WEST OF LOUGHBOROUGH

TRANSPORT ASSESSMENT

August 2014

WILLIAM DAVIS

PERSIMMON
Together, we make a home

WYG Transport Planning

Persimmon Homes and William Davis

West of Loughborough Sustainable Urban Extension

Transport Assessment

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EXECUTIVE SUMMARY

Summary of Transport Strategy

The approach to the sustainable transport for WoLSUE focuses on the following elements which is fully in accordance with the draft Core Strategy:

- Provision of a mixed use development – this will reduce the need to travel to other locations.
- Improvements to walking and cycling as modes of transport for short distance trips.
- Improvements to bus infrastructure and services as a mode of transport for short or long distance trips.
- Provision of complementary Travel Plan and Smarter Travel measures.
- Early phasing of the above measures to ensure sustainable transport choices are made from day one of occupation.
- A Strategic Link Road between the A512 and A6 – the route through the Registered Park is agreed with English Heritage. The applicants flood risk consultants have confirmed that the road bridge over the Black Brook is agreed with the Environment Agency.
- A 'secondary' vehicular access on to Hathern Road.
- Targeted highways improvements where there is residual car demand.
- Fully compliant with National and Local planning policies.

High density/mixed use development

Key features of the masterplan which reduce the need to travel outside of WoLSUE and increase the scope to make these trips by walking and cycling include:

- Mix of housing/schools/community facilities/employment within the site i.e. providing all key facilities together on site which are well connected by walk/cycle/public transport linkage.
- Street hierarchy where people are given priority over cars.

Walking and Cycling

There are a number of important walking/cycling routes within the site offering linkages to the following key areas, which are within reasonable walking/cycling distance of WoLSUE:

- Existing secondary schools in Thorpe Acre and Shepshed – ranging from 1 – 4km from the centre of the site.

- Loughborough University, the existing Science Park and the future Science Park Extension as outlined in the draft of the Core Strategy – approximately 2.5 – 3km from the centre of the site.
- Bishop Meadow Industrial Estate – approximately 3km from the centre of the site.
- Loughborough and Shepshed town centres – approximately 4km and 1.5km respectively from the centre of the site.
- Thorpe Acre residential area and Gorse Covert District Centre (including Morrisons foodstore) – approximately 1.5km from the centre of the site.
- Shepshed residential area – approximately 1.2km from the centre of the site.

Therefore, a large proportion of trips associated with WoLSUE will be short in length and hence easily made by walking or cycling. Existing routes within the site will be improved and new routes will be provided. The package of proposals will ensure sustainable connections are provided along the full extent of the eastern and western boundaries of the site. These will provide pedestrians and cyclists with direct links to all key destinations in Loughborough and Shepshed. The following walking, cycling and equestrian improvements are proposed within the site:

- Proposed shared footway/cycleway adjacent to both sides of the proposed Strategic Link Road (between Coach Road and the A6) and the southern side of the Hathern Road Link.
- Improvements to existing National Cycle Network route aligned east to west through the site.
- Improvements to existing bridleway aligned east to west through the site.
- Creation of a network of permeable walking, cycling and equestrian routes within Garendon Park.
- Creation of a network of new walking, cycling and equestrian routes within the developable area providing safe, convenient and direct routes through the site.

These improvements will provide a comprehensive network of walking, cycling and equestrian routes within the site. Through provision of a network of walking, cycling and equestrian routes, several connections will be provided into existing areas of Loughborough and Shepshed as follows:

- A6 – walking, cycling and equestrian connections to the north of Loughborough providing access to the Dishley Grange consented employment site and Bishop Meadow Industrial Estate.
- Black Brook – walking connection to Gorse Covert District Centre, Robert Bakewell Primary School and Loughborough town centre.
- Coe Avenue – National Cycle Route connection towards the University and Loughborough town centre.

- Thorpe Acre – walking connections to local destinations.
- Disused Railway Line – creation of a walking/cycling route towards the University and Loughborough town centre.
- Existing access to Garendon Park – open the existing private vehicle access to Garendon Park as a walking/cycling connection towards the future Science Park Extension.
- Coach Road – open Coach Road as a walking/cycling connection to Shepshed.
- Butthole Lane - National Cycle Route connection to Shepshed / Loughborough.
- Bridleway connection to Hathern Road – key link for equestrians to local riding centres.
- Hathern Drive – creation of a walking/cycling route to the A6.
- Hathern Road connections – creation of a walking/cycling route and an additional walking route to Hathern Road.
- Walking route to the north of the site.

Bus

Bespoke WoLSUE bus services are proposed from first occupation of the development. Once WoLSUE is fully built out, a circular bus route will be provided between WoLSUE and Loughborough town centre via Bishop Meadow Industrial Estate, Loughborough University and the Science Park. The service will operate a 30 minute frequency daytime Monday to Saturday and an hourly frequency evenings and Sundays.

In accordance with the 6Cs Design Guide WoLSUE bus stops are proposed to ensure that '*generally walking distances to bus stops in urban areas should be a maximum of 400m'*.

Travel Plan and Smarter Travel Measures

Complementary measures to encourage walking, cycling, bus and car sharing as modes of transport will include:

- A Travel Plan Co-ordinator for the site will manage implementation of the Travel Plan and future monitoring.
- Subsidised bus transport for residents – to encourage greater bus use.

Vehicular Access

Two main points of vehicular access are proposed

- A6 (roundabout junction)
- A512 (signal controlled roundabout junction)

In addition, a secondary access will be provided from Hathern Road.

Highway Improvements

The proposed Strategic Link Road has significant Loughborough wide benefits in terms of existing traffic re-routing from existing routes on to the Strategic Link Road. The main exception to this is at M1J23 where there is a material increase in traffic as a result of the West of Loughborough Growth Area. Highway improvements have been identified to mitigate this impact for which contributions from WoLSUE and the Science Park Extension are required (and Shepshed developments subject to discussion with CBC/LCC). Mitigation is also required at the A512/Epinal Way junction and the A6/Bishop Meadow Road/Warwick Way junction which WoLSUE will contribute fully to to mitigate the WoLSUE impact.

Based on a worst case 2031 highway capacity assessment (this assumes a modal share for the site without taking into account the extensive walking, cycling and bus improvements as well as the supporting Travel Plan and Smarter travel initiatives) highway capacity improvements will be required at the following locations:

- M1J23 – contribution towards fully signal controlled scheme following completion of 840 dwellings. The improvement scheme will operate within capacity at the 2031 assessment year i.e. following development completion.
- A512 Site Access – contribution towards a signal controlled roundabout to serve WoLSUE and the Science Park Extension following completion of 600 units.
- A512 – contribution towards dualling of the A512 between M1J23 and the A512/Snells Nook Lane junction following completion of 840 units. In all likelihood these works may need to be incorporated into the A512 Site Access works.
- A512/Epinal Way junction – re-sequencing of signals following completion of 840 dwellings. The improvement scheme will operate within capacity at the 2031 assessment year (i.e. following development completion).
- A6/Bishop Meadow Road/Warwick Way junction – introduce signal control on the Bishop Meadow Road arm of the junction and improve the lane allocations on the A6 (north) arm of the junction following completion of 840 dwellings. The improvement scheme will operate on a nil-detriment basis at the 2031 assessment year i.e. following development completion.

1 INTRODUCTION

1.1 PREAMBLE

1.1.1 WYG has been appointed by Persimmon Homes and William Davis to prepare a Transport Assessment (TA) for a proposed Sustainable Urban Extension (SUE) on land to the west of Loughborough (subsequently referred to as WoLSUE). The site location is shown on **Figure 1**.

1.1.2 The site is allocated in the draft of the Charnwood Borough Council Core Strategy for a SUE consisting of approximately 3,000 homes, 16ha employment, a local centre, education provision and open space. WoLSUE forms part of the 'West of Loughborough Growth Area' which also includes an extension to the existing Science and Enterprise Park to the south of WoLSUE and the A512. As of April 2014, the Core Strategy Examination In Public (EIP) has been suspended by the Planning Inspectorate for approximately 9 months.

1.1.3 This TA has been prepared in accordance with the guidelines in the joint Department for Transport (DfT) and the Department for Communities and Local Government (DCLG) document 'Guidance on Transport Assessment' and should be read alongside the accompanying Framework Travel Plan (Report number RT84018-5 dated 6 August 2014).

1.1.4 Leicestershire County Council (LCC) are the local highway authority and Charnwood Borough Council (CBC) are the local planning authority. The M1 is located adjacent to the western boundary of the site. The Highways Agency (HA) are responsible for maintaining the M1.

1.2 PROPOSED DEVELOPMENT

1.2.1 As outlined in paragraph 10.7 of the draft Core Strategy, WoLSUE forms part of the 'West of Loughborough Growth Area' which also includes an extension to the existing Science and Enterprise Park to the south of WoLSUE and the A512. CBC's Strategic Housing Land Availability Assessment (SHLAA) process identified the site and established it as having no known irresolvable environmental or physical constraints to development and that it is in a suitable growth location adjacent to Loughborough. This is supported by the positive allocation of the site in Policy CS22 of the draft Core Strategy.

1.2.2 The Core Strategy goes on to state that the Science Park Extension will compliment WoLSUE by providing employment opportunities and reducing the need to travel. Paragraph 10.51 of

the draft Core Strategy states that the Science Park Extension *"will be expected to contribute towards infrastructure in conjunction with the West of Loughborough Sustainable Urban Extension."*

1.2.3 Outline planning permission is sought for residential development up to 3,200 dwellings; up to 16 ha of employment land of B1/B2 and B8 uses, a mixed use Community Hub of up to 4ha comprising a local convenience retail unit (2,000 sqm); up to 1,000 sqm of other A1 retail, A2 financial and professional services, A3 food and drink, B1 business and D1 uses; sites for Gypsy and Traveller provision totalling 1 ha, two primary schools up to 2 ha each; strategic open space including allotments; access roads and new Strategic Link Road; open space / landscaping and associated works; principal means of access; restoration of Garendon Park and assets; all other matters to be reserved. The proposed masterplan is presented in **Appendix A**.

Residential

1.2.4 3,200 dwellings are proposed across the site within reasonable walking and cycling distance of proposed employment/retail/leisure/community facilities. While layout, scale and appearance will be considered through the detailed planning application stage, the proposal is capable of providing a mix and range of housing that will meet the needs of the local area and contribute to sustainable development. This will ensure that the provision of housing meets the needs of the wider Loughborough/Shepshed area.

Employment

1.2.5 Draft Policy CS22 requires 16 ha of employment land to be provided at WoLSUE. At a cautious average density of 50 jobs per hectare, WoLSUE can be expected to yield at least 800 job opportunities in the Core Strategy plan period. Employment is proposed adjacent to the local centre and community facilities as follows:

- 6,000sqm Gross Floor Area (GFA) office
- 22,400sqm GFA industrial
- 33,700sqm GFA warehousing

1.2.6 It is anticipated that the identified land and the wider development will provide a range of employment opportunities across several sectors and types. It is expected that new jobs will be created directly through the provision of 16 ha of employment land, led by the local market, with additional employment generated within the community hub and primary schools. Further employment will also be created through the restoration and management of Garendon Park as well as extensive construction jobs generated through the envisaged 16 year construction phase of the development. The employment areas will be highly accessible to the working age population residing in WoLSUE and in local adjoining communities and neighbourhoods facilitated by the provision of enhanced and new cycle and pedestrian routes through the green infrastructure network and enhanced and new bus routes.

Community Facilities

1.2.7 In accordance with paragraphs 10.18 to 10.20 of the draft Core Strategy, WoLSUE will include a range of community facilities at the heart of the development to reduce the need to travel and provide a focal point for the local community. In accordance with paragraph 10.22 of the draft Core Strategy a range of uses are proposed to meet the day to day needs of the future WoLSUE community. Proposed community facilities consist of:

- A 3,000sqm net floor area local centre consisting of a 2,000sqm convenience store and ancillary local retail units and community uses where land is proposed to be marketed through an agreed programme in the context of the Planning Obligation.

- A 1.5 Form Entry Primary School and a 2 Form Entry Primary School to meet the estimated demand for school places from WoLSUE. Primary schools are strategically located to reduce the distance from residential areas in order to reduce the need to travel by car.

- Restoration of Garendon Historic Park and Gardens and opening of the Park for public access including restoration of heritage assets within the park. It is agreed with English Heritage that the continued use of the open parts of the Park as farmland is desirable with managed public access through the opening of walking, cycling, equestrian routes for public use. Public access to these routes can be provided within the first two years of the commencement of development. The restoration of the Park is proposed to be undertaken in phases. It is also agreed that several of the existing farm buildings in the north of the Park can be converted to form part of a managed

visitor centre associated with the Park where access would be taken from the residential development in the south east part of the new residential areas. A small car park will be provided at the visitor centre. The visitor centre will be a point of arrival from which many people will be introduced to the park, and from this point they will be able to explore the park and enjoy the historic garden structures (such as the Temple of Venus and the obelisk) and through the restored 18th century avenues. The overall approach is to retain the character of the historic park and not to introduce change in the form of a managed 'country park'. As agreed with English Heritage the Park will be a community park serving as a local amenity for both future residents of WoLSUE and exiting Loughborough and Shepshed residents. Opening of the visitor centre will follow the completion of the proposed Strategic Link Road and internal development roads in this part of the site.

- Sports facilities will be provided. Core sports facilities are expected to be delivered between 2023 and 2025. It is possible that some of the outdoor playing fields can be provided at an earlier stage, subject to agreement over future management and maintenance arrangements.

- A range of play facilities are proposed to ensure a wide range of needs are met and accessibility is provided for all user groups.

- Allotments will be provided to serve future WoLSUE residents.

1.2.8 Therefore, with a range of local facilities on-site the overall need to travel off-site is reduced. Likewise with the walking/cycling improvements proposed on-site then trips to local facilities, employment and Garendon Park are likely to use non-car modes of transport.

1.2.9 Vehicular access to the site is proposed from the A6, A512 and Hathern Road. A Strategic Link Road will be provided through the site between the A6 and A512 site accesses. The Strategic Link Road is a key mitigation measure for WoLSUE because it will reduce traffic flows elsewhere in Loughborough. The Hathern Road access will be designed as a secondary access with traffic calming provided on the road between the Hathern Road access and the proposed Strategic Link Road following a request by LCC.

1.2.10 The draft Core Strategy identifies a package of transport improvements as part of WoLSUE as follows:

- *"new and improved cycling and walking routes, well related to the green infrastructure network, connecting to new and existing employment areas including the Science & Enterprise Park and Dishley Grange, new and existing centres and Garendon Historic Park and Garden;*
- *new and enhanced bus services linking the new community with local employment opportunities, Loughborough Town Centre, Shepshed District Centre and Loughborough Railway Station;*
- *a new road providing the function of a high street where is passes through the new main centre;*
- *a new strategic distributor road through the development to connect to the A512 at the south and the A6 (south of Hathern) to the north;*
- *a new road link from the distributor road to Hathern Road;*
- *dualling of the A512 between Snell's Nook Lane and M1 motorway J23;*
- *capacity improvements to M1 motorway J23; and*
- *other network improvements as identified by an appropriate Transport Assessment."*

1.2.11 As outlined in this TA the WoLSUE proposes transport improvements in line with those identified in the Core Strategy and is therefore fully in accordance with the draft Core Strategy.

1.3 KEY TRANSPORT ISSUES AFFECTING THE DEVELOPMENT

1.3.1 The key issues are summarised as follows:

- Through development of the masterplan it has been ensured that the correct mix of development is provided on site so that people can live, work, go to school, carry out recreational activities and shop all within WoLSUE - this will reduce the need to travel.
- Through the masterplan an extensive network of walking and cycling routes has been provided with pedestrians and cyclists having overall priority in the street hierarchy.

- Where people do need to travel outside of WoLSUE then the street hierarchy provides direct connections to existing walking and cycling routes outside of WoLSUE. Walking/cycling improvements are proposed both within and adjacent to the site.
- Public transport access into and through WoLSUE is a key issue. The street hierarchy has been developed so that all households are generally within 400m of a bus stop. Bespoke bus services will be provided from first occupation to key local destinations.
- Phasing of the walking/cycling/bus infrastructure is critical to ensure sustainable transport choices are made from the outset.
- A Framework Travel Plan has been developed to maximise the potential of Travel Plan/Smarter Choices initiatives (Report number RT84018-5 dated 6 August 2014).
- Vehicular access is a key issue for WoLSUE – in particular the capacity of the surrounding highway network to accommodate additional traffic from WoLSUE. A package of highway improvements is proposed to ensure WoLSUE is developed on a nil detriment basis (as a minimum).

1.4 WORK TO DATE

1.4.1 WYG form part of the project team for WoLSUE and since August 2013 have been providing ongoing transport planning support to the project team.

1.4.2 A WoLSUE Transport Working Group (TWG) was created in August 2013. The transport strategy work for WoLSUE has been carried out in close partnership with members of the TWG which consists of:

- Charnwood Borough Council
- Leicestershire County Council
- Highways Agency
- Persimmon Homes
- William Davis

- WYG

1.4.3 Meetings are held on a monthly basis to discuss key transport issues relating to WoLSUE, in particular issues related to the masterplan and preparation of the TA and Travel Plan. Copies of meeting minutes are presented in **Appendix B**. As part of the TWG, various key transport issues have been discussed and agreed including:

- Masterplan and proposed Street Hierarchy
- Public Transport Strategy
- Travel Plan/Sustainable Transport Strategy
- Trip Generation and Distribution
- Agreed approach on modelling for the Transport Assessment

1.4.4 The purpose of the TWG is to allow formulation and delivery of a transport strategy for WoLSUE, which produces the optimum solutions and outcomes in respect of sustainable transport objectives. The early formation of the TWG has facilitated a high degree of consultation on the proposed development and the transport implications of such, and has allowed co-operation between key stakeholders on assessment tools and methodology and transport strategy formulation.

1.4.5 Through liaison with the TWG, the following reports relevant to the TA have been agreed:

- Transport Assessment and Framework Travel Plan Scoping Report (11/09/13)
- Manual Methodology Scoping Note (21/01/14)
- Response to LCC Manual Methodology Scoping Note Comments (12/02/14)
- Response to HA Technical Note 2 (13/02/14)

1.4.6 In addition, meetings have been held with LCCs public transport team and local bus operators as follows:

- LCCs Public Transport Officer (16.09.13)

- Kinchbus (01.10.13)
- Paul S Winson (07.10.13)
- Arriva (15.10.13)

1.4.7 A number of meetings have also been held to discuss the alignment of the Strategic Link Road through Garendon Park. Joint meetings have been held with English Heritage (EH), CBC and LCC. Joint site visits have been held with EH, CBC and LCC and discussions have been held with the HA. WYG issued a 'Strategic Link Road Route - Options Review Report' on 22/11/13 to EH, CBC and LCC. WYG also issued a 'Strategic Link Road Route - Options Appraisal Report' on 18/02/14 to EH, CBC and LCC. EH have confirmed on 27/05/14 that they would not object to a planning application with the now proposed Strategic Link Road layout (see **Appendix E**)

1.5 DESIGN PRINCIPLES

1.5.1 Guiding principles for sustainable transport have been incorporated in the masterplan for WoLSUE. The approach to sustainable transport for WoLSUE focuses on the following elements in line with current Government thinking:

- Ensuring that development is located in the most sustainable places;
- Minimising the number and length of trips;
- Transport demand management measures;
- Promotion of the use of more sustainable transport;
- Public transport improvements, including infrastructure and services;
- Making the best use of the transport network;
- Essential highway capacity improvements.

1.5.2 It is considered that the site is a suitable location as a SUE because:

- a mixed use scheme will provide the ability for the undertaking of every day activities within the development area without the need for motorised journeys elsewhere, thus achieving the aim of minimising carbon emitting trips;

- the density and mix of uses will provide the opportunity for people to live nearer to work, with ease of access by more sustainable modes of transport;
- development at WoLSUE will allow ease of access to destinations in Loughborough and Shepshed by walking, cycling and public transport, minimising car trips and reducing travel distances to key activities; and
- there is ease of access to existing bus services adjacent to the site and opportunities to complement and enhance existing service provision as part of WoLSUE.

1.5.3 WoLSUE is anticipated to be developed over a 16 year period, with the development trajectory phased to 2031. In accordance with the requirements of the draft Core Strategy 2,500 homes will be delivered by 2028. Such timescales represent challenges in terms of forecasting and planning for transport over the development phasing period, given the potential for a range of influences such as technological advances and innovation, government legislation and regulation, behavioural changes, market conditions and investment in more sustainable transport systems. A transport strategy is therefore required that can be adaptive to change as the project develops, with flexibility to allow the most effective transport interventions to be formulated and implemented to best achieve sustainable transport objectives over the lifetime of scheme development. This TA therefore provides a strategic document, which identifies transport impacts and potential mitigation measures for dealing with the impacts.

1.6 PUBLIC CONSULTATION

1.6.1 A public exhibition event was held on Thursday 7th November 2013 at Loughborough Town Hall between 15:00 and 20:00. The purpose of the public consultation was to present and consult on the emerging masterplan, to establish relationships with the existing communities and to gather detailed information on a number of areas and to understand the level of support for the overriding principles shaping the masterplan. Key transport and highways issues raised at the public exhibition were:

- Concern regarding an increase in traffic flows within Loughborough and Shepshed.
- The need to provide appropriate and safe vehicular site accesses.
- The need to provide suitable mitigation. Concern that the proposed Strategic Link Road might not deliver suitable mitigation.

- The proposals should include high quality walking, cycling and public transport routes.

1.6.2 This TA addresses the transport/highways issues raised at public consultation.

1.7 REPORT FORMAT

1.7.1 The structure of this report is as follows:-

- Chapter 2 outlines the planning documents that have been considered;
- Chapter 3 summarises existing conditions;
- Chapter 4 describes the development proposals;
- Chapter 5 presents sustainable transport proposals;
- Chapter 6 summarises the highway assessment methodology; and
- Chapter 7 presents highway capacity assessment results.

2 PLANNING POLICY

2.1 PREAMBLE

2.1.1 The objectives for the development have been defined taking into account national and local policies that seek to safeguard the environment and resources and to put into practice the principles of sustainable development. Consideration has been given to the following documents.

National

- Transport White Paper: 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen'
- National Planning Policy Framework
- The Strategic Link Road Network and the Delivery of Sustainable Development (DfT Circular 02/2013)
- Guidance on Transport Assessment
- Building Sustainable Transport into New Developments
- Smarter Choices – Changing the Way We Travel (2004)
- Manual for Streets and Manual for Streets 2

Local

- Charnwood Core Strategy Draft
- Charnwood Borough Local Plan
- Leicestershire County Council – Local Transport Plan 3
- Leicestershire Rights of Way Improvement Plan
- 6C's Design Guide

2.2 NATIONAL

Transport White Paper: 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen'

2.2.1 The White Paper 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen' (January 2011) sets out the government's vision "...*for a transport system that is an engine for economic growth but one that is also greener and safer and improves quality of life in our communities*".

2.2.2 The two key themes of the White Paper are:

- Offering people sustainable transport choices, particularly for shorter journeys, that will stimulate behavioural change.
- Demonstrating how localism and the big society can work for transport.

2.2.3 The stated DfT priority for local transport is:

- Priority for local transport - Encourage sustainable local travel and economic growth by making public transport and cycling and walking more attractive and effective, promoting lower carbon transport and tackling local road congestion.

2.2.4 WoLSUE is well connected in relation to Shepshed and Loughborough with significant opportunity for travel by non-car modes. Development at WoLSUE includes improvements to pedestrian, cycling and equestrian routes as well as provision of bespoke bus services. A comprehensive Travel Plan has also been produced (Report number RT84018-5 dated 6 August 2014) which includes measures and initiatives to encourage sustainable travel. WoLSUE is therefore fully in accordance with the Transport White Paper.

National Planning Policy Framework

2.2.5 The National Planning Policy Framework was published on 27 March 2012 and constitutes guidance for local planning authorities and decision-takers both in drawing up development plans and as a material consideration in determining applications. The NPPF replaces previous planning policy statements and planning policy guidance, including PPG13. However, the principles of good transport planning contained within PPG13, whilst no longer material

planning considerations, remain useful as a guide when preparing supporting transport planning documents.

2.2.6 At the heart of the NPPF is a presumption in favour of sustainable development. In terms of transport, one of the core planning principles is to actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are, or can be made sustainable.

2.2.7 The NPPF states that developments should be located and designed where practical to give priority to pedestrian and cycle movements, and have access to high quality public transport facilities; create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians; and consider the needs of people with disabilities by all modes of transport.

2.2.8 WoLSUE is well connected in relation to Shepshed and Loughborough with significant opportunity for travel by non-car modes. Development at WoLSUE includes improvements to pedestrian, cycling and equestrian routes as well as provision of bespoke bus services. A comprehensive Travel Plan has also been produced (Report number RT84018-5 dated 6 August 2014) which includes measures and initiatives to encourage sustainable travel. WoLSUE is therefore fully in accordance with the NPPF.

The Strategic Link Road Network and the Delivery of Sustainable Development

2.2.9 This document was issued in February 2013 and sets out the way in which the Highways Agency engage with communities and developers to deliver sustainable development and thus economic growth whilst safeguarding the primary function and purpose of the strategic road network.

2.2.10 The scope of this TA has been agreed with the HA as part of the monthly TWG meetings. The methodology applied has been agreed in accordance with the guidance set out in this document.

Guidance on Transport Assessment

2.2.11 The joint Department for Transport (DfT) and the Department for Communities and Local Government (DCLG) document 'Guidance on Transport Assessment' provides guidelines on the

scope and assessment methodology to be applied when preparing a TA. This TA follows these guidelines and has been prepared using a methodology agreed with the TWG.

Building Sustainable Transport into New Developments

2.2.12 The DfT's 'Building Sustainable Transport into New Developments' sets out the Government's advice on how to build an effective sustainable transport system in new developments, from planning to the implementation stage. The document recommends a variety of different transport options to integrate and adopt according to the location and needs of each individual development.

2.2.13 Examples of design features that the document identifies to encourage sustainable transport usage include:

- Comprehensive direct networks for walking, cycling and public transport;
- Limited private vehicle access to homes and services;
- Situating key services such as health centres and schools in central locations within the town;
- Traditional compact town layouts;
- Inclusive street environments that aim to integrate the activities of pedestrians, cyclists and motorists;
- Car-free areas within a development;
- Pedestrianised shopping areas which are served by direct cycle routes and public transport; and
- Joined-up transport networks with good interchanges.

2.2.14 The document goes on to state that 'walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes walking distance (around 800 metres)'

2.2.15 The proposed masterplan has a range of facilities within a 10 minute walking distance and where appropriate includes many of the design features outlined in the 'Building Sustainable Transport into New Developments' document.

Smarter Choices – Changing the Way We Travel

2.2.16 The publication of the "Smarter Choices – Changing the Way We Travel" report by the Department for Transport (DfT) provided reinforcement of the stature of soft factors within the overall context of transport planning. These soft factors encompass workplace and school travel plans, as well as other initiatives such as car sharing schemes, car clubs, personalised journey planning, teleworking, teleconferencing, information and marketing, and home shopping.

