - Fri	Sat	Sun
3A	Stagecoach	Long Lawford – Rugby – Hillmorton – Rugby – Long Lawford	The Green	30 mins	30 mins	No Service
86	Stagecoach	Coventry - Binley – Binley Woods - Brandon – Wolston – Church Lawford – Long Lawford – Rugby – Bilton	A428 Coventry Road	30 mins	30 mins	120 mins

- 4.3.4 It can be seen that the development would have convenient access to two 30-minute frequency bus services within a walk of 450m from the centre of the site. Additional services are available from Rugby town bus hub, located in Rugby town centre.
- 4.3.5 The site is therefore considered to be well-served by existing bus services.

4.4 Rail Services

- 4.4.1 The nearest railway station to the development is at Rugby, close to the town centre. The station lies approximately 4.2km to the east of the site and can be accessed by cycle and using bus service 86 to the town centre, from which the station can be reached within a 15 minute walk.
- 4.4.2 Rugby railway station is managed by Virgin Trains and lies on the West Coast Main Line. As such it provides frequent and direct train services to a range of destinations including Birmingham, Wolverhampton, Coventry, Northampton, Milton Keynes and London Euston. There are approximately 4/5 trains per hour to London throughout the day, increasing to 6 trains per hour during peak hours. The typical journey times to London are approximately 55 minutes on the fastest trains or 90 minutes on slower services. There are approximately 4 trains per hour Birmingham New Street station throughout the day (a journey time of approximately 40 minutes), increasing to 5 trains per hour during peak hours.
- 4.4.3 Rugby railway station is a PlusBus and PlusBike station and has a full range of facilities including a ticket office, where Plusbus tickets are also available, ticket machines, payphones, an ATM, refreshment facilities, shops, a post box, CCTV, toilets, seating areas and waiting rooms. In addition



the station provides two sheltered and secure cycle hubs which along with the existing cycle storage facilities provide a total of 350 cycle parking spaces.

- 4.4.4 Passenger assistance and wheelchair provision is also available for access to platforms and trains. There is also car parking provision for up to 535 cars in Car park 3 on Mill Road.
- 4.4.5 Access to the railway network is therefore good and rail services are expected to provide an attractive travel option for commuter and longer distance trips between the proposed development and major destinations, particularly Birmingham and London, from which the whole of the national railway network can be accessed.

5.0 PROPOSED DEVELOPMENT

5.1 Scheme Content

- 5.1.1 The proposed development would provide 153 dwellings, comprising a mix of one to four bedroom dwellings, of which 25% would be allocated as affordable homes. The current development masterplan layout plan is included in **Appendix A**.
- 5.1.2 In addition to the proposed dwellings, the south-eastern part of the site would be utilised for the realignment of Back Lane to allow for the new site access.

5.2 Vehicle Access Strategy

- 5.2.1 In recognition of the road safety issues identified at the existing A428/Back Lane/Bilton Lane cross-roads junction and to address capacity issues that currently exist, it is proposed to re-align the southern-most section of Back Lane and relocate its junction with the A428 Coventry Road some 50m west of its current location, thus creating a left-right staggered junction with Bilton Lane. The proposed vehicle access strategy is shown on drawing **T16131/SK03**. The scheme has been discussed with and is generally supported by WCC's road safety team.
- 5.2.2 The scheme requires the stopping-up of the existing junction of Back Lane with Coventry Road, where a turning head would be provided to maintain access to existing properties along the eastern frontage. The realigned section of Back Lane would have a carriageway width of 5.5m with 2.0m wide footways on each side and would include a junction serving the proposed development.
- 5.2.3 The proposed access to the development would also have a carriageway width of 5.5m with 2.0m wide footways to each side. This access would carry the majority of the development traffic, although a small proportion of the scheme (26 units) would be served via the current Long Lawford 3 road network. The secondary access into the site from Long Lawford 3 would comprise a 5.5m wide carriageway extension of the existing Long Lawford 3 spine road with 2.0m wide footways on each side.

5.3 Internal Roads

- 5.3.1 The internal road layout would comprise cul-de-sac spine roads from Back Lane to the north, via the Long Lawford 3 development, and Back Lane to the east. These routes would serve dwellings directly or via private drives leading from them. The internal roads would have carriageway widths of 5.5m with 2.0m wide footways to each side. They would be designed in accordance with WCC design guidance and the Manual for Streets standards and the proposed layout seeks to limit vehicle speeds to 20mph in accordance with current good practice.
- 5.3.2 **Drawing T16131/SK07** shows that internal junction visibility splays of 25m and forward visibility splays of 25m, or 17m around the tighter curves, can be achieved.

5.4 Servicing

- 5.4.1 Where possible, the layout of the site has been designed to limit total refuse bin drag distances to 30m for residents and 25m for waste collection operatives, in accordance with the *Manual for Streets* guidance. Where this cannot be achieved, bin collection points would be included within the development layout.

