

MIRA Technology Park
South Site

Transport Assessment prepared
on behalf of ERI MTP Limited

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MILESTONE
TRANSPORT PLANNING

MIRA Technology Park South Site

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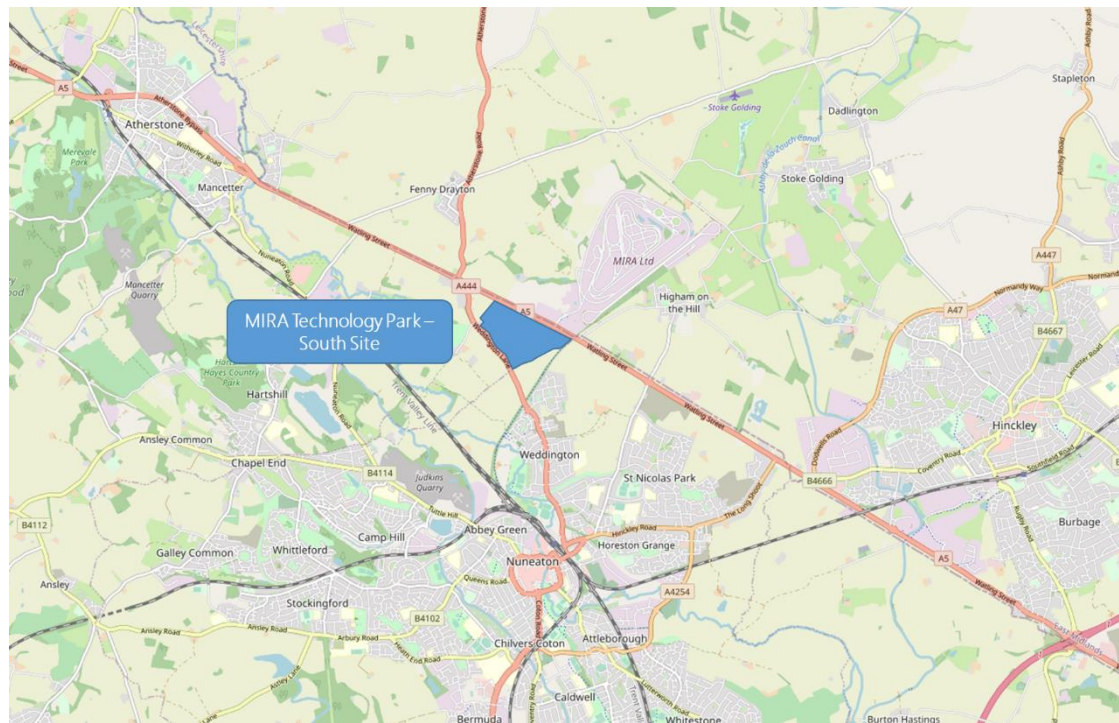
1. Introduction

- 1.1 Milestone Transport Planning Ltd are instructed by ERI MTP Limited to prepare the necessary documentation to accompany an outline planning application with all matters reserved for the development of a manufacturing campus on land located to the south of the A5 Watling Street (the "Site"), also referred to as the MIRA Technology Park South Site. The outline planning application seeks permission for a set of parameters including the proposed vehicular access points onto the A5 Watling Street and A444 Weddington Lane and the design of the proposed link road connecting these.
- 1.2 The outline planning application is for c. 213,500m² Use Class B2 (Industrial) with secondary Use Class E(g)(i) (Offices), Use Class E(g)(ii) (Research and Development) and Use Class B8 (Warehousing) that are complimentary to the existing and emerging uses on MIRA Technology Park located to the north of the A5 Watling Street.
- 1.3 Given the scale of development, the planning application includes this Transport Assessment (TA) and a Framework Travel Plan (FTP) that is submitted alongside the TA.
- 1.4 Specifically, the purpose of this TA is to consider the implications of development related travel on the operational and safety characteristics of the surrounding highway and transport networks. In addition, the TA will consider the appropriateness of this type of development in this location in the context of transport-related policy, both at National and Local level, with emphasis on ensuring that the Site is accessible by all modes of travel.
- 1.5 The TA will demonstrate that in terms of Planning Policy at both National and Local level and through robust interventions including the implementation of a Travel Plan and mitigation measures linked to trigger points coinciding with the delivery of the development, the Site and the surrounding highway and transport networks are capable of accommodating the proposed level of development.

Site Location

- 1.6 Figure 1.1 provides a general location plan showing the Application Site and its surroundings.
- 1.7 The A5 Watling Street, which forms part of the Strategic Road Network (SRN), follows the northern boundary of the Site. The eastern boundary of the Site is defined by an existing tree and hedgerow alongside an existing farm access track and Public Footpath 144/AE/189/1. It is also the administrative boundary between North Warwickshire District Council and Nuneaton & Bedworth Borough Council.
- 1.8 The southern and, in part, the western boundary of the Site follows the alignment of the A444 Weddington Lane. The western boundary also includes two residential cottages, Caldecote Village Hall and Public Footpath 144/AE/190/1. The small hamlet of Caldecote is beyond the Site to the west.
- 1.9 The Site includes the farm holding known as The Elms Farm and is presently in agricultural use with field boundaries defined by existing hedgerows. There are numerous field gate dropped kerb accesses to both the A5 Watling Street and A444 Weddington Lane frontages of the Site.
- 1.10 A watercourse bisects the Site in a north-south direction from the A5 Watling Street through to the A444 Weddington Lane. An additional agricultural field within the same ownership extends west from the Site boundary up to the A5 / A444 Redgate Island junction.

Figure 1.1 Application Site



Background to Emerging Development Proposals

- 1.11 ERI MTP Limited have been actively working with the Local Planning Authority, North Warwickshire (NWDC) to promote the MIRA Technology Park South Site development through the Local Plan that is now adopted (September 2021). The Site is identified under Policy LP39 and Site Allocation E4 as providing approximately of 42ha of employment land. The allocated Site is shown in Figure 1.2.
- 1.12 The remainder of the land controlled by ERI MTP Limited is located to the south and west of the allocation to create a more regular shaped Site that maximises the flexibility for delivery of development within the MIRA Technology Park South Site as well as its access arrangements, particularly along the A444 Weddington Lane corridor. Figure 1.3 illustrates the relationship between the allocated land and other land under the control of ERI MTP Limited.

Figure 1.2 NWDC Adopted Local Plan (September 2021) – Policy LP39 Site Allocation E4 (Extract from Adopted Local Plan Maps)

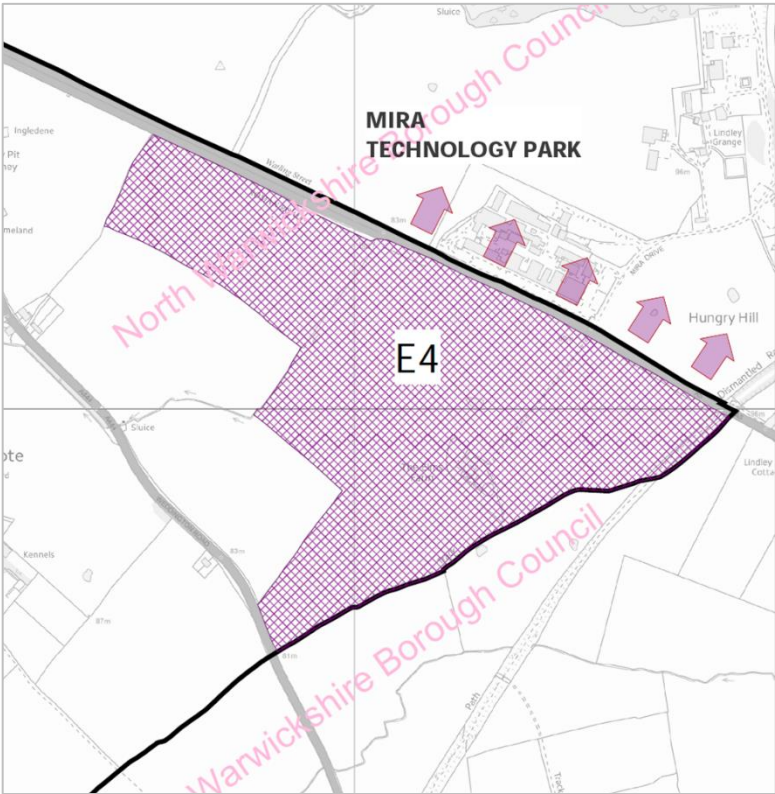
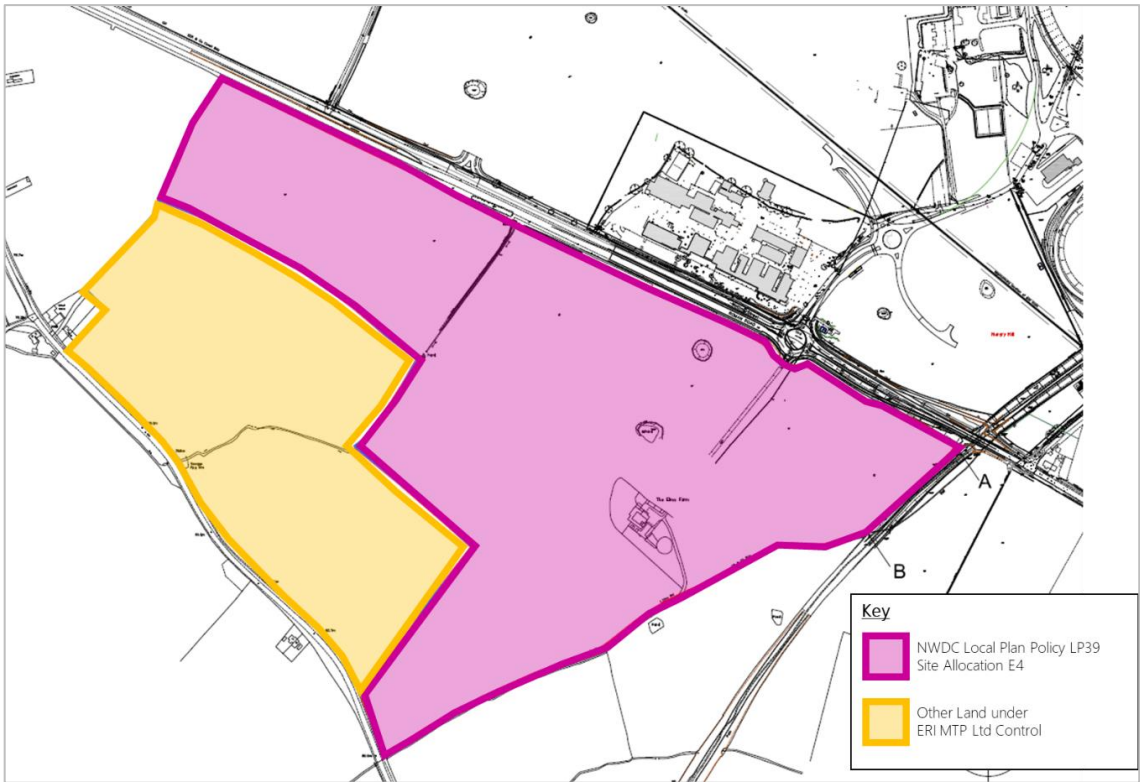


Figure 1.3 MIRA Technology Park South Site Land Parcels



Consented & Planned Development

- 1.13 In conjunction with the MIRA Technology Park North Site development, significant investment has been made into the improvement of highway infrastructure capacity, targeted at addressing capacity constraints that exist on the network during the weekday AM and PM peak periods.
- 1.14 This investment (the works were completed in 2015), that directly benefits both the A5 and A444 corridors has included:
- The construction of a new access roundabout on the A5 to serve the MIRA Technology Park (to replace the existing give-way controlled junction to MIRA Drive);
 - The construction of a new left-in / left-out (LiLo) access to the eastbound carriageway of the A5 to the west of the roundabout to serve future expansion areas on MIRA Technology Park;
 - The conversion of the A5 / A444 staggered 'T' junction at Redgate to a 'lozenge-shaped' roundabout;
 - Improvements to the A5 / Wood Lane junction;
 - Improvements to the A5 / Higham Lane roundabout.
- 1.15 Strategic modelling, prepared in 2011, informed future year design flows and built in what was known at the time in terms of growth commitments and allocations from each of the neighbouring Planning Authorities: North Warwickshire District Council (NWDC); Nuneaton & Bedworth Council (NBC); and Hinckley & Bosworth Borough Council (HBBC).
- 1.16 Since the 2011 modelling, each of the Authorities has gone through a Local Plan review and, in so doing, has revisited strategic allocations and the quantum of development they could deliver. Principally, due to national pressures on the delivery of housing numbers, residential strategic allocations have been revised upwards. Of note, several of these strategic residential allocations will have a direct impact on the A5 / A444 corridors, including but not necessarily limited to those outlined in Table 1.1.

Table 1.1 Known Planned Housing Growth in Vicinity of MIRA Technology Park South Site

Authority	Location	No. Dwellings	End of Plan Period
NWDC	Atherstone / Mancetter	1,932	2033
	Hartshill / Ansley Common	850	2033
NBC	North of Nuneaton	3,330	2031
	Tuttle Hill	200	2031
HBBC	Hinckley	850	2026
Total No. Dwellings		7,162	

Framework Masterplan

- | | |
|------|--|
| 1.17 | Appendix 1 to the IA provides a copy of the emerging parameters plan and illustrative framework masterplan for the MIRA Technology Park South Site development. The illustrative framework masterplan is also replicated in Figure 1.4. |
| 1.18 | The parameters plan confirms that the total Site area is 59.5ha of which the total net developable area is 39.3ha and the total floor area proposed is up to 213,500m ² . The parameters plan also illustrates that the Site will be divided into four development areas with access taken from an A5-A444 link road. |
| 1.19 | The illustrative framework masterplan shows a further breakdown of the four development areas into seven individual plot configurations that could come forward with the disposition of access, parking and service yard configurations for each unit. The illustrative framework masterplan includes an indicative area schedule confirming that any ancillary E(g)(i) (as the highest trip generator) will be no more than 10% of the total building floor area. |

Figure 1.4 Illustrative Framework Masterplan



TA Structure

- 1.20 In the preparation of this TA, engagement has been held with NWDC along with the Highway Authorities that manage and administer the highway network in the vicinity of the MIRA Technology Park South Site development, including Warwickshire County Council (WCC), Leicestershire County Council (LCC) and National Highways (formerly Highways England) (NH).
- 1.21 Virtual meetings have been conducted on 16 December 2020, 7 May 2021 and 8 October 2021. These virtual meetings have also been attended by WCC's term consultant, Vectos, who have detailed knowledge of the modelling exercises that have been conducted on the WCC / NH network over recent years, not least the analysis that has supported the new adopted NWDC Local Plan.
- 1.22 National Highways (NH) are responsible for the SRN, i.e., the A5 Watling Street as well as the M69 and M42 motorways, Warwickshire County Council (WCC) are responsible for the A444 Weddington Lane and routes extending south and west from the MIRA Technology Park South Site development and Leicestershire County Council (LCC) are responsible for routes extending north and east from the MIRA Technology Park South Site development.
- 1.23 The TA provides a summary of the productive discussions within the virtual meetings. The TA outlines the key parameters, including the emerging access strategy and development-related trip generation that has informed the advancement of further detailed modelling to specifically identify and assess the potential impacts arising from the proposed MIRA Technology Park South Site development.
- 1.24 On this basis, the remainder of the TA is structured as follows:
- Section 2 consider the application proposals in the context of relevant transport policy at both National and Local Level including the NPPF (2021), the NPPG (2019), the DfT Circular 02/2013, WCC Local Transport Plan, and NWDC Local Plan (2021).
 - Section 3 provides a review of baseline conditions in respect to walking and cycling, public transport, as well as the operational and safety characteristics of the strategic and local road networks.
 - Section 4 describes the proposed development and considers the phasing of the development proposals as well as the proposed parking arrangements.
 - Section 5 examines the proposed movement and access strategy for all modes that underpins the development of the indicative masterplan, based on a hierarchical approach that ensures priority is given to sustainable forms of transport and opportunities to reduce travel demand.
 - Section 6 reveals the trip generation parameters that the County Council's appointed consultant has input to the microsimulation modelling for the purpose of understanding the impact of the emerging Site on the operation of the surrounding local and strategic road network.
 - Section 7 outlines modelling input data to WCC's Nuneaton and Bedworth Wide Area (NBWA) Paramics model.
 - Section 8 assesses the impact of the development on the local and strategic highway networks through junction assessments for future baseline and future baseline plus development scenarios.
 - Section 9 summarises the mitigation identified to overcome any residual impacts of the proposed development on the external pedestrian, cycle, public transport, and local / strategic road network.
 - Section 10 summarises and concludes the findings within the TA.

2. Planning Policy Context

- 2.1 An important consideration in the promotion of the development Site is how it conforms to transport policies at both National and Local Government level.

National Planning Policy Framework (NPPF, 2021)

- 2.2 Promoting sustainable transport is a key thread of the NPPF and para. 104 highlights the importance of considering transport issues from the earliest stages of development proposals to ensure that:

- The potential impacts on transport networks can be assessed;
- Opportunities from existing and proposed transport infrastructure, changing transport technology and usage are realised;
- Opportunities to promote walking, cycling and public transport use are identified and pursued;
- The environmental impacts of traffic and transport infrastructure are identified, assessed, and considered – identifying opportunities for avoiding and mitigating any adverse effects and for net environmental gains;
- Patterns of movement, streets, parking, and other transport considerations are integral to the design of schemes and contribute to making high quality places.

- 2.3 Paragraph 105 goes on to state that: *"The planning system should actively manage patterns of growth...Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes..."*

- 2.4 Para. 110 requires that when assessing specific allocations for development it is important to ensure that:

- Appropriate opportunities to promote sustainable transport modes have been taken up;
- Safe and suitable access to the site can be achieved for all users;
- The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

- 2.5 Para. 111 continues to state that *'...developments should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe'.*

- 2.6 Para. 112 requires that applications for development should:

- First, give priority to pedestrian and cycle movements, both within the scheme and with neighbouring areas;
- Second, so far as is possible, facilitate access to high quality public transport, maximising catchment areas to services and implementing appropriate facilities to encourage use;
- Address the needs of people with disabilities and reduced mobility;

- Create places that are safe, secure, and attractive which minimise conflicts between pedestrians, cyclists and vehicles;
- Allow for the efficient delivery of goods and access by service and emergency vehicles; and
- Be designed to enable charging of plug-in and other ultra-low emission vehicles.