2.2.17 These measures are becoming increasingly important issues for the Department for Transport (DfT), and the provision of targeted information, marketing and incentives are receiving much higher priority. The research into 'soft' factors that was published in the report has been viewed as a significant milestone. As such, soft factors have a role in their own right in raising awareness of the available journey options and as a support measure for other more traditional interventions in the transport arena, such as mobility management schemes, infrastructure and service-related measures.

2.2.18 A Framework Travel Plan has been prepared for WoLSUE which includes a comprehensive package of Smarter Choices measures (Report number RT84018-5 dated 6 August 2014).

Manual for Streets and Manual for Streets 2

2.2.19 The Manual for Streets is applicable to the design, construction, adoption and maintenance of streets. It encourages those involved in the design process to think creatively about their various roles in the delivery of streets, breaking away from standardised, prescriptive, risk-averse methods to create high quality places. The emphasis of design should be on prioritising the needs of pedestrians, cyclists and public transport.

2.2.20 The Manual for Streets 2 (MfS2) document was published in September 2010. MfS2 does not supersede the Manual for Streets and is a companion document that explains how the principles of the Manual for Streets can be applied more widely. MfS2 demonstrates through guidance and case studies how these principles can be extended beyond residential streets to

encompass both urban and rural situations. The proposed masterplan has been informed by the Manual for Streets and the Manual for Streets 2.

2.3 LOCAL

Draft Charnwood Core Strategy

2.3.1 WoLSUE forms part of the 'West of Loughborough Growth Area' as outlined in the draft of the Charnwood Borough Council Core Strategy. In addition to WoLSUE, the growth area includes an extension to the existing Science and Enterprise Park to the south of the A512. As of April 2014, the Core Strategy Examination In Public (EIP) has been suspended by the Planning Inspectorate for approximately 9 months.

2.3.2 WoLSUE is included in Policy CS 22. The Policy identifies a SUE consisting of approximately 3,000 homes, 16ha employment, a local centre, education provision and open space. The proposed masterplan includes these land uses.

2.3.3 The draft Core Strategy identifies a package of transport improvements as part of WoLSUE as follows:

- new and improved cycling and walking routes, well related to the green infrastructure network, connecting to new and existing employment areas including the Science & Enterprise Park and Dishley Grange, new and existing centres and Garendon Historic Park and Garden;
- new and enhanced bus services linking the new community with local employment opportunities, Loughborough Town Centre, Shepshed District Centre and Loughborough Railway Station;
- a new road providing the function of a high street where is passes through the new main centre;
- a new strategic distributor road through the development to connect to the A512 at the south and the A6 (south of Hathern) to the north;
- a new road link from the distributor road to Hathern Road;
- dualling of the A512 between Snell's Nook Lane and M1 motorway J23;

- capacity improvements to M1 motorway J23; and
- other network improvements as identified by an appropriate Transport Assessment.

2.3.4 As outlined in this TA, WoLSUE proposes transport improvements in line with those identified in the Core Strategy and is therefore fully in accordance with the draft Core Strategy.

2.3.5 The extension to the Science and Enterprise Park is included in Policy CS 23. The extension will form phases 3 and 4 of the existing Science and Enterprise Park which opened in 1992. The Science Park extension covers an area of 77ha with 35ha on land south of the A512 and east of Snells Nook Lane, and 42ha on land south of the A512 and west of Snells Nook Lane. The draft Core Strategy identifies that the Science and Enterprise Park will deliver at least 111,000sqm of floor space by 2028 focusing on technology and research/development industries. One of the accesses to the Science Park extension is likely to be shared with the proposed A512 WoLSUE access and it will therefore be important that any access proposals for WoLSUE are not detrimental to the future extension of the Science Park. Furthermore, CBC, LCC and the HA have requested that the cumulative impact of both WoLSUE and the Science Park extension are considered in this TA. This is addressed in **Chapter 6**.

2.3.6 In addition to the 'West of Loughborough Growth Area' the draft Core Strategy identifies Shepshed as a 'direction for growth' with the opportunity to deliver at least 500 homes by 2028. CBC, LCC and the HA have requested that the cumulative impact of both WoLSUE and possible future development in Shepshed are considered in this TA. This is addressed in **Chapter 6**.

Charnwood Borough Local Plan

2.3.7 The current Borough of Charnwood Local Plan was adopted in January 2004. The Plan retained Development Plan status until September 2007. After this date only policies specifically agreed by the Secretary of State have retained this status. The following section summarises relevant Transport Policy objectives in the Plan which have been retained:

Policy TR/5 (Transport Standards for New Development):

2.3.8 "Planning permission will be granted for development which is, or forms part of a larger scheme, for 25 or more dwellings … where the development is in an urban location well

served, or capable of being well served, by non-car modes and having short walking, cycling and public transport links to town and district centres or existing rail stations."

2.3.9 The site should fall "within approximately 400 metres of a potential bus route, with bus shelters, bus lay-bys and information points provided at main stops" and "the needs and safety of pedestrians should be met in terms of access to the site and the inclusion of an integrated public footpath system which avoids roads wherever possible and provides … linkages with the established network outside the site, and safe road crossings where needed."

2.3.10 "The needs and safety of cyclists" should be "met in terms of access to the site and the inclusion of special features such as cycleways, cycle lanes, safe cycle crossings and direct links between land uses, and between the site and adjoining cycleway provision."

2.3.11 "Proposals should make "adequate provision for vehicular access and circulation, highway design and layout and servicing arrangements. In approving detailed housing layouts the Borough Council will expect schemes to utilise the lowest order of road compatible with the scale of development to be served."

2.3.12 In order to satisfy Policy TR/5, the WoLSUE masterplan has been developed with a comprehensive network of pedestrian and cycle routes both within the site and to existing local destinations. The street hierarchy has been developed so that all households will generally be within 400m of a bus stop and bespoke bus services are proposed from development opening. The internal road layout has been developed using the 6Cs Design Guide and the Manual for Streets 1 and 2.

Policy TR/6 (Traffic Generation from New Development):

2.3.13 "Planning permission will not be granted for development on non-designated sites where the impact of traffic generated by an individual proposal or the cumulative impact together with other committed and allocated development in the locality would result in unsafe and unsatisfactory operation of the highway system; or have a significant adverse impact on the environment… In all cases measures should help to reduce car use to and from development and contribute to genuine and effective transport choice facilities through the encouragement of walking, cycling and the use of public transport for occupiers jointly or separately. New development must be acceptable in terms of its impact on the existing highway network… Developments will not be permitted which would add unacceptably to congestion and delay,

generate additional on-street car parking and manoeuvring, or damage local amenities particularly in residential areas."

2.3.14 Where necessary, this TA identifies highway capacity improvements to mitigate the impact of WoLSUE. The proposed development is therefore fully in accordance with Policy TR/6.

Policy TR/13 (Access for Cyclists and Pedestrians):

2.3.15 "The Borough Council will seek to develop its strategy for a network of pedestrian and cycle routes by direct funding and through development proposals in this Plan. The Borough Council will also seek to negotiate contributions to secure off site connections into and improvements to the wider networks of footways and cycle routes where this is practicable and directly related to development schemes. Planning permission will not be granted for development schemes that fail to comply with briefs designed to develop the strategy or to meet the standards for footway and cycle routes contained in Supplementary Planning Guidance. Routes along which measures will be encouraged to make cycling safer and more attractive and which will be protected from development proposals likely to prejudice their use for cycling are shown on the Proposals Map."

2.3.16 In order to satisfy Policy TR/13, the WoLSUE masterplan has been developed with a comprehensive network of pedestrian and cycle routes both within the site and to existing local destinations.

Policy TR/18 (Parking Provision in New Development):

2.3.17 "Planning permission will not be granted for development unless off-street parking for vehicles, including cycles, and servicing arrangements are included to secure highway safety and minimise harm to visual and local amenities."

2.3.18 In order to satisfy Policy TR/18, parking will be provided in accordance with the latest parking standards.

Leicestershire County Council – Local Transport Plan 3

2.3.19 The third Local Transport Plan (LTP3) for the County of Leicestershire, covers the period up to 2026 and was adopted on 1st April 2011. It sets out the long-term transport strategy and vision for transport to 2026 and provides a framework for how the County Council will manage and develop their transport system in the future.

2.3.20 The long term vision for the transport system in Leicestershire is:

> *"Leicestershire to be recognised as a place that has, with the help of its residents and businesses, a first class transport system that enables economic and social travel in ways that improve people's health, safety and prosperity, as well as their environment and their quality of life."*

2.3.21 LTP3 has 6 strategic transport goals. These are:

- *Goal 1 – a transport system that supports a prosperous economy and provides successfully for population growth*
- *Goal 2 – an efficient, resilient and sustainable transport system that is well managed and maintained*
- *Goal 3 – a transport system that helps to reduce the carbon footprint of Leicestershire*
- *Goal 4 – an accessible and integrated transport system that helps promote equality of opportunity for all our residents*
- *Goal 5 – a transport system that improves the safety, health and security for our residents*
- *Goal 6 – a transport system that helps to improve the quality of life for our residents and makes Leicestershire a more attractive place to live, work and visit*

2.3.22 The location of the site will mean people are within easy reach of a range of transport options which give people the choice to travel using modes other than the private car.

Leicestershire Rights of Way Improvement Plan

2.3.23 The Leicestershire Rights of Way Improvement Plan (ROWIP) considers how best to manage and develop the Rights of Way network in the County. The following policies are relevant to WoLSUE:

Policy P3: Developers will be expected to maximise the potential for access within, to, and from new developments by walking and cycling. This should include links to travel plans and public transport.

Policy P4: Infrastructure assessments to access new development sites, including for developer contributions, should include foot and cycle proposals.

Policy P5: Consideration should be given to linking new housing sites into the surrounding recreational networks or where there isn't one, creating routes that link to surrounding paths, communities or facilities.

2.3.24 In accordance with the Policies in the ROWIP, the proposed WoLSUE development includes improvements to existing Public Rights of Way as well as the creation of new walking, cycling and equestrian routes. This will maximise connections with existing facilities and amenities in Loughborough and Shepshed.

6C's Design Guide

2.3.25 The '6C's Design Guide' deals with highways and transportation infrastructure for new developments in areas for which Leicestershire County Council, Leicester City Council, Nottinghamshire County Council, Derbyshire County Council and Derby City Council are the highway authorities. The proposed masterplan has been designed using the 6C's Design Guide.

2.4 SUMMARY

2.4.1 WoLSUE will be designed in accordance with policy objectives set out in national and local policies. The site is allocated in the draft Core Strategy and this TA has been prepared in accordance with the requirements of the relevant Policy. The site is well located close to existing sustainable transport infrastructure and is accessible for cyclists, pedestrians and public transport users. The site is located close to Loughborough town centre where residents are likely to travel to for local services. On balance the site location and proposed use is considered to accord well with the national and local transport policy objectives summarised in this chapter.

3 EXISTING CONDITIONS

3.1 INTRODUCTION

3.1.1 This Chapter outlines existing conditions at the site and within the surrounding area. The site location is shown on **Figure 1**.

3.2 OVERVIEW OF EXISTING SITE

3.2.1 The site covers an area of approximately 487.5Ha and is located north of the A512, west of Loughborough and east of the M1 and Shepshed.

3.2.2 Garendon Historic Park and Gardens is located in the southern part of the site and is in private ownership and is not currently open to the public. The remainder of the site is predominantly agricultural land. There are two Public Rights of Way (PROW) aligned east to west through the site and two PROW aligned north to south adjacent to part of the eastern and western site boundary.

3.3 EXISTING SITE ACCESS

3.3.1 There are a number of existing accesses to the site as shown on **Figure 1** and listed as follows:

- Existing A512 access to Garendon Park. This is a ghost island priority junction providing vehicular access to the existing internal private road network within Garendon Park.
- Coach Road. This is a private gated agricultural vehicular access to Garendon Park from Shepshed via a bridge under the M1.
- Butthole Lane / Coe Avenue. These accesses form part of the National Cycle Network (NCN) aligned east to west through the site and are for pedestrian/cycle access only.
- Black Brook (east). An existing designated footpath is aligned adjacent to the Black Brook providing access to the site from Loughborough.
- Pear Tree Lane / Black Brook (west). These accesses form part of a bridleway aligned east to west through the site.

- Hathern Road. An existing vehicular access is provided from Hathern Road to the existing civic amenity site. The civic amenity site does not form part of the development site.

- Hathern Drive. An informal path known as Hathern Drive extends in to the site from the A6 immediately south of Hathern. A gate is located at the A6 end of the path. The gate is usually closed meaning the path is not publicly accessible from the A6.

- Access to Lounds Farm. Lounds Farm is accessed from Hathern Road via a simple priority junction. Part of the access to Lounds Farm is outside of the planning application boundary.

3.3.2 It is generally possible to travel through the site from any site access via the internal network of Public Rights of Way (PROW), informal paths and private roads.

3.4 LOCALITY

3.4.1 **Figure 1** shows the site location and its connectivity with the local area. Existing walking, cycling and public transport connectivity is discussed in detail in **Sections 3.5** and **3.6** respectively. As also indicated in the Design and Access Statement, the site is located in a highly accessible location between Loughborough and Shepshed. Of particular note in the context of the site is the proximity to:

- Existing secondary schools in Thorpe Acre and Shepshed – ranging from 1 – 4km from the centre of the site.

- Loughborough University, the existing Science Park and the future Science Park Extension as outlined in the draft of the Core Strategy – approximately 2.5 – 3km from the centre of the site.

- Bishop Meadow Industrial Estate – approximately 3km from the centre of the site.

- Loughborough and Shepshed town centres – approximately 4km and 1.5km respectively from the centre of the site.

- Thorpe Acre residential area and Gorse Covert District Centre (including Morrisons foodstore) – approximately 1.5km from the centre of the site.

- Shepshed residential area – approximately 1.2km from the centre of the site.

3.4.2 The availability of existing employment, education, retail, leisure and other destinations in close proximity to the site is such that travel patterns associated with future development at the site are likely to be relatively short in distance. The key element in transport terms is ensuring the masterplan makes best use of the site's location and its connectivity with the surrounding area to ensure trips made by walking, cycling and public transport are maximised and trips by single occupancy car are kept to a minimum.

3.5 WALKING, CYCLING AND EQUESTRIAN CONNECTIVITY

3.5.1 Existing pedestrian and cycle routes are shown on **Figure 2**. Loughborough and Shepshed have a good network of existing pedestrian and cycle facilities and connections are provided between the two. Key existing infrastructure within and adjacent to the site includes:

- National Cycle Route 6 runs east to west through the centre of the site offering a connection with Loughborough and Shepshed. Further afield, the route provides a connection to Derby and Leicester.
- A bridleway is aligned east to west through the site between Coe Avenue in Loughborough and Hathern Road in Shepshed.
- Footpaths are aligned north to south adjacent to part of the eastern and western site boundaries.
- A disused railway line currently extends in to the south-eastern corner of the site. Immediately outside the site boundary the route is identified as an off-road surfaced / un-surfaced cycle route. This forms part of a route into the centre of Loughborough.
- Off road cycleways are located adjacent to the A6 Derby Road providing a route between Loughborough and areas to the north.
- Off road cycleways are located adjacent to the A512 providing a route between Loughborough and Shepshed.

3.5.2 The infrastructure identified above is in addition to a comprehensive network of off-street and on-street walking/cycling routes throughout Loughborough and Shepshed. Furthermore, there

are a number of informal paths/routes throughout the existing site e.g. on the top of the ridge to the north of the site and providing north to south connections.

3.5.3 Development at the site provides the opportunity for existing connections to be improved and enhanced. This will improve connectivity for development at the site but also for the existing Loughborough/Shepshed area.

Walking/Cycling Catchment Areas

3.5.4 In terms of what constitutes a reasonable walking distance and to understand the potential for future walking/cycling trips, it is necessary to consider what is realistic for a walking trip, and evidence for the assumptions made in this report are based on a number of documents.

3.5.5 The Chartered Institution of Highways and Transportation (CIHT) in their document 'Guidelines for Providing for Journeys on Foot' state that "walking accounts for over a quarter of all journeys and four fifths of journeys less than one mile". It goes on to state that 800m is the preferred maximum walking distance to town centres and 2km is the preferred maximum distance for commuting. This is also reflected in the 6Cs Design Guide which indicates that employment should be within a 2km walk (25 minutes). The Department for Transport (DfT) in their Transport Statistics on walking in Great Britain state that the average length of a walk journey is 0.6 miles (965m). It also indicates that 78% of all trips under 1 mile (1.6km) are carried out on foot. The National Planning Policy Framework (NPPF) replaces previous planning policy statements and planning policy guidance, including PPG13. However, the principles of good transport planning contained within PPG13, whilst no longer material planning considerations, remain useful as a guide when preparing supporting transport planning documents. PPG13 identifies walking as the most important mode of travel at the local level and that walking offers the greatest opportunity to replace short car trips of up to 2km.

3.5.6 It can be concluded therefore that distances up to 2km can be considered reasonable to be undertaken on foot, and that walking is a realistic mode to consider for trips within this distance. Whilst this does not preclude pedestrians from undertaking longer journeys, it is considered that a distance of 2km is reasonable.

3.5.7 A 2km walking catchment is presented in **Figure 3**. The 2km distance has been measured from each of the proposed site accesses. **Figure 3** demonstrates that there are a large

number of employment, retail and leisure destinations within a reasonable walking distance of the site including:

- Loughborough University
- Several Schools
- Existing Science Park
- Science Park Extension
- Bishop Meadow Industrial estate
- Gorse Covert District and Community Centre (including Morrisons foodstore)
- Proposed Dishley Grange employment site
- Shepshed Town Centre
- Shepshed employment areas

3.5.8 Given the excellent connectivity of the site and the large number of facilities and amenities within 2km of the site, there is considered to be significant opportunity for a large proportion of all development trips to be undertaken on foot. Walking is encouraged as the most appropriate mode of travel for local trips. Furthermore, there are also large areas of existing residential areas in Loughborough, Shepshed and Hathern (approximate population of 32,000 (2011 Census)) within reasonable walking distance of the site in terms of access to Garendon Park and WoLSUE proposed employment.

3.5.9 In much the same way as pedestrian trip lengths are defined, the length of cycling trips will be governed by routes that are available and trip length, although a number of other factors often mitigate for or against making these trips.

3.5.10 The 6Cs Design Guide indicates that major employment areas in sub-regional centres such as Loughborough should be within a 5km cycle. At a leisurely cycle speed of 12mph (1.6km every 5 minutes) then 5km equates to cycle journey time of approximately 15 minutes. The PPG13 companion guide to best practice identified that people are prepared to cycle up to 8km. It can therefore be concluded that approximately 5km represents a reasonable average cycling

distance and that 8km is a maximum realistic range for the average cyclist (as opposed to enthusiasts).

3.5.11 **Figure 3** indicates a 5km cycling distance from the site and demonstrates that there are a large number of employment, retail and leisure destinations within a reasonable cycling distance of the site including:

- Loughborough University
- Several Schools
- Existing Science Park
- Proposed Science Park Extension
- Bishop Meadow Industrial Estate
- Belton Road Industrial Estate
- Gorse Covert District and Community Centre (including Morrisons footsore)
- Shelthorpe retail area (including Tesco)
- Proposed Dishley Grange employment site
- Shepshed employment areas
- Loughborough Train Station
- Loughborough Town Centre
- Shepshed Town Centre

3.5.12 Given the excellent connectivity of the site and the large number of facilities and amenities within 5km of the site, there is considered to be significant opportunity for a large proportion of all development trips to be undertaken by cycle. Cycling is also encouraged as the most appropriate mode of travel for local trips.

3.5.13 Virtually the whole of Loughborough and all of Shepshed and Hathern (approximate population of 75,000 (2011 Census)) are within a reasonable cycling distance of the site in terms of access to Garendon Park and WoLSUE proposed employment.

3.5.14 In terms of access to employment, as outlined in paragraph 3.5.10, the 6Cs Design Guide indicates that in sub regional centres (e.g. Loughborough) major employment areas should be within 2km (25 min walk) or 5km (15 min cycle). **Figure 4** presents a 2km and 5km catchment area from the centre of the proposed WoLSUE employment area and demonstrates that large areas of Loughborough and Shepshed are within reasonable walking (approximate population of 4,800 (2011 Census) and cycling (approximate population of 43,000 (2011 Census) distance of the site. This demonstrates that a large number of potential employees for WoLSUE live within a reasonable walking and/or cycling distance of the employment land.

3.6 PUBLIC TRANSPORT

3.6.1 Loughborough has a comprehensive network of local and county bus routes as shown on **Figures 5** and **6**. Information for services operating in the vicinity of the site has been obtained and is summarised in **Table 1**.

Table 1 – Bus Services Operating Adjacent to the Site

Service	Operator	Route	Nearest Bus Stop(s)	Frequency		
				Monday – Saturday Daytime	Evenings – Saturday Evenings	Sunday and Bank Holidays
4	Paul S Winson	Shepshed Sprinter: Loughborough - Shepshed	A512 and Trueway Drive (Shepshed)	30 mins	Service 126	Service 126
4	Paul S Winson	Shepshed Sprinter: Loughborough – Railway Station		30 mins	No Service	No Service
5	Kinchbus	Loughborough Town Service: Ravensthorpe Drive / Hazel Road Estate	Ravensthorpe Drive (Loughborough)	30 mins	No Service	No Service
11	Kinchbus	Loughborough Town Service: Shelthorpe / Dishley / Thorpe Acre	Kenilworth Avenue (Loughborough)	30 mins	Service 12	Service 12
12	Kinchbus	Loughborough Town Service: Shelthorpe / Thorpe Acre / Dishley		30 mins	30 mins	Hourly
126	Arriva	Loughborough – Leicester	A512	10/20 mins	Hourly	30 mins
126	Arriva	Loughborough - Coalville		30 mins	Hourly	30 mins Loughborough – Shepshed
127	Arriva	Loughborough – Shepshed		30 mins	Service 126	Service 126
127	Arriva	Loughborough - Leicester		30 mins	Service 126	Service 126
129	Paul S Winson	Loughborough – Ashby de la Zouch	A512	Irregular	No service	No Service
Skylink	Kinchbus	Loughborough – East Midlands Airport – Derby	A6	30 mins	Hourly	30 mins
Skylink	Kinchbus	Loughborough - Leicester		30 mins	Hourly	30 mins
Skylink	Trent Barton	Loughborough – East Midlands Airport – Castle Donington – Long Eaton - Nottingham		Hourly	No Service	No Service

3.6.2 The level of public transport provision in the vicinity of the site is very good. Public transport provision on the western side of Loughborough is characterised by high frequency, high capacity vehicle services between Shepshed and Loughborough using the A512 Ashby Road corridor. Typical frequency between Loughborough and Shepshed is approximately 4 buses an hour in each direction.

3.6.3 The operating times of services in the vicinity of the site therefore cater for peak period commuter travel as well as retail, leisure and other trip types. The services operate adjacent to the site and key destinations in the local area such as, Bishop Meadow Industrial Estate, Loughborough town centre, Shepshed town centre, Loughborough University and Science Park, Loughborough Hospital, Loughborough Train Station, local schools and adjacent to the proposed Science Park and proposed Dishley Grange employment site. In summary, existing bus services currently serve all key destinations in Loughborough and Shepshed.

3.6.4 Bus priority measures in the vicinity of the site are limited, although inbound bus lanes to Loughborough are located along some sections of the A6, but these do not extend into the town centre.

3.6.5 Development at the site provides a unique opportunity to review bus service provision in the Loughborough/Shepshed area to improve connectivity for development at the site but also for the existing Loughborough/Shepshed area. Bus therefore provides a genuine alternative to the private car and should assist in encouraging significant modal shift away from the private car.

3.7 RAIL

3.7.1 The nearest train station to the site is Loughborough Train Station located approximately 4km from the site (i.e. within a reasonable cycling distance). Direct services are provided every 20mins – 40mins to destinations including London St. Pancras, Leicester, Nottingham and East Midlands Parkway. Hourly services are provided to destinations including Derby, Chesterfield and Sheffield. Rail is considered to represent a suitable alternative to the private car, particularly for longer distance journeys.

3.8 EQUESTRIANS

3.8.1 Two existing riding centres are located in the vicinity of the site – one adjacent to Hathern Road opposite the existing access to the civic amenity site and one to the east of the A6 at Dishley Grange. Furthermore, an existing livery is located in the north of the WoLSUE site. Equestrians are able to use the existing bridleway aligned east to west through the site between Coe Avenue in Loughborough and Hathern Road in Shepshed.

3.9 HIGHWAY NETWORK

3.9.1 The local highway network in the vicinity of the site is shown on **Figure 1**.

A512 Ashby Road

3.9.2 The A512 Ashby Road adjacent to the site is aligned approximately east to west adjacent to the southern boundary of the site and is subject to the National Speed Limit. The speed limit reduces to 40mph west of the A512/Snells Nook Lane junction. The route provides a link between Loughborough in the east and Shepshed in the west. M1 Junction 23 is located adjacent to the south-west of the site and is accessed from the A512. In the vicinity of the site, the A512 is a single carriageway road with one lane in each direction. The road is lit and has a shared footway/cycleway adjacent to the northern side of the road. To the east of M1J23, the A512 Ashby Road/Snells Nook Lane junction is signal controlled. Between the Snells Nook Lane junction and M1J23 is the existing private access to Garendon Park which is a ghost island priority junction.

M1

3.9.3 The M1 is located adjacent to the western boundary of the site and is aligned approximately north to south. M1 Junction 23 is partially signal controlled and located to the south-west of the site and is accessed via the A512.

A6

3.9.4 The A6 is aligned approximately north to south to the east of the site and provides a route through the centre of Loughborough south towards the A46 and Leicester. To the north the A6 provides a route to the M1 at Junction 24. Adjacent to the site, the speed limit changes from 50mph to the National Speed Limit. The 50mph speed limit applies to a single carriageway section of the A6 extending south to Loughborough. The National Speed Limit applies to a single lane dual carriageway section extending north. The A6 is lit in the vicinity of the site. To the south of the site frontage, priority junctions provide access to existing residential areas, Charnwood Golf Complex and Dishley Grange Farm. A shared footway/cycleway is located adjacent to the eastern side of the carriageway providing a route between north towards Kegworth and south into Loughborough.

Hathern Road

3.9.5 Hathern Road is a single carriageway road with one lane in each direction and is aligned adjacent to the north-west boundary of the site. Hathern Road provides a link between Shepshed and the A6. The section of Hathern Road near Shepshed is subject to a 40mph

speed limit although this changes to the National Speed limit approximately 130m north of the existing simple priority junction with the civic amenity site. No street lighting is provided in the vicinity of the junction with the civic amenity site. A footway is located adjacent to the eastern side of the carriageway.

3.10 TRAFFIC FLOWS

3.10.1 Full classified turning count data has been obtained for all existing junctions to be included in the TA study area. The data collected has been agreed with the TWG and is summarised in **Table 2**. Traffic count data is presented in **Appendix C**.