5.4.2 Vehicle swept path analysis of the proposed internal roads and turning heads has been undertaken for a large refuse collection vehicle (11.73m long), which represents the largest refuse collection vehicle in the Rugby Borough fleet, as agreed with WCC. The swept path analyses are shown on **Drawings T16131/SK05** and **T16131/SK06** and demonstrate that the design vehicle would be able to access the site and manoeuvre within it such that the refuse can be collected from all properties (subject to provision of bin collection points at suitable locations).

5.5 Access for Non-Motorised Modes

5.5.1 Pedestrians and cyclists would be able to reach all parts of the proposed development via either of the proposed vehicular accesses from Back Lane. The internal layout of the development would be designed to create a safe and low-speed environment that gives priority to pedestrians and encourages walking.

5.5.2 Two further pedestrian links would also be provided between the Long Lawford 3 site, the proposed development and the exiting footways along the northern side of Coventry Road, thus creating a direct and continuous route through the sites from north to south.

5.6 Mobility-Impaired Users

5.6.1 The detailed design of both the development and associated infrastructure would be undertaken in accordance with the requirements of relevant disability discrimination legislation and current good practice.

5.7 Vehicle Parking

5.7.1 The NPPF requires local authorities to set car parking standards for new development, taking into account:

- The development's accessibility.
- Development type and mix.
- Availability of/opportunity to provide public transport.
- Local car ownership levels.
- Overall need to reduce the use of high-emission vehicles.

5.7.2 The Rugby Borough Planning Obligation SPD (March 2012), Appendix 2, provides guidance on the car parking standards required for new developments. The same standards have also been included in Appendix 5 of the draft replacement Local Plan, which is currently the subject of independent examination in public.

5.7.3 Local parking standards work on sequential basis, taking into account levels of accessibility and other local factors and applies different standards according to whether a development has high access to a choice of alternative travel modes, such as walking, cycling and public transport.

5.7.4 The SPD therefore shows that required level of car parking depends substantially on whether a proposed development has high or low accessibility to alternative modes of transport. This requires an assessment process comprising a number of stages. Stage 1 of the process refers to the proximity of trains and buses and states that:

"If a development site has both good access to bus and train services or has very good access to bus services, then the level of public transport is considered to be "high" and a further stage reduction to the "maximum" parking standard is applied."

5.7.5 Additional notes are provided as follows:

1. *Low accessibility is the base-parking standard that applies throughout the Rugby Borough.*
2. *The standards do not preclude zero or minimal parking close to major transport interchanges, or for conversions of existing buildings.*
3. *An allowance will be made for land uses, such as leisure, which generate traffic at off-peak times to reflect the reduced level of accessibility to public transport services.*
4. *The reduction from maximum standards varies according to land use.*
5. *The area of the Borough that is considered to be of high accessibility is defined on the attached High Access Zone plan.*
 - *Very Good Bus Access – These areas include all properties within a five minute (¼ mile, 400m) walk from at least three different services, operating on at least 20 minute frequencies during peak times (Monday to Saturday daytime).*
 - *Good Bus Access – These areas include all properties within a five minute (¼ mile, 400m) walk from at least two different services, operating on at least 20 minute frequencies during peak times (Monday to Saturday daytime).*
 - *Good Train Access – These areas include all properties within a 15 minute (¾ mile) walk from Rugby railway station.*

5.7.6 As shown in Section 4, the proposed development is within 400m or 5 minute walk from two bus services both of which provide a 30 minute service, or 2 buses per hour; a combined frequency of 4 buses per hour.

5.7.7 Based on the above and in accordance with the above SPG criteria, the development is located in a Low Access zone.

5.7.8 Stage 2 of the assessment process applies "*Local Factors*" to the parking standards. Whilst these local factors can affect parking standards, none is considered to apply to the proposed development.

5.7.9 It is therefore considered that the development lies within an area of low accessibility and should be subject to the "Low Access" car parking standards.

5.7.10 The RBC parking standards for C3 dwellings are reproduced in **Table 5.1**.

Table 5.1: Car and Cycle Parking Standards RBC

Type	Car Parking Standard per unit		Cycle Standard per unit	
	Low Access	High Access	Long Stay – Residents/Staff	Short Stay - Visitors
Dwelling Houses				
1-2 bed	1.5	0.75	1 (secure & undercover)	See note 1
3 bed	2	1	1 (secure & undercover)	See note 1
4 bed	3	1.5	1 (secure & undercover)	See note 1
Dwelling Apartments				
Studio	1	0.5	1 (secure & undercover)	1 loop
1 bed	1.5	0.75	1 (secure & undercover)	1 loop
2 bed	1.5	0.75	1 (secure & undercover)	1 loop
3+ bed	2	1	2 (secure & undercover)	1 loop

Note 1: It is considered inappropriate to apply a standard to this form of development. Therefore, applications will be considered on their own merits and according to the suitability of the location of this type of use.