National Planning Practice Guidance (2014)

2.7 The National Planning Practice Guidance (NPPG) sets out current guidance for various aspects to development. For the purposes of this document, the guidance within the NPPG 'Travel Plans, Transport Assessments and Statements' is the most pertinent.

2.8 The NPPG sets out the following with regards to Transport Assessments:

"Transport Assessments and Transport Statements primarily focus on evaluating the potential transport impacts of a development proposal... The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts... Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe" ..."

2.9 It is noted within the NPPG that Transport Assessments can positively contribute towards:

- Encouraging sustainable travel.
- Lessening traffic generation and its detrimental impacts.
- Reducing carbon emissions and climate impacts.
- Creating accessible, connected, inclusive communities.
- Improving health outcomes and quality of life.
- Improving road safety.
- Reducing the need for new development to increase existing road capacity or provide new roads.

DfT Circular 02/2013

2.10 National Highways (formerly Highways England) published 'The strategic road network: Planning for the future (A guide to working with Highways England on planning matters)' in September 2015. It provides guidance regarding how the impact of the proposed development on the Strategic Road Network (SRN) should be assessed.

2.11 Paragraph 33 states that *"the Circular states that development proposals are likely to be wholly acceptable if: they can be accommodated within the existing capacity of a section (link or junction) of the SRN, or they do not increase demand for use of a section that is already at full capacity..."*.

2.12 Paragraph 34 continues *"Where the Circular tests are not satisfied, additional assessment will be required to enable all parties to understand the scope and scale of the impact that the proposals are likely to have on the SRN. This assessment should:*

- *demonstrate how the proposals will reduce the need to travel, especially by car;*

- *demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours;*
- *assess the likely impact of residual trips (i.e., after measures above have been considered);*
- *identify appropriate and proportionate mitigation measures and ensure that what is proposed promotes sustainable transport outcomes and avoids unnecessary works to the SRN."*

2.13 According to Paragraph 35 "...advice to local planning authorities will be to refuse or place conditions on developments only where the residual cumulative impacts of development on the capacity of the SRN (once proposed mitigations are taken into account) are still assessed to be severe. For example, if development would lead to operating conditions that significantly erode the safe operation of the SRN.."

Warwickshire Local Transport Plan 2011 – 2026

2.14 The key objectives of the Local Transport Plan (LTP) are:

- *"To promote greater equality of opportunity for all citizens in order to promote a fairer, more inclusive society;*
- *To seek reliable and efficient transport networks which will help promote full employment and a strong, sustainable local and sub-regional economy;*
- *To reduce the impact of transport on people and the [built and natural] environment and improve the journey experience of transport users;*
- *To improve the safety, security and health of people by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;*
- *To encourage integration of transport, both in terms of policy planning and the physical interchange of modes;*
- *To reduce transport's emissions of carbon dioxide and other greenhouse gases and address the need to adapt to climate change."*

2.15 The LTP provides a series of Area Strategies to address these key objectives in the form of a long-term plan and key proposals. The Site falls on the boundary of two geographical areas within the LTP referred to as "Northern Warwickshire" and "The North-South Corridor." Within the "Northern Warwickshire" Area Strategy, reference is made to the significant volumes of traffic and existing congestion issues at the A5 / A444 Redgate Island. This junction is identified as a key proposal for investment in improvement measures within the Area Strategy.

2.16 The Nuneaton and Bedworth Urban Area Strategy forms part of "The North-South Corridor" Area Strategy. A key proposal within the Nuneaton and Bedworth Urban Area Strategy is the development of a Nuneaton – Atherstone – Tamworth Quality Bus Corridor that combines improved bus stop infrastructure and information provision upgrades by the County Council with improved vehicles and frequency enhancements by the operator.

2.17 The LTP also includes a series of "Mode and Topic Strategies." Under "Land Use and Transportation," Policy LUT2 requires Travel Plans or Travel Plan Statements to be provided to support planning application and Policy LUT5 requires Transport Assessment / Statements to also be submitted alongside planning applications, as appropriate.

- 2.18 Policy LUT3 will support sustainable development that promotes mode shift and helps reduce single occupancy travel throughout the County through measures such as improved public transport, community transport, pedestrian and cycling facilities, traffic management measures and travel packs.
- 2.19 Policy LUT6 ensures all works within the highway are conducted to an acceptable standard, will endeavour to provide for pedestrians and cyclists and will not be at the detriment to highway safety and future maintenance.
- 2.20 Under Policy LUT10, the County Council seeks to ensure that all development *"...is appropriate in terms of accessibility, design and layout, and that it can contribute to the local area and improve connectivity with new footways, cycleways and public transport, where required."*

North Warwickshire Local Plan 2021

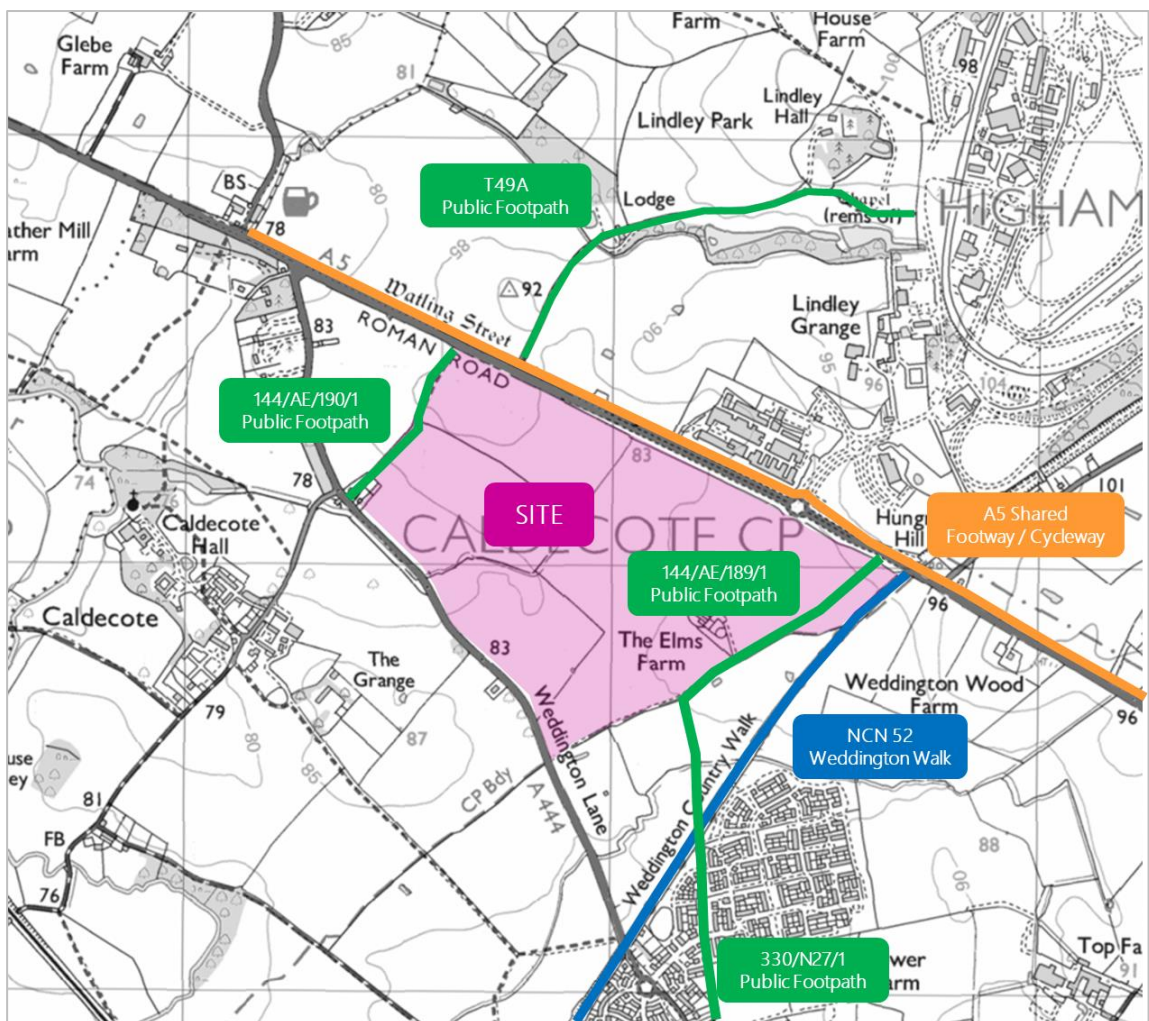
- 2.21 The North Warwickshire District Council Local Plan was adopted in September 2021. Chapter 12 of the adopted Local Plan is entitled *"Transport"*. Policy LP23 outlines the requirement for Transport Assessments appropriate to the scale of development proposed to accompany planning applications.
- 2.22 It goes on to state that the Transport Assessment should address impacts on both the local and strategic highway networks and ensure that proposals provide appropriate infrastructure measures to mitigate the adverse impacts of development traffic and other environmental and safety impacts either individually or cumulatively.
- 2.23 Policy LP23 goes on to state that the appropriate provision may be required for contributions towards the cost of any necessary highway improvements and that opportunities to access new developments for all sections of the community will also be a requirement through provision and enhancement of public transport services and facilities together with walking and cycling facilities.
- 2.24 Policy LP23 also states that Travel Plans will be required to be submitted alongside Transport Assessments through which development will be expected to link with existing road, cycle and footpath networks. Developments that are likely to generate significant amounts of traffic and particularly larger developments will be expected to focus on the longer-term management of new trips, encourage the use of public and shared transport as well as appropriate cycle and pedestrian links.
- 2.25 Policy E4 of the adopted Local Plan specifically references the Site and the development proposals assessed within this Transport Assessment. Under Policy E4 reference is made to the requirement for the Master Plan to include:
- The provision of sustainable transport measures including a cycle and footpath link along the A5 to Atherstone and Mancetter; and
 - Access to the cycle/pedestrian route to the southeast of the site.

3. Baseline Conditions

Active Travel Infrastructure

- 3.1 The Site benefits from its proximity to existing, well established pedestrian and cycle infrastructure that is a combination of formal, paved footway and cycleway infrastructure adjacent to existing road corridors as well as a more informal Public Right of Way network. Figure 3.1 illustrates the Active Travel network in the vicinity of the Site.

Figure 3.1 Active Travel Network



- 3.2 From Figure 3.1 it can be seen that there are numerous public rights of ways (PROWs) within the Site's vicinity. A section of the Site's south-eastern boundary adjoins the FP 144/AE/189/1. The FP runs south-west for 575m from the A5 Watling Street at Hungry Hill to the existing agricultural track that serves The Elms Farm. At a point 140m west of The Elms Farm, the footpath turns south and is redesignated as FP 330/N27/1 that extends for 818m, crossing the Weddington Walk and passing through the Lower Farm housing development to Weddington Village.

- 3.3 A section of the Site's north-eastern boundary adjoins part of the former railway line which now comprises a shared footway / cycleway which forms the Weddington Walk and part of the National Cycle Network (NCN) Route 52 to Nuneaton. The NCN 52 also provides connection to the shared footway / cycleway on the north-eastern side of the A5, as well as MIRA Technology Park North Site, via the subway under the A5.
- 3.4 The Site's north-western boundary is comprised of FP 144/AE/190/1 which runs south-west for 445m from the A5 Watling Street towards the A444 Weddington Lane at Caldecote Village Hall.
- 3.5 Figure 3.2 illustrates the extent of the existing formal cycle network in the vicinity of the Site. From Figure 3.2 it is noted that the, largely traffic-free, NCN 52 extends continuously north-south along the A444 connecting the Site with Weddington and subsequently central Nuneaton including the rail station and town centre.

Figure 3.2 Local Cycle Network



Public Transport

Buses

- 3.6 Currently MIRA Technology Park (north of the A5) is served by regular public transport services with bus stop infrastructure including covered waiting facilities and lay-by provision on the main boulevard access. Route 65 is operated by Arriva and connects MIRA Technology Park to Nuneaton and Tamworth via Atherstone.
- 3.7 Following COVID-19 restrictions, the service operates on an hourly frequency throughout the day, Monday to Saturday with journey times of 10mins. to Nuneaton, 11mins. to Atherstone and 65mins. to Tamworth. Pre-COVID, the service provided a 30-minute frequency at certain periods of the day, particularly on the section of the route between MIRA Technology Park and Nuneaton.
- 3.8 Additional bus stops are situated on Lower Farm Way, approximately 1.0km south-east (13min. walk) of the proposed bus-only access onto the A444 Weddington Lane. These stops are served by Stagecoach Routes 1 & 2 which provide a circular service to / from Nuneaton Bus Station on a 30-minute frequency.

Rail

- 3.9 Nuneaton rail station is c. 3.4kms (11min. cycle) from the proposed A444 Weddington Lane access to the Site and c. 4.1kms (15min. cycle) from the 4-arm A5 / MIRA roundabout access to the Site.
- 3.10 Nuneaton rail station is located on the West Coast Main Line (WCML) that extends north-west from London Euston towards Watford Junction, Milton Keynes Central, Coventry, Birmingham New Street, Wolverhampton, the North-West, and Scotland.
- 3.11 West Midlands Trains operate an hourly service on the WCML, southbound to London Euston via Rugby and Milton Keynes Central, and northbound to Crewe via Stafford. Avanti West Coast also offer services from London Euston to Crewe.
- 3.12 The station is also located on the Birmingham to Peterborough Line. CrossCountry operate two trains per hour, westbound to Birmingham New Street, and eastbound to Leicester, one of these continues to Stansted Airport via Peterborough and Cambridge.
- 3.13 West Midlands Trains also provide an hourly service southbound to Leamington Spa via Coventry on the Coventry to Nuneaton Line.
- 3.14 Station facilities include a ticket office open daily (min. 12hrs) and step free access to platforms. There is secure storage for 46 bicycles and car parks to south-west of the station.

Local Highway Network

- 3.15 The northern boundary of the Site follows the alignment of the A5 Watling Street which forms part of the SRN administered by Highways England (HE) and connects London and the East with North-West Wales, with direct links to the M1, M42, M69, and numerous other links on the SRN.

- 3.16 The highway links south-west of the A5 are adopted and maintained by Warwickshire County Council (WCC). Whilst north-east of the A5 the highway links are adopted and maintained by Leicestershire County Council (LCC).
- 3.17 In vicinity of the Site, the A5 comprises a segregated two-way dual carriageway with lane widths of c. 3.5 to 4.0m. A 4-arm roundabout is provided between the A5, MIRA north Site, and the proposed Site access. Approximately 560m north-west of the A5 / MIRA roundabout the north-westbound lanes merge into a single 3.75m wide lane.
- 3.18 Some 1.3kms north-west of the A5 / MIRA roundabout, the A5 forms a 4-arm roundabout (known as the Redgate roundabout) with the A444 Weddington Lane and Atherstone Road. Both north-west and south-eastbound traffic on the A5 are provided with a flared two-lane entry, with stacking capacity for c. 14 vehicles in each lane.
- 3.19 The A444 Weddington Lane extends south-west from the Redgate roundabout and is a single carriageway two-way road of some 6.5 to 7.0m in width. The southern and, in part, the western boundary of the Site follows the alignment of the A444 Weddington Lane.
- 3.20 At the Site's frontage the A444 is subject to a 50mph speed limit at the Site's frontage. However, the speed limit reduces to 30mph approximately 80m prior to the signalised toucan crossing with Weddington Walk. A footway of c. 2.0m extends along the north-eastern side of the carriageway, and in sections is separated by a grassed verge of c. 1.0 to 1.5m in width
- 3.21 Continuing north-west on the A5, Woodford Lane and Drayton Lane form give-way controlled priority junctions with the A5. Right turners from the A5 to the minor arms are provided with 3.5m segregated right-turn lanes. Vehicles heading to central Nuneaton from the north can be follow Drayton Lane, Woodford Lane, the B4111, and the B4114. This provides an alternative route to travelling south on the A444.
- 3.22 Approximately 1.5kms further north-west from the Drayton Lane junction, the A5 forms the Mancetter Island roundabout; a 5-arm roundabout junction between the A5, B4111 Harpers Lane, B4116 Watling Street, and Carlyon Road. From Mancetter Island, the A5 continues north-west and provides connection to the M42 at junction 10.
- 3.23 Some 1.5kms south-east of the A5 / MIRA roundabout, the A5 forms a 4-arm roundabout with Nuneaton Lane and Higham Lane. As per the Redgate roundabout, both north-west and south-eastbound traffic on the A5 are provided with a flared two-lane entry.
- 3.24 Higham Lane is a single carriageway two-way road of some 7.5m in width that is subject to a 40mph speed limit and is provided with street lighting. A footway of c. 2.0m extends along the eastern side of the carriageway. Higham Lane connects the A5, to the north-east, with the A47 to the south-west. The A47 later junctions with the A444 which provides connection to central Nuneaton. Of note, bus route 65 currently uses this route to access central Nuneaton.

Road Safety Analysis

- 3.25 To enable a review of road safety in the vicinity of the Site, Personal Injury Accident (PIA) data for the latest five-year period ending 13 April 2022 and 28 February 2022 was obtained from WCC and LCC, respectively.

- 3.26 PIAs are classified as '*slight*,' '*serious*' and '*fatal*' depending on the severity of the injuries sustained. Analysis has been undertaken to ascertain whether there are any trends in the types or location of recorded accidents on the local highway network within the vicinity of the Site.
- 3.27 The study area for the WCC PIA analysis comprised a 3.3km stretch of the A5 including the Redgate roundabout, the A5 / MIRA roundabout, and A5 / Higham Lane roundabout. Additionally, a 1.9km section of A444 Weddington Lane extending south-east from the Redgate roundabout to the Lower Farm roundabout was included.
- 3.28 Whilst within LCC, the PIA analysis comprised a 500m stretch of the A444 Atherstone Road extending north from the Redgate roundabout. As well as a 200m section of Nuneaton Lane extending north from the A5 / Higham Lane roundabout
- 3.29 Figure 3.3 along with Table 3.1 reveal that within the defined study area there were a total of 20 PIAs including 1 (5%) classified as '*fatal*,' 3 (15%) as '*serious*,' and the remaining 16 (80%) as '*slight*'. Analysis has been undertaken to ascertain whether there are any trends in the nature, location, and severity of recorded PIAs on the local highway network.