Table 2 – Traffic Count Data

Location	Date of Survey	Time of Survey
M1 J23	Tuesday 14th May 2013	07:00-09:00, 16:30-18:30
A512 Snells Nook Lane	Thursday 13th February 2014	07:00-19:00
A512/Epinal Way	Tuesday 17th Mar 2009	07:00-19:00
A6/Bishop Meadow Road/Warwick Way	Tuesday 19th May 2009	07:00-19:00
A6/Shepshed Road/Narrow Lane	Tuesday 11th June 2013	07:30-09:30, 16:30-18:30
A512/Leicester Road/Ingleberry Road	Thursday 2nd May 2013	07:00-19:00

3.10.2 In addition to the turning count at M1J23, the survey also recorded maximum queue lengths over the same time period. Queue observation surveys were also undertaken by WYG on 31.03.14 and 01.04.14 at each of the junctions in **Table 2** during the AM and PM peak hours. Traffic data is presented in **Appendix C**.

3.11 ACCIDENT HISTORY

3.11.1 LCC has provided Personal Injury Accident (PIA) data for the period 01.11.08 to 31.10.13 for the accident study area agreed with the TWG. The accident study area and the accident data is presented in **Appendix D**.

3.11.2 There have been a total of 37 accidents within the accident study area. Of these 29 were slight in severity and 9 were serious in severity. There were no fatalities. A summary of the accident data is shown in **Table 3**.

Table 3 – Summary of Accident Data

Location	2008			2009			2010			2011			2012			2013		
	slight	serious	fatal	slight	serious	fatal	slight	serious	fatal	slight	serious	fatal	slight	serious	fatal	slight	serious	fatal
Hathern Road	-	-	-	-	-	-	2	-	-	-	1	-	2	-	-	-	-	-
A6/Narrow Lane/Shepshed Road Junction	-	-	-	1	1	-	2	-	-	-	-	-	-	-	-	-	-	-
A6 (south of A6/Narrow Lane/Shepshed Road Junction)	-	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	1	-
A6 (north of Dishley)	-	-	-	-	-	-	1	1	-	2	-	-	-	-	-	2	-	-
M1 Junction 23	-	-	-	-	-	-	-	-	-	1	-	-	2	1	-	-	-	-
A512 (west of M1J23)	-	-	-	1	-	-	2	1	-	-	-	-	1	-	-	-	-	-
A512 (east of M1J23)	-	-	-	3	-	-	2	-	-	-	2	-	2	-	-	-	-	-
Total	-	-	-	6	1	-	9	2	-	4	3	-	7	2	-	2	1	-

Hathern Road

3.11.3 There were 5 accidents on Hathern Road during the period analysed. Of these, 4 were slight in severity and 1 was serious in severity. There were no accidents at the existing junction with the civic amenity site (i.e. at the location of the Hathern Road proposed site access).

3.11.4 One accident occurred in the vicinity of the bridge under the M1 and involved a car travelling in a south-west direction colliding with the kerb before leaving the carriageway and colliding with the bridge structure. The accident occurred during hours of darkness where no street lighting is present.

3.11.5 One accident occurred approximately 300m north of the junction with the civic amenity site and involved a car traveling in a south-west direction slowing down for reasons unknown; a rear end shunt accident then occurred involving 3 cars.

3.11.6 The remaining 3 accidents that occurred on Hathern Road occurred at a bend in the road approximately 145m south-west of the existing access to Lounds Farm. All 3 accidents involved a single vehicle losing control and leaving the carriageway (2 in a north-east direction and 1 in a south-west direction). Two of these accidents occurred during the hours of darkness although one of these involved a driver impaired by alcohol. Hathern Road is not street lit at this location.

3.11.7 Of the 5 accidents that occurred on Hathern Road, 4 are associated with vehicles losing control, 3 of which occurred at the bend in the road approximately 145m to the south-west of the access to Lounds Farm and approximately 1km north of the proposed Hathern Road site access. In order to improve road safety, in particular the likelihood of this type of accident occurring in the future, the proposed Hathern Road site access junction (discussed in paragraph 4.7.7) includes measures to reduce vehicle speeds and improve driver awareness of the road layout ahead.

A6/Shepshed Road/Narrow Lane Junction

3.11.8 There were four accidents at the A6/Shepshed Road/Narrow Lane junction during the period analysed. Three accidents were classified as slight in severity and one was classified as serious in severity. Of the slight accidents, one involved a collision between a car turning right into Narrow Lane colliding with a car travelling southbound on the A6, one involved a collision between a car travelling south-east and a car travelling south-west and one involved 2 cars travelling southbound in a rear end shunt. The serious accident involved a car turning right in to Shepshed Road colliding with a motorcyclist travelling north-west.

3.11.9 The rate of accidents occurring at this location is low (0.8 accidents per year) and the 4 accidents that have occurred during the period analysed were different in nature. Therefore, there is no trend or pattern associated with the accidents and the junction is not considered to have an existing road safety problem.

A6 (south of A6/Shepshed Road/Narrow Lane Junction)

3.11.10 Four accidents occurred on the A6 to the south of the A6/Shepshed Road/Narrow junction. Of these, 2 were slight in severity and 2 were serious in severity.

3.11.11 Of the 2 slight accidents, one involved a driver travelling southbound impaired by alcohol leaving the carriageway. The other slight accident involved a collision between a cyclist travelling southbound overtaking parked cars on the off-side colliding with a car travelling northbound turning right into a private drive.

3.11.12 Of the 2 serious accidents, one involved a driver travelling northbound impaired by alcohol leaving the carriageway. The other serious accident involved a pedestrian and a medium sized goods vehicle but no further details have been provided in the information provided by LCC.

3.11.13 Of the 4 accidents occurring at this location, 2 involved drivers impaired by alcohol and therefore cannot be attributed to the road layout. The other two accidents were different in nature. Therefore, there is no trend or pattern associated with the accidents at this location and the location is not considered to have an existing road safety problem.

A6 (north of Dishley)

3.11.14 Six accidents occurred on the section of the A6 immediately north of the Dishley area of Loughborough. Of these, 5 were slight in severity and 1 was serious in severity.

3.11.15 The serious accident involved a driver of a car impaired by alcohol losing control whilst travelling northbound and colliding with an oncoming HGV.

3.11.16 Of the 5 slight accidents, one occurred approximately 300m north-west of Darwin Crescent and involved a collision between a cyclist crossing the carriageway and car travelling northbound. Another accident also occurred approximately 300m north-west of Darwin Crescent and involved 2 cars travelling northbound in a rear end shunt.

3.11.17 One slight accident occurred at the bend in the road to the west of the A6/Darwin Crescent junction and involved a car travelling southbound losing control and colliding with a refuge and a lamp post.

3.11.18 The remaining 2 accidents at this location occurred to the west of the lay-by on the A6. One involved a car travelling in a westbound direction colliding with a pedestrian and the other involved a motorcyclist losing control whilst reducing speed to enter the lay-by.

3.11.19 Of the 6 accidents occurring at this location, 1 involved a driver impaired by alcohol and therefore cannot be attributed to the road layout. The proposed A6 site access junction (discussed in paragraph 4.7.2) will include pedestrian/cyclist crossing facilities and will therefore improve the safety of pedestrians and cyclists crossing the carriageway – this should reduce the likelihood of future accidents involving pedestrians and cyclists crossing the carriageway. Furthermore, the proposed site access junction should assist in reducing vehicle speeds in the vicinity of the junction on the A6. This should reduce the likelihood of accidents resulting from loss of control. The proposed site access is therefore considered to have a positive impact upon road safety at this location.

M1 Junction 23

3.11.20 Four accidents occurred at this location. Three accidents were classified as slight in severity and 1 was classified as serious in severity. Of the slight accidents, two involved rear end shunts at different locations and 1 accident involved a car attempting to overtake an unknown vehicle on the A512 (east) exit from the roundabout, losing control and overturning. The serious accident involved a car leaving the circulatory carriageway of the roundabout to enter the M1 northbound on-slip colliding with a cyclist circulating the roundabout.

3.11.21 The rate of accidents occurring at this location is low (0.8 accidents per year) and the 4 accidents that have occurred during the period analysed were different in nature. Therefore, there is no trend or pattern associated with the accidents and the junction is not considered to have an existing road safety problem. Nevertheless, as outlined in paragraph 7.5.3 M1 J23 will be improved as part of the proposed development. The improvements are proposed with road safety in mind to ensure that the rate of accidents at this location remains low. The improvements include controlled pedestrian/cycle crossing facilities on the southbound off-slip and northbound on-slip.

A512 (west of M1 Junction 23)

3.11.22 Five accidents occurred at this location during the period analysed. Of these, 4 were slight in severity and 1 was serious in severity.

3.11.23 Three of the accidents occurred in the vicinity of the junction with Charnwood Quarry. These involved a rear end shunt accident involving a car performing a u-turn manoeuvre and rear end shunt accident involving a car and motorcycle travelling eastbound – both accidents were slight in severity. The third accident at this location was serious in severity and involved a car travelling westbound losing control whilst being pursued by Police and colliding with an oncoming car.

3.11.24 The remaining 2 accidents at this location were both slight in severity and occurred a short distance to the west of M1J23. One involved a car travelling eastbound colliding with a pedestrian and the other involved a rear end shunt between 2 cars travelling eastbound.

3.11.25 It should be noted that planning consent has been granted for an incinerator to the south of the A512 in the vicinity of Charnwood Quarry. The proposals include introducing traffic signals at the existing quarry access junction. These improvements should contribute towards improving the safety of this junction.

A512 (east of M1 Junction 23)

3.11.26 Nine accidents occurred on the A512 (east of M1J23). Of these, 7 were slight in severity and 2 were serious in severity.

3.11.27 One of the serious accidents occurred in the vicinity of the existing private access to Garendon Park and involved a motorcyclist impaired by alcohol colliding with a bollard whilst travelling westbound on the A512. It is important to note this accident did not involve movements to/from Garendon Park and also involved a driver impaired by alcohol. It is also worth noting that the existing private access to Garendon Park will become a 'left-in left-out' junction for vehicular traffic as part of the proposed development and that traffic flows using this access are likely to be minimal. The other serious accident occurred at the A512/Old Ashby Road junction and involved a HGV changing lanes to perform a u-turn and 2 cars colliding into the rear of the HGV.

3.11.28 An additional 3 slight severity accidents occurred at the A512/Old Ashby Road junction. One accident involved 3 cars travelling eastbound and a rear end shunt accident occurring, one accident involved a car driver dazzled by sunlight colliding into the rear of another car and the final accident involved a collision between two cars carrying out conflicting movements as a result of one driver disobeying a red traffic signal.

3.11.29 One accident occurred approximately 55m west of the A512/Snells Nook Lane junction and involved 2 cars travelling westbound involved in a rear end shunt accident as a result of 1 car attempting a u-turn manoeuvre.

3.11.30 One accident occurred at the A512/Snells Nook Lane junction. The accident was slight in severity and involved a collision between 3 cars travelling westbound – one of the cars was changing lane.

3.11.31 The remaining two accidents on the A512 occurred between the Snells Nook Lane and Old Ashby Road junctions. Both were slight in severity. One accident was a rear end shunt accident involving 4 cars and the other involved a car and a pedestrian but further details have not been provided by LCC.

3.11.32 There are no clear trends or patterns associated with accidents occurring on the A512 (east of M1J23). Nevertheless, it is worth noting that the section of the A512 between M1J23 and Snells Nook Lane will be improved to dual carriageway as part of the proposed development. This will include improvements to the existing private access to Garendon Park by making this 'left-in / left-out' only. The improvements to the A512 should assist in improving the safety of this section of the A512.

Summary

3.11.33 The number of accidents occurring in the study area is considered to be low. In general the accident analysis does not identify any trends or patterns associated with accidents. The only possible exception to this is Hathern Road at a bend in the road approximately 145m south-west of the existing access to Lounds Farm. Three accidents have occurred at this location as a result of vehicles losing control. The proposed Hathern Road site access (discussed in paragraph 4.7.7) will incorporate road safety/gateway entry measures which should reduce the likelihood of this type of accident occurring in the future. Additional road safety benefits should also be experienced as a result of proposed improvements at M1J23 and the A512 (discussed in **Section 7.5**) and also as a result of the proposed A6 access (discussed in paragraph 4.7.2).

3.11.34 It is worth noting that of the 37 accidents occurring in the accident study area, 5 involved drivers impaired by alcohol. This is a higher number than would be expected and can be considered a contributory factor in these accidents. Accidents involving drivers impaired by alcohol cannot be attributed to the design/layout of the highway network.

4 DEVELOPMENT PROPOSALS

4.1 INTRODUCTION

4.1.1 As outlined in paragraph 10.7 of the draft Core Strategy, WoLSUE forms part of the 'West of Loughborough Growth Area' which also includes an extension to the existing Science and Enterprise Park to the south of WoLSUE and the A512. CBC's Strategic Housing Land Availability Assessment (SHLAA) process identified the site and established it as having no known irresolvable environmental or physical constraints to development and that it is in a suitable growth location adjacent to Loughborough. This is supported by the positive allocation of the site in Policy CS22 of the draft Core Strategy.

4.1.2 The Core Strategy goes on to state that the Science Park Extension will compliment WoLSUE by providing employment opportunities and reducing the need to travel. Paragraph 10.51 of the draft Core Strategy states that the Science Park Extension *"will be expected to contribute towards infrastructure in conjunction with the West of Loughborough Sustainable Urban Extension."*

4.2 PROPOSED DEVELOPMENT

4.2.1 Outline planning permission is sought for residential development up to 3,200 dwellings; up to 16 ha of employment land of B1/B2 and B8 uses, a mixed use Community Hub of up to 4ha comprising a local convenience retail unit (2,000 sqm); up to 1,000 sqm of other A1 retail, A2 financial and professional services, A3 food and drink, B1 business and D1 uses; sites for Gypsy and Traveller provision totalling 1 ha, two primary schools up to 2 ha each; strategic open space including allotments; access roads and new Strategic Link Road; open space / landscaping and associated works; principal means of access; restoration of Garendon Park and assets; all other matters to be reserved. The proposed masterplan is presented in **Appendix A**.

Residential

4.2.2 3,200 dwellings are proposed across the site within reasonable walking and cycling distance of proposed employment/retail/leisure/community facilities. While layout, scale and appearance will be considered through the detailed planning application stage, the proposal is capable of providing a mix and range of housing that will meet the needs of the local area and contribute

to sustainable development. This will ensure that the provision of housing meets the needs of the wider Loughborough/Shepshed area.

Employment

4.2.3 Draft Policy CS22 requires 16 ha of employment land to be provided at WoLSUE. At a cautious average density of 50 jobs per hectare, WoLSUE can be expected to yield at least 800 job opportunities in the Core Strategy plan period. Employment is proposed adjacent to the local centre and community facilities as follows:

- 6,000sqm Gross Floor Area (GFA) office
- 22,400sqm GFA industrial
- 33,700sqm GFA warehousing

4.2.4 It is anticipated that the identified land and the wider development will provide a range of employment opportunities across several sectors and types. It is expected that new jobs will be created directly through the provision of 16 ha of employment land, led by the local market, with additional employment generated within the community hub and primary schools. Further employment will also be created through the restoration and management of Garendon Park as well as extensive construction jobs generated through the envisaged 16 year construction phase of the development. The employment areas will be highly accessible to the working age population residing in WoLSUE and in local adjoining communities and neighbourhoods facilitated by the provision of enhanced and new cycle and pedestrian routes through the green infrastructure network and enhanced and new bus routes.

Community Facilities

4.2.5 In accordance with paragraphs 10.18 to 10.20 of the draft Core Strategy, WoLSUE will include a range of community facilities at the heart of the development to reduce the need to travel and provide a focal point for the local community. In accordance with paragraph 10.22 of the draft Core Strategy a range of uses are proposed to meet the day to day needs of the future WoLSUE community. Proposed community facilities consist of:

- A 3,000sqm net floor area local centre consisting of a 2,000sqm convenience store and ancillary local retail units and community uses where land is proposed to be marketed through an agreed programme in the context of the Planning Obligation.

- A 1.5 Form Entry Primary School and a 2 Form Entry Primary School to meet the estimated demand for school places from WoLSUE. Primary schools are strategically located to reduce the distance from residential areas in order to reduce the need to travel by car.

- Restoration of Garendon Historic Park and Gardens and opening of the Park for public access including restoration of heritage assets within the park. It is agreed with English Heritage that the continued use of the open parts of the Park as farmland is desirable with managed public access through the opening of walking, cycling, equestrian routes for public use. Public access to these routes can be provided within the first two years of the commencement of development. The restoration of the Park is proposed to be undertaken in phases. It is also agreed that several of the existing farm buildings in the north of the Park can be converted to form part of a managed visitor centre associated with the Park where access would be taken from the residential development in the south east part of the new residential areas. A small car park will be provided at the visitor centre. The visitor centre will be a point of arrival from which many people will be introduced to the park, and from this point they will be able to explore the park and enjoy the historic garden structures (such as the Temple of Venus and the obelisk) and through the restored 18th century avenues. The overall approach is to retain the character of the historic park and not to introduce change in the form of a managed 'country park'. As agreed with English Heritage the Park will be a community park serving as a local amenity for both future residents of WoLSUE and exiting Loughborough and Shepshed residents. Opening of the visitor centre will follow the completion of the proposed Strategic Link Road and internal development roads in this part of the site.

- Sports facilities will be provided. Core sports facilities are expected to be delivered between 2023 and 2025. It is possible that some of the outdoor playing fields can be provided at an earlier stage, subject to agreement over future management and maintenance arrangements.

- A range of play facilities are proposed to ensure a wide range of needs are met and accessibility is provided for all user groups.

- Allotments will be provided to serve future WoLSUE residents.

4.2.6 Therefore, with a range of local facilities on-site the overall need to travel off-site is reduced. Likewise with the walking/cycling improvements proposed on-site then trips to local facilities, employment and Garendon Park are likely to use non-car modes of transport.

4.2.7 Vehicular access to the site is proposed from the A6, A512 and Hathern Road. A Strategic Link Road will be provided through the site between the A6 and A512 site accesses. The Strategic Link Road is a key mitigation measure for WoLSUE because it will reduce traffic flows elsewhere in Loughborough. The Hathern Road access will be designed as a secondary access with traffic calming provided on the road between the Hathern Road access and the proposed Strategic Link Road following a request by LCC.

4.2.8 The masterplan has been informed by workshops with key stakeholders including CBC, LCC, HA, English Heritage, Atlas and OPUN. These are described in the next sections.

4.3 ENGLISH HERITAGE

4.3.1 A number of meetings have been held to discuss the alignment of the Strategic Link Road through Garendon Park. Joint meetings have been held with English Heritage (EH), CBC and LCC. Joint site visits have been held with EH, CBC and LCC and discussions have been held with the HA. WYG issued a 'Strategic Link Road Route - Options Review Report' on 22/11/13 to EH, CBC and LCC. WYG also issued a 'Strategic Link Road Route - Options Appraisal Report' on 18/02/14 to EH, CBC and LCC. The alignment of this section of the Strategic Link Road is discussed in detail in **Section 4.8**. EH have confirmed on 27/05/14 that they would not object to a planning application with the now proposed Strategic Link Road layout (see **Appendix E**).

4.4 ATLAS PLANNING PERFORMANCE AGREEMENT INCEPTION WORKSHOP

4.4.1 CBC asked the Advisory Team for Large Applications (ATLAS) to hold a Planning Performance Agreement (PPA) inception workshop to inform the completion of a PPA in advance of the submission of the planning application. The workshop was held on 25.07.13 attended by officers from CBC and LCC as well as the developer and their planning

consultant/masterplanner. All work undertaken since has been informed by the PPA Inception Workshop.

4.4.2 In the workshop it was recommended that a Transport Working Group (TWG) is established and that this should consist of officers from CBC, LCC and the HA as well as WYG and other representatives of the developer as appropriate. As indicated in paragraph 1.4.2, a TWG was established in August 2013 and meetings have been held on a monthly basis prior to submission of the planning application.

4.4.3 The workshop identified key considerations with respect to the link road through the site as follows:

- Role of the road in light of the Core Strategy modelling already undertaken.
- Impact of the road on Garendon Park and possible design and mitigation measures.
- Potential of the road to become the main street through the development (thus avoiding the need for a parallel High Street).
- Speed and design of the road.

4.4.4 Based on discussions in the workshop, the Strategic Link Road is the main street through the site and a High Street is provided within the commercial/retail part of the development. The design of the road is discussed in **Section 4.8** and **Section 4.9** and has been discussed and agreed with the TWG.

4.4.5 As also recommended by the workshop, all feasible connections have been considered with a view to maximising site connectivity whilst retaining the separate identity of Hathern.

4.4.6 The workshop stressed the importance of providing a legible and efficient layout and re-considering providing two main road crossings across Black Brook. Through close liaison with the TWG and project team, a suitable site layout has been prepared. In response to comments in the workshop, only one road crossing of Black Brook is proposed with the existing pedestrian/cycle crossing points retained.

4.5 OPUN DESIGN REVIEW

4.5.1 The proposed masterplan has been reviewed by the OPUN Design Review Panel on two separate occasions.

4.5.2 The first review was undertaken on Wednesday 27th February 2013 of an early version of the masterplan and issues raised at the time included the need to:

- Undertake more rigorous access options / studies in collaboration with the Highways Agency and Leicestershire County Council to explore all the possibilities regarding the provision of an access which provides a sensitive solution, conserving and enhancing Garendon Park and Gardens;
- Reconsider the relationship and impact of the large housing block adjacent to the historic park to ensure a more sympathetic relationship;
- Provide a 'linear village green' with a strong community emphasis along the Black Brook central to the development, to connect the northern and southern parts of the site (notwithstanding flood plain constraints);
- Strengthen the Design Vision for the development, in particular in determining the character and identity to ensure a truly distinctive development;
- Provide strong connections within and outwith the site, particularly the orbital route to connect different parts of the development; explore options for public transport and the provision of a clear street hierarchy;
- Explore the potential to consolidate the proposed employment land to one sustainable location that is accessible and well connected by public transport;
- Give further consideration to the merits of the proposal to plant woodland and explore maintaining the existing profitable agricultural land as part of the overall development;
- Ensure a strong relationship to the village of Hathern.

4.5.3 The second review was undertaken on 19th December 2013. The Panel commended the design team for undertaking comprehensive revisions to the masterplan which were considered to be a significant improvement, addressing many of the issues raised at the previous review i.e.

relocation of the employment uses to the south of Black Brook, the provision of a community hub / recreational facilities along the Black Brook and maintaining agricultural land as part of the overall development. The Panel indicated that the main issues to be addressed include thoroughly testing and evidencing all of the access options for the south of the site to ensure that all other means of access have been comprehensively considered; further work on the proposed access route including the provision of photomontage studies to further assess the impact on views, treatment, alignment etc; ensuring that the axial connections are carried through into the neighbouring residential area, ensuring a strong connection / relationship to the employment buildings, and the provision of a community facility to the south of the site.

4.5.4 The proposed masterplan has been informed by the two OPUN Design Reviews. The comments at the second review have been taken into account as follows:

- Significant work has been undertaken in relation to the access options for the south of the site including consideration of a number of route options and preparation of photomontage studies. This is discussed in detail in Section 4.8.

- Provision of strong connections through the site providing linkages between proposed residential, employment and community land uses as well as connections with existing communities.

4.6 PHASING

4.6.1 The latest phasing plan is presented in **Appendix A**. It is intended that outline permission will be granted in Winter 2014/15 and first reserved matters application will be submitted and approved by Summer 2015 such that initial infrastructure in the north east of the site will be brought forward in parallel with the first residential phases of the development. This will facilitate house-building commencing in the north-east in 2016.

4.6.2 It is therefore proposed that development will commence on the north-eastern component of the Masterplan at the A6 with an average annual delivery rate of 120 dwellings established from 2016/17. From 2019/20, housing will commence from the southern parcel accessed from the A512 in parallel with on-going development in the north also an average rate of 120 dwellings per annum.

4.6.3 At its peak, the development is expected to deliver on average 240 dwellings per annum on the basis of multiple sales outlets. By delivering a mix and range of new homes in this manner, WoLSUE will be able to maintain persistent high levels of housing delivery throughout the Core Strategy plan period, complementing the delivery of required homes both elsewhere in the Loughborough/Shepshed area and the wider Borough.

4.6.4 Careful consideration through the phasing plan has been given to ensuring there is appropriate and safe access and other issues such as flooding risk are managed effectively throughout the construction period. Extensive discussions have been held with infrastructure providers and statutory consultees to ensure necessary infrastructure will be provided in a co-ordinated manner.

4.6.5 Phasing is split into three phases as shown in **Table 4**.

Table 4 – Development Phasing Profile

Assessment Year	Land Use						
	Residential (no. dwellings)	Employment (sqm GFA)			Food Retail (sqm net)	Local Shops (sqm net)	Primary Schools
		B1	B2	B8			
2021	840	0	0	0	0	0	1.5FE
2026	2,040	6,000	22,400	33,700	2,000	1,000	3.5FE
2031	3,200	6,000	22,400	33,700	2,000	1,000	3.5FE

Notes: GFA = Gross Floor Area, FE = Form Entry.

4.6.6 In phase one (up to 2021) 600 dwellings and a 1.5FE primary school are proposed, located towards the north-east of the developable area with vehicular access provided from the A6. In the later stages of phase one, 240 dwellings are proposed, located towards the south of the developable area with access provided from the A512. No Strategic Link Road will be provided through the site at this stage. The primary school will open on a phased basis to meet the demand for primary school places as residential dwellings are occupied.

4.6.7 In phase two (up to 2026) 1,200 dwellings are proposed in the northern and central parts of the developable area with vehicular access from the A6 and A512. As previously discussed and agreed in principle with LCC, the Strategic Link Road is anticipated to be complete by 2022/2023 (circa. 1,200 dwellings). Employment will be constructed towards the west of the site and the community centre/second primary school will be located towards the centre of the

site. The second primary school will open on a phased basis to meet the demand for primary school places as residential dwellings are occupied. Construction of the retail, office, industrial and warehousing development are proposed to begin in 2023. For the purpose of this TA it is assumed that these land uses will be complete by 2026 (in line with the TA assessment years discussed in **Section 6.4**).

4.6.8 In phase three (up to 2031) a further 1,160 dwellings will be located south of Black Brook. A third secondary vehicular access will be provided on to Hathern Road.

4.6.9 **Table 5** shows the build out profile of the proposed residential development.

Table 5 – Phasing of Residential Development

Year	Number of Dwellings Per Year	Total Dwellings
2017	120	120
2018	120	240
2019	120	360
2020	240	600
2021	240	840
2022	240	1,080
2023	240	1,320
2024	240	1,560
2025	240	1,800
2026	240	2,040
2027	240	2,280
2028	240	2,520
2029	240	2,760
2030	240	3,000
2031	200	3,200

4.6.10 In respect of the delivery timescale for the employment land, this will be essentially market led. The land will be serviced in phases following the completion of the proposed Strategic Link Road which is programmed currently for 2022/23.

4.7 SITE ACCESS

4.7.1 Three vehicular access points are proposed as detailed in the following text. Each site access can be provided within land under the control of Persimmon Homes/William Davis or within the public highway. Results of capacity assessments at each proposed site access are presented in **Chapter 7**.