5.7.11 Assuming the development is a Low Access location, the required the levels of parking are shown in **Table 5.2**.

Table 5.2: Car and Cycle Parking Requirements

Type	Car Parking Standard per unit		Car Parking Requirement	
	Low Access	High Access	No Units	Requirement
Dwelling Houses				
1-2 bed	1.5	0.75	33	49.5
3 bed	2	1	74	148
4 bed	3	1.5	42	126
		Total houses	149	324
Dwelling Apartments				
Studio	1	0.5	0	0
1 bed	1.5	0.75	4	6
2 bed	1.5	0.75	0	0
3+ bed	2	1	0	0
		Total Apartments	4	
		Development Total	153	
			TOTAL Spaces required	330

5.7.12 The development would therefore need to provide a total of 330 parking spaces in accordance with WCC standards. The layout plan indicates that these would be accommodated within the driveway spaces and unallocated spaces provided within the site.

5.8 Cycle Parking

5.8.1 The parking standard require a 1 cycle space per dwelling for houses and 1 for all apartments except for 2-bedroom apartment.



- 5.8.2 The development layout comprises a mix of one to four bedroom dwelling houses and only one bedroom apartments. Therefore a maximum of 1 cycle space per dwelling would be required. This would be accommodated within the curtilage of each dwelling in either garages where provided, or in sheds otherwise. A secure area will be provided within the apartment blocks.

6.0 DEVELOPMENT TRIP GENERATION

6.1 Overview

6.1.1 This section of the TA provides forecasts of the volume, distribution and modal split of trips that would be generated by the proposed development.

6.2 Vehicle Trip Generation Rates

6.2.1 Vehicle trips that would be generated by the proposed development have been forecast using the TRICS database, version 7.4.3. As part of the later Paramics modelling process, these forecasts will be validated against a local traffic survey of the nearby Tee Tong Road residential development, to be presented in a Supplementary TA as described in Section 1.

6.2.2 The residential scheme is to include an element of affordable housing. Reference to TRICS shows that houses for rent exhibit lower trip generation rates than those in private ownership. However, no separate allowance for rented homes has been made. The exclusive use of trip generation rates for privately-owned houses can therefore be considered robust.

6.2.3 To provide a sample of broadly comparable developments the TRICS good practice guide has been followed. The criteria for selection of sites were as follows:

- Privately-owned housing.
- Weekdays only.
- Edge of town centre removed.
- "Not known" and C1 use classes removed.
- Default TRICS survey date cut-off used.
- Default TRICS development size range.
- Sites have been checked individually to ensure that they are representative of this development. Site reference PK-03-A-01 was deselected because it exhibited unusually high trip rates, which could be affected by its close proximity to Perth Royal Infirmary.

6.2.4 The resulting peak hour vehicle trip rates are as shown in **Table 6.1**. A copy of the TRICS selections is contained in **Appendix F**.

Table 6.1: Residential Trip Rates (Vehicle Trips per Dwelling)

Time Period	Arrivals	Departures	TOTAL
AM Peak (08:00-09:00)	0.138	0.400	0.538
PM Peak (17:00-18:00)	0.369	0.201	0.570

6.3 Vehicle Traffic Generation

6.3.1 Application of the trip rates summarised in Table 6.1 to a proposed development of 153 dwellings results in peak hour traffic generation forecasts for the development as summarised in **Table 6.2**.

Table 6.2: Development Traffic Generation (Vehicles)

Time Period	Arrivals	Departures	TOTAL
AM (08:00-0:00)	21	61	82
PM (17:00-18:00)	56	31	87

6.3.2 In due course, the impact of the scheme will also be assessed using the Rugby Wide Area S-PARAMICS model. The criteria for use of the model are set out in WCC's "*Modelling Protocol for Development Assessment*", dated March 2011.

6.3.3 The WCC Modelling Protocol states that a PARAMICS assessment should normally be undertaken where a development is forecast to generate more than 200 trips over a 3-hour peak period and is in an urban area. An assessment of the scheme's traffic generation over the busiest weekday AM and PM 3-hour peak periods is presented in **Appendix F**.

6.3.4 The maximum two-way vehicle traffic generation forecasts are as follows:

- AM weekday peak 3-hour period (07:00-10:00): 187 vehicles
- PM weekday peak 3-hour period (16:00-19:00): 237 vehicles

6.3.5 The PM 3-hour peak period totals exceeds the threshold of 200 vehicles identified in the WCC Modelling Protocol. Therefore, a PARAMICS assessment will be provided and reported in a Supplementary TA, once the scope of the assessment agreed.

6.4 Vehicle Trip Distribution

6.4.1 An estimate of the distribution of development traffic on the highway network has been prepared using population and travel-to-work data available from the 2011 National Census statistics. The development site is located within the local Middle-Layer Super-Output Area (MSOA) of Rugby 007. This area includes the existing Long Lawford residential area to the north of the development site and the Bilton area of Rugby. It is therefore considered representative of the likely travel patterns of future residents at the proposed development.