Figure 3.3 PIA Location Plan

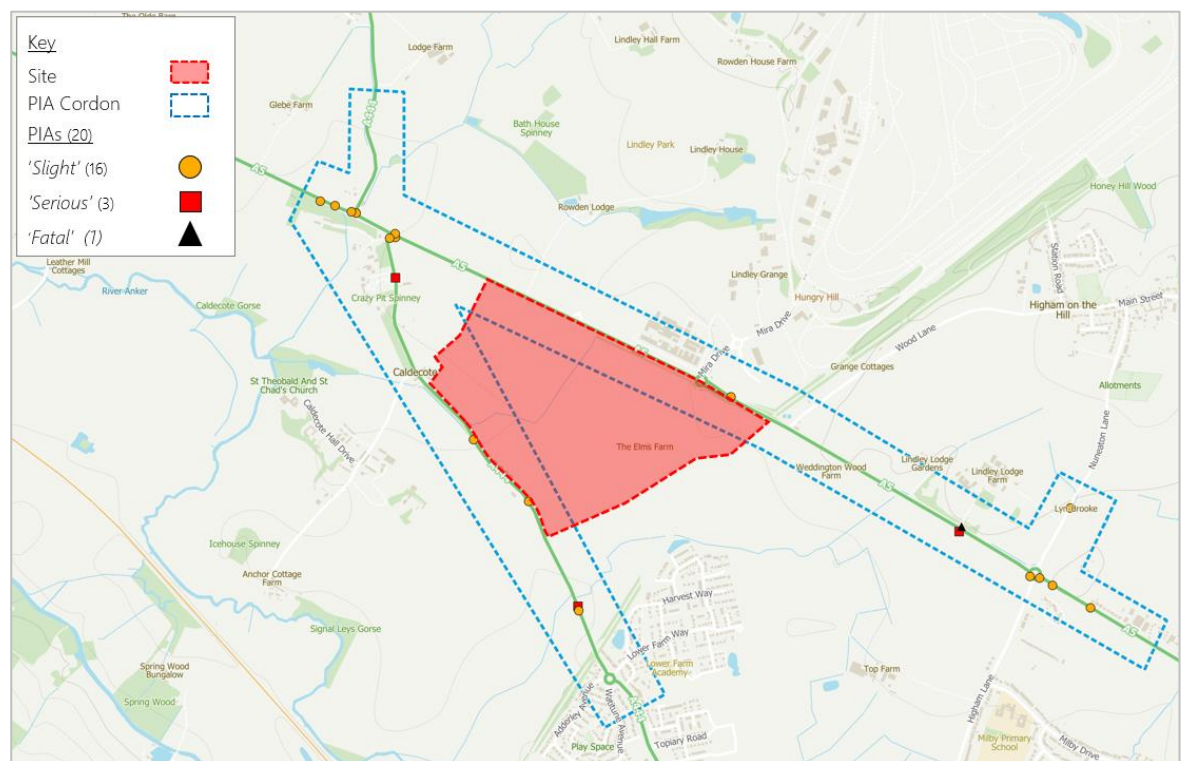


Table 3.1 Summary of Recorded PIAs

Highway Link / Junction	Severity - Fatal	Severity - Serious	Severity - Slight	Total	Annual Average
Redgate Roundabout	-	-	7	7	1.4
A5 (1.3km section between the Redgate Roundabout and MIRA Roundabout)	-	-	-	-	-
A5 / MIRA Roundabout	-	-	1	1	0.2
A5 (1.5km section between the MIRA Roundabout and Higham Lane Roundabout)	1	1	-	2	0.4
A5 / Higham Lane Roundabout	-	-	4	4	0.8
Nuneaton Lane	-	-	1	1	0.2
A444 Weddington Lane	-	2	3	5	1
Lower Farm Roundabout	-	-	-	-	-

- 3.30 In terms of collision type within the study area, 2 (10%) incidents involved cyclists and the remaining 18 (20%) incidents involved motorised vehicles; 4 of which included motorcycles.
- 3.31 The one '*fatal*' incident occurred along the A5 Watling Street at the junction with Kings Lodge, approximately 1.13kms south-east of the Site's access onto the A5. The incident occurred when a vehicle pulled out of the private property to travel south eastbound on the A5 when a second vehicle travelling at '*considerable speed*' skidded onto the wrong side of the road and collided with a third vehicle. As such the accident is likely attributed to the car travelling too fast for conditions, a loss of control, and a failure to look properly.
- 3.32 Table 3.2 provides a comparison between the average number of accidents that have occurred at each of the junctions identified in Table 3.1 and the theoretical accident rates based upon the calculations as contained within COBA (COst Benefit Analysis); an economic assessment tool which can be used to : assess the changes in accident costs and casualties.

Table 3.2 Predicted Accident Rates at Key Junctions

Highway Link / Junction	Total Accidents (2017-2022)	Actual Annual Average	COBA Accident Rate (2022)
Redgate Roundabout	7	1.4	3.20
A5 / MIRA Roundabout	1	0.2	1.71
A5 / Higham Lane Roundabout	4	0.8	2.93
Lower Farm Roundabout	-	-	-

- 3.33 From Table 3.1 and Table 3.2 it can be seen that the recorded number of accidents at key junctions on the highway network in the vicinity of The Site is below the expected number derived from COBA for the particular junction types.
- 3.34 From the above there would appear to be no discernible patterns or specific clusters of incidents suggesting there are no distinctive issues attributable to defective road conditions, poor visibility or other physical characteristics associated with the road layout.

4. Development Proposals

Framework Masterplan

- 4.1 As previously mentioned, Appendix 1 to the TA provides a copy of the emerging parameters plan and illustrative framework masterplan for the MIRA Technology Park South Site development.
- 4.2 The parameters plan confirms that the total Site area is 59.5ha of which the total net developable area is 39.3ha and the total floor area proposed is up to 213,500m². The parameters plan also illustrates that the Site will be divided into four development areas with access taken from an A5-A444 link road.
- 4.3 The illustrative framework masterplan shows a further breakdown of the four development areas into seven individual plot configurations that could come forward with the disposition of access, parking, and service yard configurations for each unit. The illustrative framework masterplan includes an indicative area schedule confirming that any ancillary E(g)(i) (as the highest trip generator) will be no more than 10% of the total building floor area.
- 4.4 The indicative area schedule is replicated in Table 4.1.

Table 4.1 Indicative Area Schedule

Unit Ref.	B2 Floor Area (sqm)	Ancillary Uses Floor Area (sqm)	Total Floor Area (sqm)
1	16,258	1,858	18,116
10	18,208	2,602	20,810
20	17,651	2,044	19,695
21	38,089	4,088	42,177
22	26,941	2,880	29,821
30	58,063	6,318	64,380
31	16,722	1,765	18,487
TOTALS	191,931	21,555	213,484

Proposed Commencement, Phasing & Completion of Development

- 4.5 The anticipated date for 1st completions on the Site, subject to planning approvals, is Year 2024. Thereafter, it is anticipated that floorspace will be completed in line with market demand with the final completion of the development anticipated by the end of the Local Plan period, i.e., Year 2031.
- 4.6 It is proposed that that Site will be developed in two Phases, linked to the delivery of associated infrastructure. The assumed split of development and associated infrastructure is set out below and is explored in more detail in subsequent Sections of the TA:

- Phase 1

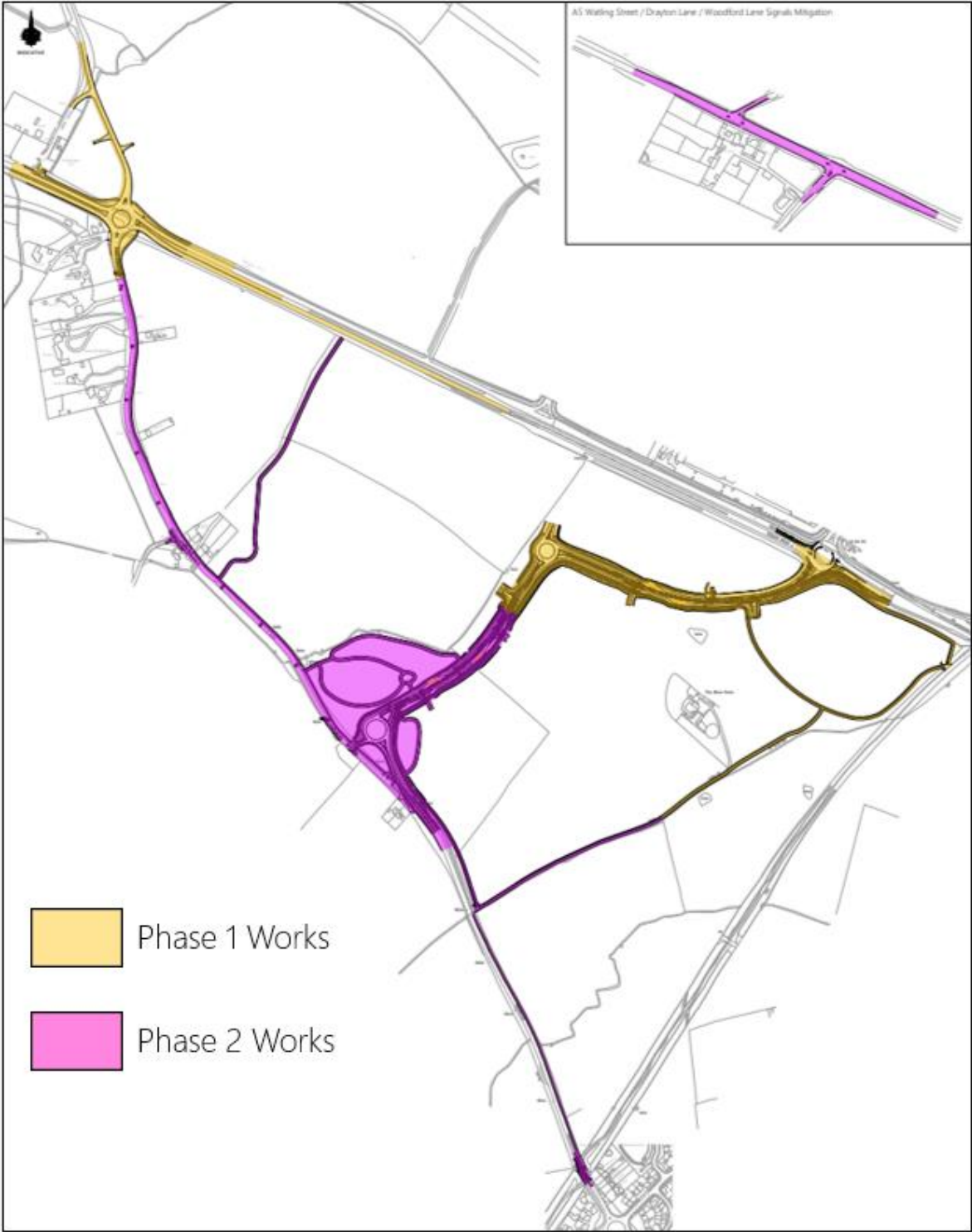
- Up to 110,000sqm of floorspace located towards the northern end of the Site
- Delivery of the first section of internal multi-user Active Travel Corridor with connections to the NCN52 Weddington Walk
- Amendments to Public Footpath 144/AE/189/1 including extinguishment of section between multi-user Active Travel Corridor and the A5 Watling Street and upgrades to remaining section (corridor widening, surfacing and wayfinding) south to connection with Public Footpath 330/N27/1
- Delivery of the first phase of internal recreational path network
- Extension of existing local bus services to directly serve the Site including provision of necessary bus stop infrastructure on A5-A444 link road
- Upgrades to the A5 Watling Street / MIRA roundabout to accommodate the principal vehicular access to the Site
- Delivery of the first section of the A5-A444 Link Road up to and including the proposed internal roundabout (to allow for bus service u-turning), aligned with creation of vehicular accesses to individual development plots
- Off-site highway capacity improvement to A5 / A444 Redgate Island including the A444 Atherstone Road diversion

- Phase 2

- Remaining 103,500sqm of floorspace
- Completion of internal multi-user Active Travel Corridor to A444 Weddington Lane
- Delivery of off-site multi-user Active Travel Corridor on A444 Weddington Lane south-eastwards to connect with existing infrastructure in Nuneaton
- Delivery of off-site footway upgrades to A444 Weddington Lane north-westwards to A5 / A444 Redgate Island including improved crossing facilities to Caldecote village at the village hall
- Diversion of Public Footpath 144/AE/190/1 to upgraded route (corridor widening, surfacing and wayfinding) east of the cottages and village hall and continuation of upgrades to the A5 Watling Street
- Completion of internal recreational path network
- Additional bus stop and bus gate infrastructure on A5-A444 link road to allow two-way through working of bus services
- Completion of A5-A444 link road including creation of vehicular accesses to individual development plots
- Construction of a new secondary access to the Site in the form of a 3-arm roundabout junction between the A444 Weddington Lane and the A5-A444 link road
- Downgrading of Weddington Lane to Local Access Road with associated traffic calming measures
- Signalisation of the Woodford Lane / Drayton Lane give-way priority junctions with the A5 Watling Street

4.7 Figure 4.1 shows the anticipated phasing of the proposed development.

Figure 4.1 Development Phasing



Parking

4.8 Table 4.2 summarises the NWDC adopted policy for car parking (max.) and cycle parking (min.).

Table 4.2 NWDC Adopted Parking Standards

Use	Car Parking (Maximum)	Cycle Parking (Minimum)
Class E Offices (ancillary)	1 per 75sqm up to 2,499sqm, 1 per 30sqm over 2,500sqm	1 per 200sqm
Class E Research & Development	No standard identified – aim to apply average of Class E Offices / Class B2 Industrial	No standard identified – aim to apply Class E Offices standard
Class B2 Industrial	1 per 100sqm	1 per 500sqm
Class B8 Warehousing (ancillary)	1 per 150sqm	1 per 1,000sqm

Cycle Parking

4.9 Cycle parking is a key deliverable within the MIRA Technology Park South Site development and will be delivered in accordance with the NWDC Adopted Local Plan policy. Recognising the need to prioritise this mode of travel it is acknowledged that it is not just the quantity of cycle parking provided for each land use but also the quality of such provision in respect of location, convenience and security.

4.10 Cycle parking will be located close to the main entrance of the respective building within the MIRA Technology Park South Site development where natural surveillance is available. Both long term spaces (staff) and short-term spaces (customers / visitors) will be secure (using 'Sheffield-type' stands), covered and lit.

4.11 In support of the long term (staff) cycle spaces, showers, changing and equipment storage facilities will be provided in the respective buildings. Short term (customer / visitor) spaces will be clearly signed.

Car Parking

4.12 A balanced approach has been taken to car parking provision within the MIRA Technology Park South Site development, recognising the need to encourage sustainable transport access and reduce car use whilst at the same time ensuring that operational needs are met and that inappropriate overspill of parking onto surrounding roads is avoided.

4.13 Car parking provision will fall within the maximum standards as set out within the NWDC Adopted Local Plan policy. Parking zones for each plot within the development will be overlooked and will incorporate the use of differing materials and landscape features to improve attractiveness to end users.

- 4.14 As per policy LP34 of the NWDC Adopted Local Plan, active electric charging points to an agreed technical specification and location will be provided at a ratio of 20% of the total number of spaces within each plot. This will include employee and visitor rapid charging points. The remaining 80% of spaces will be provided as passive provision, incorporating the underlying infrastructure necessary for connection to be activated in the future as technologies evolve and uptake increases.
- 4.15 Disabled car parking will be provided in accordance with BS 8300-1: 2018 and will be located close to building entrances at a ratio of 6 bays plus 2% of total capacity. Motorcycle provision will be provided at 1 space plus an additional space for every 10 spaces required by maximum car parking standard.

Parking Summary

- 4.16 Table 4.3 sets out the target parking provision to be provided on the MIRA Technology Park South Site development based upon the indicate area schedule, recognising that the masterplan is still indicative at this stage.

Table 4.3 MIRA Technology Park South Site Indicative Parking Schedule

Unit Ref.	Car Parking			Motorcycle / PTW Parking	Cycle Parking
	Total	EVCPs	Disabled		
1	179	36	10	18	40
10	190	38	10	20	42
20	270	54	12	28	60
21	390	78	14	40	86
22	332	66	14	34	74
30	641	128	20	64	142
31	195	40	10	20	44
TOTALS	2,197	440	90	224	488
Notes:					
Total car parking equates to average of 1 space per 97sqm over total floor area					
EVCPs shown as being 'active' at a ratio of 20%. Remaining spaces will be provided as 'passive' provision					

5. Movement Infrastructure Strategy

General Principles

- 5.1 The MIRA Technology Park South Site development adopts a hierarchical approach to movement and access that ensures priority is given to more sustainable forms of transport and opportunities to reduce travel demand over motor vehicle access.
- 5.2 This will be delivered through a comprehensive package of combined hard interventions (infrastructure such as improved footways, cycleways and crossing facilities as well as amendments to existing bus service routing) and soft interventions (travel planning, promotions, and marketing) to achieve meaningful changes in travel behaviour and an ambitious shift in modal share targets.

Promoting Smarter Choices

- 5.3 The MIRA Technology Park South Site development will deliver real incentives to encourage people to change their travel behaviour and to sustain these changes over the long term. A framework of effective measures and smarter choices through the delivery of a Framework Travel Plan (FTP) underpins the development to achieve an overall goal of reducing the impact of generated traffic and to improve accessibility.
- 5.4 The FTP is submitted as part of the suite of planning application documentation alongside the TA.
- 5.5 The FTP will be implemented in conjunction with the phased delivery of the development, to ensure integration into the local transport network, promotion of healthier lifestyle choices and wider social / community benefits and to assist in minimising the environmental impacts of the MIRA Technology Park South Site development.
- 5.6 The FTP includes a range of physical measures and management techniques such as the implementation of a community website, travel packs, car sharing promotional strategies and personalised travel planning designed to deliver on these objectives. Such measures will be underpinned by taking advantage of the proximity to facilities and services as well as the planned physical improvements to the built environment delivered through the MIRA Technology Park South Site development for enhanced infrastructure for pedestrians, cyclists, and public transport users.
- 5.7 The FTP will be an organic document that will grow and develop as the phased release of land within the MIRA Technology Park South Site development is realised. Measurable targets and over-riding objectives will be continuously monitored and reviewed over the lifetime of the Plan.

Active Travel Modes (Walking & Cycling)

On-Site Infrastructure

- 5.8 A key criteria of the ongoing development of MIRA Technology Park North Site is to provide a pedestrian and cycle friendly environment for all types of users regardless of the level of mobility or visual impairment. This has been, and will continue to be, realised through the provision of cycle lanes, safe crossing points, direct routes and connectivity between zones and buildings, appropriate tactile surfaces, lighting and signage.