A6 Site Access

4.7.2 A new roundabout is proposed on to the A6 Derby Road as shown on **Figure 7**. This will also provide access to the consented employment development at Dishley Grange and will form the north/eastern end of the Strategic Link Road through the site. The layout of the roundabout is in accordance with the consented Dishley Grange roundabout but with a fourth arm added to serve WoLSUE and an increase to the flare length on the approach from the A6 south. The roundabout has a 60m inscribed circle diameter and 2 lane entries on each entry arm. Pedestrian/cycle crossing facilities will be incorporated into the design to improve the safety of pedestrians/cyclists crossing at this location. This is particularly important for cyclists wishing to use the shared footway/cycleway adjacent to the eastern side of the A6.

A512 Site Access

4.7.3 A new signal controlled roundabout is proposed onto the A512 Ashby Road as shown on **Figure 8**.

4.7.4 As part of the site access, the A512 would be dualled between M1J23 and the A512/Snells Nook Lane junction. The speed limit of the proposed dualled section would be reduced from National Speed Limit to 40mph. The existing private vehicle access for Garendon Park will remain accessible for the small number of vehicles that will continue to require access to the Park but it will become a 'left-in-left-out' junction as a result of the A512 dualling.

4.7.5 This access will form the southern end of the Strategic Link Road through the site. The roundabout has been designed as a 4 arm roundabout with the southern arm providing access to the possible future extension to the Science Park as outlined in the draft Core Strategy. Given that a planning application has not been submitted for the Science Park extension, the only information available in relation to the Science Park is as shown in the draft Core Strategy. Therefore, the Science Park arm of the junction is indicative only. WoLSUE would provide a contribution to the roundabout as shown on **Figure 8**. The layout shown in **Figure 8** is signal controlled on both A512 approaches and the WoLSUE access. The Science Park access is a give way entry. Pedestrian/cycle crossing facilities are shown on the WoLSUE access and the A512 on the eastern side of the junction in order to accommodate future pedestrian desire lines to the Science Park Extension and to tie in with the existing shared footway/cycleway adjacent to the northern side of the A512.

4.7.6 When considering the options for the design of the A512 site access, a standard roundabout and a signal controlled crossroad junction were considered and rejected. The standard roundabout option was rejected because it would not be able to accommodate the same volume of traffic as a signal controlled roundabout layout, so much so that it would not be possible to accommodate likely traffic flows from the Science Park Extension using a standard roundabout and also incorporates controlled pedestrian/cycle crossing points. The signal controlled crossroad option was rejected in favour of a signal controlled roundabout because it can accommodate all turning movements whereas a signal controlled crossroad cannot operate within capacity and accommodate the movements between WoLSUE and the future Science Park Extension. Lighting would be provided on the Strategic Link Road upto the Registered Park boundary (disused railway line).

Hathern Road Site Access

4.7.7 The existing priority junction on Hathern Road is proposed to be improved as shown on **Figure 9** to provide a secondary access for the site and has been designed in accordance with TD42/95 of the Design Manual for Roads and Bridges (DMRB). The access has the following characteristics:

- 7.3m carriageway width
- 15m radii
- 3.5m width ghost island on Hathern Road

4.7.8 As part of the Hathern Road site access, speed reduction measures will be introduced on Hathern Road in order to improve the safety of this section of road. Furthermore, as requested by LCC, traffic calming will be provided on the link between the Hathern Road access and the proposed Strategic Link Road in order to reduce the attractiveness of the Hathern Road access. The link between Hathern Road and the proposed Strategic Link Road is outside of the 1 in 100 year flood plain. The applicants flood risk consultants have confirmed that this is agreed with the EA.

4.8 DESIGN AND ALIGNMENT OF STRATEGIC LINK ROAD THROUGH GARENDON PARK (A512 TO COACH ROAD)

4.8.1 In accordance with Policy CS 22 of the draft Core Strategy, a Strategic Link Road through the site is proposed between the A512 and A6 (north of Loughborough). This is also in accordance with Policy CS 18 which requires strategic developments to deliver appropriate and comprehensive transport improvements. This section of the TA discusses the section of the Strategic Link Road through Garendon Park i.e. between the A512 and Coach Road. The alignment of the road through the Park is shown on **Figure 10**. Information relating to the Strategic Link Road is presented in **Appendix E**.

4.8.2 The alignment of the road has been informed by a 'Highway Route Assessment' report prepared by Peter Brett Associates (PBA) in 2007 (subsequently referred to as the 2007 PBA report). WYG carried out a review of this report in November 2013. Four potential route options were considered in the 2007 PBA report, as shown on PBA drawing 17769-01F in **Appendix E**. The options were:

- Route Option 1 – aligned from the A512 (west of M1 J23) in a north-east direction towards Coach Road.
- Route Option 2 – aligned parallel to the west of the M1 between the A512 and Coach Road.
- Route Option 3 – aligned parallel to the east of the M1 between the A512 and Coach Road.
- Route Option 4 - aligned from the A512 (east of M1J23) in a north-west direction towards Coach Road. This was the preferred option within the 2007 PBA Report and is the alignment of the Strategic Link Road within CBC Core Strategy and, as such, was agreed by CBC, LCC and the HA.

4.8.3 The 2007 PBA report also considered and rejected 3 other options namely:

- Historically Preserved Route (shown in **Appendix E**) – rejected due to impact on Registered Park.

- Slip Road onto the M1 at Coach Road (shown in **Appendix E)** - rejected due to design and safety issues.

- Direct Link to Junction 23 of M1 (shown in **Appendix E**) – rejected due to traffic impact and design constraints.

4.8.4 WYG issued a 'Strategic Link Road Route - Options Appraisal Report' on 18/02/14 to EH, HA, CBC and LCC. The purpose of the report was to expand on the 2007 PBA report by providing further information in relation to the alternative options including:

- Greater detail on environmental impacts namely visual impact, landscape impact and noise impact.

- Detailed cost estimates.

- Traffic impact.

- Function and purpose of the Strategic Link Road.

4.8.5 EH requested that a 5th option (in addition to the 4 options in paragraph 4.8.1) be considered of aligning the road from the A512 west of the M1 and joining Hathern Road and then utilising the existing Hathern Road M1 underbridge.

4.8.6 In the 'Strategic Link Road Route - Options Appraisal Report' the previously rejected Option 3 in the PBA report (with the link road moved closer to the M1) was reconsidered in more detail and an option of moving the Strategic Link Road closer to the M1 was presented and discussed with EH, CBC, LCC and the HA. CBC as the planning authority and LCC as the highway authority have confirmed that the now proposed Option 3 alignment of the Strategic Link Road Link through the Park is the preferred option and in their opinion is supported by the Core Strategy evidence base work.

4.8.7 Discussions have also taken place with the HA as the adjacent Highway Authority who could be potentially affected by the route options. As set out in the letter received from the HA on 18/12/13 (see **Appendix E**) since the route options will not form part of the Trunk Road network (under HA control) then the HA cannot confirm or reject any of the options. However, the HA have indicated their broad support for the Core Strategy proposed alignment through

the Park and have indicated concern with the additional traffic and delay to Trunk Road traffic at M1 J23 as result of Options 1, 2 and 5.

4.8.8 The alignment of the Strategic Link Road has been discussed at length with English Heritage (EH). A meeting was held with EH, CBC and LCC on 09.10.13. A site visit and a second meeting was held with EH, CBC and LCC on 05.12.13. A third meeting with EH, CBC and LCC was held on 07.05.14 following which EH provided written confirmation that they have no objection to the alignment of the proposed Strategic Link Road through Garendon Park (see **Appendix E**).

4.8.9 The proposed route alignment for the Core Strategy Strategic Link Road is the revised option 3. Although not the cheapest option to construct, Option 3:

- Has the least noise impact.
- Complies with the Core Strategy traffic impact and objectives/functions of the SLA.
- The design can be integrated into the masterplan to minimise the visual impact of the road in the Park. Ultimately the comprehensive restoration proposals would result in significant enhancement for Garendon Park.
- It has minimal impacts on features of nature conservation value and the restoration of Garendon Park provides significant opportunity for habitat enhancement.
- It can be delivered without the need for 3rd party land and hence it has certainty of delivery.
- Complies with all safety design standards.
- Does not involve any changes to existing M1 structures or construction of new structures across the M1 which would be costly to construct and would impact on traffic flows/journey times/reliability on the M1 during construction.
- The proposed A512 junction location also provides an access point into the Core Strategy Science Park proposal.

4.8.10 The minimum separation distance between the M1 and the proposed Strategic Link Road is 40m. As the design of the road progresses and further work is undertaken, such as geo-technical and site investigation surveys, there may be scope to align the Strategic Link Road closer to the M1. This would be subject to detailed design work and approval from the HA.

4.8.11 The section of the Strategic Link Road through the Park (i.e. between the proposed A512 junction and the Coach Road junction) is summarised in the Design and Access Statement and shown on **Figure 10** of this TA. It has been designed in accordance with DMRB as follows:

- 40mph speed limit.
- 7.3m width carriageway.
- No kerbs, plus 1m width hard strips.
- Localised widening of verges to facilitate visibility splays
- No footway/cycleway.
- No street lighting.
- Maximum design gradient of 6%.
- Minimum horizontal radius of 180m (this is a relaxation of 2 steps below desirable minimum, but within the permitted tolerances).
- No on-street parking provision.
- No direct access for any frontage development.
- No side road junctions.
- No traffic calming.
- Gateway feature (exact details to be confirmed) to be provided at southern end by old rail line and northern end by Coach Road. This could be in the form of a stone wall style gateway.
- Landscaping.
- Highway boundary to be demarcated by fencing.
- No 40mph repeater signs (use 40mph roundel markings instead subject to DfT approval).

4.9 STRATEGIC LINK ROAD (COACH ROAD TO A6)

4.9.1 As outlined in paragraph 4.8.1, in accordance with Policy CS 22 of the draft Core Strategy, a Strategic Link Road through the site is proposed between the A512 and A6 (north of Loughborough). This is also in accordance with Policy CS 18 which requires strategic

developments to deliver appropriate and comprehensive transport improvements. **Figure 11** shows a concept road design for the Strategic Link Road between Coach Road and the A6. This section of the Strategic Link Road is also summarised in the Design and Access Statement and has been designed in accordance with the 6C's as follows:

- 30mph speed limit
- 7.3m width carriageway.
- Kerbs provided.
- 3m shared footway/cycleway adjacent to both sides of the carriageway.
- Verges and landscaping areas TBC
- Street lighting.
- 43m stopping site distance.
- Buses to stop on-street at designated bus stops (not in lay-bys)
- No on-street parking provision.
- Limited direct access for frontage development.
- 43m junction spacing for junctions on the same side of the road.
- Junction spacing for junctions on opposite sides of the road subject to vehicle tracking. Priority controlled crossroads unlikely to be provided.
- No traffic calming.

4.9.2 This section of the Strategic Link Road also incorporates a new bridge crossing of the Black Brook. The applicants flood risk consultants have confirmed that the bridge design has been agreed with the Environment Agency and is shown on **Figure 11**.

4.10 INTERNAL LAYOUT AND STREET HIERACHY

4.10.1 The internal highway will be designed to accommodate the swept path requirements of appropriate design vehicles.

4.10.2 The development will be designed in a manner to ensure that it is a well-connected area not dominated by the car. The area is to be designed so as it meets the needs of the people living there rather than the motorcar.

4.10.3 The 6Cs Design Guide defines internal development roads as roads that serve only the development. All roads within the site will be internal development roads except the Strategic Link Road. All internal development roads will be designed using the 6Cs Design Guide and

Manual for Streets and details are summarised in the Design and Access Statement. The design of the Strategic Link Road and internal development roads have been agreed with the TWG and are summarised as follows:

Hathern Road Link (Figure 9)

4.10.4 In accordance with Policy CS 22 of the draft Core Strategy, a new link road will be provided between the proposed Strategic Link Road and Hathern Road. The 'Hathern Road Link' will be designed based on the standards in the Design Manual for Roads and Bridges and the 6Cs Design Guide as follows:

- 30mph speed limit
- 7.3m width carriageway.
- Kerbs provided.
- 3m shared footway/cycleway adjacent to the southern side of the carriageway only.
- Street lighting.
- 2.4m x 43m minor road visibility splays required. 43m forward visibility required.
- No on-street parking provision.
- Limited direct access for frontage development.
- 43m junction spacing for junctions on the same side of the road.
- Junction spacing for junctions on opposite sides of the road subject to vehicle tracking. Priority controlled crossroads should not be provided.
- Traffic calming will be provided in agreement with LCC.

High Street

4.10.5 In accordance with Policy CS 22 of the draft Core Strategy a new road providing the function of a High Street is proposed through the local centre (see **Appendix A**). The design of the High Street will be based on the standards in the 6Cs Design Guide and Manual for Streets. The High Street will be designed as follows:

- Priority to pedestrians, cyclist and public transport.
- 6.75m carriageway width.
- Minimum 4m width footways adjacent to both sides of carriageway.
- 0.5m strip between back of footway (highway boundary) and building to allow for opening of windows, drainage downpipes, overhanging eaves etc.
- Cyclists on-street.

- 20mph speed limit.
- Horizontal traffic calming measures could be used e.g., chicanes created through build-outs (possibly integrated with on-street parking bays), pedestrian refuges and controlled crossing points.
- 2.4m x 25m minor road visibility splays required. 25m forward visibility required.
- Junction spacing: for junctions on the same side of the road – 25m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- Delivery and service vehicles will require direct access to building frontages.
- Bus stops to be provided in lay-bys. One bus stop provided on each side of road. Typical bus lay-by has a depth of 3.25m and a length of 53m.
- On-street parking bays should be provided with a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Cycle parking and motorcycle parking to be provided.
- The car park provided as part of the convenience store could also be shared as the 'High Street' car park.
- Reduced street furniture. Minimal signs. Incorporate planting/litter bins etc in with bus stops, build-outs or cycle parking. The emphasis should be on providing wide, clear footways. Any street furniture should not obstruct visibility.
- Street lighting to be provided.

Major Residential Access Road

4.10.6 Major Residential Access Roads will be designed in accordance with the 6Cs Design Guide and will have the following characteristics:

- 20mph speed limit.
- 6.75m carriageway width.
- 2m footway adjacent to both sides of the carriageway.
- Cyclists on-street.
- 25m visibility at junctions, bends and vertical crests.
- If vertical traffic calming is provided on bus routes, this should be in the form of speed cushions.

- Junction spacing: for junctions on the same side of the road – 25m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- Bus stops provided on bus routes (not in lay-bys).
- If on-street parking bays are provided these should have a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Street lighting to be provided.

Residential Access Road

4.10.7 Residential Access Roads will be designed in accordance with the 6Cs Design Guide and will have the following characteristics:

- 20mph speed limit.
- Carriageway width varies depending on number of dwellings served: 4.8m up to 50 dwellings, 5.5m 50 to 400 dwellings (6m on a bus route, 6.75m on a road serving a school).
- 2m footway adjacent to both sides of the carriageway.
- Cyclists on-street.
- 25m visibility at junctions, bends and vertical crests.
- If vertical traffic calming is provided on bus routes, this should be in the form of speed cushions.
- Junction spacing: for junctions on the same side of the road – 25m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- Bus stops provided on bus routes (not in lay-bys).
- If on-street parking bays are provided these should have a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Street lighting to be provided.

4.10.8 The proposed Garendon Park visitor centre will be accessed via the residential road network and Oxley Gutter.

Residential Access Way

4.10.9 Residential Access Ways will be designed in accordance with the 6Cs Design Guide and will have the following characteristics:

- 15mph design speed.
- 7.5m overall corridor width.
- Serving up to 50 dwellings (25 in a cul-de-sac).
- Shared surface with priority for pedestrians and cyclists.
- 17m visibility at junctions, bends and vertical crests.
- Junction spacing: for junctions on the same side of the road – 17m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- No bus access.
- If on-street parking bays are provided these should have a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Street lighting to be provided.

4.10.10 For 'Residential Access Ways' it is proposed that the general geometry outlined in the 6Cs Design Guide is broken down further by taking on board the principles of the Manual for Streets and section DG3 of the 6Cs Design Guide covering Home Zones. Two examples are indicated below (Public Courtyard and Mews) for roads serving up to approximately 25 dwellings where the layout is a cul-de-sac arrangement (50 dwellings where a through route is provided):

Public Courtyard

- 15mph design speed.
- Carriageway 4.8m - carriageway may be narrowed over short lengths to a single lane as a traffic-calming feature.
- Shared spaces and pedestrian priority in most places.
- 17m visibility at junctions, bends and vertical crests.
- No bus access.

- Junction spacing: for junctions on the same side of the road – 17m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- 1.4m privacy and access strips.
- If on-street parking bays are provided these should have a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Street lighting to be provided.

Mews

- 15mph design speed.
- Carriageway 4.1m - carriageway may be narrowed over short lengths to a single lane as a traffic-calming feature.
- Shared spaces and pedestrian priority in most places.
- 17m visibility at junctions, bends and vertical crests.
- No bus access.
- Junction spacing: for junctions on the same side of the road – 17m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- 0.5-1.5 privacy and access strips.
- If on-street parking bays are provided these should have a depth of 2.4m and a length of 6m. Parking should be provided in discrete groups broken up by planting/build-outs etc.
- Street lighting to be provided.

Major Industrial Access Road

4.10.11 The associated employment roads will be designed in accordance with the 6Cs Design Guide and will have the following characteristics:

- To serve B2 to B8 use class development.
- 30mph design speed.
- 7.3m carriageway width.
- 2m footway adjacent to both sides of the carriageway.

- Cyclists on-street.
- Normally no more than 8Ha for a single point of access.
- 70m visibility at junctions, bends and vertical crests.
- Junction spacing: for junctions on the same side of the road – 70m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- Bus stops provided on bus routes (not in lay-bys).
- Street lighting to be provided.

Minor Industrial Access Road

4.10.12 Minor Industrial Access Roads will be designed in accordance with the 6Cs Design Guide and will have the following characteristics:

- To serve B1 use class development.
- 25mph design speed.
- 6.0m carriageway width for offices, 6.75m for other B1 use classes.
- 2m footway adjacent to both sides of the carriageway.
- Cyclists on-street.
- Normally no more than 8Ha for a single point of access.
- 45m visibility at junctions, bends and vertical crests.
- Junction spacing: for junctions on the same side of the road – 45m centreline to centreline of the minor road. For junctions on the opposite side of the road – defined by tracking. Priority controlled crossroads should not be provided.
- Direct frontage access.
- Bus stops provided on bus routes (not in lay-bys).
- Street lighting to be provided.

4.11 SERVICE AND EMERGENCY VEHICLES

4.11.1 Service and emergency vehicles will gain access to the development via the same route as other vehicular traffic.

4.12 PEOPLE WITH DISABILITIES AND OTHER MOBILITY IMPAIRMENTS

4.12.1 The detailed design of the development and its internal transport infrastructure will be undertaken in accordance with the requirements of the 1995/2005 Disability Discrimination Act and in accordance with current good practice as embodied within the DfT's "Inclusive Mobility" document.

4.12.2 This approach will ensure that the completed development is fully inclusive and meets the needs of all users, including those with disabilities or temporary mobility impairments, such as those escorting elderly people or young children.

4.12.3 The requirement to design for disabled people will permeate all aspects of the design process and will include access to and movement within the site, but also the interface between the development and the surrounding highway network, and in particular the pedestrian routes and public transport facilities.

4.13 PARKING

4.13.1 Parking will be provided in accordance with the latest parking standards. The 6Cs Design Guide contains the following parking standards for new developments.

Car Parking

4.13.2 The 6Cs Design Guide indicates that residential parking should be provided in accordance with the DCLG 'Residential Car Parking Research' document. The method of calculation used within the DCLG document is based around car ownership figures obtained from the 2001 Census. The DCLG method calculates the likely level of car parking demand for residential units using the following variables:

- type of dwelling (flats or houses),
- tenure (owner occupied or non-owner occupied)
- type of location (remote rural, rural, suburban, urban, city centre, inner London),
- number of rooms provided within each dwelling. 'Rooms' are defined (Census 2001) as *'the count of the number of rooms in a household's accommodation does not include bathrooms, toilets, halls or landings, or rooms that can only be used for*

storage. All other rooms, for example, kitchens, living rooms, bedrooms, utility rooms and studies are counted'.

4.13.3 For employment land uses the 6Cs Design Guide outlines the following relevant parking standards:

- B1 Office = 1 space per 60sqm for urban town centre or edge of town centre locations (including Loughborough). Threshold applies to GFA above 2,500sqm.
- B2 Industrial = 1 space per 130sqm for urban town centre or edge of town centre locations. Threshold applies to GFA above 2,500sqm.
- B8 Warehousing = 1 space per 300sqm for urban town centre or edge of town centre locations. Threshold applies to GFA above 2,500sqm.

4.13.4 Parking at the local centre will be shared public parking rather than parking allocated to individual units. Actual parking numbers will be determined once individual uses are known. As a guide, the 6Cs Design Guide outlines the following relevant parking standards:

- Food Retail = 1 space per 14sqm GFA. Threshold applies to GFA above 1,000sqm
- Non-Food Retail = 1 space per 14sqm. Threshold applies to GFA above 1,000sqm
- D2 Assembly and Leisure (other than cinemas, conference facilities and stadia) = 1 space per 22sqm GFA. Threshold applies to GFA above 1,000sqm.

4.13.5 As agreed with CBC, LCC and English Heritage, a car park for approximately 50-60 cars will be provided as part of the proposed visitor centre at Garendon Park and this will be accessed from the proposed internal residential street network. The car park will serve the needs of the local community and will have a loose gravel surface and spaces will not be individually marked out. An overflow area will be available if required for any periodic special events.

Disabled Parking

4.13.6 At employment sites, the 6Cs Design Guide indicates that individual bays should be provided for each disabled employee plus 2 bays of 5% of the total parking spaces (whichever is greater). At shopping, recreation and leisure car parks, the 6Cs Design Guide indicates that 3

bays or 6% of the total parking spaces (whichever is greater) should be disabled bays. The 6Cs Design Guide indicates that at least 1 disabled parking bay should be provided at schools.

Cycle Parking

4.13.7 The 6Cs Design Guide outlines the following relevant minimum cycle parking standards:

- Retail = 1 space per 500sqm up to 4,000sqm GFA for staff and operational use. 1 space for every 1,000sqm for customer use.
- Office = 1 space per 400sqm GFA for staff and operational use. Customer parking to be assessed on a site by site basis.
- Industrial = 1 space per 400sqm GFA.
- Residential = for developments with common facilities, 1 space for every 5 dwellings. Where spaces are allocated, 1 space per dwelling.

4.13.8 For any land uses not identified above, cycle parking is to be assessed on a site by site basis as outlined in the 6Cs Design Guide.

4.13.9 Good quality, secure cycle parking will be provided. The type and location of the parking will be dependent upon the particular land use. However, it is vital that all parking is covered and sited in a position which is easily accessible. For employment and retail, Sheffield stands will be provided in the vicinity of the building entrances. Cycle parking will be covered and lockers should be available for staff. The primary school should have secured, covered cycle compounds for students, visitors and staff.

Motorcycle Parking

4.13.10 The 6Cs Design Guide indicates that motorcycle parking should be provided at a rate of 1 space plus an additional space for every 10 car parking spaces.

5 SUSTAINABLE TRANSPORT MODES

5.1 INTRODUCTION

5.1.1 This Chapter outlines the proposals for non-motorised users and public transport. It expands on information presented in the Design and Access Statement.

5.2 PEDESTRIAN/CYCLE ACCESSIBILITY

5.2.1 As outlined in **Chapter 3** the availability of existing sustainable transport infrastructure provides an excellent opportunity for providing good quality connections between the site and destinations in Loughborough and Shepshed. The key to delivering a sustainable development at the site is ensuring good quality connections are provided into the site at the right locations and that these connections facilitate routes through the site and strengthen existing east to west links between Loughborough and Shepshed.

5.2.2 Dedicated provisions for pedestrians and cyclists will meet the requirements of the 6Cs Design Guide and the Department for Transport's Inclusive Mobility guidance in terms of widths, dropped crossings/ tactile paving, gradients and crossfall, ramps lighting, personal security, legibility and materials.

5.2.3 The DfT document 'Building Sustainable Transport into New Developments' indicates that *"walking neighbourhoods are typically characterised by having a range of facilities within 10 minutes walking distance (around 800m)"*. The presence of the local centre and additional community facilities to the north-west of the site will ensure that WoLSUE is a walkable neighbourhood. The proposed facilities will be complemented by existing facilities in adjoining areas of Loughborough and Shepshed which will further enhance the position of WoLSUE as a walkable neighbourhood.

5.2.4 The Department for Transport's Local Transport Note 2/08: Cycle Infrastructure Design considers that "there are five core principles which summarise the desirable design requirements for pedestrians and cyclists. They have been derived from the requirements for pedestrians included in *Guidelines for Providing for Journeys on Foot* (CIHT et al., 2000) (connectivity, conspicuity, convenience, comfort and conviviality) and requirements for cyclists included in *Cycle Friendly Infrastructure* (CIHT, 1996) (coherence, directness, comfort, safety, and attractiveness)."

5.2.5 It is intended that the design of roads will be pedestrian and cycle friendly throughout. Design speeds, road widths, traffic calming measures and junction designs will be developed in line with the 6Cs Design Guide which places a high priority on meeting the needs of pedestrians, cyclists and public transport users. This is also in accordance with Policy CS 17 of the draft Core Strategy which requires major developments to provide safe and well lit walking and cycling access to key facilities/services and that this infrastructure is integrated within the wider green infrastructure network. A shared footway/cycleway is proposed on both sides adjacent to the Strategic Link Road between Coach Road and the A6. As agreed with CBC, LCC and EH no footway or cycleway provision is proposed adjacent to the Strategic Link Road through Garendon Park. All other roads will be designed to be suitable for on-carriageway cycling. Footways will be provided adjacent to other roads in the site. Street hierachy has been presented in **Section 4.10**.

5.2.6 A number of dedicated pedestrian/cycle connections are proposed within the site. **Figure 12** shows the proposals for non-motorised users and **Table 6** summarises the proposed improvements. It should be noted that this excludes pedestrian/cycle facilities proposed as part of the internal road layout. The proposed pedestrian/cycle route lighting strategy is discussed in **Section 5.3**.