6.4.2 The trip distribution model is based on "car driver" trips from Rugby 007 MSOA to all local MSOAs within the Rugby District and all other local borough, district and unitary authorities in the UK.

6.4.3 A review of the local road network was then undertaken to identify the key travel corridors between the site and the various destinations. Where a choice of alternative routes is available, these were manually weighted in accordance with by their relative attractiveness based on known local traffic conditions.

6.4.4 "Local traffic" with an origin and destination within the Rugby 007 MSOA has been distributed evenly between the remaining routes and the distribution adjusted accordingly.

6.4.5 Full details of the above calculations are presented in **Appendix G**. The resulting estimated distribution of trips amongst the main routes to and from the site is summarised in **Table 6.3**.

Table 6.3: Development Trip Distribution

Route	Route Name	Distribution
A	A428 Coventry Road	24.7%
B	A428 Lawford Road	42.0%
C	Bilton lane	26.2%
D	Lawford Heath Lane	7.1%
Total		100%

6.5 Modal Split

6.5.1 The modal split of development trips has been assessed by reference to the 2011 Method of Travel-to-Work census data (QS701EW) for the Rugby 007 Middle Layer Super Output Area, which is considered to produce the most representative sample of existing household travel patterns near to the site for application to the scheme. The wider Rugby Borough area has also been considered for comparison purposes.

6.5.2 A summary of the resulting modal split is presented in **Table 6.4**.

Table 6.4: Modal Split (2011 Census)

From National Census 2011, Neighbourhood Statistics		PERSONS BY CATEGORY	MODAL SPLIT (% of trips made)	PERSONS BY CATEGORY	MODAL SPLIT (% of trips made)
CAT	Group	Rugby 007 MSOA		Rugby Borough	
1	All Usual Residents Aged 16 to 74	8,091	-	72,759	-
1	Work Mainly at or From Home	283	-	2,769	-
2	Underground, Metro, Light Rail, Tram	3	0.05%	36	0.08%
3	Train	103	1.84%	1,286	2.70%
4	Bus, Minibus or Coach	162	2.90%	1,151	2.41%
5	Taxi	14	0.25%	177	0.37%
6	Motorcycle, Scooter or Moped	58	1.04%	401	0.84%
7	Driving a Car or Van	4,434	79.38%	34,264	71.81%
8	Passenger in a Car or Van	342	6.12%	3,355	7.03%
9	Bicycle	154	2.76%	1,555	3.26%
10	On Foot	286	5.12%	5,238	10.98%
11	Other Method of Travel to Work	30	0.54%	253	0.53%
12	Not in Employment	2,222	-	22,274	-
Total		8091		72759	
Total Travelling (i.e. - exc. cat 1 and 12)		5586	100%	47716	100%

6.5.3 It can be seen that the Rugby 007 MSOA has a modal share of car driver trips that is higher than the wider Rugby Borough. Car passenger trips also have a slightly lower modal share, but have the highest sustainable mode share (6.12%).



- 6.5.4 The modal share of pedestrian trips is lower in the local area but accounts for the second largest sustainable modal share at 5.12%. Cycle and rail trips are all also somewhat lower in the local area compared to the wider borough, although bus travel has a slightly higher modal share.
- 6.5.5 The results overall show that the local MSOA has a reasonable level of sustainable travel mode use, given its location. Together, the bus, rail, walk, car share and cycle modes account for just below 19% of all trips. This suggests that there is potential for a proportion of development trips to be accommodated on sustainable travel modes, subject to satisfactory connections with the sustainable travel network, as proposed.
- 6.5.6 The above results provide a starting point for the setting of modal shift targets within a formal Residential Travel Plan.

7.0 TRAFFIC FORECASTS

7.1 Overview

7.1.1 This section of the TA presents the traffic forecasts for the future year “No Development” and “With Development” scenarios and assesses the impact of the proposed residential scheme on the adjacent highway network.

7.2 Assessment Years and Traffic Growth

7.2.1 Subject to timely planning approvals, it is assumed that construction of the scheme could commence in late 2017 or early 2018. On this basis, a first phase of the development (some 50 dwellings) could be completed by late 2019, with full completion by around 2021.

7.2.2 In accordance with normally recommended practice for local road networks, the impact of the scheme has been assessed 5-years after the initial development opening year; i.e. – at a future assessment year of 2026, in accordance with the current Core Strategy period.

7.2.3 Growth in background traffic flows between the survey year (2017) and the future assessment year (2026) has been calculated in accordance with the National Transport Model (NTM) forecasts, which were adjusted to local values for rugby South Oxfordshire and Rugby 007 MSOA using the TEMPRO 7.2 system and datasets, in accordance with DfT guidance.