- 5.9 These guiding principles will be extended within the emerging development on the MIRA Technology Park South Site and active travel, in particular the freedom of movement for pedestrians and cyclists to access a broad range of local origins and destinations both within and through the development, is a priority of the Movement Infrastructure Strategy.
- 5.10 The development is therefore supported by a comprehensive active travel strategy that seeks to deliver an excellent quality environment for access to / from the Site that is:
- Attractive.
 - Well-connected and permeable to encourage walking and cycling to local destinations.
 - Able to encourage activity thereby improving personal security and safety.
- 5.11 Street corridors within the development not only provide a permeable, legible circulation pattern but also have essential functions beyond just the movement of traffic, i.e., multi-functional spaces with a much higher 'place' function that are integrated within their surroundings and where pedestrians and cyclists are, in general, afforded greater priority than vehicular traffic.
- 5.12 Specifically, with regard to the provision of new and improved active travel infrastructure, the Movement Infrastructure Strategy comprises the following:
- The creation of a high quality environment that provides direct connections to origins and destinations within the developable area and beyond that are permeable, coherent, safe and reflect the desire lines of movement.
 - The provision of key landmarks as well as easy to understand wayfinding both within and on key routes to / from external destinations to provide legibility.
 - The protection and enhancement of the Public Right of Way network in the immediate vicinity, integrated into the network of new infrastructure within the development.
- 5.13 Based on this framework, the aim is to:
- Provide a continuous network.
 - Maximise convenience by ensuring that all routes are direct and reflect desire lines of movement.
 - Ensure that usable, comfortable places are created and that crossing places are level.
 - Make routes clear and easy to follow with good sightlines and signage.
 - Create spaces that are safe, active and accessible to all.
- 5.14 The principal, formal access active travel corridors will be lit and will be accompanied by a legible signage strategy. Crossing points are intended to be uncontrolled and will tie in with desire lines of movement with refuge islands provided where appropriate.
- 5.15 All formal footways and cycleways within the development will be constructed to full highway standards with sealed asphalt surfaces and concrete edging.
- 5.16 Formal cycleways will take the form of segregated, stepped off-highway two-way routes that are designed to accord with the principles of LTN1/20 and will be 3.0m in width (1.5m in each direction). Cycleways will be separated from footways by way of a 60mm upstand.

- 5.17 Cycle priority crossings will be provided at side road junctions with set-backs and in proximity of bus stop boarding areas. Where pedestrian routes cross cycle routes then raised tables and zig-zags provided to reduce cycle approach speeds and provide step-free access. At signalled crossing points, short sections will be provided as shared surfaces to a width of at least 4.0m with ribbed tramline / ladder tactile paving to mark the transition from segregated to shared facilities.
- 5.18 Footways will be provided on both sides of all streets within the development. Footways will be provided to a width of at least 2.0m.
- 5.19 Hedges and fences will be set back at least 0.5m from footways or cycleways. Inter-visibility splays of 2m x 2m will be provided at crossovers, path junctions to maintain pedestrian safety. Where cycle traffic crosses a road, footway or PROW, visibility splays of 2.4m x 31m will be maintained.
- 5.20 The maximum longitudinal gradient on the formal active travel corridors will be 2.0% (1:50). Where natural changes in level are unavoidable, short sections of no less than 30m in length may be constructed at 5.0% (1:20). Where these exist, flat platforms of at least 5.0m in length will be provided.

Off-Site Infrastructure

- 5.21 Beyond the development boundary, the focus is to provide direct, cohesive, attractive active travel connections to key local origins and destinations and existing, established infrastructure. Key strategic corridors are identified to meet this objective, these being:
- **WEDDINGTON WALK (NCN52)**
 - Extension of formal active travel corridor to the north-east providing a direct connection to the Weddington Walk (former railway line and part of the National Cycle Network, Route 52). This will then provide grade separated, traffic-free access via the subway under the A5 to MIRA Technology Park, and the existing shared footway / cycleway along the eastern side of the A5 corridor. NCN52 is then signed northwards via Wood Lane towards Higham-on-the-Hill and Stoke Golding. Southwards, the NCN52 continues as a traffic-free route towards the A444 Weddington Lane and then continues as a traffic-free route to connect with Camp Hill and the towpath along the Coventry Canal.
 - **CALDECOTE**
 - Improved connectivity is proposed north along the A444 Weddington Lane from the proposed Site access roundabout to Caldecote Village Hall, parallel to the main carriageway. This will comprise a widened footway to at least 2.0m in width accompanied by a lighting upgrade. It is also proposed to provide a lit pedestrian crossing with refuge island in the vicinity of the Village Hall accompanied by a footway connection to Caldecote Lane on the western side of the A444 Weddington Lane.
 - With through traffic diverted along the main spine road through the development to the A5, the retained section of Weddington Lane up to Caldecote village and the Redgate Island will be retained and enhanced as a Quiet Lane with associated infrastructure to provide priority for active travel modes.

- **WEDDINGTON / NUNEATON**

- Improved connectivity is proposed south along the A444 Weddington Lane. From the proposed Site access roundabout to the development boundary this will take the form of a continuation of the formal, lit active travel corridor, set back from the main carriageway.
- Beyond the development boundary, the route will continue as a lit shared footway / cycleway, adjacent to the main carriageway to link into the existing A444 / Weddington Walk crossing that will be upgraded to traffic signal control. This will then continue via the recently constructed shared footway / cycleway to the Adderley Park / Lower Farm Way housing developments and onwards in the direction of Weddington village and Nuneaton town centre.

5.22 On each of these key strategic corridors, appropriately scaled measures have been identified to significantly improve the user experience through pavement widening, lighting, wayfinding signage and markings, minimising conflicts with and separation from vehicular traffic wherever possible as well as improved crossing facilities incorporating priority over vehicular movement where such interaction cannot be avoided.

Public Rights of Way (PROW)

5.23 There are two existing PROW footpaths in the vicinity of the Site.

- **FP 144/AE189/1**

- Runs south-west for a distance of 575m from the A5 Watling Street at Hungry Hill to the existing agricultural track that serves The Elms Farm. At a point 140m west of The Elms Farm, the footpath turns south and is redesignated as FP 330/N27/1 that extends for 818m, crossing the Weddington Walk and passing through the Lower Farm housing development to Weddington Village.
- The initial section of FP 144/AE189/1 for a distance of approximately 270m would need to be extinguished in order to accommodate the proposed development.
- The remaining section of FP 144/AE189/1 will be upgraded to provide a 3.0m width unsealed surface with timber edging and 1.0m amenity margins on both sides between hedgerows where the cross-section width permits. Additional wayfinding will also be provided.
- The formal active travel corridor connection between the proposed development and Weddington Walk and the network of informal recreational paths around the perimeter of the Site are a replacement and significant upgrade for all PROW users to the existing section of FP 144/AE189/1 that will require extinguishment.

- **FP 144/AE190/1**

- Runs south-west for a distance of 454m from the A5 Watling Street towards the A444 Weddington Lane at Caldecote Village Hall.
- The initial 170m section of FP144/AE190/1 from Weddington Lane is to be extinguished with an alternative, upgraded route provided that wraps around the south-western corner of the Site within a landscaped setting.
- The remaining section of FP 144/AE190/1 will be upgraded to provide a 3.0m width unsealed surface with timber edging and 1.0m amenity margins on both sides between hedgerows where the cross-section width permits. Additional wayfinding will also be provided.

- Access to FP 144/AE190/1 from the proposed development and Caldecote village will be significantly improved for all PROW users by the off-site infrastructure upgrades along the A444 Weddington Lane corridor.

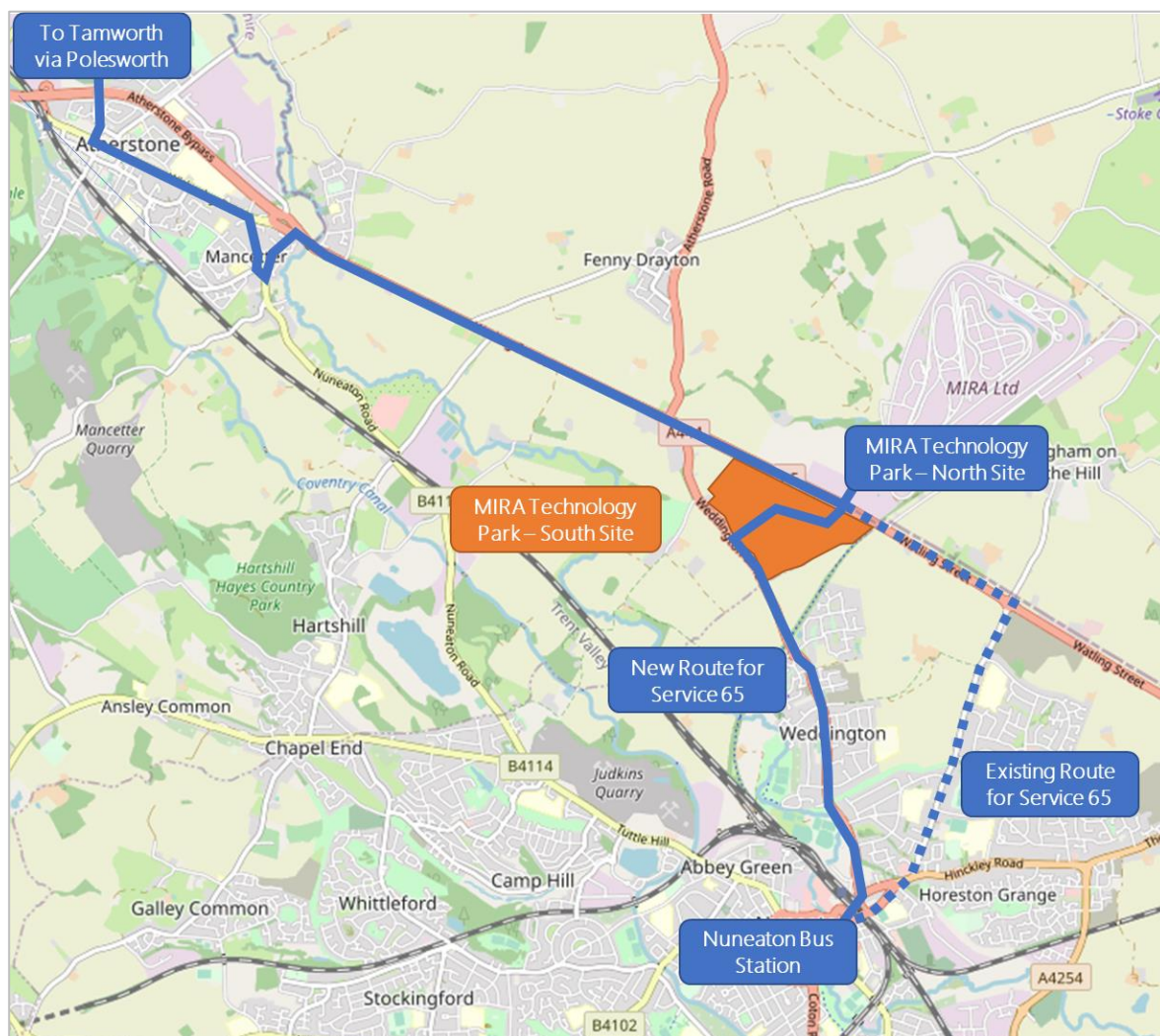
5.24 Appendix 2 to the TA details the proposed PROW Improvement Plan.

Passenger Transport

5.25 In respect of public transport, a fundamental deliverable of the Movement Infrastructure Strategy is that, where practicable, all building accesses will be within 400m walk distance of regular public transport services that provide competitive journey times to key destinations and present a realistic alternative to private car use for employees within the MIRA Technology Park South Site development.

5.26 The proposal is to collaborate with the bus operator, Arriva Midlands, and the WCC Passenger Transport Operation team to instigate the diversion of Service 65 via the new spine road within the development as part of its route between Tamworth and Nuneaton via Atherstone and MIRA Technology Park, as shown in Figure 5.1.

Figure 5.1 Current & Proposed Future Routing of Service 65



- 5.27 At present, under COVID-19 conditions, the service operates on an hourly frequency throughout the day, Monday to Saturday with journey times of 10 minutes to Nuneaton, 11 minutes to Atherstone and 65 minutes to Tamworth. Pre-COVID, the service provided a 30-minute frequency at certain periods of the day, particularly on the section of the route between MIRA Technology Park and Nuneaton.
- 5.28 Subject to agreement with the bus operators and WCC Passenger Transport Operations team, the intention is to restore a 30-min frequency on Service 65 on weekdays on the core element of the route between Atherstone and Nuneaton. The phased introduction of the revised Service 65 bus service will be linked with the phased build programme within the MIRA Technology Park South Site development.
- 5.29 Within the MIRA Technology Park South Site development additional bus stop infrastructure will be provided with the phased construction of the new spine road linking the A5 to the A444. The bus stop infrastructure will incorporate wide footways at bus stops, passenger waiting facilities, flag, timetable and mapping, provision of infrastructure to enable real-time information (RTPI), low-floor kerbs and bus cage markings. The RTPI will also be incorporated into accessible locations within each of the building units.

Vehicular Access Strategy

- 5.30 The scale and form of the MIRA Technology Park South Site development is such that it has the potential to generate both light vehicle movement (i.e., cars / vans) as well as heavy goods vehicle movement throughout the day, primarily during weekdays.
- 5.31 The nature of such development is that there is likely to be a concentration vehicular movement, particularly light vehicles, during the traditional weekday AM and PM peak periods (typically 07:00 – 10:00hrs and 16:00-19:00hrs) coinciding with peak periods of background vehicular activity on both the A5 and A444 corridors.
- 5.32 The vehicular access strategy therefore seeks to deliver the most efficient movement of vehicles between the Site and the surrounding road network.
- 5.33 The proposed vehicular access strategy, both in terms of on-site infrastructure and off-site mitigation, is illustrated in a series of 'General Arrangement' plans included as Appendix 3 to the TA (MTP Dwg. Nos. 17059/GA/01 – 17059/GA/09 inclusive).

A5 / MIRA Roundabout

- 5.34 The primary access to the development is based around the construction of a fourth arm to the southern side of the existing MIRA Roundabout on the A5 Watling Street. The Site access proposals are illustrated on MTP Dwg. No. 17059/GA/02 included within Appendix 3.
- 5.35 The geometric design of the existing MIRA roundabout is such that it can be easily adapted to accommodate the DMRB requirements for a full access road in place of the existing field access track that can accommodate the anticipated volumes of light vehicles and HGVs without requiring any Departures from Standard.
- 5.36 To aid with the junction capacity assessments, detailed within Section 8 of the TA, the Site will be provided with a left slip from the A5 (east) to the A5-A444 link road. Additionally, and as part of the Site access proposals, increased entry widths will be provided on both the A5 (east) and A5 (west) arms of the roundabout.

- 5.37 The site access will comprise a flared two-lane approach to the MIRA roundabout over a distance of approx. 40m, accommodating a minimum of 5 vehicle queuing length in each lane. On exit from the MIRA roundabout, the left slip merges from the A5(east) with main carriageway approx. 45m south of the roundabout.
- 5.38 A 3.0m wide shared footway / cycleway will extend from the A5-A444 link road to the A5 (east) around the south-eastern sector of the MIRA roundabout. This shared footway / cycleway will extend to the Weddington Walk underpass to accommodate the movement of pedestrians and cyclists between the MIRA Technology Park South Site and the North Site. No additional pedestrian / cycle crossing facilities are proposed at the MIRA roundabout.

A444 Weddington Lane / MIRA Roundabout

- 5.39 A new 3-arm roundabout will be constructed on the A444 Weddington Lane to the south-east of Caldecote, providing a second primary access to the Site, as shown on MTP Dwg. No. 17059/GA/05 included as Appendix 3 to the TA.
- 5.40 As part of the construction of the second primary access, the A444 Weddington Lane will be diverted from its existing alignment just south-east of Nos. 17/18 Weddington Lane to a new 45m ICD (inscribed circle diameter) roundabout offset approx. 52m (centre to centre) from the existing A444 Weddington Lane.
- 5.41 All three approach arms of the roundabout will be provided with single lane entries and exits. A 5.0m wide segregated footway / cycleway will extend around the north-eastern sector of the roundabout connecting the A5-A444 link road with the A444 Weddington Lane. A 2.0m wide footway is also accommodated on the north-western sector of the roundabout connecting the A5-A444 link road with Weddington Lane.
- 5.42 A toucan crossing is proposed on the A5-A444 link road arm of the roundabout that is set back some 20m from the give-way line.
- 5.43 The realignment of the A444 and positioning of the roundabout form part of a proposal to direct all through traffic along the A444 corridor to use the A5-A444 link road, facilitating the downgrading of Weddington Lane to a local access road.
- 5.44 The downgrading of the existing section of Weddington Lane between the Site access roundabout and the Redgate junction to a local access road will be supported by a package of traffic calming / management measures to redirect through traffic away from Caldecote village and will comprise:
- A comprehensive package of revised Advanced Direction Signage (ADS) to direct 'A' road traffic, including HGVs via the A5/A444 spine road through the Site, with associated additional / altered ADS at the MIRA roundabout and Redgate junction;
 - A seeking of reduction in the speed limit on Weddington Lane through Caldecote village (between the Site access roundabout and the Redgate junction) from 50mph to 30mph;
 - Additional traffic calming measures to reinforce speed limit change to include 'Gateway' road markings / signage, speed cushions and carriageway narrowing;
 - A raised table crossing adjacent to the village hall.

A5-A444 Link Road

- 5.45 The A5-A444 link road proposals are illustrated on MTP Dwg. Nos. 17059/GA/02 – 17059/GA/05 included within Appendix 3.
- 5.46 The two external accesses will be connected by a new, adoptable link road, designed to standards applied by the Highway Authorities, namely the Design Manual for Roads & Bridges (DMRB) and the Warwickshire Design Guide, from which direct access will be taken to individual plots.
- 5.47 In cross-sectional terms, the A5-A444 link road will have a minimum width of 7.3m (10.5m where ghosted right turn lanes are provided) flanked by verges (min. 2.0m width) and footways (min. 2.0m width). Segregated two-way cycle facilities (min. 3.0 width) will also be accommodated on at least one side of the carriageway.
- 5.48 There will be a combination of side road connections and direct accesses to development plots off the A5-A444 link road. These junctions are designed to accommodate the turning movement requirements of light vehicles and HGVs and will be give-way priority controlled with ghosted right turn lane facilities, as appropriate.