Table 6 – Summary of Non-Motorised User Route Proposals

Route (see Fig 12)	Description	Approx. Length (m)	Approx. Width (m)	Type	Proposals
A to C	Oxley Gutter / Butthole Lane	2,160	3.0	National Cycle Network	The existing NCN route in this section is wide, has a sealed surface and is generally in a good condition for cycling and walking journeys. As part of the development it is proposed that small scale upgrades will be made to this key walking and cycling route by resurfacing/ filling potholes where the surface has worn.
A to G	Oxley Gutter to Pear Tree Lane	765	3.0 min	Bridleway	A new bridleway will be provided with a sealed surface. This route will provide a key walking/cycling connection within the site, particularly to the proposed primary school to the north of the site. The route will also provide an equestrian link between the existing bridleway to the north and the proposed equestrian 'loop' in Garendon Park.
F to I	Pear Tree Lane	2,200	3.0	Bridleway	Pear Tree Lane is aligned approximately parallel to the proposed Strategic Link Road. Pear Tree Lane will form a recreational route alongside the shared footway/cycleways adjacent to both sides of the Strategic Link Road. Pear Tree Lane has a sealed surface and is generally in a good condition. As part of the development it is proposed that small scale upgrades will be made to the route by resurfacing/ filling potholes where the surface has worn.
G to H	Pear Tree Lane	325	3.0	Bridleway	The existing bridleway requires two minor diversions. It is proposed that a new bridleway of approximately 325m in length will be provided to the south of the existing alignment. Furthermore, a minor diversion of the bridleway is required where it crosses the Strategic Link Road. The new bridleway will be surfaced to enable use by pedestrians, cyclists and equestrians.
H to I	Pear Tree Lane	600	1.0	Bridleway	It is considered that this section of Pear Tree Lane will primarily used by equestrians. No improvements are proposed.
G to K	Hathern Drive	255	3.0	Walking/Cycling	It is proposed that this existing route will be upgraded to create a walking and cycling route, with a sealed surface. This will provide a link from the proposed Strategic Link Road towards proposed residential areas and a proposed primary school.
K to J	Hathern Drive	310	2.0	Walking/Cycling	Hathern Drive will be upgraded to a walking/cycling route and improved with a sealed surface in order to provide internal links within the site and to provide a route to/from the A6. The existing gated closure at the A6 will be opened.
L to M	Coach Road	950	5.5	Walking/Cycling	Coach Road has a sealed surface and is suitable for vehicular traffic and is in a good condition for cycling and walking journeys. Small scale improvements will be made to the surfacing to fill potholes, for example.
M to P	Garendon Park existing route to A512	775	5.5	Walking/Cycling	The existing private road from the A512 north into the site will become a walking/cycling route. The existing route is wide, has a sealed surface and is generally in a good condition for cycling and walking journeys. As part of the development it is proposed that small scale upgrades will be made to this route by resurfacing/ filling potholes where the surface has worn. This route provides a route to the existing Science Park, proposed Science Park Extension and University via the A512 and provides an alternative to other routes such as Oxley Gutter and the Black Brook. The route also provides links to bridleway and walking routes in Garendon Park.
P	Disused Railway Line (Section within Site)	350	3.0	Walking/Cycling	A disused railway line currently extends in to the south-eastern corner of the site. Immediately outside the site boundary the route is identified by LCC as an off-road partially surfaced partially un-surfaced cycle route.

	Railway Line (East of Site to Thorpe Lane)	1,390	3.0	Walking/Cycling	In line with previous proposals by LCC in 2009, which were not implemented, proposals comprise of a 3.0m width walking/cycling route between Clowbridge Drive and Shortcliff Brook, reducing to a 2.5m width between Shortcliff Brook and Pitsford Drive. The route is proposed to be of standard construction, with a coated grit surface dressing. Flush kerbs and pedestrian tactile paving will be provided at all crossing points, along with anti-ram raid removable bollards at all access points. Drainage of any water displaced by the track would be by means of natural run off and discharge into the adjacent verges. For the section between Pitsford Drive and WoLSUE (which did not form part of the 2009 LCC scheme), the 2.5m width walking/cycling route will continue in to the site until it reaches the existing private vehicle access to Garendon Park. This section of the route will also be of standard construction, with a coated grit surface dressing.
Q to R	Pear Tree Lane to Oxley Gutter	660	2.0	Walking	This existing footpath will be enhanced, with the introduction of a sealed surface. This will provide a walking connection towards the existing footpath adjacent to the Black Brook and will therefore provide a key walking route towards Gorse Covert District Centre, Robert Bakewell Primary School and Loughborough.
N	Link to Thorpe Acre	35	2.0	Walking	A surfaced 2.0m wide pedestrian connection is proposed to Ravensthorpe Drive. This will provide a link from the existing Thorpe Acre residential area to Garendon Park.
O	Link to Thorpe Acre	115	2.0	Walking	A surfaced 2.0m wide pedestrian connection is proposed to Thorpe Acre School and College. This will provide a link from the existing Thorpe Acre residential area to Garendon Park.
M North – wards	Coach Road to Butthole Lane	1,100	2.0	Walking	A surfaced 2.0m wide walking route is proposed from Coach Road via residential areas towards the community facilities and a primary school.
A to O to N to A	Circular route in Garendon Park	3,250	3.0	Bridleway	A series of 3.0m wide bridleway links will be provided. The proposed routes within Garendon Park are principally considered leisure routes for pedestrians, cyclists and equestrians rather than providing direct connections to neighbouring amenities such as shops and the University, although these could provide alternative routes to/ from the site.
Walking routes in Garendon Park/ south of site		2,465	2.0	Walking	A series of 2.0m wide pedestrian links will provide internal connections in the developable area and routes within Garendon Park. Sealed surface to be provided.
Walking routes between Butthole Lane & Pear Tree Lane		1,925	2.0	Walking	Walking routes within the centre of the site to link proposed land uses. Sealed surface to be provided. As part of these routes, two new footbridges are proposed across the Black Brook.
Walking routes north of Pear Tree Lane		3,385	2.0	Walking	Walking routes in northern parts of the site will provide internal connections in the developable area. Sealed surface to be provided.
Walking/cycling route between Butthole Lane & Pear Tree Lane		1,650	3.0	Walking/Cycling	Walking/cycling route via proposed community facilities in the centre of the site. This will provide a key walking/cycling connection linking other key routes with community facilities. Sealed surface to be provided.
Walking/cycling routes north of Pear Tree Lane		875	3.0	Walking/Cycling	Walking/cycling route in the northern part of the site to provide internal connections and links with the shared footway/cycleway adjacent to the proposed Strategic Link Road. This will include an additional connection to Hathern Drive at the existing access to Lounds Farm. Sealed surface to be provided.

5.2.7 All proposed walking, cycling and equestrian improvements within the site will be fully provided by the developer. As outlined in **Table 6**, proposals are outlined for some routes outside of the red line boundary but within the blue line boundary. These include part of Hathern Drive, part of the access to Lounds Farm, part of Coach Road and part of Butthole Lane. These will be provided by the developer. A S106 contribution will be made towards the cost of works outside of the site boundary. Adoption/dedication of these routes as Public Rights of Way will need to be agreed with CBC/LCC. In general it is anticipated that non-motorised user routes through informal spaces will not be lit or adopted and that other routes will be lit and adopted.

5.2.8 As indicated in **Table 6**, a footpath diversion is proposed along Pear Tree Lane between points G and H. This has been discussed with LCCs Public Rights of Way Officer and as per the guidelines in the NPPF this will be concurrent with the outline planning application.

Recreational Routes and Facilities

5.2.9 The proposed routes for non-motorised users provide excellent connections to the wide range of recreational facilities proposed throughout WoLSUE. The proposed recreational facilities are presented in **Appendix A** and include a wide range of facilities for adults and children of all ages. The comprehensive green infrastructure framework creates significant areas of open space which can be accessed and enjoyed by the proposed network of walking, cycling and equestrian routes.

Summary

5.2.10 This package of proposals for non-motorised users as summarised in **Table 6** will ensure sustainable connections are provided along the full extent of all the boundaries of the site. These will provide pedestrians, cyclist and equestrian users with direct links to all key destinations in Loughborough and Shepshed. The connections would provide genuine alternatives to the private car and should ensure the proposed development becomes a sustainable development. The potential connections will also have significant benefits for existing communities in Loughborough and Shepshed by improving east to west links, and from Hathern for north to south movements. These connections will also have significant benefits for the proposed Science Park Extension.

5.2.11 The comprehensive package of non-motorised user routes will provide excellent connectivity/permeability within the site to key destinations including the local centre, 2 primary schools, Garendon Park, employment areas and open space.

5.2.12 Improvements will be phased to be introduced as the development is built out (i.e. when part of the site is developed the pedestrian, cycle and equestrian routes in that particular area will be provided as proposed). This approach is in accordance with Policy CS 22 of the draft Core Strategy which indicates that for WoLSUE new and improved walking and cycling routes should be well related to the green infrastructure network, connecting to new and existing employment areas including the Science Park Extension and Dishley Grange, new and existing centre's and Garendon Park.

Detailed Design Considerations for Non Motorised Users

5.2.13 Where connections will be made between the walking and cycling infrastructure within the development and existing facilities on the edge of the site it will be important to integrate the new infrastructure with existing facilities through the use of signing, lining and wayfinding materials.

5.2.14 Existing cycle routes in the Loughborough area are signed to a very high standard and clarity, using colour coding to indicate particular routes. The developer will work with CBC and LCC to introduce WoLSUE into this network, by means of additional strategic cycle route(s) and/ or adding key destinations within the site into existing/ proposed cycle signing.

5.2.15 On internal streets, plateaux could be introduced where appropriate at junctions, so that motorised vehicles give way to pedestrians and cycles rather than the other way around.

5.2.16 Wherever safe to do so, all no through roads/road closures within the site will be constructed with appropriate dropped kerbs and gaps to allow cyclists to be exempt and pass through them. This will provide both traffic calmed and more direct routes for cyclists.

5.2.17 It is important to ensure that all pedestrian/cyclist infrastructure is well maintained i.e. it doesn't become overgrown with vegetation or the surfacing cracked. Where adopted by the highway authority, all footways/cycleways will be maintained by the highway authority.

5.3 LIGHTING STRATEGY

5.3.1 The proposed lighting strategy within the site is shown on **Figure 13**. Within the Garendon Park part of the site a number of lighting options have been examined for the non-motorised user routes. The lighting proposals are outlined in this section of the TA.

5.3.2 A summary of the lighting proposals are shown in **Table 7** and discussed in this section. Lighting will either by using bollards, lighting columns or solar studs.

Table 7 – Summary of Lighting Proposals by Route

Route Ref (Figure 13)	Route Description	Proposed Lighting
A to B	Oxley Gutter to Coe Ave	Bollards
A to G	Oxley Gutter to Pear Tree Lane	Bollards
A to C	Butthole Lane	Columns
G to K	Hathern Drive	Bollards
A to P	Garendon Park	Studs
Central FP	Pedestrian routes between Butthole Lane & Pear Tree Lane	Bollards
Central C	Pedestrian/ cycle route between Butthole Lane & Pear Tree Lane	Columns

5.3.3 It should be noted that an option with less lighting was considered in order to reduce the environmental impacts through Garendon Common but on balance this was rejected to ensure appropriate integration and access across the Common.

5.3.4 Where bollards are proposed, these will maintain the environmental sensitivity of the routes. A number of lighting schemes on traffic free routes throughout the UK have used lighting units fitted in bollards. The bollards spill light down across the path.

5.3.5 The Surface Mounted Solar Studs consist of a solar panel that charges a battery during the day and LEDs that light up at night by means of a photo sensor. The lighting is sufficient to waymark the main south to north Garendon Park pedestrian and cycle route between the A512 and Oxley Gutter.

5.3.6 It is proposed that studs are generally installed at intervals along each edge of the path, at a spacing to be confirmed as part of detailed design. The studs are sufficient to make a path usable at night, particularly at dusk when there is a small amount of daylight.

5.3.7 Sustrans have reported that where provided on otherwise unlit routes, user feedback on the use of solar studs has been very positive. A number of local authorities throughout the UK have used studs to successfully light PROW.

5.3.8 Advantages of solar studs include:

- The visual impact on the Park setting would be insignificant.
- Sustrans have reported that solar studs have much less impact on wildlife than traditional lighting.
- Low susceptibility to vandalism.
- No operational costs and much lower maintenance implications than traditional lighting as they do not require an electricity supply.
- Low unit costs.

5.3.9 **Table 7** and **Figure 13** show the other key pedestrian and cycle links which will be lit using street lighting. Detailed design work will be required regarding the exact specification of the lighting, such as the column heights and lantern types to be used, balancing the need for sufficient personal and road safety for users to make the routes attractive, whilst minimise the impact upon neighbouring land uses.

5.3.10 For routes shown on **Figure 13** where no lighting is indicated adjacent to the pedestrian, cycle or equestrian route it should be assumed that no new or existing street lighting will be present.

5.4 PUBLIC TRANSPORT

Introduction

5.4.1 Existing public transport facilities are outlined in detail in **Section 3.6**. This Section of the TA outlines bus service improvements proposed as part of WoLSUE. The existing public transport offering in the vicinity of the site is excellent, with services operating throughout the day to key local destinations. Public transport improvements are proposed as part of WoLSUE and are designed to complement and enhance existing public transport provision. Proposed

improvements are in accordance with Policy CS 22 which identifies the need for new and enhanced services between WoLSUE and key local destinations including employment sites and Loughborough town centre.

5.4.2 Public transport is critical to the overall sustainability of WoLSUE. It is proposed that WoLSUE will be developed with a comprehensive bus based public transport strategy. The public transport strategy has been developed through discussions with the TWG, bus operators and with reference to latest planning policy guidelines.

5.4.3 The WoLSUE public transport strategy provides a step change in the way people view public transport. Therefore, it provides clear advantages over the private car and not only satisfies the estimated public transport demand, but assists in achieving modal shift away from the private car. This will be achieved through significant improvements to bus services and through Travel Plan/Smarter Choices initiatives. Travel Plan/Smarter Choices initiatives are outlined in the accompanying Framework Travel Plan (Report number RT84018-5 dated 6 August 2014).

Discussions with LCC Public Transport Team

5.4.4 A meeting was held with LCC Public Transport Team on 16th September 2013. The meeting minutes are presented in **Appendix F**. Key points from the meeting with LCC are:

- LCC indicated that it would be difficult to initially divert existing bus services into the site from Loughborough if the only vehicular access is from the A6. As such, LCC indicated that bespoke bus services are likely to be required.
- LCC indicated that bus operators would not want to divert existing services in to the site in a manner that is detrimental to the existing service.
- LCC indicated that if possible, target frequencies should be 15 – 20 minutes during the week but less at weekends. LCC indicated that weekend service frequencies could mirror existing weekend frequencies.
- LCC indicated that the maximum walking distance to a bus stop should be 400m.

Discussions With Bus Operators

5.4.5 The proposed bus service improvements have been informed by discussions with local bus operators. Meetings were held with Kinchbus, Paul S Winson and Arriva on the 1st, 7th and 15th October 2013 respectively. Minutes from each meeting are included in **Appendix F**.

5.4.6 The key points from the meetings with the bus operators are summarised as a follows:

- All of the bus operators are keen to serve the proposed development.
- All of the bus operators felt that serving the development with a bespoke service from the outset (rather than diverting existing services) would be the most appropriate way to serve WoLSUE.
- The need for direct bus routes from the outset was stressed.

Proposed Bus Services

5.4.7 The proposed bus based public transport strategy has been developed following discussions with the TWG, LCCs Public Transport Team and local bus operators. Bespoke bus services are proposed as part of WoLSUE rather than diverting existing services. Nevertheless, it should be noted that the masterplan has been designed to allow existing services, such as those currently operating in Shepshed, to be diverted through the site via the Hathern Road link.

5.4.8 The proposed street hierarchy has been designed to enable WoLSUE bus services to circulate the site in a manner that will ensure all of the development is generally within 400m of a bus stop. This is in accordance with the 6Cs Design Guide which states that '*generally walking distances to bus stops in urban areas should be a maximum of 400m'*. The street hierarchy is outlined in detail in **Section 4.9**. In accordance with the guidance outlined in the 6Cs Design Guide, all bus routes will have a minimum 6m carriageway width. At this stage in the masterplan process and subject to the feasibility of introducing appropriate Traffic Regulation Orders (TROs), it is intended that on-street parking will be prevented along all bus routes (unless in parking bays).

5.4.9 Bus service proposals are driven by the need to ensure WoLSUE is fully accessible by regular bus services to key local destinations. Nevertheless, it is important to ensure that any proposed bus services are commercially viable in the long term to ensure that the services

continue to operate once any financial support by the developer have come to an end. Proposed bus services are shown on **Figure 14** and outlined in the following text.

5.4.10 It is proposed that WoLSUE is served by a bespoke bus service from first occupation. A single vehicle will be used to serve northern parts WoLSUE (via the proposed A6 access) for the first 7 years of development (i.e. up to 2022/2023). This will operate a 30 minute frequency Monday to Saturday 07:00-19:00 and an hourly frequency evenings and Sundays. The service will operate 7 days a week between Loughborough town centre and WoLSUE. On Sundays the service will not operate via Bishop Meadow Industrial Estate.

5.4.11 At 2019/2020 an additional vehicle will be introduced to serve southern parts of WoLSUE (via the proposed A512 access). This will operate a 30 minute frequency Monday to Saturday 07:00-19:00 and an hourly frequency evenings and Sundays. The service will operate 7 days a week between Loughborough town centre and WoLSUE. On Sundays the service will not operate via Loughborough University and the Science Park.

5.4.12 At 2022/2023 when the Strategic Link Road is complete, the 2 vehicles already serving WoLSUE will be used to provide a circular bus route between WoLSUE and Loughborough town centre via Bishop Meadow Industrial Estate, Loughborough University and the Science Park. Two additional vehicles will be introduced resulting in two vehicles operating in a clockwise direction and two vehicles operating in an anti-clockwise direction. This will operate a 30 minute frequency Monday to Saturday 07:00-19:00 and an hourly frequency evenings and Sundays. The service will operate 7 days a week between Loughborough town centre and WoLSUE. On Sundays the service will not operate via Bishop Meadow Industrial Estate, Loughborough University and the Science Park.

5.4.13 It should be noted that the exact route to be used by WoLSUE bus services in Loughborough town centre will be subject to further discussion with LCC/CBC and will be confirmed once the current town centre works are complete and operational.

Demand for Bus Services

5.4.14 The estimated demand for bus services has been calculated using 2011 Census 'Method of Travel to Work' data. Data for the resident population has been obtained for 'Loughborough Ashby', 'Loughborough Garendon', 'Loughborough Southfields' and 'Loughborough Storer' wards. In order to calculate the demand for bus services, modal split data has been used from

all 4 wards and applied to WoLSUE. This provides consistency with the approach to residential vehicle trip distribution (**Section 6.9**) which uses Census data from the same four wards. The estimated demand for bus services at 2031 is shown in **Table 8** and full calculations are shown in **Appendix F**.

Table 8 – Public Transport Trip Generation

Mode	AM Peak		PM Peak		Daily	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Bus	42	110	94	47	680	785

Bus Stops

5.4.15 In accordance with the 6Cs Design Guide WoLSUE bus stops are proposed to ensure that '*generally walking distances to bus stops in urban areas should be a maximum of 400m*'. Paragraph 3.82 of the 6Cs Design Guide indicates that pedestrian routes to bus stops should be '*as direct, convenient and safe as possible to encourage use of public transport*'. 6Cs goes onto state that the routes should:

- *Enjoy good natural observation from neighbouring buildings*
- *Be well lit and*
- *Be carefully designed so any planting minmises opportunities for crime*

5.4.16 Proposed bus stops are shown on **Figure 14**. The pedestrian routes to the bus stops fully comply with the design principles of the 6Cs Design Guide and, as such, the design of these routes within the masterplan can be considered to actively encourage the use of public transport which is a key objective of the Travel Plan submitted as part of the planning application for the site. As such it is considered that, although there are a small number of properties which are marginally greater than this 400m threshold, the high quality walking routes proposed to WoLSUE bus stops and the high frequency of WoLSUE bus services is considered to be more important in determining whether pedestrians will walk slightly beyond the arbitrary 400m threshold distance.

5.4.17 In order to encourage the use of public transport, as a standard minimum requirement bus shelters will be provided at all bus stops where passengers board services i.e. bus shelters will not be provided at any stops that may be used as alighting points only. Those which are used for boarding will have suitable facilities which will include the shelter, a litter bin and bus timetable information.

5.4.18 Bus stops and shelters will be well-lit and sited sympathetically to the environment and with personal safety foremost. Additionally, it is important that all on-street infrastructure is inspected, cleaned and maintained on a regular basis, with any damage quickly repaired.

5.4.19 It is understood from discussions with LCC, that real time bus passenger information may be re-introduced in the County after the previous Star Trak system was switched off in 2011.

5.4.20 If real time information is re-introduced in the County, it will be a standard requirement for WoLSUE bus services. Depending upon the method selected to present Real Time Information, a bus stop display may also be necessary, but this should not replace the bus timetable information, which offers a permanent display for customer reference.

5.4.21 A real time information system will have a number of benefits for WoLSUE bus services summarised as follows, which will combine to increase the attractiveness of WoLSUE bus services:

- Accurate next-bus information at stops
- More reliable services
- Reduced journey times due to bus priority at traffic signals
- Next-stop information signs and announcements on selected buses
- Improved service reliability

5.5 SUMMARY

5.5.1 Proposed bus service improvements have been informed by discussions with LCC Public Transport and local bus operators.

5.5.2 Bespoke WoLSUE bus services are proposed from first occupation of the development. Once WoLSUE is fully built out, a circular bus route will be provided between WoLSUE and Loughborough town centre via Bishop Meadow Industrial Estate, Loughborough University and the Science Park. The service will operate a 30 minute daytime Monday to Saturday frequency and an hourly service on Sundays and Monday to Saturday evenings.

5.5.3 In accordance with the 6Cs Design Guide WoLSUE bus stops are proposed to ensure that '*generally walking distances to bus stops in urban areas should be a maximum of 400m'*.

6 HIGHWAY ASSESSMENT METHODOLOGY

6.1 INTRODUCTION

6.1.1 As agreed with the TWG, the highway impact of WoLSUE has been assessed using a manual modelling approach. The approach uses outputs from the Leicester and Leicestershire Integrated Transport Model (LLITM) to inform the re-assignment of existing trips on to the Strategic Link Road. The LLITM outputs being used are from the Core Strategy modelling work undertaken using version 2 of LLITM. This approach supersedes the approach using LLITM version 5 outlined in the 6th September 2013 Transport Assessment and Framework Travel Plan Scoping Report. All correspondence relating to the agreement of the manual approach is presented in **Appendix B**.

6.2 OVERVIEW OF MANUAL MODEL

6.2.1 The manual model is based around a network diagram of the TA study area and focuses on the AM and PM peak hours of 08:00-09:00 and 17:00-18:00. Turning movements at all junctions and along all links included in the TA study area are shown on a network diagram. The model identifies traffic flows at 2021, 2026 and 2031 assessment years both 'with' and 'without' WoLSUE development flows. The manual model calculates the impact of WoLSUE vehicle trips at each junction in the TA study area.

6.2.2 The manual model also assesses the re-assignment effects of the proposed Strategic Link Road through the site.

6.3 MANUAL MODEL STUDY AREA

6.3.1 The junctions included in the manual model have been agreed with the TWG and are:

- M1J23
- A512 Site Access
- A512/Snells Nook Lane
- A512/Epinal Way
- A6/Bishop Meadow Road/Warwick Way

- A6 Site Access
- A6/Shepshed Road/Narrow Lane
- Hathern Road Site Access
- A512/Leicester Road/Ingleberry Road

6.3.2 The traffic data outlined in **Section 3.10** has been used in the manual model.

6.3.3 In order to obtain traffic flows on the A6 and Hathern Road in the vicinity of the proposed site accesses, traffic flows from the A6 and Shepshed Road arms of the A6/Shepshed Road/Narrow Lane junction count were used. In order to obtain traffic flows on the A512 in the vicinity of the proposed site access, traffic flows from the A512 arm of the M1 J23 junction count were used.

6.3.4 Traffic data has been input into the manual model in vehicles and converted to Passenger Car Units (PCUs) using the following factors for input to the capacity assessments:

- Pedal Cycle = 0.2
- Motorcycle = 0.4
- Car = 1
- LGV = 1
- OGV1 = 1.5
- OGV2 = 2.3
- Bus = 2

6.3.5 The manual model shows turning movements at junctions and link flows on each arm of each junction.

6.4 ASSESSMENT YEARS AND GROWTH FACTORS

6.4.1 As agreed with the TWG, assessment years of 2021, 2026 and 2031 have been used in the TA. In order to obtain future year traffic flows, it has been agreed with the TWG that National Traffic Model (NTM) growth factors adjusted by local TEMPRO growth factors were applied to the existing peak hour traffic flows to ascertain the future year traffic flows. The growth factors have been obtained from the TEMPRO database and use 'Loughborough' as the 'local' area. The following weekday TEMPRO growth factors were used:

- 2009 – 2021 AM: 1.0985
- 2009 – 2021 PM: 1.1038
- 2013 – 2021 AM: 1.0858
- 2013 – 2021 PM: 1.0877
- 2014 – 2021 AM: 1.0807
- 2014 – 2021 PM: 1.0824
- 2021 – 2026 AM: 1.0576
- 2021 – 2026 PM: 1.0594
- 2026 – 2031 AM: 1.0449
- 2026 – 2031 PM: 1.0471

6.4.2 Background traffic flows for the TA assessment years are presented in **Appendix G**.

6.5 COMMITTED DEVELOPMENTS

6.5.1 The approach taken in relation to committed developments in the manual model has been discussed at length with the TWG. Traffic flows from the following committed developments have been included in the WoLSUE TA:

- Dishley Grange – planning application number P/08/2048/2 (employment)

- Hathern Road, Shepshed – planning application number P/13/1343/2 (70 residential dwellings)
- Shepshed Road, Hathern – planning application number P/10/1580/2 (62 residential dwellings – approximately 50% complete)
- Loughborough Road, Hathern – planning application number P/10/0415/2 (58 residential dwellings – fully built out)

6.5.2 The TA's associated with each of the above committed developments have been reviewed and the development traffic flows have been obtained. These flows have then been added to background traffic flows at each TA assessment year. Calculations are presented in **Appendix G**. It should be noted that the committed development at Loughborough Road, Hathern is now complete and the committed development at Shepshed Road, Hathern is now approximately 50% complete. As such, some of the traffic associated with these committed developments will have been included in the traffic counts to inform this TA. Therefore, there will be an element of double counting of these trips and as such, this provides a worst case assessment.

6.5.3 It should be noted that the HA suggested making reductions to the background traffic growth factors in **Section 6.4** to reflect potential double counting of committed developments as part of the growth factors. No reductions have been made to the background growth factors. As such, this provides a worst case approach to background traffic growth.

6.6 STRATEGIC LINK ROAD IMPACTS

6.6.1 The proposed Strategic Link Road between the A512 and the A6 will be complete in the 2026 and 2031 assessment years but not the 2021 assessment year. The Strategic Link Road will result in a proportion of existing trips re-assigning from their existing routes onto the strategic link. The proportion of trips re-assigning onto the strategic link has been obtained from the Core Strategy LLITM work. LCC provided select link analysis information for the Strategic Link Road. This information has been analysed and reveals that the Strategic Link Road will result in approximately 800 to 900 PCUs re-assigning from existing routes on to the Strategic Link Road in both the AM and PM peak hours. The base traffic flows have been updated to reflect the re-assignment effects of the proposed Strategic Link Road in the 2026 and 2031 'with development' scenarios. The re-assignment effects of the Strategic Link Road have been applied in this TA as per the select link analysis from LLITM. The only exception is where

LLITM shows traffic approaching the A6/Narrow Road/Shepshed Road junction from the A6 (north) turning right into Shepshed Road and entering the site at the Hathern Road access and travelling south on the Strategic Link Road. This seems highly unlikely as it would be a shorter (and quicker) route for traffic to use the A6 access rather than the Hathern Road access. Therefore, the outputs from LLITM have been amended so that this traffic enters the site at the A6 access and travels south on the Strategic Link Road.