7.2.4 The TEMPRO software highlighted that the Rugby 007 growth factors have a lower level of confidence for the data as aggregated to the higher geographical levels. Therefore, the growth factors from the Rugby District were used.

7.2.5 The resulting background traffic growth factors are summarised in **Table 7.1**.

Table 7.1: Background Traffic Growth Factors

Growth Period	Peak Period	NTM Growth Factors Rugby District
2017 - 2026	AM	1.110
	PM	1.110

7.3 Committed Development

7.3.1 Committed developments are defined as those having a valid planning consent but which are currently unimplemented or incomplete. Committed development traffic is only taken into account where it would potentially affect future traffic patterns within the TA study area over and above background traffic growth effects.

7.3.2 A review of planning applications over the last 5 years has identified one committed development that may potentially affect future traffic flows within the development study area, which is the approved Long Lawford Phase 3 residential development at Back Lane, Long Lawford.

7.3.3 The Phase 3 residential scheme has outline planning permission (RDC Ref: R12-1188) for 112 residential dwellings with associated infrastructure and landscaping and demolition of existing buildings. Its predicted traffic generation and distribution has been taken from a TA provided by

Waterman Transport and Development Ltd (WTD), reference TRN10957-100/001, which assessed a development comprising up to 120 units. This has therefore been taken into account within the future year traffic forecasts.

- 7.3.4 The approved trip rates and traffic forecasts for the Long Lawford Phase 3 scheme have been taken from the WTD TA and are summarised in **Table 7.2**. Further details are provided in **Appendix H**.

Table 7.2: Long Lawford Phase 3 Development Trip Rates and Traffic Generation*

Average Trip Rates (TRICS)			
Time Period	Arrivals	Departures	TOTAL
AM Peak (08:00-09:00)	0.194	0.578	0.772
PM Peak (17:00-18:00)	0.370	0.267	0.637
Traffic Generation (120 dwellings)			
Time Period	Arrivals	Departures	TOTAL
AM Peak (08:00-09:00)	23	69	93
PM Peak (17:00-18:00)	44	32	76

* Source: WTD, March 2013

- 7.3.5 The WTD TA also presented the forecast routing of development traffic on the adjacent highway network. The routing diagram and traffic assignments are reproduced in **Appendix H**. WTD's development traffic assignments did not extend as far as J2 or J4 of the study area considered in this TA. At these locations, traffic generated by the Phase 3 development has been assigned to each junction proportionally in accordance with the trip distribution presented in Section 6. Details of this extended committed development traffic assignment are provided in **Appendix G**.

7.4 "No Development" Scenario

- 7.4.1 Traffic flow forecasts for the "No Development" scenario were obtained by factoring the base traffic survey data to the assessment year (2026) levels in accordance with the TEMPRO growth factors described previously. The committed development flows identified above were then added.

7.5 "With Development" Scenario

- 7.5.1 Traffic forecasts for the "With Development" scenario were obtained by adding assigned development-related traffic flows, as described in Section 6, to the "No Development" flows.
- 7.5.2 Traffic flow forecasts for the "No Development" and "With Development", including the relevant calculations, are presented in **Appendix G**.

7.6 Assessment of Traffic Impact

- 7.6.1 To assess whether material traffic flow increases would occur in or beyond the above study area, the advice provided within the former DfT "Guidance on Transportation Assessment" have been followed as a simple guide to the degree of influence of the proposed development. Although this guidance has been superseded, no replacement criteria for the assessment of material traffic flow increases have been made available and the former thresholds are still considered to be informative of the relative degree of impact of a scheme.

7.6.2 The former DfT guidelines provide no specific thresholds and do not advocate the use of percentage thresholds alone to determine where there is a material increase in traffic flow. However, they suggest that a two-way increase in traffic flow of more than 30 vehicles may require further consideration or more detailed assessment.

7.6.3 The volumetric changes in traffic flows on key parts of the local highway network are summarised in **Table 7.3**.

Table 7.3: Changes in Two-Way Traffic Flow Arising from the Proposed Development

Link	AM Peak Hour	PM Peak Hour
Back Lane west of the northern site access	+4 vehicles	+5 vehicles
Back Lane south of Railway Street	+4 vehicles	+5 vehicles
Railway Street, west of Back Lane*	+3 vehicles	+2 vehicles
Back Lane, north of Railway Street	+1 vehicle	+3 vehicles
A428 east of Back Lane	+35 vehicles	+37 vehicles
A428 west of Back Lane	+22 vehicles	+23 vehicles
A428 west of Townsend Lane	+35 vehicles	+37 vehicles
A428 east of Townsend Lane	+35 vehicles	+37 vehicles
The Green, north of the A428	+4 vehicles	+4 vehicles
A428 east of The Green	+22 vehicles	+23 vehicles
A428 west of The Green	+20 vehicles	+22 vehicles
Lawford Heath Lane, south of the A428	+5 vehicles	+ 6 vehicles

* One-way flow

7.6.4 **Table 7.3** shows that two-way traffic flow increases would be below 30 vehicles on all links on the A428 east of Back Lane and both east and west of Townsend Lane.