A5 Corridor Improvements

- 5.49 As part of the junction capacity assessments detailed in Section 8, it has been identified that the existing Redgate Island elongated roundabout junction and the Woodford Lane / Drayton Lane give-way priority junctions with the A5 Watling Street will require improvements to address the impact of development-related traffic. Further details regarding the proposed mitigation works at the Redgate Island and Woodford Lane / Drayton Lane junctions are provided in Section 9 of the TA.

6. Development Trip Generation

NWDC Local Plan Assessment

6.1 As referenced in Section 7 of the TA, microsimulation modelling has been undertaken by WCC's appointed consultant that has underpinned the new adopted NWDC Local Plan. Certain parameters have been input to this microsimulation modelling for the purpose of understanding the impact of the emerging MIRA Technology Park South Site allocation on the operation of the surrounding local and strategic road network.

- **Developable area:**
 - 14.84ha (based on 35% Site coverage on 42.4ha Site)
- **Land Use split:**
 - 6.5% E(g)(i) office; 43.5% E(g)(ii) R&D; 50.0% B2 employment
- **E(g)(ii) trip rate based on 2011 'MIRA' Trip Rate**
- **E(g)(i) office & B2 employment trip rate based on WCC standard trip rates**

6.2 For both the weekday AM and PM peak periods, trip rates are identified for each land use class for each hourly period between 07:00 and 10:00hrs (AM peak) as well as 16:00 and 19:00hrs (PM peak), as summarised in Table 6.1.

Table 6.1 Local Plan Model Trip Rates by Use Class

Time Period	Hourly Period	E(g)(i) Office			E(g)(ii) R&D			B2 Industrial		
		Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
AM Peak	0700-0800	0.723	0.155	0.878	0.378	0.032	0.410	0.200	0.091	0.291
	0800-0900	1.300	0.240	1.540	0.555	0.046	0.601	0.360	0.140	0.500
	0900-1000	0.754	0.212	0.966	0.139	0.032	0.171	0.209	0.123	0.332
PM Peak	1600-1700	0.217	0.969	1.186	0.036	0.148	0.184	0.084	0.122	0.206
	1700-1800	0.180	1.110	1.290	0.050	0.462	0.512	0.070	0.140	0.210
	1800-1900	0.092	0.395	0.487	0.043	0.371	0.414	0.036	0.050	0.086
Note: Trip Rate expressed per 100m ²										

- 6.3 Based on the above and split of use classes / floor area assumptions, Table 6.2 provides a summary of the vehicular trips attributed to the MIRA Technology South Site within the Local Plan modelling.

Table 6.2 Local Plan Model Vehicular Trip Generation

Time Period	Hourly Period	Arrivals	Departures	Total
AM Peak	0700-0800	393	87	480
	0800-0900	638	133	771
	0900-1000	269	113	382
	Total 0700-1000	1,300	333	1,633
PM Peak	1600-1700	91	237	328
	1700-1800	86	433	579
	1800-1900	54	267	321
	Total 1600-1900	231	937	1,168

Updated Assessment Based on Masterplan Proposals

- 6.4 As expected, when Sites come forward for planning, a more refined analysis of trip rates / trip generation is required once more defined parameters are known. In this instance, and as identified earlier in the TA, the key parameters to be taken forward for assessment of trip rates and trip generation are as follows:
- **Development scale:**
 - up to 213,500m² (based on 36% total Site area and 54% total developable area)
 - **Land Use split:**
 - no more than 10% ancillary uses [E(g)(i) office (as the highest trip generator)]; 90.0% B2 employment
- 6.5 By direct comparison with the assumptions included within the Local Plan modelling it is evident that the emerging development has a greater overall developable area however the proportion of B2 employment is also considerably higher than previously modelled. Of note is that clearly the proportion of E(g)(ii) R&D is much lower than was previously envisaged.
- 6.6 To determine appropriate trip rates to be taken forward into a detailed assessment of the implications arising from vehicular trips generated by the MIRA Technology Park South Site development, a more detailed critique of the TRICS database has been conducted.
- 6.7 Given the scale of the emerging proposals, two of the sub-categories were initially examined, namely 'Business Park' and 'Industrial Estate' as these contain surveyed Sites with approaching a similar overall floorspace to that proposed.

- 6.8 It has, however, been quickly determined that it is inappropriate to apply trip rates generated from the 'Business Park' sub-category as all surveyed Sites comprise a considerable proportion of E(g)(i) office floor area whereas this will only ever be ancillary floor area within the emerging MIRA Technology Park South Site development proposals.
- 6.9 The 'Industrial Estate' (02-D) sub-category also contains several Sites where trips associated with the various employment Use Classes are already embedded within the trip rate, including ancillary E(g)(i) office floor area, such as that proposed at the MIRA Technology Park South Site.
- 6.10 To understand the appropriateness, or otherwise of adopting the 02-D sub-category of TRICS for the purposes of establishing a more refined trip rate for the MIRA Technology Park South Site, a detailed critique of Site characteristics was undertaken and included within an early version of the pre-application Scoping Note issued to the Highway Authorities for their consideration.
- 6.11 From this exercise it was evident that many of the characteristics embodied within the 02-D sub-category of TRICS are not relatable to the emerging development on the MIRA Technology Park South Site, not least that the average floor area across all sites is considerably lower than the total floor area proposed but also that the parking ratio is considerably higher. More importantly the industrial estate sites comprise a large number of smaller units as well as other land uses, particularly trade counter, which are typically higher trip generators than more traditional industrial uses. On this basis the 02-D sub-category of TRICS is not suitable to determine the trip rates / trip generational characteristics of the MIRA Technology Park South Site.
- 6.12 TRICS does provide a further sub-category 'Industrial Unit' (02-C) where ancillary uses such as E(g)(i) office floor area are also embedded within the trip rate on an individual unit basis. A detailed critique of Sites included within the 02-C category was conducted to understand the appropriateness, or otherwise of adopting the 02-C sub-category of TRICS for the purposes of establishing a more refined trip rate for the MIRA Technology Park South Site.
- 6.13 This critique has been scrutinised by the Highway Authorities through the pre-application scoping exercise. Based on these reviews, it has been agreed that three sites have been selected for the purposes of identifying a refined trip rate for the Site, based on the following parameters:
- Regions: England excl. Greater London
 - Floor Area Range: 10,000sqm and above
 - Dates: 01.01.00 – present date
 - Day of Week: "Regular weekdays, i.e., Tue – Thur only
 - Exclusions: Town Centre & Edge of Town Centre Sites
- 6.14 A summary of the three selected Sites is provided in Table 6.3.

Table 6.3 TRICS Category 02-C Industrial Unit Selected Sites

TRICS Ref.	Survey Date	Floor Area (sqm)	Use Class Breakdown	Parking Ratio (per 100sqm)	Notes
CH-02-C-01	June 2007	15,000	B2 100%	2.387	Small floor area & high parking ratio
DV-02-C-01	July 2012	20,000	E(g)(i) 5% E(g)(ii) 15% B2 80%	0.925	
NR-02-C-01	November 2008	11,500	E(g)(i) 20% B2 80%	1.235	

6.15 The TRICS output based upon these three Sites in the 02-C category is included as Appendix 4 to the TA. A summary of trip rates and resultant vehicle trips for both the weekday AM and PM peak periods based on up to 213,500m² of floor area on the MIRA Technology Park South Site is provided in Table 6.4.

Table 6.4 Predicted Trip Rates & Vehicular Trip Generation

Time Period	Hourly Period	Arrivals		Departures		Total	
		Trip Rate	No. Vehs.	Trip Rate	No. Vehs.	Trip Rate	No. Vehs.
AM Peak	0700-0800	0.239	510	0.142	303	0.381	813
	0800-0900	0.277	591	0.077	164	0.354	755
	0900-1000	0.168	359	0.103	220	0.271	579
Total 0700-1000			1,460		687		2,147
PM Peak	1600-1700	0.062	132	0.254	542	0.316	674
	1700-1800	0.034	73	0.187	399	0.221	472
	1800-1900	0.112	239	0.153	327	0.265	566
Total 1600-1900			444		1,268		1,712

6.16 Table 6.5 provides a comparison of vehicular trip generation between the Local Plan model flow assumptions (Table 6.2) and the flows generated through the refined trip rate analysis (Table 6.4).

Table 6.5 Comparison of Vehicular Trip Generation (Local Plan Model v's MTP Analysis)

Time Period	Hourly Period	Arrivals		Departures		Total	
		Local Plan	MTP	Local Plan	MTP	Local Plan	MTP
AM Peak	0700-0800	393	510 (+117)	87	303 (+216)	480	813 (+333)
	0800-0900	638	591 (-47)	133	164 (+31)	771	755 (-16)
	0900-1000	269	359 (+90)	113	220 (+107)	382	579 (+197)
Total 0700-1000		1,300	1,460 (+160)	333	687 (+354)	1,633	2,147 (+514)
PM Peak	1600-1700	91	132 (+41)	237	542 (+305)	328	674 (+346)
	1700-1800	86	73 (-13)	433	399 (-34)	519	472 (-47)
	1800-1900	54	239 (+185)	267	327 (+60)	321	566 (+245)
Total 1600-1900		231	444 (+213)	937	1,268 (+331)	1,168	1,712 (+544)

7. Strategic Model Input, Assumptions, and Outputs

- 7.1 To fully understand the impact of the MIRA Technology Park South Site development proposals on the operation of the wider highway network, including the SRN, Vectos Microsim (VM) have been commissioned by ERI MTP Limited to undertake an assessment of proposed expansion of to the MIRA proposals using WCC's Nuneaton and Bedworth Wide Area (NBWA) Paramics model.

Study Area

- 7.2 Figure 7.1 reveals the extent of the NBWA model in relation to the proposed development. The A5 and A444 highway corridors and associated junctions will experience the greatest traffic impact arising from the proposed development. As one extends further away from proposed development, beyond these corridors, the level of impact arising from development-related traffic will reduce significantly as it is dispersed through multiple routes.

Figure 7.1 NBWA Paramics Model Study Area



Model Assumptions

- 7.3 A full Model Assumptions Summary Technical Note (TN) prepared by VM is attached at Appendix 5 of the TA. The TN sets out *"...the assumptions pertaining to the inclusion of the development within the various models e.g., trip generation, distribution, site access and mitigation details."* A summary of the TN is presented in the following paragraphs.

Distribution

- 7.4 The TN states that *"An initial distribution of development trips within the model area was derived using Mobile Network Data (MND), provided by WCC, from the area that included the existing MIRA Site."*
- 7.5 The MND data utilised in this model included vehicular trips on mid-weekdays (i.e., Tuesday to Thursday) during AM and PM peak periods with a journey purpose of travelling to / from work.
- 7.6 VM noted within the TN that a number of committed residential developments due to be delivered in Nuneaton were not included within the MND. Therefore, to *"...provide a more realistic distribution, several trips to/from "External" zones have been reassigned to the committed development zones within the model."* This accounts for the likelihood that longer distance trips are to be replaced by the newly available shorter trips in the future.
- 7.7 The TN reveals the detailed methodology VM utilised to allocate a share of trips to the committed development zones.

Trip Generation

- 7.8 The trip generation totals set out within Section 6 of this TA were provided to VM and combined with the aforementioned trip distribution to produce a new demand matrix for the development models.

Development Access Assumptions

- 7.9 The Site access strategy detailed in Section 5 was provided to VM to inform the development access assumptions within the NBWA model.

Model Scenarios

- 7.10 The NBWA scenarios cover the AM 07:00 – 10:00 period and the PM 16:00 – 19:00 period. The NBWA model makes use of the following scenarios:
- 2031 NBWA Reference Case
 - 2031 NBWA Reference Case + Development
 - 2031 NBWA Reference Case + Development + Do Something (DS)
 - 2031 NBWA Local Plan (excl. MIRA South)
 - 2031 NBWA Local Plan + Development
 - 2031 NBWA Local Plan + Development + Do Something (DS)

7.11 Of note, the DS scenario involves the following off-site highway improvements (as detailed in Section 9 of the TA):

- Traffic calming measures along the northern section of the A444 Weddington Lane aiming to encourage the use of the new A5-A444 link road.
 - This has been reflected within the DS scenarios by closing this section to development traffic.
- The Redgate Island mitigation scheme.

7.12 Within the summary TN, VM state:

"The Reference Case models contain only permitted development and background growth. The Local Plan scenarios include allocated growth from the Nuneaton & Bedworth Borough Plan, growth from Sites within North Warwickshire Borough's Plan that lie within the network extent, and an estimation of growth from Coventry City's Plan.

Note, the estimation of the MIRA South trips included within WCCs Local Plan model have been excluded from this scenario as the purpose of this assessment to assess the MIRA development with the refined assumptions provided by Milestone."

NBWA Model Outputs

7.13 Appendix 6 to the TA provides a copy of the VN TN, and associated spreadsheets, with the results of the NBWA modelling. These include the following outputs:

- The mean maximum queue lengths at key junctions;
- The arrival flows on each approach to the key junctions;
- The average journey times on a set of key routes within the model;
- Flows and average speeds on key links across the network; and
- For a high-level comparison, the network wide statistics of Mean Delay and Mean Speed.

NBWA Model Analysis

7.14 To understand the potential impact of development-related traffic flows during the AM and PM peak periods, analysis was undertaken on the maximum queue length information for the individual junctions under the 2031 NBWA 'Reference Case' and 'Reference Case + Development' scenarios.

7.15 The above analysis revealed the following 11 junctions where the potential impact of the development-related traffic flows resulted in an increase in queuing, on at least one of the arms, by >20 vehicles:

- A5 / B4111 / B4116 Mancetter Island
 - Watling Street arm experienced moderate issue with queueing during the AM peak only.
- A5 Watling Street / Drayton Lane
 - Drayton Lane arm experienced significant and moderate issues with queueing during the AM and PM peaks, respectively. Insufficient gaps to allow traffic out of Drayton Lane.

- [A5 Watling Street / Woodford Lane](#)
 - Woodford Lane arm experienced significant and moderate issues with queueing during the AM and PM peaks, respectively. Insufficient gaps to allow traffic out of Woodford Lane.
- [A5 / A444 Redgate Island](#)
 - A5 (South-East) arm experienced significant issues with queueing during the AM peak only. Whilst the A444 Weddington Lane arm experienced moderate issue with queueing during the AM peak only.
- [A5 / MIRA Roundabout](#)
 - Site access arm experienced significant issues with queueing during both the AM and PM peaks.
- [A5 Watling Street / Higham Lane](#)
 - A5 (North-West) arm experienced moderate issue with queueing during the PM peak only.
- [A444 / Church Street \(Nuneaton TC\)](#)
 - Church Street (South) experienced significant issue with queueing for 1-hour only in the PM peak.
- [A444 / Coton Street \(Nuneaton TC\)](#)
 - A444 Coton Road experienced significant issue with queueing during the PM peak only.
- [B4114 Camp Hill Road / B4111 Tuttle Hill](#)
 - B4111 Mancetter Road experienced moderate issue with queueing during both the AM and PM peaks.
- [B4114 Chapel End Crossroads](#)
 - Bucks Hill experienced significant issue with queueing during the AM peak only.
- [B4111 Nuneaton Road / Woodford Lane](#)
 - Woodford Lane experienced significant issue with queueing during the PM peak only.

7.16 Following the identification of the above junctions, VM provided detailed turning count information for the individual junctions. This represented demand flows, which have been used as inputs for junction capacity assessments in Section 8 of the TA. Full traffic flow diagrams are attached at Appendix 7 of the TA.

8. Development-Related Impact

8.1 Following the queue length analysis of the NWBA model, detailed within Section 7, local junction modelling has been undertaken for both the 2031 '*Reference Case*' and '*Reference Case + Development + DS*' scenarios to determine the impact of localised trips as a result of the development.

8.2 PICADY / ARCADY provide an assessment of the operational capacity of a junction through the Ratio of Flow to Capacity (RFC) with commonly accepted standards of a junction with RFC values of 0.85 – 0.9 and below considered to be operating within its theoretical capacity and junctions with RFC values over this suggest they may be operating at the higher end of their capacity.

A5 / MIRA Roundabout

8.3 As detailed in Section 5 of the TA, the Site access proposals at the A5 / MIRA roundabout will comprise the following:

- Additional capacity / improved deflections on the A5 (east) and (west) arms through increased entry widths, taken from the central kerbed islands; and
- Additional capacity on the A5 (east) arm through provision of a left slip into the Site access.
- Flared two-lane approach on A5-A444 link road (Site access) arm.

8.4 Of note, the NWBA model revealed significant issues with queueing on the Site access arm during both the AM and PM peak periods. Following this, and as part of the TA preparation, the design of the Site access arm was revised to include an extended flare.

8.5 The operation of the modified A5 / MIRA roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under 2031 '*Reference Case*' and '*Reference Case + Development + DS*' scenarios. The full output is included as Appendix 8 and summarised in Tables 8.1a and 8.1b.

8.6 Table 8.1a demonstrates that during the AM peak periods the roundabout will operate within capacity and that any impact arising from development proposals can be accommodated.

8.7 Of note, during the 08:00 – 09:00 period the A5 (west) arm operates close to capacity (i.e., RFC 1.00) in the '*Reference Case + Development + DS*' scenario. During this period, the development adds circa 8.8 vehicles to the queue on the A5 (west) arm but only 11.47 seconds to the overall junction delay.

8.8 Given, the A5 (west) arm has c. 1.2kms of two-lane approach, extending from the Redgate Island roundabout to the A5 / MIRA roundabout, the queue length under the '*Reference Case + Development + DS*' scenario during the 08:00 – 09:00 period would only use approximately 2% of this link length.

Table 8.1a A5 / MIRA Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
MIRA Drive	0.07	0.1	0.07	0.1	0.10	0.1
A5 (East)	0.67	2.0	0.79	3.7	0.61	1.6
Site Access	0.12	0.1	0.25	0.3	0.11	0.1
A5 (West)	0.67	2.0	0.76	3.1	0.62	1.6
JUNCTION DELAY (S)	4.95		7.51		4.27	
Reference Case + Development + DS						
MIRA Drive	0.09	0.1	0.09	0.1	0.12	0.1
A5 (East)	0.72	2.5	0.87	6.4	0.67	2.0
Site Access	0.46	0.9	0.53	1.1	0.34	0.5
A5 (West)	0.81	4.2	0.94	11.9	0.77	3.2
JUNCTION DELAY (S)	7.83		18.98		6.49	

8.9 Table 8.1b demonstrates that during the PM peak periods the roundabout will operate within capacity and that any impact arising from development proposals can be accommodated.