6.6.2 The Strategic Link Road is a key mitigation measure for WoLSUE and the information obtained from LLITM demonstrates the significant benefit this road will have on the existing highway network in Loughborough. **Appendix H** presents information relating to the re-assignment effects of the Strategic Link Road.

6.7 PHASING OF DEVELOPMENT

6.7.1 As agreed with the TWG, the manual model assesses the impact of WoLSUE at 2021, 2026 and 2031. The scale of development shown in **Table 9** will be assessed in line with the proposed phasing in **Section 4.6**.

Table 9 – Development Phasing to be Assessed in Manual Model

Assessment Year	Land Use				
	Residential (no. dwellings)	Employment (sqm)			Food Retail (sqm)
		B1	B2	B8	
2021	840	0	0	0	0
2026	2,040	6,000	22,400	33,700	2,350
2031	3,200	6,000	22,400	33,700	2,350

6.7.2 As outlined in the 'WoLSUE Trip Rate Logic Checks' Technical Note issued by WYG on 23.12.13, the proposed primary schools and local centre (excluding food retail) will not generate external trips and as such, these land uses will not be assessed in the manual model and have been excluded from **Table 9**. In terms of food retail, the draft Core Strategy identifies 2,000sqm net for food retail. In order to understand the gross floor area of food retail (on which TRICS trip rates are based) information has been obtained from the Homes and Communities Agency (HCA) 'Employment Densities Guide 2nd Edition 2010'. The guide indicates that gross floor space is typically 15% - 20% higher than net internal space for retail. Therefore, in order to convert 2,000 sqm net to GFA, the net area has been increased by 17.5%. This results in food retail GFA of 2,350sqm.

6.7.3 At 2021 site access will be provided from the A512 and A6, but no strategic route through the site will be provided (600 dwellings accessed from the A6 and 240 from the A512). At 2026 access will be provided from the A512 and A6 and a Strategic Link Road through the site will be provided. At 2031 access will be provided from the A512, A6 and Hathern Road and a Strategic Link Road through the site will be provided along with a link between the proposed Strategic Link Road and Hathern Road.

6.8 TRIP RATES AND TRIP GENERATION

6.8.1 Trip generation has been estimated using the trip rates presented in the Manual Methodology Scoping Note issued by WYG on 21.01.14. The trip rates have been agreed with the TWG and are given in **Appendix I**.

6.8.2 The mixed use nature of the WoLSUE development proposals is such that a proportion of trips will remain internal to the site. It has been agreed with the TWG that 10% of WoLSUE jobs will be taken by WoLSUE residents. Therefore, in order to obtain the external trip generation for employment trips, the employment trip generation has been reduced by 10% and the 10% of employment trips have been taken of the residential trip generation. This reflects paragraphs 10.15 and 10.16 of the draft Core Strategy which indicate the requirement for WoLSUE to provide employment opportunities for local residents. It goes on to state that 16ha of employment at WoLSUE can meet the employment needs of new residents.

6.8.3 It has been agreed with the TWG that 10% of convenience store trips will be 'new' trips and the remaining 90% of trips will be 'pass-by' or 'diverted' trips. Therefore, in order to obtain the external trip generation for convenience store trips, the convenience store trip generation has been reduced by 90%.

6.8.4 It has been agreed with the TWG that primary school trips will remain internal to the site.

6.8.5 The vehicle trip rates and WoLSUE external trip generation at 2021, 2026 and 2031 for each land use and the total development are shown in **Tables 10** to **15**. The trip generation in the tables reflects the internalisation of employment trips and the 'pass-by'/'diverted' nature of convenience store trips as outlined in paragraphs 6.8.2 and 6.8.3.

Table 10 – Residential Vehicle Trip Rates and WoLSUE Residential External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Vehicle Trip Rates	0.138	0.341	0.479	0.292	0.151	0.442
2021 Vehicle Trip Generation	116	286	402	245	127	371
2026 Vehicle Trip Generation	258	689	946	593	208	878
2031 Vehicle Trip Generation	418	1084	1502	931	463	1390

Table 11 – Office Vehicle Trip Rates and WoLSUE Office External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Vehicle Trip Rates	1.644	0.208	1.852	0.153	1.242	1.394
2021 Vehicle Trip Generation	0	0	0	0	0	0
2026 Vehicle Trip Generation	89	11	100	8	67	75
2031 Vehicle Trip Generation	89	11	100	8	67	75

Table 12 – Industrial Vehicle Trip Rates and WoLSUE Industrial External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Vehicle Trip Rates	0.413	0.201	0.614	0.082	0.303	0.384
2021 Vehicle Trip Generation	0	0	0	0	0	0
2026 Vehicle Trip Generation	83	41	124	17	61	77
2031 Vehicle Trip Generation	83	41	124	17	61	77

Table 13 – Warehousing Vehicle Trip Rates and WoLSUE Warehousing External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Vehicle Trip Rates	0.125	0.049	0.174	0.048	0.136	0.184
2021 Vehicle Trip Generation	0	0	0	0	0	0
2026 Vehicle Trip Generation	38	15	53	15	41	56
2031 Vehicle Trip Generation	38	15	53	15	41	56

Table 14 – Food Retail Vehicle Trip Rates and WoLSUE Food Retail External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Vehicle Trip Rates	7.982	5.814	13.796	8.213	10.002	18.215
2021 Vehicle Trip Generation	0	0	0	0	0	0
2026 Vehicle Trip Generation	19	14	32	19	24	43
2031 Vehicle Trip Generation	19	14	32	19	24	43

Table 15 – WoLSUE Total External Vehicle Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
2021 Vehicle Trip Generation	116	286	402	245	127	371
2026 Vehicle Trip Generation	487	770	1255	652	481	1129
2031 Vehicle Trip Generation	647	1165	1811	990	656	1641

6.9 TRIP DISTRIBUTION

6.9.1 As agreed with the TWG, vehicle trip distribution has been undertaken using 2001 Census Travel to Work data (note that 2011 Census Travel to Work data is unavailable at the time of writing this TA). The residential distribution uses data from 'Loughborough Garendon', 'Loughborough Ashby', 'Loughborough Southfields' and 'Loughborough Storer' wards. The employment distribution uses data from 'Loughborough Ashby', 'Loughborough Southfields' and 'Loughborough Storer' ward. Trip distribution is presented in **Table 16**. Full details are provided in **Appendix J**.

Table 16 – WoLSUE Vehicle Trip Distribution

Route		Residential Distribution	Employment Distribution
A	A512 West	3%	3%
B	Loughborough	47%	36%
C	A6 North	1%	2%
D	A6 South	4%	11%
E	A60	3%	6%
F	Shepshed	3%	8%
G	M1 North	11%	14%
H	M1 South	28%	20%
I	Snells Nook Lane	0%	1%
Total		100%	100%

6.9.2 WoLSUE will be assessed at 2021, 2026 and 2031. At 2021 access will be provided from the A512 and A6 but there will be no strategic link through the site. 600 dwellings will be accessed from the A6 and 240 dwellings will be accessed from the A512. At 2026 access will be provided from the A512 and A6 and the strategic link through the site will be complete. At 2031 access will be as per 2026 but access from Hathern Road will also be provided.

6.9.3 At 2026 and 2031, it is proposed that traffic assigned to each route is split across each proposed site access as shown in **Table 17**.

Table 17 – WoLSUE Split of Development Trips Across Each Site Access

Route		Access	
		2026	2031
A	A512 West	A512	A512
B	Loughborough	A512 and A6	A512 and A6
C	A6 North	A6	A6 and Hathern Road
D	A6 South	A512 and A6	A512 and A6
E	A60	A6	A6
F	Shepshed	A512	Hathern Road
G	M1 North	A512	A512
H	M1 South	A512	A512

6.9.4 Trip distribution diagrams are presented in **Appendix J**.

6.10 'WITH DEVELOPMENT' FLOWS

6.10.1 Background plus committed development plus WoLSUE development flows are presented in **Appendix K**.

6.11 DEVELOPMENT IMPACT

6.11.1 This section of the report has been prepared to summarise the estimated traffic impact of WoLSUE. It should be noted that the traffic impact of WoLSUE has been estimated based on the worst-case highway impact assessment. Given that WoLSUE will include walking/cycling and public transport improvements as well as a comprehensive package of Framework Travel Plan/Smarter Choices measures, it is therefore anticipated that in reality the traffic impact will be less than presented in this report.

6.11.2 As an indicator of the impact of the proposed development, the 2021, 2026 and 2031 background plus committed traffic flows have been compared to the 2021, 2026 and 2031 background plus committed plus development traffic flows for the AM and PM peak hours. At 2026 and 2031 the re-assignment effects of the Strategic Link Road have been included as part of the development traffic flows because the Strategic Link Road is a requirement of the WoLSUE as set out in the draft Core Strategy. Estimating the development impact without taking the Strategic Link Road into account would present an inaccurate picture of the development impact of the WoLSUE.

6.11.3 The estimated junction impact in terms of WoLSUE development flows has been calculated at each junction in the TA study area. Calculations are presented in **Appendix L** and a summary is presented in **Table 18**. It is important to note that the Strategic Link Road will be complete at 2026 and 2031. The Hathern Road Link will be complete at 2031 (but not 2026).

Table 18 – Development Impact

Location	Year					
	2021		2026		2031	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
J1) M1 J23	3.5%	3.9%	15.0%	16.3%	11.2%	13.5%
J3) A512 Snells Nook Lane	4.6%	3.8%	-13.4%	-11.2%	-8.2%	-6.8%
J4) A512/Epinal Way	5.0%	4.8%	-12.9%	-11.1%	-8.5%	-7.0%
J5) A6/Bishop Meadow Road/Warwick Way	9.8%	8.5%	-4.0%	-2.2%	1.0%	2.1%
J7) A6/Shepshed Road/Narrow Lane	2.8%	2.4%	0.8%	0.6%	1.0%	0.7%
J9) A512/Leicester Road/Ingleberry Road	0.7%	0.5%	4.1%	3.2%	-12.0%	-9.6%

6.11.4 WoLSUE will overall result in a reduction in traffic flows at all locations on the adjacent highway network. This demonstrates the significant Loughborough wide benefit that the development will bring. The one exception to this is at M1J23 where there is a material increase. Highway improvements have been identified to mitigate this impact in accordance with DfT Circular 02/2013 as demonstrated in **Chapter 7**. Prior to completion of the Strategic Link Road there will some increase in traffic on the adjacent network but it is considered the significant benefits provided by the Strategic Link Road outweigh this.

6.11.5 Capacity assessments have been undertaken at all junctions included in the TA study area and are presented in **Chapter 7**.

6.12 SCIENCE PARK CUMULATIVE TEST

6.12.1 As outlined in paragraph 2.3.5, the draft Core Strategy identifies an extension to the existing Science Park on land south of the A512 and to the east and west of Snells Nook Lane. The

draft Core Strategy identifies between 70,500sqm and 111,000sqm gross floor area of development consisting of research and development and technology based companies.

6.12.2 The Science Park will have two points of access. The primary access will be via a new junction on Snells Nook Lane serving land to the east and west. The Core Strategy identifies a second point of access onto the A512 between M1J23 and Snells Nook Lane. This will create a 4 arm junction serving both WoLSUE and the future Science Park. It is therefore important that the proposed WoLSUE site access is designed in a manner that enables it to serve WoLSUE and the Science Park Extension.

6.12.3 A cumulative test has been undertaken at M1J23, the A512 site access and the A512/Leicester Road/Ingleberry Road junction whereby traffic flows from the Science Park Extension are added to the 2031 'with development' WoLSUE flows based on the information currently available. This will represent the West of Loughborough Growth Area.

6.12.4 In order to obtain traffic flows for the Science Park extension, the Science Park Chapter of the Core Strategy Stage 3 LLITM transport modelling work has been reviewed. This indicates vehicle trip generation of 2082 arrivals and 146 departures in the AM peak hour and 160 arrivals and 1610 departures in the PM peak hour. This traffic has been distributed using the agreed employment trip distribution for WoLSUE. For the part of the Science Park Extension located on land west of Snells Nook Lane, and it has been assumed that vehicles travelling to/from the A512 (west of the A512 Science Park access) will use the A512 access. For the part of the Science Park Extension located on land east of Snells Nook Lane, and it has been assumed that vehicles travelling to/from the A512 (west of the A512 Science Park access) will use the primary access on Snells Nook Lane. All other traffic will use the primary access on Snells Nook Lane and will not pass through M1J23, the A512 site access or the A512/Leicester Road/Ingleberry Road junction. Cumulative test traffic flows are presented in **Appendix M**.

6.12.5 It should be noted that no reduction to Science Park Extension traffic flows has been made to reflect trips to/from WoLSUE in accordance with the vision for the West of Loughborough growth area as outlined in paragraph 10.51 of the draft Core Strategy which indicates that the Science Park Extension will be expected to contribute towards infrastructure in conjunction with WoLSUE. The cumulative test therefore provides a worst case assessment.

6.12.6 **Figure 8** shows a junction serving both WoLSUE and the Science Park Extension. The results of the capacity assessment are presented later in this TA in **Chapter 7**.

6.13 SHEPSHED SENSITIVITY TEST

6.13.1 During pre-application discussions, future growth in Shepshed was discussed with the TWG. There are a number of planning applications currently under consideration in Shepshed and Shepshed is identified as an area of growth in the draft Core Strategy. Although the planning applications in Shepshed are not considered to be 'committed developments', LCC and CBC requested that the WoLSUE TA considers the cumulative impact of both WoLSUE and future growth in Shepshed. It was agreed with the TWG that this would be dealt with by a sensitivity test.

6.13.2 A sensitivity test has been undertaken whereby traffic from the following planning applications (yet to be determined) have been added to the 2031 'with development' WoLSUE flows:

- Oakley Road, Shepshed – planning application number P/13/1838/2 (32 residential dwellings)
- Tickow Lane, Shepshed – planning application number P/13/1826/2 (380 residential dwellings)
- Hallamford Road, Shepshed – planning application P/13/2054/2 (250 residential dwellings)
- Hathern Road, Shepshed – planning application number P/13/1641/2 (270 residential dwellings)
- Tickow Lane, Shepshed – planning application number P/13/1751/2 (215 residential dwellings)

6.13.3 The TAs for each of the above proposed developments have been reviewed and the development traffic flows have been obtained. These flows have been added to the background traffic flows at M1J23, the A512 site access and the A512/Leicester Road/Ingleberry Road junction.

6.13.4 The sensitivity test identifies whether any further highway mitigation is required at M1J23, the A512 site access and the A512/Leicester Road/Ingleberry Road junctions over and above any mitigation that is proposed as part of WoLSUE. It should be noted that the TA study area for some of the committed developments does not overlap with the WoLSUE TA study area. Where this is the case the committed development flows have been assigned along the A512 i.e. through M1J23, the A512 site access and the A512/Leicester Road/Ingleberry Road junction. This is considered to represent a robust approach towards future growth in Shepshed.

6.13.5 The Oakley Road, Shepshed development has not been included in the sensitivity test. The development proposals are for 32 dwellings. A Transport Statement (TS) was submitted with the planning application and identified AM peak hour trip generation of 18 two-way trips and PM peak hour trip generation of 19 two-way trips. The TS includes no trip distribution information. Given the small scale nature of this proposed development, its location i.e. north of Shepshed some distance from the junctions being considered in the sensitivity test and the lack of any trip distribution information, the Oakley Road site has not been included in the sensitivity test.

6.13.6 Sensitivity test traffic flows are presented in **Appendix M**. These sensitivity test flows have also been added to the 'background plus WoLSUE development' flows and the 'West of Loughborough Science Park' cumulative flows. Capacity assessments have been carried out. The results of the capacity assessment are presented later in **Chapter 7**.

7 HIGHWAY IMPACT ASSESSMENT

7.1 INTRODUCTION

7.1.1 Capacity assessments have been undertaken at all junctions in the TA study area. The assessment of the junctions has been undertaken using the ARCADY 6, PICADY 5 and LINSIG 3 computer programmes which are the 'industry standard' traffic modelling computer software packages used for assessing the traffic capacity of roundabouts, simple priority junctions and signalised junctions respectively.

7.1.2 In the priority junction and roundabout assessments a Ratio of Flow to Capacity (RFC) value below 0.85 indicates that a junction operates 'within' its theoretical capacity. Typically junctions can satisfactorily operate with RFC values between 0.85 and 1.00. An RFC value greater than 1.00 indicates that a junction operates 'above' its capacity.

7.1.3 In the traffic signal junction assessments, a Reserve Capacity (RC) or degree of overload is used to indicate whether or not a junction operates 'within' its theoretical capacity. The RC is the percentage of all round traffic growth, which a junction can accommodate within its capacity. When there is no RC, a degree of overload is the percentage by which the traffic flows exceed the capacity of the junction. Experience with RC calculations at existing junctions indicates that queuing does not become particularly noticeable until the degree of overload reaches 10% (i.e. -11% RC). For the purposes of comparison with priority junctions and roundabouts, it can be assumed that a RC of 0% (and a Degree of Saturation of 90%) roughly equates to a RFC of 0.85.

7.1.4 The HA has a VISSIM model of M1J23 and will assess the highway impact of WoLSUE at this location using the VISSIM model.

7.1.5 At traffic signal junctions existing controller specifications and junction layout plans have been obtained from Leicester City Council in order to inform the capacity assessments.

7.1.6 Full details of all capacity assessments are presented in **Appendix N**. This Chapter summarises the results.

7.2 2021 CAPACITY ASSESSMENT RESULTS (EXISTING LAYOUTS)

7.2.1 The results of the 2021 capacity assessments are presented in **Table 19**.

Table 19 – Results of 2021 Capacity Assessments

Junction No.	Location	Arm	Road Name	Direction	Without Development				With Development				Difference			
					AM		PM		AM		PM		AM		PM	
					RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q
1	M1J23	A	M1 (north)	Left/Ahead	96.1%	19.6	88.2%	12.2	96.8%	20.3	89.1%	12.8	0.7%	0.7	0.9%	0.6
				Ahead	39.5%	4.0	48.9%	4.1	39.5%	4.0	48.9%	4.1	0.0%	0.0	0.0%	0.0
		B	A512 (east)	All	88.6%	11.2	110.1%	75.9	95.7%	26.5	115.2%	107.6	7.1%	15.3	5.1%	31.7
		C	M1 (south)	Left	39.7%	4.1	50.5%	3.1	39.7%	4.1	50.5%	3.1	0.0%	0.0	0.0%	0.0
				Ahead	101.2%	24.5	54.4%	3.4	107.7%	38.1	72.9%	5.3	6.5%	13.6	18.5%	1.9
		D	A512 (west)	Left/Ahead	102.8%	44.1	80.4%	10.0	103.4%	47.3	82.1%	10.6	0.6%	3.2	1.7%	0.6
				Ahead	102.8%		80.4%		103.4%		82.1%		0.6%		1.7%	
		Practical Reserve Capacity (S/B off-slip controller A)			-6.8%		-22.4%		-7.5%		-28.0%		-0.7%		-5.6%	
		Practical Reserve Capacity (N/B off-slip controller B)			-14.2%		12.0%		-19.7%		9.6%		-5.5%		-2.4%	
2	A512 Site Access	A	A512 (west)	Left	NA	NA	NA	NA	81.8%	12.7	57.9%	7.6	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	81.8%		57.9%		NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	81.8%	12.9	57.9%	7.8	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	82.7%		58.6%		NA	NA	NA	NA
		B	WoLSUE Access	Left	NA	NA	NA	NA	11.5%	0.8	5.1%	0.3	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	4.9%	0.3	2.2%	0.2	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	4.4%		2.0%		NA	NA	NA	NA
		C	A512 (east)	Left/Ahead	NA	NA	NA	NA	84.5%	14.3%	69.5%	9.5	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	84.6%	14.3%	69.6%	9.5	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	84.6%		69.6%		NA	NA	NA	NA

		D	Science park Access	All	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Practical Reserve Capacity			NA		NA		6.4%		29.3%		NA		NA		
3	A512/Snells Nook Lane	A	A512 (east)	Left/Ahead	82.9%	9.5	83.1%	15.9	85.0%	10.5	84.3%	16.7	2.1%	1.0	1.2%	0.8
				Ahead	84.1%	10.4	84.1%	17.4	86.0%	11.4	85.0%	18.2	1.9%	1	0.9%	0.8
		B	Snells Nook Lane	Left	82.8%	9.0	76.6%	4.9	86.1%	9.8	86.7%	6.3	3.3%	0.8	10.1%	1.4
				Right	82.8%		76.6%		86.1%		86.7%		3.3%		10.1%	
		C	A512 (west)	Ahead	55.7%	6.8	61.7%	9.8	57.4%	7.3	65.5%	10.9	1.7%	0.5	3.8%	1.1
				Ahead	61.3%	7.1	0.0%	9.1	62.6%	7.5	0.0%	9.1	1.3%	0.4	0.0%	0
				Right	61.3%		83.7%		62.6%		83.7%		1.3%		0.0%	
		Practical Reserve Capacity			7.0%		7.0%		4.5%		3.8%		-2.5%		-3.2%		
4	A512/Epinal Way	A	Epinal Way (north)	Left/Ahead	67.3%	9.1	53.7%	6.1	60.5%	7.9	51.4%	6	-6.8%	-1.2	-2.3%	-0.1
				Ahead	68.6%	9.2	58.8%	6.9	61.8%	8.2	56.0%	6.7	-6.8%	-1	-2.8%	-0.2
		B	A512 (east)	All	84.5%	9.2	68.7%	5.0	92.9%	12.6	72.4%	5.5	8.4%	3.4	3.7%	0.5
		C	Epinal Way (south)	Left/Ahead	72.2%	8.5	91.0%	14.2	71.9%	8.5	96.3%	20	-0.3%	0	5.3%	5.8
				Ahead	72.2%		90.7%		71.9%		96.7%		-0.3%		6.0%	
		D	A512 (west)	Left/Ahead	101.0%	33.2	91.1%	13.4	108.3%	69.8	102.8%	35.6	7.3%	36.6	11.7%	22.2
				Ahead	101.0%		91.1%		108.3%		102.8%		7.3%		11.7%	
		Practical Reserve Capacity			-12.3%		-1.2%		-20.4%		-14.2%		-8.1%		-13.0%		
5	A6/Warwick Way/Bishop Meadow Road	A	A6 (north)	Left	110.7%	57.4	56.4%	4.5	117.8%	90.8	60.2%	5.0	7.1%	33.4	3.8%	0.5
				Ahead	110.7%		56.4%		117.8%		60.2%		7.1%		3.8%	
				Ahead	111.9%	53.8	50.0%	4.3	117.3%	71.3	56.0%	5.0	5.4%	17.5	6.0%	0.7
		B	Bishop Meadow Road	Left/Ahead	20.5%	0.7	88.6%	10.0	20.0%	0.7	92.1%	11.9	-0.5%	0.0	3.5%	1.9
				Ahead	29.4%	1.2	89.1%	10.4	31.5%	1.3	92.4%	12.3	2.1%	0.1	3.3%	1.9
				Ahead	2.6%	0.0	75.1%	3.5	4.4%	0.1	81.4%	4.3	1.8%	0.1	6.3%	0.8
		C	A6 (south)	Left/Ahead	64.0%	4.7	79.8%	6.9	65.8%	4.9	83.8%	7.8	1.8%	0.2	4.0%	0.9

				Ahead	66.6%	5.0	83.6%	7.8	68.4%	5.3	87.0%	8.7	1.8%	0.3	3.4%	0.9
		D	Warwick Way	Left/Ahead	74.2%	7.5	91.6%	6.9	77.7%	8.3	116.3%	46.9	3.5%	0.8	24.7%	40.0
				Ahead	74.2%		72.9%		77.7%		103.2%		3.5%		30.3%	
		Practical Reserve Capacity			-24.40%		-1.80%		-30.90%		-29.20%		-6.5%		-27.4%	
6	A6 Site Access	A	A6 (south)	All	NA	NA	NA	NA	0.39	0.6	0.60	1.5	NA	NA	NA	NA
		B	Site Access	All	NA	NA	NA	NA	0.20	0.2	0.11	0.1	NA	NA	NA	NA
		C	A6 (north)	All	NA	NA	NA	NA	0.59	1.5	0.37	0.6	NA	NA	NA	NA
		D	Dishley Grange Access	All	NA	NA	NA	NA	0.07	0.1	0.16	0.2	NA	NA	NA	NA
7	A6/Shepshed Road/Narrow Road	A	A6 (north)	Left/Ahead	110.5%	88.8	79.8%	15.2	110.2%	88.4	82.2%	16.6	-0.3%	-0.4	2.4%	1.4
				Right	110.5%		79.8%		110.2%		82.2%		-0.3%		2.4%	
		B	Narrow Lane	All	40.8%	2.2	16.4%	0.7	40.8%	2.1	16.4%	0.7	0.0%	-0.1	0.0%	0.0
		C	A6 (south)	Left/Ahead	75.1%	10.3	125.4%	151.7	76.3%	10.8	127.1%	160.3	1.2%	0.5	1.7%	8.6
				Ahead/Right	75.0%		125.4%		76.5%		126.9%		1.5%	0.0	1.5%	0.0
		D	Shepshed Road	All	107.7%	43.6	21.8%	41.3	111.3%	50.6	123.7%	43.9	3.6%	7.0	101.9%	2.6
		Practical Reserve Capacity			-22.8%		-39.4%		-23.6%		-41.2%		-0.8%		-1.8%	
9	A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	99.5%	30.8	104.0%	34.2	92.7%	24	102.3%	31.7	-6.8%	-6.8	-1.7%	-2.5
				Ahead/Right	8.4%	1.1	27.8%	3.4	7.8%	1.1	26.9%	3.4	-0.6%	0.0	-0.9%	0.0
		B	Leicester Road	All	99.8%	32.1	101.9%	23.8	99.9%	32.4	102.5%	24.6	0.1%	0.3	0.6%	0.8
		C	A512 (east)	Left/Ahead	74.3%	17.9	79.5%	23.2	74.0%	18.0	78.6%	22.8	-0.3%	0.1	-0.9%	-0.4
				Ahead/Right	21.7%	3.4	39.4%	7.3	21.5%	3.4	38.8%	7.3	-0.2%	0.0	-0.6%	0.0
		D	Ingleberry Road	All	94.4%	12.4	100.3%	20.1	101.2%	15.8	105.5%	25.6	6.8%	3.4	5.2%	5.5
		Practical Reserve Capacity			-10.9%		-15.6%		-12.4%		-17.3%		-1.5%		-1.7%	

7.2.2 The results of the 2021 capacity assessments presented in **Table 19** demonstrate the following at each junction (mitigation is discussed in **Section 7.5**):

- M1J23 – in the without WoLSUE development scenario, M1J23 is estimated to operate above capacity in both the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 5.5% in the AM peak period and 5.6% in the PM peak period. The greatest increase in queue length is on the A512 (east) arm of the junction i.e. traffic travelling from Loughborough. Queue lengths on the M1 northbound off-slip are greatest in the AM peak and are estimated to increase from 24.5 to 38.1 pcus in the ahead lane with the inclusion of WoLSUE development traffic. A 38.1 pcu queue represents a length of approximately 230m (i.e. approximately from the stop line at the junction to the back of the nose on the slip road).