7.6.5 The traffic flow increases on the A428 west of Back Lane and to the west and north of the site are forecast to be below 30 vehicles and are unlikely to give rise to material impacts on local traffic conditions. Therefore, no further assessment of off-site traffic impacts has been undertaken beyond the A428 junctions.

7.6.6 Having regard to the above assessment, detailed capacity assessments have therefore been undertaken at the following junctions:

- J1: A428 Coventry Road/Back Lane/Bilton Lane and site access junction
- J3: A428 Coventry Road/ Townsend Lane.

7.6.7 The capacity assessments are presented in Section 8.

8.0 CAPACITY ASSESSMENTS

8.1 Overview

- 8.1.1 This section of the report provides a summary of the capacity assessments undertaken at the proposed site access junctions and the off-site study area identified in Section 7.
- 8.1.2 The capacity assessments of the existing junction layouts have been undertaken using the TRL JUNCTIONS 9 software, which has been used to compare the operation of each junction in the “No Development” and “With Development” scenarios at the 2026 assessment year, which represent the worst-case scenarios in terms of future traffic demands.

8.2 General Notes

- 8.2.1 The Ratio of Flow to Capacity (RFC) value provides an indication of how close to capacity each entry will operate. An RFC value of less than or equal to 1.00 indicates that the entry is operating within capacity. The desirable maximum RFC value for new junctions at the appropriate design year is 0.85, allowing some reserve capacity for daily fluctuations in traffic demand.
- 8.2.2 All modelled queues are quoted in Passenger Car Units (PCUs). For the purposes of conversion into queue lengths, a single PCU can be considered to have a length of 5.75 metres.
- 8.2.3 For priority junctions, results are quoted by traffic stream. The software does not provide results for “free-flow” streams that are not delayed (e.g. – straight ahead major road movement where it is not blocked by vehicles waiting to turn right into the side road), which are therefore marked as “–” within the summary table. Each arm of a priority junction is identified by a letter and each stream is thus defined by an origin-destination pairing (e.g. C-AB is any movement from Arm C to either Arm A or Arm B).

8.3 Northern Site Access (Long Lawford 3)

8.3.1 The existing Long Lawford 3 access junction, which would also provide the northern access to Long Lawford 4, has been assessed in both the No Development and With Development Scenarios. **Table 8.1** summarises the results of this junction capacity assessment. **Appendix I** contains a copy of the Junctions 9 capacity model report.

8.3.2 The traffic stream labels are as follows:

- A – Back Lane west.
- B – Site Access.
- C – Back Lane east.

Table 8.1: Capacity Assessment Results – Northern Site Access

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
No Dev 2026						
Stream B-C	0.00	5.92	0.01	0.00	5.70	0.00
Stream B-A	0.20	9.39	0.15	0.10	8.34	0.07
Stream C-B	0.00	5.87	0.01	0.00	5.87	0.01
With Dev 2026						
Stream B-C	0.00	6.00	0.02	0.00	5.74	0.01
Stream B-A	0.20	9.63	0.17	0.10	8.46	0.08
Stream C-B	0.00	5.89	0.01	0.00	5.92	0.01

8.3.3 The results confirm that the junction would operate well within capacity at the scheme assessment year with and without the proposed development in place. There would be no queues of significance on any of the approaches.



8.5 Proposed Eastern Site Access

8.5.1 **Table 8.2** summarises the results of the capacity assessment of the proposed Back Lane/Eastern Site Access priority junction. **Appendix I** contains a copy of the Junctions 9 capacity model report.

8.5.2 The traffic stream labels are as follows:

- A – Back Lane south.
- B – Site Access.
- C – Back Lane north.

Table 8.2: Capacity Assessment Results – Eastern Site Access

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	With Dev 2026					
Stream B-C	0.00	0.00	0.00	0.00	0.00	0.00
Stream B-A	0.20	10.02	0.14	0.10	9.49	0.07
Stream C-AB	0.00	0.00	0.00	0.00	0.00	0.00

8.5.3 The results confirm that the junction would operate well within capacity at the scheme assessment year with the proposed development in place. There would be no queues of significance on any of the approaches.

8.7 Junction 1: A428/Back Lane/Bilton Lane

8.7.1 **Table 8.4** summarises the results of the capacity assessment of the existing crossroads junction. **Appendix I** contains a copy of the Junctions 9 capacity model report

8.7.2 The traffic stream labels are as follows:

- A – A428 Rugby Road.
- B – Bilton Lane.
- C – A428 Coventry Lane.
- D – Back Lane.

8.7.3 In the first instance, the model was run using 2017 surveyed flows in order to provide a comparison between modelled and observed mean maximum queues. This comparison is presented in **Table 8.3**.