Table 8.1b A5 / MIRA Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
MIRA Drive	0.37	0.6	0.72	2.5	0.74	2.7
A5 (East)	0.51	1.1	0.59	1.4	0.56	1.3
Site Access	0.07	0.1	0.09	0.1	0.08	0.1
A5 (West)	0.55	1.2	0.68	2.1	0.55	1.2
JUNCTION DELAY (S)	3.64		6.25		5.70	

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case + Development + DS						
MIRA Drive	0.43	0.8	0.83	4.5	0.86	5.4
A5 (East)	0.53	1.1	0.60	1.5	0.59	1.4
Site Access	0.51	1.0	0.44	0.8	0.41	0.7
A5 (West)	0.62	1.6	0.73	2.7	0.62	1.7
JUNCTION DELAY (S)	4.73		8.86		9.02	

A444 Weddington Lane Roundabout

- 8.10 As detailed in Section 5 of the TA, the Site access proposals at the A444 Weddington Lane will comprise the following:
- Re-alignment of the A444 Weddington Lane to enable the provision of a 3-arm 45m ICD roundabout between the A444 and A5-A444 link road; and
 - The downgrading of Weddington Lane between the roundabout and the Redgate island, through Caldecote village to a local access road.
- 8.11 The operation of the A444 Weddington Lane roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 9 and summarised in Tables 8.2a and 8.2b.
- 8.12 Tables 8.2a and 8.2b demonstrate that during both the AM and PM peak periods the roundabout will operate within capacity and that any impact arising from development proposals can be accommodated.

Table 8.2a A444 / MIRA Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Weddington Lane	0.19	0.2	0.14	0.2	0.13	0.2
Site Access	0.05	0.1	0.10	0.1	0.06	0.1
A444 (South-East)	0.27	0.4	0.40	0.7	0.28	0.4
JUNCTION DELAY (S)	3.32		3.73		3.24	
Reference Case + Development + DS						
Weddington Lane	0.20	0.3	0.16	0.2	0.15	0.2
Site Access	0.12	0.1	0.14	0.2	0.11	0.1
A444 (South-East)	0.37	0.6	0.57	1.3	0.41	0.7
JUNCTION DELAY (S)	3.76		5.14		4.06	

Table 8.2b A444 / MIRA Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Weddington Lane	0.16	0.2	0.22	0.3	0.15	0.2
Site Access	0.09	0.1	0.14	0.2	0.12	0.1
A444 (South-East)	0.26	0.3	0.29	0.4	0.27	0.4
JUNCTION DELAY (S)	3.19		3.36		3.21	
Reference Case + Development + DS						
Weddington Lane	0.17	0.2	0.22	0.3	0.15	0.2
Site Access	0.20	0.2	0.23	0.3	0.19	0.2
A444 (South-East)	0.29	0.4	0.32	0.5	0.32	0.5
JUNCTION DELAY (S)	3.40		3.54		3.48	

A5 Watling Street / Higham Lane Roundabout

- 8.13 The operation of the A5 Watling Street / Higham Lane roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under 2031 '*Reference Case*' and '*Reference Case + Development + DS*' scenarios. The full output is included as Appendix 10 and summarised in Tables 8.3a and 8.3b.

Table 8.3a A5 Watling Street / Higham Lane Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Nuneaton Lane	0.39	0.6	0.42	0.7	0.23	0.3
A5 (East)	0.76	3.0	0.91	9.1	0.69	2.2
Higham Lane	0.45	0.8	0.68	2.1	0.41	0.7
A5 (West)	0.72	2.5	0.74	2.8	0.74	2.9
JUNCTION DELAY (S)	8.00		15.55		7.51	
Reference Case + Development + DS						
Nuneaton Lane	0.41	0.7	0.44	0.8	0.24	0.3
A5 (East)	0.82	4.4	0.99	23.6	0.76	3.0
Higham Lane	0.50	1.0	0.76	3.0	0.45	0.8
A5 (West)	0.77	3.3	0.78	3.5	0.79	3.6
JUNCTION DELAY (S)	10.19		30.05		9.24	

- 8.14 Table 8.3a demonstrates that during the AM peak periods the roundabout will operate within capacity during the 07:00 – 08:00 and 09:00 – 10:00 periods and that any impact arising from development proposals can be accommodated.
- 8.15 Whilst during the 08:00 – 09:00 period, the A5 Watling Street (East) arm operates close to capacity (i.e., 1.00) in both the '*Reference Case*' and '*Reference Case + Development + DS*' scenarios; during which the development adds an additional 14.5 vehicles queueing and 14.5 seconds to the overall junction delay.
- 8.16 Of note, the queue length under the '*Reference Case + Development + DS*' scenario during the 08:00 – 09:00 period would be fully contained within the c. 70m stretch of two-lane approach on the A5 Watling Street (East) arm.

Table 8.3b A5 Watling Street / Higham Lane Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Nuneaton Lane	0.20	0.2	0.24	0.3	0.16	0.2
A5 (East)	0.66	1.9	0.77	3.2	0.66	1.9
Higham Lane	0.38	0.6	0.45	0.8	0.39	0.6
A5 (West)	0.85	5.2	1.03	46.0	0.91	8.8
JUNCTION DELAY (S)	9.63		47.72		13.58	
Reference Case + Development + DS						
Nuneaton Lane	0.22	0.3	0.24	0.3	0.17	0.2
A5 (East)	0.69	2.1	0.78	3.4	0.70	2.3
Higham Lane	0.39	0.6	0.45	0.8	0.41	0.7
A5 (West)	0.93	11.4	1.10	94.8	0.96	17.1
JUNCTION DELAY (S)	16.94		86.63		22.82	

- 8.17 Table 8.3b demonstrates that during the PM peak periods the roundabout will operate within capacity during the 16:00 – 17:00 and 18:00 – 19:00 periods and that any impact arising from development proposals can be accommodated.
- 8.18 Whilst during the 17:00 – 18:00 period, the A5 Watling Street (West) arm operates over capacity in both the 'Reference Case' and 'Reference Case + Development + DS' scenarios during which the development adds an additional 48.8 vehicles queueing and 38.91 seconds to the overall junction delay. As per the NBWA model, which revealed queueing issues on the A5 Watling Street (West) during the PM peak period only.
- 8.19 Within the NBWA model results summary provided by VM, analysis has been undertaken on journey time by route. Of note, is Route 1 (Section 1 to 3) which extends from the A5 / B4111 / B4116 Mancetter Island junction, past the Redgate and MIRA Site roundabout to the Higham Lane roundabout.
- 8.20 These results reveal that the delay along this section of Route 1 (i.e., the A5) during the 17:00 – 18:00 period under the NBWA 'Reference Case' scenario is 535 seconds; this increases to 564 seconds with the inclusion of development. However, when including the mitigation detailed in Section 9, which largely relates to the Redgate Island roundabout, the overall delay along Route 1 decreases to 485 seconds.

- 8.21 Therefore, there is an overall reduction in journey time of 50 seconds along this section of Route 1. This offsets the increase in delay of 38.91 seconds on A5 Watling Street (North-West) arm during the 17:00 – 18:00 period. As such, no further mitigation is proposed at the A5 Watling Street / Higham Lane roundabout

A5 / A444 Redgate Island Roundabout

- 8.22 The operation of the A5 / A444 Redgate Island roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 11 and summarised in Tables 8.4a and 8.4b.

Table 8.4a A5 / A444 Redgate Island Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
A5 (East)	0.63	1.7	0.72	2.6	0.61	1.6
A444 Weddington Lane	0.38	0.6	0.68	2.1	0.41	0.7
A5 (West)	0.52	1.1	0.59	1.4	0.50	1.0
A444 Atherstone Road	1.06	26.4	0.82	4.0	0.76	3.0
JUNCTION DELAY (S)	32.84		11.26		7.95	
Reference Case + Development + DS						
A5 (East)	0.73	2.6	0.79	3.6	0.69	2.2
A444 Weddington Lane	0.44	0.8	0.77	3.2	0.46	0.9
A5 (West)	0.61	1.6	0.71	2.4	0.61	1.6
A444 Atherstone Road	1.39	88.4	1.24	43.0	1.01	15.2
JUNCTION DELAY (S)	93.76		47.44		21.77	

- 8.23 Table 8.4a demonstrates that during the AM peak periods both the A5 (East & West) arms of the roundabout will operate within capacity and any impact arising from development proposals can be accommodated on the A5 arms. However, the results of the NBWA model revealed a significant issue with queuing on the A5 (East) arm during the AM peak period.

- 8.24 Additionally, during the 07:00 – 08:00 period the A444 Atherstone Road arm operates over capacity under the 'Reference Case' scenario; with a queue of 26.4 vehicles and a delay 158.93 seconds.
- 8.25 The impact of the development on the A444 Atherstone Road, results in the arm operating over capacity during all the AM periods; with a max queue of 88.4 vehicles and a delay of 528.65 seconds during the 07:00 – 08:00 period.
- 8.26 During the AM periods, the overall junction delay is largest during the 07:00 – 08:00 period where the development results in an overall increase of 60.92 seconds; increasing the delay from 32.84 to 93.76 seconds.

Table 8.4b A5 / A444 Redgate Island Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
A5 (East)	0.66	1.9	0.80	4.0	0.81	4.1
A444 Weddington Lane	0.42	0.7	0.61	1.5	0.62	1.6
A5 (West)	0.55	1.2	0.68	2.1	0.54	1.2
A444 Atherstone Road	0.69	2.1	0.86	5.2	0.56	1.2
JUNCTION DELAY (S)	7.24		13.47		9.24	
Reference Case + Development + DS						
A5 (East)	0.82	4.5	0.92	10.0	0.91	9.3
A444 Weddington Lane	0.55	1.2	0.76	3.0	0.77	3.1
A5 (West)	0.58	1.4	0.70	2.3	0.61	1.6
A444 Atherstone Road	0.75	2.8	0.92	7.5	0.65	1.8
JUNCTION DELAY (S)	10.92		23.00		16.81	

- 8.27 Table 8.4b demonstrates that during the PM peak periods the roundabout will operate within capacity during the PM peak periods and that any impact arising from development proposals can be accommodated.
- 8.28 However, during the 17:00 – 18:00 period both the A5 (East) and A444 Atherstone Road arms operate close to capacity (i.e., RFC 1.00) under the 'Reference Case + Development + DS' scenario.

- 8.29 Due to the capacity constraints along the A5 (East) and A444 Atherstone Road arms, revealed within both the NBWA model and Tables 8.4a and 8.4b, it is thought that traffic is rat running along Woodford Lane and subsequently Drayton Lane to avoid long queues / delays. As such appropriate mitigation proposals are detailed in Section 9 to provide the Redgate Island roundabout with additional capacity.

A5 Watling Street / Woodford Lane

- 8.30 The operation of the A5 Watling Street / Woodford Lane junction has been modelled using PICADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 12 and summarised in Tables 8.5a and 8.5b.
- 8.31 As per the NBWA model, Tables 8.5a and 8.5b reveal that Woodford Lane operates significantly over capacity during both the AM and PM periods under both the 'Reference Case' and 'Reference Case + Development + DS' scenarios. This is likely due to insufficient gaps along the A5 Watling Street to allow traffic to egress Woodford Lane.

Table 8.5a A5 Watling Street / Woodford Lane– AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – C	0.13	0.2	>10.00	6.1	1.02	1.6
Stream B – A	0.72	1.7	>10.00	19.7	0.88	3.1
Stream C – AB	0.40	0.7	0.44	0.8	0.44	0.8
JUNCTION DELAY (S)	4.00		30.24		8.60	
DELAY (VEH/HR)	1.58		11.65		2.40	
Reference Case + Development + DS						
Stream B – C	>10.00	1669.74	>10.00	9.1	>10.00	7.8
Stream B – A	>10.00	1663.13	>10.00	42.6	>10.00	46.6
Stream C – AB	0.45	16.17	0.48	0.9	0.49	0.9
JUNCTION DELAY (S)	50.80		46.17		65.60	
DELAY (VEH/HR)	22.11		36.48		32.95	
*A = A5 Watling Street (South-East), B = Woodford Lane, and C = A5 Watling Street (North-West)						

Table 8.5b A5 Watling Street / Woodford Lane – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – C	1.14	5.4	7.23	23.0	0.37	0.6
Stream B – A	1.14	6.5	7.07	33.4	0.69	1.9
Stream C – AB	0.35	0.5	0.08	0.1	0.13	0.1
JUNCTION DELAY (S)	14.64		395.60		3.96	
DELAY (VEH/HR)	4.65		25.40		1.72	
Reference Case + Development + DS						
Stream B – C	>10.00	21.6	>10.00	26.6	2.70	41.5
Stream B – A	>10.00	31.7	>10.00	48.2	2.64	32.7
Stream C – AB	0.43	0.8	0.09	0.1	0.15	0.2
JUNCTION DELAY (S)	59.94		62.33		197.91	
DELAY (VEH/HR)	26.77		49.33		34.72	
*A = A5 Watling Street (South-East), B = Woodford Lane, and C = A5 Watling Street (North-West)						

- 8.32 As a result of the capacity constraints along the A5 / A444 within the NBWA model, it is thought that traffic is running along Woodford Lane and subsequently Drayton Lane to avoid long queues / delays. As such, when looked at in isolation, the A5 Watling Street / Woodford Lane give-way priority junction is well over capacity.
- 8.33 The proposed mitigation at the Redgate Island is thought to provide additional capacity along the A5 / A444 and therefore reduce the level of rat running along Woodford Lane. However, under the 'Reference Case + Development + DS' scenario this does not seem to be the case. As such, a signalised mitigation option for the A5 Watling Street / Woodford Lane junction is detailed within Section 9.

A5 Watling Street / Drayton Lane

- 8.34 The operation of the A5 Watling Street / Drayton Lane junction has been modelled using PICADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 13 and summarised in Tables 8.5a and 8.5b.

- 8.35 As per the NBWA model, Tables 8.5a and 8.5b reveal that Drayton Lane operates significantly over capacity during both the AM and PM periods under both the 'Reference Case' and 'Reference Case + Development + DS' scenarios. This is likely due to insufficient gaps along the A5 Watling Street to allow traffic to egress Drayton Lane.

Table 8.6a A5 Watling Street / Drayton Lane– AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – C	1.29	21.5	16.21	86.7	2.04	49.5
Stream B – A	1.24	8.3	15.71	37.9	1.98	34.4
Stream C – AB	0.16	0.2	0.32	0.5	0.30	0.4
JUNCTION DELAY (S)	38.89		1613.80		185.91	
DELAY (VEH/HR)	11.79		88.06		57.52	
Reference Case + Development + DS						
Stream B – C	>10.00	85.8	>10.00	125.9	27.40	106.7
Stream B – A	>10.00	30.9	>10.00	53.9	27.21	73.4
Stream C – AB	0.19	0.2	0.39	0.6	0.34	0.5
JUNCTION DELAY (S)	116.90		231.29		1827.87	
DELAY (VEH/HR)	78.82		134.34		135.60	
*A = A5 Watling Street (North-West), B = Drayton Lane, and C = A5 Watling Street (South-East)						

Table 8.6b A5 Watling Street / Drayton Lane – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – C	3.00	43.1	>10.00	76.4	1.46	17.0
Stream B – A	2.94	27.0	>10.00	36.3	1.45	15.3
Stream C – AB	0.40	0.7	0.51	1.0	0.46	0.8
JUNCTION DELAY (S)	225.53		113.26		42.88	
DELAY (VEH/HR)	40.06		77.83		14.06	
Reference Case + Development + DS						
Stream B – C	>10.00	64.5	>10.00	83.9	7.52	41.9
Stream B – A	>10.00	41.4	>10.00	39.3	7.36	38.4
Stream C – AB	0.43	0.7	0.53	1.1	0.49	0.9
JUNCTION DELAY (S)	113.33		132.06		606.22	
DELAY (VEH/HR)	75.24		91.50		49.40	
*A = A5 Watling Street (North-West), B = Drayton Lane, and C = A5 Watling Street (South-East)						

- 8.36 In a comparable way to the A5 Watling Street / Woodford Lane junction, it is thought that traffic is rat running along Drayton Lane to avoid the capacity constraints along the A5 / A444 within the NBWA model.
- 8.37 The proposed mitigation at the Redgate Island is thought to provide additional capacity along the A5 / A444 and therefore reduce the level of rat running along Drayton Lane. However, under the 'Reference Case + Development + DS' scenario this does not seem to be the case. As such, a signalised mitigation option for the A5 Watling Street / Drayton Lane junction is detailed within Section 9.

A5 / B4111 / B4116 Mancetter Island

- 8.38 At the A5 / B4111 / B4116 Mancetter Island junction, the NBWA model revealed a moderate issue with queuing on the B4116 Watling Street during the AM peak only.
- 8.39 To solely focus on the interaction between Watling Street and the A5, the operation of the junction has been modelling using PICADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 14 and summarised in Tables 8.7a and 8.7b.

8.40 Tables 8.7a and 8.7b demonstrate that the junction will continue to operate within capacity during the AM and PM peak periods inclusive of the impact of the development proposals. As such, no mitigation is proposed at this junction.

Table 8.7a A5 / B4116 Watling Street – AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.24	0.3	0.32	0.5	0.28	0.4
Stream C – AB	0.00	0.0	0.00	0.0	0.00	0.0
JUNCTION DELAY (S)	0.69		0.82		1.08	
Reference Case + Development + DS						
Stream B – AC	0.37	0.6	0.50	1.0	0.42	0.7
Stream C – AB	0.00	0.0	0.00	0.0	0.00	0.0
JUNCTION DELAY (S)	1.20		1.64		1.60	
*A = A5 South-East, B = B4116 Watling Street, and C = A5 North-West						

Table 8.7b A5 / B4116 Watling Street – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.32	0.5	0.31	0.4	0.25	0.3
Stream C – AB	0.00	0.0	0.00	0.0	0.00	0.0
JUNCTION DELAY (S)	1.08		0.90		0.80	
Reference Case + Development + DS						
Stream B – AC	0.36	0.6	0.33	0.5	0.32	0.5
Stream C – AB	0.00	0.0	0.00	0.0	0.00	0.0
JUNCTION DELAY (S)	1.23		1.00		1.08	
*A = A5 South-East, B = B4116 Watling Street, and C = A5 North-West						

B4111 Nuneaton Road / Woodford Lane

8.41 The B4111 Nuneaton Road / Woodford Lane junction has been modelled using PICADY based on the weekday AM / PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 15 and summarised in Tables 8.8a and 8.8b.