- A512/Snells Nook Lane – the junction is estimated to operate within capacity in both the with and without WoLSUE development scenarios.

- A512/Epinal Way – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM peak period and within capacity in the PM peak period. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 8.1% in the AM peak period and 13.0% in the PM peak period. This means the junction is estimated to operate above capacity at 2021 in both the AM and PM peak period with development scenarios.

- A6/Warwick Way/Bishop Meadow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM peak period and within capacity in the PM peak period. In the with WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 6.5% in the AM peak period and 27.4% in the PM peak period.

- A6 Site Access – the A6 site access is estimated to operate within capacity at 2021 with WoLSUE development scenario.

- A6/Shepshed Road/Narrow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 0.8% in the AM peak period and 1.8% in the PM peak period.

- A512/Leicester Road/Ingleberry Road - in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 1.5% in the AM peak period and 1.7% in the PM peak period.

7.3 2026 CAPACITY ASSESSMENT RESULTS (EXISTING LAYOUTS)

7.3.1 The results of the 2026 capacity assessments are presented in **Table 20**.

Table 20 – Results of 2026 Capacity Assessments

Junction No.	Location	Arm	Road Name	Direction	Without Development				With Development				Difference			
					AM		PM		AM		PM		AM		PM	
					RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q
1	M1J23	A	M1 (north)	Left/Ahead	101.7%	29.0	89.3%	13.1	111.0%	55.9	89.3%	14.0	9.3%	26.9	0.0%	0.9
				Ahead	41.7%	4.3	49.5%	4.2	41.7%	4.3	45.4%	3.8	0.0%	0.0	-4.1%	-0.4
		B	A512 (east)	All	94.1%	22.4	118.5%	120.8	118.9%	230.8	143.7%	235.4	24.8%	208.4	25.2%	114.6
		C	M1 (south)	Left	41.9%	4.4	53.5%	3.3	41.9%	4.4	53.5%	3.3	0.0%	0.0	0.0%	0.0
				Ahead	107.1%	36.7	57.7%	3.6	130.9%	99.8	106.2%	23.4	23.8%	63.1	48.5%	19.8
		D	A512 (west)	Left/Ahead	109.5%	75.5	85.1%	11.6	114.9%	101.4	92.0%	14.9	5.4%	25.9	6.9%	3.3
				Ahead	109.5%		85.1%		114.9%		92.0%		5.4%		6.9%	
		Practical Reserve Capacity (S/B off-slip controller A)			-13.0%		-31.7%		-32.1%		-86.0%		-19.1%		-54.3%	
		Practical Reserve Capacity (N/B off-slip controller B)			-21.7%		5.8%		-45.4%		-18.0%		-23.7%		-23.8%	
2	A512 Site Access	A	A512 (west)	Left	NA	NA	NA	NA	74.4%	12.0	65.4%	10.0	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	83.2%	14.8	58.8%	8.5	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	83.2%	14.8	58.8%	8.5	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	0.0%	0.0	0.0%	0.0	NA	NA	NA	NA
		B	WoLSUE Access	Left	NA	NA	NA	NA	47.0%	3.8	25.7%	2.1	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	19.9%	8.5	64.1%	6.1	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	19.9%		64.1%		NA	NA	NA	NA
		C	A512 (east)	Left/Ahead	NA	NA	NA	NA	79.6%	10.7	65.1%	6.6	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	79.8%	10.7	65.3%	6.7	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	32.0%	3.2	43.4%	3.9	NA	NA	NA	NA

		D	Science park Access	All	NA	NA	NA	NA	0.0%	0.0	0.0%	0.0	NA	NA	NA	NA
		Practical Reserve Capacity			NA		NA		8.0%		37.7%		NA		NA	
3	A512/Snells Nook Lane	A	A512 (east)	Left/Ahead	87.9%	11.1	18.4%	18.4	72.5%	6.7	68.0%	7.7	-15.4%	-4.4	49.6%	-10.7
				Ahead	88.7%	12.0	89.0%	19.9	74.3%	7.4	69.7%	8.5	-14.4%	-4.6	-19.3%	-11.4
		B	Snells Nook Lane	Left	87.5%	10.8	81.1%	5.7	79.0%	7.6	79.5%	10.2	-8.5%	-3.2	-1.6%	4.5
				Right	87.5%		81.1%		79.0%		79.5%		-8.5%		-1.6%	
		C	A512 (west)	Ahead	59.1%	7.5	65.4%	11.0	80.8%	12.6	79.4%	15.1	21.7%	5.1	14.0%	4.1
				Ahead	64.5%	7.7	0.0%	10.6	77.1%	4.9	72.3%	5.3	12.6%	-2.8	72.3%	-5.3
				Right	64.5%		88.7%		77.1%		72.3%		12.6%		-16.4%	
		Practical Reserve Capacity			1.4%		1.2%		11.3%		13.2%		9.9%		12.0%	
4	A512/Epinal Way	A	Epinal Way (north)	Left/Ahead	71.2%	9.9	57.1%	6.7	55.0%	6.6	39.0%	4.1	-16.2%	-3.3	-18.1%	-2.6
				Ahead	72.5%	10.3	62.2%	7.5	52.5%	6.1	41.4%	4.3	-20.0%	-4.2	-20.8%	-3.2
		B	A512 (east)	All	93.1%	13.1	75.9%	6.1	82.9%	6.4	68.3%	3.9	-10.2%	-6.7	-7.6%	-2.2
		C	Epinal Way (south)	Left/Ahead	76.9%	9.7	96.1%	19.7	96.5%	20.8	109.5%	81.9	19.6%	11.1	13.4%	62.2
				Ahead	76.9%		96.4%		96.5%		109.5%		19.6%		13.1%	
		D	A512 (west)	Left/Ahead	106.9%	63.1	96.4%	18.5	74.3%	8.2	62.9%	6.1	-32.6%	-54.9	-33.5%	-12.4
				Ahead	106.9%		96.4%		74.3%		62.9%		-32.6%		-33.5%	
		Practical Reserve Capacity			-18.8%		-7.1%		-7.3%		-21.6%		11.5%		-14.5%	
5	A6/Warwick Way/Bishop Meadow Road	A	A6 (north)	Left	117.3%	82.7	59.2%	4.8	167.8%	242.9	66.0%	5.6	50.5%	160.2	6.8%	0.8
				Ahead	117.3%		59.2%		0.0%		66.0%		-117.3%		6.8%	
				Ahead	116.9%	69.8	52.6%	4.6	109.4%	109.4	46.4%	3.9	-7.5%	39.6	-6.2%	-0.7
		B	Bishop Meadow Road	Left/Ahead	21.7%	0.8	95.1%	14.5	18.0%	0.5	89.7%	10.8	-3.7%	-0.3	-5.4%	-3.7
				Ahead	31.2%	1.2	95.2%	14.8	32.6%	1.1	89.5%	10.7	1.4%	-0.1	-5.7%	-4.1
				Ahead	3.1%	0.1	86.4%	5.3	8.7%	0.2	80.4%	4.4	5.6%	0.1	-6.0%	-0.9
		C	A6 (south)	Left/Ahead	67.6%	5.1	85.0%	8.1	72.3%	5.7	93.3%	11.4	4.7%	0.6	8.3%	3.3

				Ahead	69.8%	5.5	87.9%	8.9	75.7%	6.3	95.1%	12.8	5.9%	0.8	7.2%	3.9
		D	Warwick Way	Left/Ahead	78.7%	8.7	96.8%	8.1	54.9%	4.7	99.2%	15.3	-23.8%	-4.0	2.4%	7.2
				Ahead	78.7%		77.1%		54.9%		99.2%		-23.8%		22.1%	
		Practical Reserve Capacity			-30.40%		-7.60%		-86.40%		-10.20%		-56.0%		-2.6%	
6	A6 Site Access	A	A6 (south)	All	NA	NA	NA	NA	0.47	0.9	0.74	2.8	NA	NA	NA	NA
		B	Site Access	All	NA	NA	NA	NA	0.62	1.6	0.69	2.1	NA	NA	NA	NA
		C	A6 (north)	All	NA	NA	NA	NA	0.73	2.7	0.45	0.8	NA	NA	NA	NA
		D	Dishley Grange Access	All	NA	NA	NA	NA	0.10	0.1	0.21	0.3	NA	NA	NA	NA
7	A6/Shepshed Road/Narrow Road	A	A6 (north)	Left/Ahead	116.3%	18.7	84.3%	17.6	115.7%	17.0	85.1%	18.2	-0.6%	-1.7	0.8%	0.6
				Right	116.3%		84.3%		115.7%		85.1%		-0.6%		0.8%	
		B	Narrow Lane	All	43.7%	2.4	17.2%	0.8	43.7%	2.3	17.2%	0.8	0.0%	-0.1	0.0%	0.0
		C	A6 (south)	Left/Ahead	79.2%	11.3	132.2%	189.2	78.0%	11.1	133.0%	193.8	-1.2%	-0.2	0.8%	4.6
				Ahead/Right	79.3%		132.2%		77.9%		133.2%		-1.4%	0.0	1.0%	0.0
		D	Shepshed Road	All	113.8%	58.2	128.6%	50.5	117.2%	64.6	128.6%	50.5	3.4%	6.4	0.0%	0.0
		Practical Reserve Capacity			-29.2%		-47.1%		-30.2%		-48.0%		-1.0%		-0.9%	
9	A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	95.0%	26.7	91.9%	21.6	108.0%	51.8	111.2%	52.1	13.0%	25.1	19.3%	30.5
				Ahead/Right	8.1%	1.1	24.5%	3.4	8.9%	1.2	28.5%	3.6	0.8%	0.1	4.0%	0.2
		B	Leicester Road	All	108.1%	53.6	112.9%	41.5	109.5%	59.4	109.5%	38.1	1.4%	5.8	-3.4%	-3.4
		C	A512 (east)	Left/Ahead	75.5%	19.0	81.5%	24.8	80.3%	20.7	85.9%	27.1	4.8%	1.7	4.4%	2.3
				Ahead/Right	22.1%	3.6	40.3%	7.7	26.2%	4.3	44.4%	8.6	4.1%	0.7	4.1%	0.9
		D	Ingleberry Road	All	107.0%	21.0	112.1%	35.2	107.0%	21.0	112.1%	35.2	0.0%	0.0	0.0%	0.0
		Practical Reserve Capacity			-20.1%		-25.5%		-21.7%		-25.8%		-1.6%		-0.3%	

7.3.2 The results of the 2026 capacity assessments presented in **Table 20** demonstrate the following at each junction (mitigation is discussed in **Section 7.5**):

- M1J23 – in the without WoLSUE development scenario, M1J23 is estimated to operate above capacity in both the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 23.7% in the AM peak period and 54.3% in the PM peak period. Queue lengths are significant on all approaches in the 'without' development scenario and increase further in the 'with' development scenario.

- A512 Site access - the A512 site access is estimated to operate within capacity at 2026 with WoLSUE development scenario.

- A512/Snells Nook Lane – the junction is estimated to operate within capacity in both the with and without WoLSUE development scenarios.

- A512/Epinal Way – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM peak period and within capacity in the PM peak period. The addition of WoLSUE development traffic results in an increase in reserve capacity of 11.5% in the AM peak period and a decrease in reserve capacity of 14.5% in the PM peak period. This means the junction is estimated to operate within capacity at 2026 in the AM peak period but above capacity in the PM peak period. As outlined in **Table 18**, WoLSUE will result in a decrease in overall traffic flows through this junction because of the re-assignment effects of the Strategic Link Road – the balance of traffic across the junction changes as a result of WoLSUE. Any decrease in capacity at the junction is because the WoLSUE traffic flows have been assessed in LINSIG using the existing layout and signal timings for the junction. It is not a result of increased traffic through the junction.

- A6/Warwick Way/Bishop Meadow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM peak period and within capacity in the PM peak period. In the with WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 56.0% in the AM peak period and 2.6% in the PM peak period. As outlined in **Table**

18 WoLSUE will result in a decrease in overall traffic flows through this junction because of the re-assignment effects of the Strategic Link Road – the balance of traffic across the junction changes as a result of WoLSUE. Any decrease in capacity at the junction is because the WoLSUE traffic flows have been assessed in LINSIG using the existing layout and signal timings for the junction. It is not a result of increased traffic through the junction.

- A6 Site Access – the A6 site access is estimated to operate within capacity at the 2026 with WoLSUE development scenario.

- A6/Shepshed Road/Narrow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 1.0% in the AM peak period and 0.9% in the PM peak period.

- A512/Leicester Road/Ingleberry Road - in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 1.6% in the AM peak period and 0.3% in the PM peak period.

7.4 2031 CAPACITY ASSESSMENT RESULTS (EXISTING LAYOUTS)

7.4.1 The results of the 2031 capacity assessments are presented in **Table 21**.

Table 21 – Results of 2031 Capacity Assessments

Junction No.	Location	Arm	Road Name	Direction	Without Development				With Development				Difference			
					AM		PM		AM		PM		AM		PM	
					RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q	RFC / DoS	Max Q
1	M1J23	A	M1 (north)	Left/Ahead	106.3%	41.2	89.4%	13.6	118.4%	80.3	89.5%	14.7	12.1%	39.1	0.1%	1.1
				Ahead	43.6%	4.5	49.5%	4.3	43.6%	4.5	43.8%	3.6	0.0%	0.0	-5.7%	-0.7
		B	A512 (east)	All	98.8%	39.0	125.9%	151.9	135.7%	357.5	155.2%	296.3	36.9%	318.5	29.3%	144.4
		C	M1 (south)	Left	43.8%	4.6	56.0%	3.5	43.6%	4.6	56.0%	3.9	-0.2%	0.0	0.0%	0.4
				Ahead	112.0%	48.8	60.5%	3.8	144.9%	138.6	134.8%	76.8	32.9%	89.8	74.3%	73.0
		D	A512 (west)	Left/Ahead	115.1%	102.7	89.0%	13.1	75.3%	10.3	56.9%	5.8	-39.8%	-92.4	-32.1%	-7.3
				Ahead	115.1%		89.0%		75.3%		56.9%		-39.8%		-32.1%	
		Practical Reserve Capacity (S/B off-slip controller A)			-18.1%		-38.8%		-50.7%		-72.4%		-32.6%		-33.6%	
		Practical Reserve Capacity (N/B off-slip controller B)			-27.9%		1.2%		-61.0%		-49.7%		-33.1%		-50.9%	
2	A512 Site Access	A	A512 (west)	Left	NA	NA	NA	NA	50.7%	6.6	68.8%	10.1	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	92.1%	18.9	68.3%	10.0	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	92.1%	18.9	68.5%	10.0	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	0.0%	0.0	0.0%	0.0	NA	NA	NA	NA
		B	WoLSUE Access	Left	NA	NA	NA	NA	60.1%	5.9	29.0%	2.7	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	90.5%	12.5	69.3%	7.2	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	90.5%		69.3%		NA	NA	NA	NA
		C	A512 (east)	Left/Ahead	NA	NA	NA	NA	87.8%	12.8	66.3%	6.8	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	87.9%	12.9	68.5%	6.8	NA	NA	NA	NA
				Ahead	NA	NA	NA	NA	42.2%	4.3	68.3%	7.1	NA	NA	NA	NA

		D	Science park Access	All	NA	NA	NA	NA	0.0%	0.0	0.0%	0.0	NA	NA	NA	NA
		Practical Reserve Capacity			NA		NA		-2.3%		29.8%		NA		NA	
3	A512/Snells Nook Lane	A	A512 (east)	Left/Ahead	92.0%	13.0	92.5%	21.4	81.4%	9.0	90.7%	18.8	-10.6%	-4.0	-1.8%	-2.6
				Ahead	92.6%	14.0	92.9%	23.0	82.5%	9.0	91.4%	20.3	-10.1%	-5.0	-1.5%	-2.7
		B	Snells Nook Lane	Left	91.4%	12.9	84.8%	6.4	82.8%	8.8	76.9%	4.7	-8.6%	-4.1	-7.9%	-1.7
				Right	91.4%		84.8%		82.8%		76.9%		-8.6%		-7.9%	
		C	A512 (west)	Ahead	62.0%	8.1	68.5%	12.1	60.9%	7.7	58.8%	8.7	-1.1%	-0.4	-9.7%	-3.4
				Ahead	67.2%	8.2	0.0%	12.5	65.6%	7.4	0.0%	12.3	-1.6%	-0.8	0.0%	-0.2
				Right	67.2%		92.9%		80.1%		88.8%		12.9%		-4.1%	
		Practical Reserve Capacity			-2.8%		-3.2%		8.7%		-1.6%		11.5%		1.6%	
4	A512/Epinal Way	A	Epinal Way (north)	Left/Ahead	74.4%	10.7	59.8%	7.2	60.4%	7.5	44.0%	4.7	-14.0%	-3.2	-15.8%	-2.5
				Ahead	75.7%	11.1	65.0%	8	58.0%	7.1	47.5%	5.1	-17.7%	-4	-17.5%	-2.9
		B	A512 (east)	All	100.8%	38.5	82.2%	9.1	97.2%	13.4	77.3%	5.7	-3.6%	-25.1	-4.9%	-3.4
		C	Epinal Way (south)	Left/Ahead	81.0%	10.7	100.8%	32.1	100.6%	31.9	113.2%	110.2	19.6%	21.2	12.4%	78.1
				Ahead	81.0%		100.8%		100.6%		112.9%		19.6%		12.1%	
		D	A512 (west)	Left/Ahead	111.7%	88.9	100.9%	29.4	82.2%	10	67.8%	6.8	-29.5%	-78.9	-33.1%	-22.6
				Ahead	111.7%		100.9%		82.2%		67.8%		-29.5%		-33.1%	
		Practical Reserve Capacity			-24.1%		-12.1%		-11.7%		-25.8%		12.4%		-13.7%	
5	A6/Warwick Way/Bishop Meadow Road	A	A6 (north)	Left	122.4%	102.5	62.4%	5.2	175.5%	269.3	69.6%	6.0	53.1%	166.8	7.2%	0.8
				Ahead	122.4%		62.4%		0.0%		69.6%		-122.4%		7.2%	
				Ahead	122.0%	86.6	54.2%	4.8	129.9%	129.9	50.8%	4.4	7.9%	43.3	-3.4%	-0.4
		B	Bishop Meadow Road	Left/Ahead	22.6%	0.8	100.8%	40.1	20.3%	0.6	98.4%	19.5	-2.3%	-0.2	-2.4%	-20.6
				Ahead	32.8%	1.3	101.1%	40.4	35.5%	1.3	98.5%	19.7	2.7%	0.0	-2.6%	-20.7
				Ahead	3.6%	0.1	96.2%	8.7	8.0%	0.1	93.2%	7.7	4.4%	0.0	-3.0%	-1.0
		C	A6 (south)	Left/Ahead	70.4%	5.5	89.5%	9.6	52.4%	3.6	102.0%	21.1	-18.0%	-1.9	12.5%	11.5

				Ahead	72.7%	5.8	91.5%	10.5	58.1%	4.1	102.8%	22.6	-14.6%	-1.7	11.3%	12.1
		D	Warwick Way	Left/Ahead	82.1%	9.4	100.8%	11.3	72.3%	7.2	113.4%	43.4	-9.8%	-2.2	12.6%	32.1
				Ahead	82.1%		81.1%		72.3%		113.4%		-9.8%		32.3%	
		Practical Reserve Capacity			-36.10%		-12.20%		-95.00%		-26.00%		-58.9%		-13.8%	
6	A6 Site Access	A	A6 (south)	All	NA	NA	NA	NA	0.52	1.1	0.84	5.2	NA	NA	NA	NA
		B	Site Access	All	NA	NA	NA	NA	0.78	3.4	0.69	2.1	NA	NA	NA	NA
		C	A6 (north)	All	NA	NA	NA	NA	0.80	3.9	0.45	0.8	NA	NA	NA	NA
		D	Dishley Grange Access	All	NA	NA	NA	NA	0.12	0.1	0.21	0.3	NA	NA	NA	NA
7	A6/Shepshed Road/Narrow Road	A	A6 (north)	Left/Ahead	121.0%	142.1	88.1%	20.4	122.1%	148.2	88.9%	20.8	1.1%	6.1	0.8%	0.4
				Right	121.0%		88.1%		122.1%		88.9%		1.1%		0.8%	
		B	Narrow Lane	All	45.7%	2.7	18.0%	0.8	45.7%	2.7	18.0%	0.8	0.0%	0	0.0%	0.0
		C	A6 (south)	Left/Ahead	82.7%	12.2	138.2%	220.9	83.6%	12.6	138.9%	224.4	0.9%	0.4	0.7%	3.5
				Ahead/Right	82.5%		138.0%		83.4%		138.6%		0.9%	0.0	0.6%	0.0
		D	Shepshed Road	All	118.9%	70.8	134.3%	58.2	120.0%	73.6	135.5%	59.8	1.1%	2.8	1.2%	1.6
		Practical Reserve Capacity			-34.5%		-53.5%		-35.6%		-54.3%		-1.1%		-0.8%	
8	Hathern Road Site Access	B	Site Access	All	NA	NA	NA	NA	0.105	0.1	0.142	0.2	NA	NA	NA	NA
		C	Hathern Road (south)	All	NA	NA	NA	NA	0.632	1.7	0.622	1.6	NA	NA	NA	NA
9	A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	110.0%	57.8	111.8%	53.7	85.8%	23.1	99.4%	30.7	-24.2%	-34.7	-12.4%	-23.0
				Ahead/Right	9.3%	1.2	29.8%	3.8	7.0%	1.1	25.0%	3.5	-2.3%	-0.1	-4.8%	-0.3
		B	Leicester Road	All	110.1%	61.4	113.3%	44.0	83.8%	13.1	96.1%	10.7	-26.3%	-48.3	-17.2%	-33.3
		C	A512 (east)	Left/Ahead	82.2%	21.4	88.2%	28.8	71.0%	18.9	78.5%	24.4	-11.2%	-2.5	-9.7%	-4.4

				Ahead/Right	24.0%	3.8	43.7%	8.4	18.5%	3.1	34.3%	6.3	-5.5%	-0.7	-9.4%	-2.1
		D	Ingleberry Road	All	104.0%	19.3	111.4%	35.8	86.7%	10.9	96.9%	17.0	-17.3%	-8.4	-14.5%	-18.8
		Practical Reserve Capacity			-22.3%		-26.3%		3.8%		-11.9%		26.1%		14.4%	

7.4.2 The results of the 2031 capacity assessments presented in **Table 21** demonstrate the following at each junction (mitigation is discussed later in **Section 7.5**):

- M1J23 – in the without WoLSUE development scenario, M1J23 is estimated to operate above capacity in both the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 33.1% in the AM peak period and 50.9% in the PM peak period. Queue lengths are significant on all approaches in the 'without' development scenario and increase further in the 'with' development scenario.

- A512 Site access - the A512 site access is estimated to operate within capacity at 2026 with the WoLSUE development scenario.

- A512/Snells Nook Lane – the junction is estimated to operate within capacity in both the with and without WoLSUE development scenarios.

- A512/Epinal Way – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM peak and PM peak periods. The addition of WoLSUE development traffic and completion of the Strategic Link Road results in an increase in reserve capacity of 12.4% in the AM peak period and a decrease in reserve capacity of 13.7% in the PM peak period. This means the junction is estimated to operate within capacity at 2031 in the AM peak period but above capacity in the PM peak period. As outlined in **Table 18** WoLSUE will result in a decrease in overall traffic flows through this junction because of the re-assignment effects of the Strategic Link Road – the balance of traffic across the junction changes as a result of WoLSUE. Any decrease in capacity at the junction is because the WoLSUE traffic flows have been assessed in LINSIG using the existing layout and signal timings for the junction. It is not a result of increased traffic through the junction.

- A6/Warwick Way/Bishop Meadow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. In the with development scenario the junction is also estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 58.9% in the AM peak period and

13.8% in the PM peak period. As outlined in **Table 18** WoLSUE will result in a small increase in traffic flows through this junction. Any decrease in capacity at the junction is largely a result of re-assignment of existing traffic rather than WoLSUE development trips. This is because the WoLSUE traffic flows have been assessed in LINSIG using the existing layout and signal timings for the junction.

- A6 Site Access – the A6 site access is estimated to operate within capacity at 2031 with WoLSUE development scenario.

- A6/Shepshed Road/Narrow Road – in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in a decrease in reserve capacity of 1.1% in the AM peak period and 0.8% in the PM peak period.

- Hathern Road Site Access - the Hathern Road site access is estimated to operate within capacity at 2031 with WoLSUE development scenario.

- A512/Leicester Road/Ingleberry Road - in the without WoLSUE development scenario the junction is estimated to operate above capacity in the AM and PM peak periods. The addition of WoLSUE development traffic results in an increase in reserve capacity of 26.1% in the AM peak period and an increase of 14.4% in the PM peak period. This is because the Hathern Road Link will be open at 2031 and the re-assignment effects from LLITM indicate that this will attract traffic from existing routes such as the A512/Leicester Road/Ingleberry Road junction. As such, the introduction of the Hathern Road link means the impact of WoLSUE is fully mitigated at 2031. In the 'with' development scenario the junction is estimated to operate within capacity in the AM peak and slightly over capacity in the PM peak.

7.5 MITIGATION

7.5.1 Based on the results of the capacity assessments, the strategy towards highway mitigation is as follows:

M1J23

7.5.2 At M1J23 it is considered that the increase in queue lengths on the M1 northbound off-slip are such that a contribution towards mitigation is required following completion of 840 dwellings (i.e. the 2021 TA assessment year) because by this time queue lengths will reach the back of the nose on the slip road.

7.5.3 **Figure 8** presents an improvement scheme at M1J23 which fully complies with Policy CS 22 of the draft Core Strategy requiring capacity improvements to M1J23 and dualling the A512 between M1J23 and Snells Nook Lane. This involves a fully signal controlled roundabout with improvements to all entries and exits. No changes are required to the bridge structures over the mainline M1. Pedestrian/cycle crossing facilities are proposed on the M1 southbound off-slip and M1 northbound on-slip in the vicinity of the roundabout in order to improve pedestrian/cycle safety. As outlined in paragraph 4.7.4, the proposed A512 site access includes dualling of the A512 between M1J23 and Snells Nook Lane. Contributions for this work would be provided as part of the site access works i.e. following completion of 600 dwellings (estimated to be 2020). Contributions towards dualling of the A512 would therefore be provided prior to M1J23 works being required (i.e. following completion of 840 dwellings).

7.5.4 The results of the capacity assessment are presented in **Appendix N**. The results demonstrate that the improvement scheme will operate within capacity at the 2021, 2026 and 2031 assessment years to fully comply with DfT Circular 02/2013. **Table 22** summarises the results at 2031 i.e. with WoLSUE fully built out. A comparison of **Table 22** with **Table 21** indicates a significant betterment to 2031 without WoLSUE.