Table 8.3: Comparison of Modelled and Observed Queues - Junction 1 (2017)

Arm	AM Peak Hour Queues (PCUs)		PM Peak Hour Queues (PCUs)	
	Modelled	Observed	Modelled	Observed
A – A428 Rugby Road	0.3	7	0.6	7
B – Bilton Lane	0.7	4	0.4	5
C – A428 Coventry Road	0.6	4	1.0	6
D – Back Lane	1.2	6	0.4	3

8.7.4 Table 8.1 shows that the predicted average queue lengths on each arm are generally less than 1 PCU, except for Back Lane during the morning peak hour, where a queue just over 1 PCU is forecast.

8.7.5 Observed queues were slightly higher on the Bilton Lane and A428 Coventry Road arms, at 4 vehicles on each arm throughout most of the modelled period. However, the observed levels of queuing are still relatively modest and the discrepancies between modelled and observed queues are not significant. The results therefore do not suggest that the model is generally over-predicting entry capacity to any significant degree.

8.7.6 Occasional queues of 6 or 7 vehicles were observed on the A428 arms of the junction, the highest being recorded on the A428 Rugby Road (east). The capacity model does not include data for the pelican crossing located immediately west of the junction on the Rugby Road, as pedestrian crossing movements were not available. However, this facility could have accounted for this higher level of queuing on both approaches.

8.7.7 The results of the capacity assessment are summarised in **Table 8.4**.

Table 8.4: Capacity Assessment Results - J1: A428/Bilton Lane/Back Lane (Existing)

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
J1 Crossroads - Survey 2017						
Stream B-CD	0.60	11.41	0.38	0.30	10.02	0.23
Stream B-AD	0.10	16.36	0.09	0.10	14.60	0.11
Stream A-BCD	0.30	5.35	0.13	0.60	6.30	0.27
Stream D-AB	0.70	15.66	0.41	0.20	9.62	0.19
Stream D-BC	0.50	19.05	0.33	0.20	15.43	0.14
Stream C-ABD	0.60	7.39	0.31	1.00	8.36	0.42
J1 Crossroads - No Dev 2026						
Stream B-CD	0.90	13.74	0.45	0.40	12.03	0.30
Stream B-AD	0.20	19.77	0.14	0.20	17.08	0.15
Stream A-BCD	0.50	5.37	0.17	1.10	7.52	0.40
Stream D-AB	2.20	34.88	0.70	0.40	11.95	0.29
Stream D-BC	1.30	40.14	0.57	0.30	19.70	0.22
Stream C-ABD	0.80	7.98	0.37	1.40	9.70	0.50

8.7.8 The 2026 No Development assessment shows that the junction would continue to operate within capacity, but with a slightly increased level of queuing.

8.7.9 **Table 8.5** shows the results obtained for the improved junction, which has been modelled as a staggered arrangement as proposed. Stream labelling is the same as identified for the existing cross-roads layout, above. Only the 2026 "With Development" scenario has been considered.

Table 8.5: Capacity Assessment Results - J1: A428/Bilton Lane/Back Lane (Improved)

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
J1 - Stagger - With Dev 2026						
Stream B-CD	0.90	13.34	0.48	0.50	10.27	0.33
Stream B-A	0.10	28.85	0.05	0.00	19.53	0.04
Stream AB-D	0.30	8.54	0.22	0.90	12.08	0.46
Stream D-AB	2.30	25.27	0.70	0.50	10.51	0.33
Stream D-C	0.70	33.82	0.42	0.20	23.26	0.16
Stream CD-AB	7.10	29.23	0.85	3.00	14.85	0.69

8.7.10 It can be seen that the proposed junction layout is forecast to operate within capacity during both peak periods with the proposed development in place.

8.8 Junction 3: A428/Townsend Lane

8.8.1 **Table 8.6** summarises the results of the capacity assessment of the existing A428/Townsend Lane junction. **Appendix I** contains a copy of the Junctions 9 capacity model report.

8.8.2 The traffic stream labels are as follows:

- A – A428 Rugby Road.
- B – Townsend Lane.
- C – A428 Lawford Road.

8.8.3 In the first instance, the model was run using 2017 surveyed flows in order to provide a comparison between modelled and observed mean maximum queues. This comparison is presented in **Table 8.5**.

Table 8.6: Comparison of Modelled and Observed Queues - Junction 3 (2017)

Arm	AM Peak Hour Queues (PCUs)		PM Peak Hour Queues (PCUs)	
	Modelled	Observed	Modelled	Observed
A – A428 Rugby Road	-	-	-	-
B – Townsend Lane	0.9	4	0.3	3
C – A428 Lawford Road	0.5	3	1.5	7

8.8.4 The results for 2017 show that predicted average queue lengths are less than 1 PCU during the morning peak hour. Queues on Townsend Road are also predicted to be less than 1 PCU in the evening peak hour, whilst queues on the A428 Lawford Road arm are predicted to be just over 1 PCU. Observed queue lengths are generally comparable or slightly higher than those predicted, particularly on Townsend Lane and the A428 Lawford Road. However, the observed levels of queuing are still relatively modest and the modest discrepancies between modelled and observed queues do not suggest that the model is over-predicting entry capacity to a significant degree.