Table 8.8a B4111 Nuneaton Road / Woodford Lane – AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.46	0.8	0.43	0.8	0.55	1.2
Stream C – AB	0.29	0.7	0.10	0.2	0.14	0.3
JUNCTION DELAY (S)	3.78		2.57		4.10	
Reference Case + Development + DS						
Stream B – AC	0.52	1.1	0.48	0.9	0.60	1.5
Stream C – AB	0.42	1.1	0.17	0.5	0.21	0.5
JUNCTION DELAY (S)	4.98		3.12		4.98	
*A = B411 Nuneaton Road (North), B = Woodford Lane, and C = Nuneaton Road (South)						

Table 8.8b B4111 Nuneaton Road / Woodford Lane – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.45	0.8	0.31	0.4	0.62	1.6
Stream C – AB	0.27	0.7	0.30	0.9	0.46	1.3
JUNCTION DELAY (S)	3.03		1.94		6.33	
Reference Case + Development + DS						
Stream B – AC	0.53	1.1	0.37	0.6	0.73	2.6
Stream C – AB	0.31	0.8	0.33	1.0	0.53	1.7
JUNCTION DELAY (S)	3.88		2.37		9.35	
*A = B411 Nuneaton Road (North), B = Woodford Lane, and C = Nuneaton Road (South)						

- 8.42 The NBWA model revealed significant queuing on Woodford Lane during the PM peak period. However, Tables 8.8a and 8.8b demonstrate that the junction will continue to operate within capacity during the AM and PM peak periods inclusive of the impact of the development proposals. As such, no mitigation is proposed at this junction.

B4114 Chapel End Crossroads

- 8.43 The B4114 Chapel End Crossroads junction has been modelled using PICADY based on the weekday AM and PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 16 and summarised in Tables 8.9a and 8.9b.
- 8.44 Table 8.9a reveals that during the 08:00 – 09:00 peak period the Bucks Hill arm of the crossroads operates over capacity under both 'Reference Case' and 'Reference Case + Development + DS' scenarios; this is consistent with the results of the NBWA model. The development results in an additional 7.4 vehicles queueing on Bucks Hill and an increase to the arms delay of 48.41 seconds during the 08:00 – 09:00 period.
- 8.45 However, the impact of the development on the remaining 3 arms of the crossroads junction is minimal with a minimal increase in overall junction delay of 2.3, 13.44, and 3.8 seconds during the 07:00 – 08:00, 08:00 – 09:00, and 09:00 – 10:00 periods, respectively.

Table 8.9a B4114 Chapel End Crossroads – AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – ACD	0.71	2.3	1.08	25.6	0.86	5.1
Stream A – BCD	0.07	0.1	0.20	0.4	0.10	0.2
Stream D – ABC	0.36	0.6	0.72	2.4	0.46	0.8
Stream C – ABD	0.19	0.4	0.36	0.8	0.36	0.9
JUNCTION DELAY (S)	9.30		57.16		16.62	
Reference Case + Development + DS						
Stream B – ACD	0.77	3.1	1.12	33.0	0.90	6.6
Stream A – BCD	0.07	0.1	0.20	0.4	0.10	0.2
Stream D – ABC	0.39	0.6	0.75	2.8	0.49	0.9
Stream C – ABD	0.19	0.4	0.36	0.9	0.37	0.9
JUNCTION DELAY (S)	11.60		70.60		20.42	
*A = B4114 Camp Hill Road, B = Bucks Hill, C = B4114 Coleshill Road, and D = Victoria Road						

Table 8.9b B4114 Chapel End Crossroads – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – ACD	0.85	4.7	1.08	21.3	0.87	5.3
Stream A – BCD	0.18	0.4	0.25	0.7	0.26	0.7
Stream D – ABC	0.63	1.6	0.80	3.5	0.71	2.3
Stream C – ABD	0.44	1.1	0.53	1.6	0.37	0.8
JUNCTION DELAY (S)	16.91		48.59		18.36	
Reference Case + Development + DS						
Stream B – ACD	0.87	5.4	1.10	24.7	0.92	7.5
Stream A – BCD	0.18	0.4	0.26	0.7	0.27	0.7
Stream D – ABC	0.66	1.9	0.84	4.3	0.77	3.0
Stream C – ABD	0.45	1.1	0.54	1.7	0.37	0.9
JUNCTION DELAY (S)	18.96		55.34		24.20	
*A = B4114 Camp Hill Road, B = Bucks Hill, C = B4114 Coleshill Road, and D = Victoria Road						

- 8.46 As per the AM period, Table 8.9b reveals that during the 17:00 – 18:00 peak period the Bucks Hill arm of the crossroads operates over capacity under both 'Reference Case' and 'Reference Case + Development + DS' scenarios. During this time period the development results in an additional 3.4 vehicles queueing on Bucks Hill and an increase to the arms delay of 27.17 seconds.
- 8.47 Once again, the impact of the development on the remaining 3 arms of the crossroads junction is minimal with a minimal increase in overall junction delay of 2.05, 6.75, and 5.84 seconds during the 16:00 – 17:00, 17:00 – 18:00, and 18:00 – 19:00 periods, respectively.
- 8.48 Considering the negligible increase in overall junction delay during the AM and PM peak periods no mitigation proposals are proposed for this junction.

B4114 Camp Hill Road / B4111 Tuttle Hill

- 8.49 The B4114 Camp Hill Road / B4111 Tuttle Hill junction has been modelled using PICADY based on the weekday AM / PM peak hourly periods under 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 17 and summarised in Tables 8.10a and 8.10b.

Table 8.10a B4114 Camp Hill Road / B4111 Tuttle Hill – AM Peak Periods

Arm*	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.73	2.6	0.95	10.1	0.88	5.8
Stream C – AB	0.51	1.0	0.77	3.3	0.63	1.7
JUNCTION DELAY (S)	8.96		26.87		16.32	
Reference Case + Development + DS						
Stream B – AC	0.78	3.3	1.01	16.0	0.92	8.2
Stream C – AB	0.52	1.1	0.78	3.6	0.63	1.7
JUNCTION DELAY (S)	10.60		36.75		21.28	
*A = B4114 Camp Hill Road, B = B4111 Mancetter Road, and C = B4114 Tuttle Hill						

Table 8.10b B4114 Camp Hill Road / B4111 Tuttle Hill – PM Peak Periods

Arm*	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Stream B – AC	0.83	4.3	1.19	51.0	0.97	11.3
Stream C – AB	0.53	1.1	0.67	2.1	0.61	1.5
JUNCTION DELAY (S)	12.12		86.43		25.22	
Reference Case + Development + DS						
Stream B – AC	0.89	6.3	1.25	64.4	1.09	27.5
Stream C – AB	0.54	1.1	0.67	2.1	0.61	1.6
JUNCTION DELAY (S)	16.43		111.91		51.30	
*A = B4114 Camp Hill Road, B = B4111 Mancetter Road, and C = B4114 Tuttle Hill						

8.50 Table 8.10a reveals that during the 08:00 – 09:00 peak period the B4111 Mancetter Road arm of the junction operates close to and then over capacity under the 'Reference Case' and 'Reference Case + Development + DS' scenarios, respectively. The development results in an additional 5.9 vehicles queueing on B4111 Mancetter Road arm and an increase to the arms delay of 40.65 seconds during the 08:00 – 09:00 period.

- 8.51 However, the overall impact of the development on the B4114 Camp Hill Road / B4111 Tuttle Hill junction during the AM period is negligible, with a minimal increase in overall junction delay of 1.64, 9.88, and 4.96 seconds during the 07:00 – 08:00, 08:00 – 09:00, and 09:00 – 10:00 periods, respectively.
- 8.52 Table 8.10b reveals that in the 17:00 – 18:00 period the B4111 Mancetter Road arm of the junction operates over capacity under both the '*Reference Case*' and '*Reference Case + Development + DS*' scenarios with an additional 13.4 vehicles queueing and an increase in delay of 90.5 seconds as a result of the development. During the 18:00 – 19:00 period the B4111 Mancetter Road arm also operates close to capacity under the '*Reference Case*' and over capacity during the '*Reference Case + Development + DS*' scenario with an additional 16.2 vehicles queueing and an increase in delay of 102.78 seconds as a result of the development.
- 8.53 As per the AM periods, the overall impact of the development on the B4114 Camp Hill Road / B4111 Tuttle Hill junction during the PM period is negligible, with a minimal increase in overall junction delay of 4.31, 25.48, and 26.08 seconds during the 16:00 – 17:00, 17:00 – 18:00, and 18:00 – 19:00 periods, respectively. These results align with the NBWA model which revealed a moderate issue with queueing on the B4111 Mancetter Road during both the AM and PM peak periods. However, given the negligible increase in overall junction delay during both peak periods no mitigation proposals are proposed for this junction.

A444 / Coton Road Roundabout

- 8.54 The A444 / Coton Road roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under the 2031 '*Reference Case*' and '*Reference Case + Development + DS*' scenarios. The full output is included as Appendix 18 and summarised in Tables 8.11a and 8.11b.
- 8.55 Tables 8.11a and 8.11b demonstrate that the junction will continue to operate within capacity during the AM and PM peak periods inclusive of the impact of the development proposals.
- 8.56 Of note, the A444 Vicarage Street arm operates close to capacity during the 08:00 – 09:00 period under both the both the '*Reference Case*' and '*Reference Case + Development + DS*' scenarios. However, the impact of the development is negligible with the addition of 1.3 vehicles queueing and 2.92 seconds to the arms delay.
- 8.57 Although the NBWA model revealed significant queuing on the A444 Coton Road arm during the PM peak period, Table 8.11b reveals sufficient capacity on the arm during the PM peak periods inclusive of development.
- 8.58 The overall impact of the development on the A444 / Coton Road roundabout is negligible, with an average overall increase in junction delay of 0.76 and 0.70 seconds during the AM and PM peak periods, respectively. As such, no mitigation works have been identified.

Table 8.11a A444 / Coton Road Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Coton Road	0.04	0.0	0.07	0.1	0.15	0.2
A444 Vicarage Street	0.72	2.5	0.87	6.3	0.77	3.3
A444 Coton Road	0.39	0.6	0.64	1.8	0.75	2.9
A444 Roanne Ringway	0.45	0.8	0.57	1.3	0.53	1.1
JUNCTION DELAY (S)	4.96		9.22		7.16	
Reference Case + Development + DS						
Coton Road	0.04	0.0	0.07	0.1	0.16	0.2
A444 Vicarage Street	0.71	2.4	0.89	7.6	0.79	3.7
A444 Coton Road	0.42	0.7	0.68	2.1	0.79	3.6
A444 Roanne Ringway	0.42	0.7	0.60	1.5	0.55	1.2
JUNCTION DELAY (S)	4.62		10.76		8.25	

Table 8.11b A444 / Coton Road Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Coton Road	0.24	0.3	0.27	0.4	0.12	0.1
A444 Vicarage Street	0.75	2.9	0.74	2.9	0.64	1.8
A444 Coton Road	0.71	2.4	0.68	2.1	0.64	1.8
A444 Roanne Ringway	0.43	0.7	0.45	0.8	0.42	0.7
JUNCTION DELAY (S)	6.25		6.09		4.79	
Reference Case + Development + DS						
Coton Road	0.25	0.3	0.27	0.4	0.14	0.2
A444 Vicarage Street	0.79	3.6	0.77	3.4	0.71	2.4
A444 Coton Road	0.72	2.5	0.68	2.1	0.65	1.9
A444 Roanne Ringway	0.43	0.8	0.45	0.8	0.46	0.8
JUNCTION DELAY (S)	7.00		6.61		5.63	

A444 / Church Street Roundabout

- 8.59 The A444 / Church Street roundabout has been modelled using ARCADY based on the weekday AM and PM peak hourly periods under the 2031 'Reference Case' and 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 19 and summarised in Tables 8.12a and 8.12b.
- 8.60 Table 8.12a demonstrates that the junction will operate within capacity during the peak periods inclusive of the impact of the development proposals. Of note, the A444 Vicarage Street arm operates close to capacity during the 08:00 – 09:00 period under both the both the 'Reference Case' and 'Reference Case + Development + DS' scenarios. However, the impact of the development is negligible with the addition of 5.1 vehicles queueing and 10.99 seconds of delay.
- 8.61 The overall impact of the development on the A444 / Church Street roundabout during the AM period is negligible, with a decrease in overall junction delay of 0.57 seconds during the 07:00 – 08:00 period, and an increase of 5.75 and 1.74 seconds during the 08:00 – 09:00, and 09:00 – 10:00 periods, respectively.

Table 8.12a A444 / Church Street Roundabout – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Church Street (N)	0.00	0.0	0.00	0.0	0.00	0.0
A444 Vicarage St (E)	0.82	4.3	0.94	12.0	0.83	4.8
Church Street (S)	0.41	0.7	0.72	2.5	0.71	2.3
A444 Vicarage St (W)	0.44	0.8	0.61	1.6	0.67	2.0
JUNCTION DELAY (S)	8.53		18.46		10.29	
Reference Case + Development + DS						
Church Street (N)	0.00	0.0	0.00	0.0	0.00	0.0
A444 Vicarage St (E)	0.81	4.1	0.96	17.1	0.86	5.8
Church Street (S)	0.44	0.8	0.76	3.0	0.74	2.7
A444 Vicarage St (W)	0.44	0.8	0.66	2.0	0.70	2.3
JUNCTION DELAY (S)	7.96		24.21		12.03	

- 8.62 Table 8.12b demonstrates that during the PM peak periods the roundabout will continue to operate within capacity and that any impact arising from development proposals can be accommodated.
- 8.63 Although the NBWA model revealed significant queuing on the Church Street (South) arm during the PM peak period, Table 8.12b reveals sufficient capacity on the arm during the PM peak periods inclusive of development.
- 8.64 The overall impact of the development on the A444 / Church Street roundabout during the PM period is negligible, with an increase in overall junction delay of 1.96, 0.96, and 0.49 seconds during the 16:00 – 17:00, 17:00 – 18:00, and 18:00 – 19:00 periods, respectively. As such, no mitigation works have been identified.

Table 8.12b A444 / Church Street Roundabout – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case						
Church Street (N)	0.00	0.0	0.00	0.0	0.00	0.0
A444 Vicarage St (E)	0.79	3.7	0.76	3.0	0.67	2.0
Church Street (S)	0.65	1.8	0.66	1.9	0.53	1.1
A444 Vicarage St (W)	0.67	2.0	0.69	2.2	0.62	1.6
JUNCTION DELAY (S)	8.52		8.07		5.91	
Reference Case + Development + DS						
Church Street (N)	0.00	0.0	0.00	0.0	0.00	0.0
A444 Vicarage St (E)	0.85	5.3	0.79	3.8	0.70	2.3
Church Street (S)	0.68	2.1	0.69	2.2	0.55	1.2
A444 Vicarage St (W)	0.68	2.1	0.70	2.3	0.64	1.7
JUNCTION DELAY (S)	10.48		9.03		6.40	

9. Mitigation & Enhancement

Travel Plan Interventions / Smarter Choices

- 9.1 The Framework Travel Plan (FTP) that accompanies the TA describes in full the sustainable travel initiatives and measures that are to be implemented in conjunction with the proposed development on the MIRA Technology Park South Site, the principal objectives of which are to:
- Minimise travel by private car where practically possible, to achieve fewer trips from the development than would otherwise have been the case.
 - Encourage safe and viable alternatives to the private car that minimise the environmental impact on the surrounding community through the promotion of attractive, safe, viable and efficient modes.
 - Achieve a reduction in congestion on surrounding roads and effect of development-related traffic (cars and HGVs) on emissions, noise, visual intrusion and road traffic accidents.
 - Ensure people are aware of their travel options as well as creating a safe and accessible location for people to work and visit.
 - Have a positive long-term impact on the environment and personal health.
- 9.2 Through sustainable design and location, the Site-wide community will be able to access a broad range of local facilities and services by foot and cycle. This will include the on-site Country Park and Outdoor Gym facilities as well as interactive personalised travel planning. These elements will be a key focus of the material included within the Travel Information Pack (TIP).
- 9.3 The Site Wide Travel Plan Coordinator (TPC) will work closely with the Sales and Marketing team to ensure that they are aware of the role of the TP. In this way, prospective purchasers of each building within the development will be provided with information about the benefits of the TP and the Site's accessibility by sustainable modes of transport prior to occupation within the Site. This measure will encourage the use of sustainable modes of transport from initial occupation.
- 9.4 The Site Wide TPC will also provide website links that each building occupier and their Travel Plan representatives can then use to promote specific travel initiatives, events and offers, provide information regarding the public bus services, routes, prices, timetable changes and other travel news as well as to highlight suitable formal and recreational walking and cycle routes within the local area and links to key local services / amenities and leisure route / opportunities.
- 9.5 The website links will be continually monitored by the Site Wide TPC in conjunction with the building occupiers and their Travel Plan representatives to ensure that all information provided is up to date. It is proposed that alerts to any changes in the information contained within the links can also be publicised on individual businesses Facebook/Twitter pages as well as, if recipients wish, by email.
- 9.6 The Site Wide TPC will also ensure that concise travel information is made available to the Travel Plan representatives that can then be issued to visitors in advance of them travelling to the Site through their website, by promotional flyer or by email.
- 9.7 The Site Wide TPC will produce a TIP that can be made available to each employee of each individual building occupier via their Travel Plan representative.