Table 22 – M1J23 Capacity Assessment Results (improved layout)

Arm	Road Name	Direction	2031 With Development			
			AM		PM	
			RFC / DoS	Max Q	RFC / DoS	Max Q
A	M1 (north)	Left	75.7%	9.7	74.1%	10.3
		Left	75.7%		74.1%	
		Ahead	55.3%	5.9	58.6%	8.8
B	A512 (east)	Left	69.9%	10.3	66.7%	9.4
		Ahead	69.9%		66.7%	
		Ahead	77.1%	15.2	73.8%	11.3
C	M1 (south)	Left	74.5%	7.6	65.8%	6.4
		Ahead	74.5%	9.0	65.8%	
		Ahead	66.4%		53.1%	4.9
D	A512 (west)	Left	75.8%	7.2	40.1%	3.7
		Ahead	75.8%		40.1%	
		Ahead	63.3%	6.2	24.3%	2.4
Practical Reserve Capacity (S/B off-slip controller A)			16.8%		21.5%	
Practical Reserve Capacity (N/B off-slip controller B)			18.8%		27.2%	

A512/Snells Nook Lane

7.5.5 The results of the capacity assessment demonstrate that no mitigation is required at this junction. However, as outlined in **Figure 8**, the right turn lane into Snells Nook Lane will be extended as part of the A512 dualling. This is because the queue for right turn movements sometimes extends beyond the length of the existing right turn lane and is an added benefit of the A512 proposals.

A512/Epinal Way

7.5.6 The development impact in **Table 18** demonstrates that the proposed Strategic Link Road will reduce traffic at the A512/Epinal Way junction. The results of the capacity assessment demonstrate that the re-assignment effects of the proposed Strategic Link Road mean some mitigation is required at this location. In order to fully mitigate the impact of WoLSUE at this location in the PM peak, it is proposed that re-sequencing of the signals is undertaken following completion of 840 dwellings i.e. the 2021 TA assessment year.

7.5.7 The results of the capacity assessment are presented in **Appendix N**. The results demonstrate that the improvement scheme will fully mitigate the impact of WoLSUE at the 2021, 2026 and 2031 assessment years. **Table 23** summarises the results at 2031 i.e. with WoLSUE fully built out.

Table 23 – A512/Epinal Way Capacity Assessment Results (with improvement)

Arm	Road Name	Direction	2031 With Development plus Mitigation			
			AM		PM	
			RFC / DoS	Max Q	RFC / DoS	Max Q
A	Epinal Way (north)	Left/Ahead	98.6%	19.4	88.1%	9.5
		Ahead	98.8%	19.5	88.2%	9.5
B	A512 (east)	All	93.6%	13.9	73.4%	7.7
C	Epinal Way (south)	Left/Ahead	97.1%	19.4	92.5%	16.3
		Ahead	94.6%		92.5%	
D	A512 (west)	Left/Ahead	98.2%	21.3	90.7%	11.6
		Ahead	98.2%		92.7%	
Practical Reserve Capacity			-9.7%		-3.0%	

A comparison of **Table 23** with **Table 21** indicates a significant betterment to 2031 without WoLSUE. This improvement fully complies with Policy CS 22 of the draft Core Strategy requiring other network improvements as identified by a TA.

A6/Bishop Meadow Road/Warwick Way

7.5.8 The results of the capacity assessments demonstrate that WoLSUE will have a significant impact on the operation of the A6/Bishop Meadow Road/Warwick Way junction at 2021, 2026 and 2031. In order to fully mitigate the impact of WoLSUE at this location, it is proposed that signal control is introduced on the Bishop Meadow Road arm of the junction and the lane allocations are changed on the A6 (north) arm of the junction. The proposed improvement is shown on **Figure 15**. It is proposed that the improvements are introduced following completion of 840 dwellings i.e. the 2021 TA assessment year.

7.5.9 The results of the capacity assessment are presented in **Appendix N**. **Table 24** summarises the results at 2031 i.e. with WoLSUE fully built out. The results demonstrate that the improvement scheme will fully mitigate the impact of WoLSUE.

Table 24 – A6/Bishop Meadow Road/Warwick Way Capacity Assessment Results (with improvement)

Arm	Road Name	Direction	2031 With Development plus Mitigation			
			AM		PM	
			RFC / DoS	Max Q	RFC / DoS	Max Q
A	A6 (north)	Left	111.7%	74.5	87.4%	10.6
		Ahead	111.9%	81.9	100.0%	21.1
		Ahead	111.9%		100.0%	
B	Bishop Meadow Road	Left/Ahead	30.8%	2.3	98.8%	25.7
		Ahead	58.4%	4.8	99.7%	27.5
		-	-	-	-	-
C	A6 (south)	Left/Ahead	64.7%	5.8	100.5%	20.9
		Ahead	64.7%	5.8	100.1%	20.3
D	Warwick Way	Left/Ahead	112.7%	84.5	96.8%	15.6
		Ahead	112.7%		96.8%	
Practical Reserve Capacity			-25.2%		-11.6%	

7.5.10 A comparison of **Table 24** with **Table 21** indicates a significant betterment to 2031 without WoLSUE. This improvement fully complies with Policy CS 22 of the draft Core Strategy requiring other network improvements as identified by a TA.

A6/Shepshed Road/Narrow Road

7.5.11 Whilst the results of the capacity assessments demonstrate that this junction is estimated to operate above capacity at the 2021, 2026 and 2031 assessment years both with and without WoLSUE development, the impact of WoLSUE is not considered to be severe. Therefore, no mitigation measures are proposed at this junction.

A512/Leicester Road/Ingleberry Road

7.5.12 Whilst the results of the capacity assessments demonstrate that this junction is estimated to operate above capacity at the 2021 and 2026 assessment years both with and without WoLSUE development, the impact of WoLSUE is not considered to be severe. Furthermore, by 2031 the Hathern Road Link will open and the re-assignment effects of from LLITM indicate that this will attract traffic from existing routes such as the A512/Leicester Road/Ingleberry Road junction. As such, the introduction of the Hathern Road link means the impact of

WoLSUE is fully mitigated at 2031. Therefore, no mitigation measures are proposed at this junction.

A512 Dualling

7.5.13 As outlined in **Section 4.6.10** and shown on **Figure 8** it is proposed that the A512 will be dualled between M1J23 and the A512/Snells Nook Lane junction. The link capacity of the existing A512 has been reviewed for different scenarios at 2031. **Table 25** presents westbound and eastbound link flows on the A512 at 2031 for the following scenarios:

A. 2031 background plus committed development flows.

B. 2031 background plus committed development plus WoLSUE development flows.

C. 2031 background plus committed development plus WoLSUE development plus Science Park Extension flows.

D. 2031 background plus committed development plus WoLSUE development plus Shepshed developments flows.

E. 2031 background plus committed development plus WoLSUE development plus Science Park Extension plus Shepshed developments flows.

Table 25 – A512 Link Flows

Scenario	A512 Link Flows (vehicles)							
	AM Peak				PM Peak			
	West of WoLSUE Site Access		East of WoLSUE Site Access		West of WoLSUE Site Access		East of WoLSUE Site Access	
	westbound	eastbound	westbound	eastbound	westbound	eastbound	westbound	eastbound
A (2031 no WoLSUE)	1260	1844	1260	1844	1053	1400	1053	1400
B (2031 + WoLSUE)	1770	1800	1150	1696	1357	1610	977	1229
C (2031 WoLSUE + Science Park Extension)	1834	2720	1179	2110	2068	1681	1297	1261
D (2031 + WoLSUE + Shepshed developments)	1835	2014	1215	1910	1523	1736	1143	1356
E (2031 WoLSUE + Science Park Extension + Shepshed developments)	1899	2934	1244	2324	2234	1807	1463	1388

7.5.14 The link capacity of the A512 has been assessed using the guidance in TD79/99 'Traffic Capacity of Urban Roads' of the Design Manual for Roads and Bridges (DMRB). The existing A512 is a single carriageway with 1 lane in each direction and an area of hatching in the centre of the carriageway. Lane widths are approximately 3.5m. TD79/99 provides guidance on different types of urban roads and provides one-way hourly capacities for each road type. The A512 at this location is considered to be road type 'UAP1' in that it is a *"High standard single/dual carriageway road carrying predominantly through traffic with limited access".* On this basis, the A512 at this location has an hourly capacity in the region of 1,590 vehicles in each direction. The results in **Table 25** demonstrate:

- Scenario A: at 2031 'background plus committed development' traffic flows on the A512 exceed link capacity in the AM peak hour in an eastbound direction. Therefore, even before WoLSUE development traffic is added to the A512, the A512 will require improvement before 2031 in order to operate within capacity.
- Scenario B: The addition of WoLSUE development traffic results in the A512 exceeding its link capacity in both directions during the AM peak along the section to the west of the A512 site access (during the PM peak link capacity is exceeded in an eastbound

direction only). For the section of the A512 to the east of the proposed A512 site access, WoLSUE will result in a significant reduction in traffic flows on the A512 because of the re-assignment of existing traffic from the A512 onto the proposed Strategic Link Road.

- Scenario C: The addition of WoLSUE traffic and traffic from the Science Park Extension results in link capacity of the A512 being significantly exceeded in both directions for the section to the west of the A512 WoLSUE site access. Link capacity is also significantly exceeded for the section of the A512 east of the A512 WoLSUE site access in an eastbound direction during the AM peak hour. A comparison of Scenarios B and C indicates the significant increase as a result of the Science Park Extension.
- Scenario D: The addition of WoLSUE traffic and traffic from Shepshed sensitivity test developments increases flows on the A512 both sides of the A512 site access. The A512 is estimated to exceed its link capacity in both directions during the AM peak along the section to the west of the A512 site access (during the PM peak link capacity is exceeded in an eastbound direction only). For the section of the A512 to the east of the proposed A512 site access, link capacity will be exceeded in an eastbound direction during the AM peak. A comparison of Scenarios B and D indicates the significant increase as a result of Shepshed developments. The addition of traffic from Shepshed developments has a significant detrimental effect upon the operation of the A512 at this location.
- Scenario E: The addition of WoLSUE traffic, traffic from the Science Park Extension and traffic from Shepshed sensitivity test developments results in link capacity of the A512 being significantly exceeded in both directions for the section to the west of the A512 WoLSUE site access. Link capacity is also exceed in an eastbound direction for the section of the A512 to the east of the A512 WoLSUE site access in the AM peak hour. A comparison of Scenarios B and E indicates the significant increase as a result of the Science Park Extension and Shepshed developments.

7.5.15 **Table 25** indicates the benefit of the proposed Strategic Link Road in reducing traffic flows in the A512 to the west of the proposed WoLSUE site access. It also demonstrates that the A512 is estimated to exceed its capacity before any additional development traffic is considered. Furthermore, the table demonstrates the significant increase in traffic on the A512 as a result of the Science Park Extension and Shepshed sensitivity developments. Therefore, an

appropriate financial contribution is required from both WoLSUE and the Science Park Extension for improvements to the A512. This is in accordance with paragraph 10.51 of the draft Core Strategy which indicates that the Science Park Extension should contribute towards infrastructure with WoLSUE. It is proposed that that this is in line with the ratio of development trips on the A512 from WoLSUE and the Science Park Extension. Furthermore, **Table 25** indicates a large increase in flows on the A512 from the Shepshed sensitivity test developments and as such, it may also be appropriate for CBC and LCC to seek contributions from these developments to A512 dualling.

7.5.16 As demonstrated in **Table 25** WoLSUE is estimated to result in a decrease in trips on the A512 (east of the WoLSUE site access). Therefore, traffic flows on the A512 to the west of the WoLSUE site access will be used to calculate appropriate financial contributions towards M1J23 improvements, A512 dualling and the A512 WoLSUE site access. **Table 26** summarises the increase in flows on the A512 (west of the WoLSUE site access) from a fully built out WoLSUE and a fully built out Science Park Extension (i.e. the West of Loughborough Growth Area).

Table 26 – Increase in Traffic Flows on the A512 From 'West of Loughborough Growth Area' (west of WoLSUE Site Access)

	Two-Way Trips					
	AM Peak		PM Peak		AM and PM Peak Combined	
	Vehicles	Proportion of WoL Growth Area	Vehicles	Proportion of WoL Growth Area	Vehicles	Proportion of WoL Growth Area
WoLSUE	466	32.1%	514	39.7%	980	35.7%
Science Park Extension	984	67.9%	782	60.3%	1766	64.3%
West of Loughborough Growth Area	1450	100%	1296	100%	2746	100%

7.5.17 As demonstrated in **Table 26**, during the AM peak hour, WoLSUE generates 32.1% of the increase in flow on the A512 as a result of the West of Loughborough Growth Area and the

Science Park Extension generates 67.9%. During the PM peak hour, WoLSUE generates 39.7% of the increase in flow on the A512 as a result of the West of Loughborough Growth Area and the Science Park Extension generates 60.3%. When considering the AM and PM peak hours together, WoLSUE is responsible for 35.7% of the overall increase in flow on the A512 as a result of the West of Loughborough Growth Area. In accordance with paragraph 10.51 of the draft Core Strategy it is proposed that WoLSUE contributes 35.7% of the total cost of infrastructure improvements at M1J23, A512 dualling and the A512 WoLSUE site access. In accordance with paragraph 10.51 of the draft Core Strategy it is proposed that the Science Park Extension contributes the remaining 64.3% of the total cost of infrastructure improvements at M1J23, A512 dualling and the A512 WoLSUE site access. These contributions could be reduced further should CBC/LCC obtain contributions from the Shepshed sensitivity test developments.

7.5.18 Using the guidance in TD79/99 the proposed dualling of the A512 shown in **Figure 8** would have a link capacity in the region of 3,600 vehicles per hour in each direction. As demonstrated in **Table 25** a link capacity of 3,600 vehicles per hour would not be exceeded in any of the scenarios.

Capacity of Proposed Strategic Link Road

7.5.19 The link capacity of the proposed Strategic Link Road has also been assessed using the guidance in TD79/99 'Traffic Capacity of Urban Roads' of the DMRB. As outlined in **Chapter 4**, the Strategic Link Road will have 1 lane in each direction and a carriageway width of 7.3m. TD79/99 provides guidance on different types of urban roads and provides one-way hourly capacities for each road type. The proposed Strategic Link Road is considered to be road type 'UAP3' in that it is a *"variable standard road carrying mixed traffic with frontage access, side roads, bus stops and at grade pedestrian crossings".* On this basis, the proposed Strategic Link Road at this location has an hourly capacity in the region of 1,300 vehicles in each direction. As outlined in **Appendix K**, in the 2031 assessment year (i.e. with WoLSUE fully built out), the highest one-way flow on the Strategic Link Road is 1,162 vehicles in the AM peak hour. The proposed Strategic Link Road is therefore estimated to operate within capacity with WoLSUE and provide capacity for the Science Park Extension and Shepshed sensitivity test developments.

7.5.20 WoLSUE is providing the Strategic Link Road which is of significant benefit to the Science Park Extension and Shepshed sensitivity test developments and as such, discussions will need to be held with CBC/LCC to agree a suitable cost contribution.

7.6 SCIENCE PARK CUMULATIVE TEST

7.6.1 As outlined in Section 6.5 a cumulative test has been undertaken whereby traffic from the Science Park Extension identified in the draft Core Strategy has been added to the 2031 'with WoLSUE' development flows at M1J23 (improved WoLSUE layout), the proposed A512 site access and the A512/Leicester Road/Ingleberry Road junction (existing layout) to represent the West of Loughborough Growth Area.

7.6.2 The results of the capacity assessment are presented in **Appendix N**. **Table 27** summarises the results at 2031.

Table 27 – Capacity Assessment Results – Science Park Cumulative Test

Junction	Arm	Road Name	Direction	2031 With Development			
				AM		PM	
				RFC / DoS	Max Q	RFC / DoS	Max Q
M1J23	A	M1 (north)	Left	84.6%	12.4	81.3%	11.8
			Left	84.6%		81.3%	
			Ahead	48.1%	5.5	66.9%	9.7
	B	A512 (east)	Left	75.2%	11.7	77.5%	12.2
			Ahead	75.2%		77.5%	
			Ahead	84.3%	17.6	80.1%	14.4
	C	M1 (south)	Left	84.0%	11.1	79.0%	7.8
			Ahead	84.0%	12.5	79.0%	
			Ahead	79.0%		60.0%	5.2
	D	A512 (west)	Left	81.8%	8.8	39.7%	3.7
			Ahead	81.8%		39.7%	
			Ahead	72.0%	8.1	27.6%	2.7
	Practical Reserve Capacity (S/B off-slip controller A)			6.4%		10.7%	
	Practical Reserve Capacity (N/B off-slip controller B)			7.2%		13.9%	
A512 Site Access	A	A512 (west)	Left	82.7%	14.0	64.4%	9.4
			Ahead	82.7%		64.4%	
			Ahead	82.5%	14.0	43.9%	5.7
			Ahead	82.7%		44.7%	
	B	WoLSUE Access	Left/Ahead	71.0%	7.6	36.2%	3.1
			Ahead	89.3%	12.7	73.3%	8.0
			Ahead	89.3%		73.9%	
	C	A512 (east)	Left/Ahead	87.8%	13.0	59.7%	6.4
			Ahead	87.9%		59.8%	6.6
			Ahead	87.9%	12.8	61.5%	
	D	Science Park Access	All	3.9%	0.2	35.8%	2.2
	Practical Reserve Capacity			0.8%		21.8%	
A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	95.3%	32.5	101.1%	34.1
			Ahead/Right	6.6%	1.0	25.0%	3.5
	B	Leicester Road	All	95.3%	16.9	96.1%	10.7
	C	A512 (east)	Left/Ahead	67.2%	18.0	86.8%	30.5
			Ahead/Right	17.3%	18.0	34.3%	6.3
	D	Ingleberry Road	All	91.8%	12.2	96.9%	19.0
	Practical Reserve Capacity			-7.1%		-12.3%	

7.6.3 The results of the Science Park cumulative test indicate that the proposed improvement at M1J23, A512 dualling and WoLSUE site access will accommodate all of the West of Loughborough Growth Area. Paragraph 10.51 of the draft Core Strategy states that the Science Park Extension is expected to contribute towards infrastructure in conjunction with WoLSUE. Therefore, an appropriate financial contribution is required from both WoLSUE and the Science Park Extension for improvements at M1J23, A512 dualling and WoLSUE site access. As outlined in paragraph 7.5.17 it is proposed that WoLSUE and the Science Park Extension contribute 35.7% and 64.3% respectively towards these infrastructure costs.

7.6.4 As demonstrated by the results of comparing the Science Park cumulative test in **Table 27** with **Table 21**, the A512/Leicester Road/Ingleberry Road junction is estimated to operate above capacity in the AM and PM peak periods and as such, mitigation measures may be required as part of the Science Park Extension.

7.6.5 It should be noted that the results of the cumulative test are based on a number of assumptions regarding the traffic flows associated with the Science Park Extension and as such, this represents a preliminary assessment and the cumulative test results should be treated accordingly.

7.7 SHEPSHED SENSITIVITY TEST

7.7.1 As outlined in Section 6.13, a sensitivity test has been undertaken to assess possible future growth in Shepshed. Sensitivity test traffic flows are presented in **Appendix M**. These sensitivity test flows have also been added to the 'background plus WoLSUE development' flows and capacity assessments have been carried out. The results of the capacity assessment are presented in **Appendix N**. **Table 28** summarises the results at 2031.

Table 28 – Capacity Assessment Results – Shepshed Sensitivity Test

Junction	Arm	Road Name	Direction	2031 With Development + Shepshed Sensitivity Test			
				AM		PM	
				RFC / DoS	Max Q	RFC / DoS	Max Q
M1J23 (WoLSUE proposed improved layout)	A	M1 (north)	Left	75.7%	9.7	81.9%	11.9
			Left	75.7%		81.9%	
			Ahead	56.3%	6.0	71.2%	10.4
	B	A512 (east)	Left	70.7%	10.3	81.8%	13.8
			Ahead	70.7%		81.8%	
			Ahead	77.1%	15.2	63.0%	9.7
	C	M1 (south)	Left	78.5%	9.5	70.3%	5.2
			Ahead	78.5%		81.7%	7.4
			Ahead	69.6%	7.8	62.7%	
	D	A512 (west)	Left	78.1%	8.6	41.1%	3.8
			Ahead	78.1%		41.1%	
			Ahead	68.3%	8.6	33.8%	3.6
	Practical Reserve Capacity (S/B off-slip controller A)			16.8%		9.8%	
	Practical Reserve Capacity (N/B off-slip controller B)			14.7%		10.2%	
A512 WoLSUE Site Access	A	A512 (west)	Left	76.5%	11.6	66.5%	9.8
			Ahead	78.2%		66.5%	
			Ahead	78.2%	11.8	48.9%	6.5
			Ahead	79.2%		49.9%	
	B	WoLSUE Access	Left/Ahead	60.1%	5.9	37.5%	3.1
			Ahead	84.1%	10.7	78.1%	8.4
			Ahead	84.1%		77.8%	
	C	A512 (east)	Left/Ahead	81.8%	11.9	68.0%	8.2
			Ahead	81.8%	11.9	68.2%	8.0
			Ahead	81.8%		55.9%	
	D	Science Park Access	All	0.0%	0.0	0.0%	0.0
	Practical Reserve Capacity			7.0%		15.3%	
A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	103.7%	52.1	108.9%	57.4
			Ahead/Right	7.0%	1.1	23.9%	3.4
	B	Leicester Road	All	102.9%	26.5	106.3%	15.9
	C	A512 (east)	Left/Ahead	72.0%	20.0	87.8%	32.1
			Ahead/Right	20.1%	3.3	39.0%	7.4
	D	Ingleberry Road	All	104.9%	20.1	106.7%	29.7
	Practical Reserve Capacity			-16.5%		-21.0%	

7.7.2 As demonstrated by the results in **Table 28**, the M1J23 WoLSUE improved layout and the A512 WoLSUE site access are estimated to operate within capacity with the Shepshed sensitivity test flows. A financial contribution towards these works may be required from Shepshed developments - subject to discussion with CBC/LCC.

7.7.3 As demonstrated by the results of comparing the Shepshed sensitivity test in **Table 28** with **Table 21**, the A512/Leicester Road/Ingleberry Road junction is estimated to operate above capacity in the AM and PM peak periods and as such, mitigation measures may be required from the Shepshed sensitivity test developments.

7.8 SHEPSHED AND SCIENCE PARK COMBINED SENSITIVITY TEST

7.8.1 A sensitivity test has also been undertaken whereby traffic from the Science Park extension and Shepshed sensitivity test developments has been added to the 2031 'with development' WoLSUE flows at M1J23 (improved WoLSUE layout), the proposed A512 site access and the A512/Leicester Road/Ingleberry Road junction (existing layout).

7.8.2 The results of the capacity assessment are presented in **Appendix N**. **Table 29** summarises the results at 2031 i.e. with WoLSUE fully built out.

Table 29 – Capacity Assessment Results – Shepshed and Science Park Combined Sensitivity Test

Junction	Arm	Road Name	Direction	2031 With Development			
				AM		PM	
				RFC / DoS	Max Q	RFC / DoS	Max Q
M1J23	A	M1 (north)	Left	86.6%	13.1	88.7%	14.3
			Left	86.6%		88.7%	
			Ahead	51.2%	5.8	80.1%	11.7
	B	A512 (east)	Left	74.7%	11.4	90.2%	17.9
			Ahead	74.7%		90.2%	
			Ahead	82.2%	16.9	71.4%	12.6
	C	M1 (south)	Left	83.8%	12.4	75.8%	8.2
			Ahead	83.8%		88.3%	
			Ahead	79.2%	11.2	72.9%	6.1
	D	A512 (west)	Left	87.4%	12.4	48.4%	4.2
			Ahead	87.4%		48.4%	
			Ahead	80.8%	11.5	37.3%	3.5
	Practical Reserve Capacity (S/B off-slip controller A)			3.9%		-0.2%	
	Practical Reserve Capacity (N/B off-slip controller B)			3.0%		1.9%	
A512 Site Access	A	A512 (west)	Left	88.4%	17.0	68.8%	10.1
			Ahead	88.4%		68.8%	
			Ahead	88.6%	17.1	52.2%	6.9
			Ahead	88.7%		53.2%	
	B	WoLSUE Access	Left/Ahead	74.9%	8.0	38.4%	3.2
			Ahead	94.3%	15.5	77.6%	8.4
			Ahead	94.3%		78.3%	
	C	A512 (east)	Left/Ahead	93.5%	16.0	65.1%	7.9
			Ahead	93.5%	16.4	65.2%	7.7
			Ahead	93.5%		53.5%	
	D	Science Park Access	All	4.0%	0.2	38.0%	2.6
	Practical Reserve Capacity			-4.7%		15.0%	
A512/Leicester Road/Ingleberry Road	A	A512 (west)	Left/Ahead	112.0%	90.0	110.5%	62.5
			Ahead/Right	6.6%	1.0	23.9%	3.4
	B	Leicester Road	All	112.2%	40.9	106.3%	15.9
	C	A512 (east)	Left/Ahead	70.5%	19.5	65.7%	43.0
			Ahead/Right	19.5%	3.2	39.0%	7.4
	D	Ingleberry Road	All	104.9%	20.1	106.7%	29.7
	Practical Reserve Capacity			-24.7%		-22.8%	

7.8.3 As demonstrated by the results in **Table 29**, M1J23 (WoLSUE improved layout) and the A512 WoLSUE site access are estimated to operate within capacity with the Shepshed and Science Park combined sensitivity test flows.

7.8.4 In order to mitigate the impact of Shepshed developments and Science Park Extension at the A512/Leicester Road/Ingleberry Road junction it is likely that improvements are required. Ingleberry Road is likely to require an increase from 1 lane to 2 lanes at the stop line. Leicester Road is likely to require an increase in flare length on the approach to the junction. The A512 is likely to require an increase in flare length on the westbound approach to the junction.

7.8.5 It should be noted that the results of the sensitivity test are based on a number of assumptions regarding the traffic flows associated with the Science Park extension and as such, this represents a preliminary assessment and the results should be treated accordingly.

7.9 SUMMARY

7.9.1 In order to mitigate the impact of WoLSUE the following capacity improvements are proposed in order to mitigate the development impact:

- M1J23 – contribution towards fully signal controlled scheme following completion of 840 dwellings. The improvement scheme will operate within capacity at the 2031 assessment year i.e. following development completion.
- A512 Site Access – contribution towards a signal controlled roundabout to serve WoLSUE and the Science Park Extension following completion of 600 units.
- A512 – contribution towards dualling of the A512 between M1J23 and the A512/Snells Nook Lane junction following completion of 840 units. In all likelihood these works may need to be incorporated into the A512 Site Access works.
- A512/Epinal Way junction – re-sequencing of signals following completion of 840 dwellings. The improvement scheme will operate within capacity at the 2031 assessment year (i.e. following development completion).
- A6/Bishop Meadow Road/Warwick Way junction – introduce signal control on the Bishop Meadow Road arm of the junction and improve the lane allocations on the A6 (north) arm of the junction following completion of 840 dwellings. The improvement scheme will operate on a nil-detriment basis at the 2031 assessment year i.e. following development completion.

7.9.2 The proposed improvements are in addition to WoLSUE providing the Strategic Link Road through the site for which suitable contributions from the Science Park Extension and Shepshed sensitivity test developments need to be agreed with LCC/CBC.

7.9.3 The Shepshed sensitivity test and Science Park cumulative test indicates that improvements may be required at the A512/Leicester Road/Ingleberry Road junction from these developments.