8.8.5 The results of the capacity assessment are summarised in **Table 8.6**.

Table 8.7: Capacity Assessment Results – J3: A428/Townsend Lane

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Survey 2017						
Stream B-C	0.50	9.61	0.30	0.20	7.13	0.17
Stream B-A	0.40	16.53	0.27	0.10	15.93	0.11
Stream C-AB	0.50	5.66	0.23	1.50	7.93	0.48
No Dev 2026						
Stream B-C	0.60	10.95	0.35	0.30	7.59	0.20
Stream B-A	0.50	20.00	0.34	0.20	18.56	0.14
Stream C-AB	0.70	5.87	0.28	2.30	9.47	0.58
With Dev 2026						
Stream B-C	0.60	11.26	0.36	0.30	7.66	0.20
Stream B-A	0.50	20.94	0.35	0.20	19.23	0.14
Stream C-AB	0.70	5.91	0.28	2.50	9.74	0.60

- 8.8.6 Again, the results confirm that the junction would operate well within capacity at the 2026 scheme assessment year with and without the proposed development in place. Comparing the results for the “No Development” and “With Development” scenarios shows that the proposed development would have a negligible impact on junction performance.
- 8.8.7 On this basis, it is considered that no improvements are required at the junction to accommodate the proposed development.

9.0 CONCLUSIONS

9.1 Summary

- 9.1.1 Travis Baker are appointed by Bloor Homes to assess the highways and transport issues affecting a proposed residential development on land at north of the A428 Coventry Road, Long Lawford. The development site comprises approximately 6 hectares of agricultural land at the north-west corner of the existing A428/Back Lane/Bilton Lane cross-roads junction.
- 9.1.2 The proposed development would provide 153 dwellings. It is proposed that the southern end of Back Lane would be realigned using land within the eastern part of the site, to re-join the A428 some 50m west of its current location. This scheme is intended to address existing road safety issues at the cross-roads junction and would allow the existing opening of Back Lane onto the A428 to be closed to motor vehicles. This highway scheme forms an integral part of the development proposal and is expected to significantly reduce the risk of accidents in the immediate vicinity.
- 9.1.3 The proposed development scheme would also provide an area of open space between the existing and re-aligned section of Back Lane.
- 9.1.4 The residential development would be served from a simple priority junction with the realigned section of Back Lane. A secondary access would also be provided onto the northern section of Back Lane via an extension of the current Long Lawford Phase 3 development spine road into the site. Two new footway links would also be provided onto the A428 through the proposed development, connecting with Long Lawford Phase 3 and Back lane.
- 9.1.5 The Back Lane realignment scheme and the development's internal road layout have been designed with due regard for local and national design guidance, including the Manual for Streets and the Design Manual for Roads and Bridges.
- 9.1.6 In summary, the highway proposals that form part of this scheme are as follows:
- The diversion of Back Lane to connect with the A428 Coventry Road west of the existing crossroads, thus eliminating the existing crossroads and creating a new left-right staggered junction.
 - Access to the proposed development via a new priority junction with the realigned section of Back Lane and an extension to the existing development spine road of the Long Lawford Phase 3 development.
 - Closure to motor vehicle traffic of the "bypassed" section Back Lane where it meets Coventry Road.
 - Modifications to the bypassed section of Back Lane including a turning head at its southern end.
- 9.1.7 During pre-application discussions, WCC's road safety team expressed concerns about the existing accident record at the Back Lane cross-roads junction, and confirmed that the access strategy as described above would address this and would be acceptable in-principle.
- 9.1.8 An analysis of recent accident data provides no evidence of any significant road safety problems at other locations in the vicinity of the site.
- 9.1.9 The proposed development would offer opportunities for journeys to be made by foot, cycle, and bus, as well as possible multi-modal trips via the railway network. A range of local facilities and

amenities are available within a comfortable walking distance of the site, which could potentially reduce the demand for private car travel.

9.1.10 Detailed capacity modelling presented within this TA shows that the proposed development would not give rise to detrimental traffic impacts or material traffic flows increases in the surrounding area.

9.2 Overall Conclusion

9.2.1 Satisfactorily vehicular access to the site can be achieved and the proposed development would also be accessible by sustainable travel modes such as public transport, walking and cycling, subject to local enhancements as proposed in this report.

9.2.2 The site is considered suitable for the scale and type of development proposed, which complies with relevant transport-related policies and is not forecast to give rise to adverse traffic impacts.

9.2.3 On this basis, it is considered that the proposed development can be satisfactorily accommodated by the adjacent transport network.