- 9.8 The TIP will contain up to date details of public transport services, the location of bus stops, timetable information and the most practical routes to access these facilities. In addition, the TIP will contain comprehensive details of safe pedestrian and cycle routes. The TIP will also provide promotional material highlighting the health benefits of walking and cycling. In addition, they will provide details of relevant contact addresses, telephone numbers, websites including the local authorities, public transport operators, local cycle forums and taxi companies.
- 9.9 Details contained within the TIP will be replicated and posted on the main staff notice board within each respective building. The TPC will also highlight to all employees that the travel information is made available of the MIRA Technology Park website. The information within the TIP will be monitored and reviewed to ensure that it is kept current. Regular updates will be circulated to employees when any significant changes are implemented.
- 9.10 To maximise the potential usage of public transport, the Site Wide TPC will collaborate closely with the Council and the public transport operators to provide the requisite infrastructure and services. In so doing the key to the success of public transport as a viable mode of travel will be to ensure that:
- Services are frequent and punctual to match the travel demands.
 - Boarding points are convenient to the areas of population that they serve.
 - Bus stop infrastructure and vehicles facilitate step free access.
 - Vehicles on routes serving the Site are modern, encompassing modern technologies on comfort, noise, emissions as well as the provision of passenger waiting facilities designed to reduce crime and the fear of crime, incorporating appropriate safety features, lighting and comfort.
 - That the marketability of services is maximised, possibly through the use of easily distinguishable vehicles branded to reflect the service being provided, as well as comprehensive and accurate information for passenger concerning services and facilities.
- 9.11 Through the circulation of the TIP via each building occupier and their Travel Plan representatives, all employees will be offered either free or discounted taster tickets for a time-limited period to encourage uptake of public transport services. The purpose being to make use of the ticket as a means of familiarising themselves with the services and associated facilities available.
- 9.12 In exchange, employees who take up the offer of the free / discounted taster tickets will be required to make a commitment to completing a short travel diary to illustrate the extent to which the offer had a bearing on their travel patterns and future travel options.
- 9.13 In addition, details of the connecting rail services operating from Nuneaton railway station will be included within the introductory TIP and within the range of media platforms, including links to relevant journey planning websites.
- 9.14 Promoting cycling as a mode of sustainable travel is key to encouraging a modal shift away from cars being the dominant form of transport. As detailed in Section 5 of the TA, the Site has a range of cycling infrastructure deliverables that are phased over the lifetime of the development including the creation of a segregated footway / cycleway along the A5-A444 Link Road, the Weddington Walk Link, the extension of the shared footway / cycleway and provision of a controlled crossing on the A444 Weddington Lane as well as enhancement works to the Public Rights of Way that cross the Site.

- 9.15 Cycle parking is a key deliverable and will be delivered to at least the minimum standards as set out within NWDC Adopted Local Plan policy.
- Class E Offices (ancillary) – 1 per 200sqm
 - Class E Research & Development – no standard identified (aim to apply Class E Office standard above)
 - Class B2 Industrial – 1 per 500qm
 - Class B8 Warehousing (ancillary) – 1 per 1,000sqm
- 9.16 Recognising the need to prioritise this mode of travel it is acknowledged that it is not just the quantity of cycle parking provided for each land use but also the quality of such provision in respect of location, convenience and security. Cycle parking will be located close to the main entrance of the respective building where natural surveillance is available. Both long term spaces (staff) and short-term spaces (customers / visitors) will be secure (using 'Sheffield-type' stands), covered and lit. The Site Wide TPC will continuously monitor demand for cycle parking and review the need for alterations to the proposed level of provision on a biannual basis.
- 9.17 In support of the long term (staff) cycle spaces, showers, changing and equipment storage facilities will be provided in the respective buildings. Short term (customer / visitor) spaces will be clearly signed.
- 9.18 All cycle parking spaces will be directly accessible from the dedicated, wide segregated footway / cycleway along the A5-A444 link road that in turn directly connects with the external infrastructure along the A5 corridor, Weddington Walk and the A444 Weddington Lane.
- 9.19 The Site Wide TPC will also work with each building occupier and their Travel Plan representatives to encourage the implementation of a cycle loan / hire scheme for employee use. The cycle loan / hire scheme encourages employers to purchase cycles outright then lease them to employees for a small weekly contribution. At the end of the scheme (at the employer's discretion) the loaned cycles can be sold to the employees at a reduced price.
- 9.20 Alternatively, the employers can provide interest free loans to those employees who wish to purchase cycle / cycle equipment outright. Those employees who use their own bicycles for work purposes (excluding commutes to / from work) will be reminded that they can claim tax free mileage.
- 9.21 Alongside each building occupier and their Travel Plan representatives, the Site Wide TPC will monitor and enforce the proper use of the on-site car parking including the priority car share parking spaces and disabled parking, the aim of which will be to enforce any restrictions that may be put in place and maximise efficiency in each of the respective parking areas.
- 9.22 The Site Wide TPC will consult with each building occupier and their Travel Plan representatives to promote a site-wide car share scheme for the use of all employees. The car share scheme will promote the benefits of reduced travel costs and will seek to match employees who live near each other and who work similar hours and patterns. Staff will also be made aware of the benefits of membership of the county-wide car share schemes e.g., www.leicestershare.com and www.warwickshire.gov.uk/carshare.

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- 9.23 Priority car parking, located closer to the main pedestrian entrances to each of the buildings, is to be provided for car sharers. The Site Wide TPC will work alongside each building occupier and their Travel Plan representatives in regard to the management and enforcement of the use of such priority car parking spaces.
- 9.24 The Site Wide TPC will work with each building occupier and their Travel Plan representatives to ensure that Company vehicles or funded journeys home by taxi can be provided for staff that, for reasons outside their control, are unable to travel home with a car share partner and would otherwise be without safe transport home.
- 9.25 The Site Wide TPC will encourage each building occupier and their Travel Plan representatives to maximise the potential to coordinate working hours for employees living close to each other, where possible, in order to maximise the potential for take up of the car share scheme.
- 9.26 The Site Wide TPC will also work with Travel Plan representatives concerning the introduction of working practices that minimise the number of car journeys made by staff within the context of practicability and where it does not affect the core business of the building occupiers. This could be delivered through company policies in respect of company car leasing and associated allowances as well as opportunities for carpooling.
- 9.27 Each building occupier and their Travel Plan representatives will be encouraged, where practical, to include working practices that enable employees and visitors to schedule the timing of meetings on and off-site that avoids the need to travel during peak periods of vehicular activity on the wider highway network.
- 9.28 The Site Wide TPC will organise personalised travel planning sessions through each building occupier and their Travel Plan representatives that, on request, will provide a tailored travel planning service for employees, highlighting the most sustainable transport choices for long and short distance journeys.
- 9.29 Notice boards will be placed in prominent locations throughout the Site, including building receptions, bus stops, and the amenity park. The notice boards will be highly visible to workers and visitors and will be updated by the Site Wide TPC who will use them to promote sustainable transport events and to provide notifications of any new or changes to local services and infrastructure as well as promotional events.
- 9.30 The Site Wide TPC will encourage each building occupier through their Travel Plan representatives to promote recruitment / relocation policies aimed at ensuring that appropriately qualified employees are, where possible, living in the local area thereby maximising opportunities for future employees to travel to work by means other than the private car.
- 9.31 Based on the above, Table 9.1 provides a summary of the identified Travel Plan interventions that are aimed at improving smarter travel choices and reducing the need to travel by private vehicle.

Table 9.1 Summary of Mitigation Package – Travel Plan Interventions / Smarter Choices

Action	Timescale
Recruit Site Wide TPC	Prior to first occupation of any part of the development
Commence Travel Plan operations	Within one month of the Site Wide TPC post being fulfilled
Recruit Travel Plan Representatives	Upon first occupation of the building, the Site Wide TPC to work with building occupiers to ensure post is fulfilled
Initiate Travel Plan Liaison Committee	Within six months of the Site Wide TPC post being fulfilled and repeated twice annually thereafter
Initiate employees briefing meetings	Within one month of occupation with process to be repeated thereafter one month prior to TP review
Issue travel survey, review & monitor uptake of initiatives and identify requirements for changes to the Travel Plan format	Within ten months following implementation of the Travel Plan and then two months prior to TP review thereafter
Review results of data collection and update Travel Plan to reflect responses, formalise targets and set a detailed timetable for implementation of initiatives	Within eleven months following implementation of the Travel Plan and then one month prior to TP review thereafter. Snapshot survey in Years 1 and 3. Full survey in Year 5.
Prepare monitoring and review report and submit to LPA	Summary review in Years 1 & 3. Full review in Year 5.
Website links for Travel Information on MTP & individual Company websites, incl. e-flyers / email templates for visitors	Prior to full implementation of Travel Plan – updated during the Travel Plan period to ensure information is current
Organise formal launch of Travel Plan – consider ways in which this can be high profile to maximise interest, e.g., use of Outdoor Gym / Country Park to promote active travel modes	Upon full implementation of Travel Plan plus additional sessions to be organised on building occupations
Identify Travel Plan representatives and initiate Travel Plan Liaison Committee (TPLC)	Upon first occupation of the building to work with building occupiers to ensure post is fulfilled. First TPLC to be held within first six months and repeated twice annually thereafter
Distribute Travel Information Packs (TIPs) incl. details of car sharing schemes and free / discounted PT taster tickets	Within one month of occupation of the individual building
Send out invitations to employees for briefing meeting	Upon occupation of each building and repeated two months prior to TP review
Hold briefing meeting to inform employees of Travel Plan processes	Within one month of occupation with process to be repeated thereafter one month prior to TP review
Implementation of cycle infrastructure, parking and support facilities within buildings as well as notice boards	Phased implementation prior to the occupation of each individual building
Implementation of car parking management regime	Phased implementation upon occupation of building – coordinated with occupier / Travel Plan representative
Launch Car Share Scheme & guaranteed lift home arrangements for stranded car sharers	Within 3 months of full implementation of Travel Plan – phased implementation on occupation of buildings
Launch Personalised Travel Planning Sessions	Introduced at Employee Briefing Meetings

9.32 The FTP identifies targets in the form of both short and long-term objectives.

- Target 1:

- Reduce the mode share associated with employees travelling in single occupancy vehicles (SOVs) to less than 67% within 3 years of implementing the Travel Plan and less than 62% within 5 years.

- Target 2:

- Double the mode share of workforce travelling by public transport within 3 years of implementing the Travel Plan and achieve an overall increase in mode share percentage by public transport by a minimum of 5% within 5 years.

- Target 3:

- Double the percentage of staff travelling to work by cycle over a period of 5 years post the implementation of the Travel Plan to a minimum of 5%.

9.33 Based upon these above, Table 9.2 summarises the projected Year 1, 3 & 5 Travel Plan mode split targets for the MIRA Technology Park – South Site.

Table 9.2 Indicative Travel Plan Mode Split Targets

Mode of Travel	Baseline Modal Split	Target Modal Split – Year 1	Target Modal Split – Year 3	Target Modal Split – Year 5
Public Transport	2.6%	4.0%	6.0%	8.0%
Taxi	0.2%	0.5%	0.75%	1.0%
Motorcycle	0.8%	1.0%	1.25%	1.5%
Car Driver	74.4%	71.0%	66.5%	61.5%
Car Passenger	7.9%	8.5%	9.0%	10.0%
Cycle	2.5%	3.0%	4.0%	5.0%
Walk	11.1%	11.5%	12.0%	12.5%
Other	0.5%	0.5%	0.5%	0.5%
TOTALS	100.0%	100.0%	100.0%	100.0%

9.34 In the event that targets are not met, the Site Wide TPC will ensure that corrective measures are put in place in consultation with the Council that will comprise:

- Step 1:

- A review meeting with the NWDC / WCC / NH to determine what measures can be taken to further reduce travel-related impacts and achieve a greater take up / reinforcement of the measures and incentives included within the TP.

- Step 2:
 - Bringing forward the implementation of TP measures or other mitigation measures allocated to future phases of development (if targets are not met during the early years of development).
- Step 3:
 - The identification and implementation of additional TP measures to those already identified (if targets are not being met towards the completion of the development).
- Step 4:
 - An increase to the TP budget by 20% to fund additional marketing and communication to promote the existing opportunities to travel sustainably.

Pedestrians & Cyclists

- 9.35 This section details the proposed on- and off-site mitigation targeted at maximising opportunities for directly and safely accommodating pedestrians / cyclists and reducing the need to travel by private vehicle.
- 9.36 The freedom of movement for pedestrians and cyclists both within and through the Site is a priority of the proposed development. Specifically, regarding the provision of new and improved infrastructure for pedestrians and cyclists, comprising the following:
- The creation of a high-quality environment within the Site that provides direct connections to origins and destinations within the developable area and beyond that are permeable, coherent, safe and reflect the desire lines of movement.
 - The protection and enhancement of Public Right of Way routes both within and in the vicinity, integrated into the network of new infrastructure within the Site.

On-Site Infrastructure

- 9.37 The principal access corridors for pedestrians and cyclists will be lit. Crossing points are intended to be uncontrolled and will tie in with desire lines of movement with refuge islands provided where appropriate.
- 9.38 Formal cycleways will take the form of segregated, stepped off-highway two-way routes that are designed to accord with the principles of LTN1/20 and will be 3.0m in width (1.5m in each direction). Cycleways will be separated from footways by way of a 60mm upstand.
- 9.39 The footways will be provided to a width of at least 2.0m within the Site. Footways will generally be provided on both sides of all primary, secondary, and tertiary streets within the Site.

Public Rights of Way (PROW) Improvement Plan

- 9.40 In addition to the on-site formal pedestrian / cycle infrastructure, the Site will also deliver a comprehensive improvement plan for the existing PROW network in proximity to the Site.
- 9.41 As illustrated on Drawing No. 17059/PROW/01 (Appendix 2), the PROW Improvement Plan will comprise:

- The extinguishment of the initial section of Footpath 144/AE189/1 (c. 250m), to be replaced by the segregated footway / cycleway which will provide an active travel link from the Site to the Weddington Walk / National Cycle Route 52. As well as, providing access to the network of informal recreational paths around the perimeter of the Site.
- Retention & upgrading of the central section (c. 300m) of Footpath 144/AE189/1 to form part of the network of informal recreational paths around the perimeter of the Site.
- The diversion of c. 200m of Footpath 144/AE190/1 to enable the enhancement of the perimeter hedgerows to create structure to the Site boundaries. Along with the enhancement of Footpath 144/AE190/1.
- Additional recreational footpaths within the perimeter of the Site.

Highway Mitigation

- 9.42 This section details the proposed off-site mitigation works to be undertaken as part of the development proposals to address the development-related impact on the local highway network.

A5 / A444 Redgate Island Roundabout

- 9.43 As identified in Section 8, the A444 Atherstone Road arms operates close to / above capacity in both the 'Reference Case' and 'Reference Case + Development + DS' scenarios during the AM and PM periods, respectively. To address the queuing issues raised by both the NBWA and Junctions 9 models, mitigation measures have been identified and are shown on MTP Dwg. No. 17059/GA/08 in Appendix 3 of the TA.
- 9.44 The proposed development will deliver substantial upgrades to the A5 / A444 Redgate Junction through the construction of a new 4-arm 50m ICD roundabout that replaces the existing elongated roundabout junction.
- 9.45 As part of these works, the existing A444 Atherstone Road approach, adjacent to the Redgate PH, will be closed up and replaced with a new link road across land to the east of the public house to connect into the new 4-arm roundabout.
- 9.46 In conjunction with these works there will be a new give-way controlled junction to serve the Redgate PH and adjacent business units and new field gate accesses onto the A444 link road to serve the adjoining, retained, agricultural fields.
- 9.47 It is also proposed to widen the existing A5 carriageway between the MIRA roundabout and the new Redgate junction to provide a continuous two lanes in a westbound direction between the roundabouts. Likewise, and with the closure of the existing A444 Atherstone Road / removal of the elongated roundabout, an extending two-lane approach and exit is delivered on the A5 towards Atherstone.
- 9.48 The proposed mitigation includes the provision of uncontrolled pedestrian crossing points with dropped kerbs, tactile paving, and pedestrian refuge islands on the A444 Atherstone Road and the A5 (East) arms. The proposed mitigation also increases the entry width and flare length on Weddington Lane to improve the length of carriageway for vehicles to queue side-by-side.
- 9.49 A comparison has been made between the proposed mitigation measures and the existing junction arrangement, as summarised in Tables 9.3a and 9.3b. The full output is included as Appendix 20.

- 9.50 Tables 9.3a and 9.3b demonstrate that the proposed mitigation measures will increase capacity on the A5 (East), A444 Weddington Lane, and A444 Atherstone Road arms of the junction; at the cost of a slight decrease in capacity on the A5 (West) arm.

Table 9.3a A5 / A444 Redgate Island – AM Peak Periods (Existing v Mitigation)

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case + Development – No Mitigation						
A5 (East)	0.73	2.6	0.79	3.6	0.69	2.2
A444 Weddington Lane	0.44	0.8	0.77	3.2	0.46	0.9
A5 (West)	0.61	1.6	0.71	2.4	0.61	1.6
A444 Atherstone Road	1.39	88.4	1.24	43.0	1.01	15.2
JUNCTION DELAY (\$)	93.76		47.44		21.77	
Reference Case + Development – Mitigation*						
A5 (East)	0.64 (-0.09)	1.8 (-0.8)	0.69 (-0.1)	0.60 (-3.00)	0.60 (-0.09)	1.5 (-0.7)
A444 Weddington Lane	0.26 (-0.18)	0.3 (-0.5)	0.44 (-0.33)	0.28 (-2.92)	0.28 (-0.18)	0.4 (-0.5)
A5 (West)	0.64 (+0.03)	1.7 (+0.1)	0.74 (+0.03)	0.64 (-1.76)	0.64 (+0.03)	1.7 (+0.1)
A444 Atherstone Road	0.61 (-0.78)	1.5 (-86.9)	0.48 (-0.76)	0.45 (-42.55)	0.45 (-0.56)	0.8 (-14.4)
JUNCTION DELAY (\$)	5.67 (-88.09)		6.68 (-40.76)		5.00 (-16.77)	
*Impact of mitigation shown in brackets						

- 9.51 Table 9.3a reveals the mitigation proposals have the largest impact during the 07:00 – 08:00 period, where there is an overall reduction in total junction delay by 88.09 seconds. The majority of this reduction is a result of the increased capacity on the A444 Atherstone Road, where the RFC is reduced by 0.78 and the queue by 86.9 vehicles.

- 9.52 Table 9.3a also reveals that all arms of the proposed roundabout operate within capacity during the AM peak periods inclusive of the impact of the development proposals.

Table 9.3b A5 / A444 Redgate Island – PM Peak Periods (Existing v Mitigation)

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)	RFC	Queue (Veh)
Reference Case + Development + DS – No Mitigation						
A5 (East)	0.82	4.5	0.92	10.0	0.91	9.3
A444 Weddington Lane	0.55	1.2	0.76	3.0	0.77	3.1
A5 (West)	0.58	1.4	0.70	2.3	0.61	1.6
A444 Atherstone Road	0.75	2.8	0.92	7.5	0.65	1.8
JUNCTION DELAY (S)	10.92		23.00		16.81	
Reference Case + Development + DS – Mitigation*						
A5 (East)	0.72 (-0.1)	2.5 (-2.0)	0.80 (-0.12)	3.9 (-6.1)	0.80 (-0.11)	3.9 (-5.4)
A444 Weddington Lane	0.31 (-0.24)	0.4 (-0.8)	0.40 (-0.36)	0.7 (-2.3)	0.40 (-0.37)	0.7 (-2.4)
A5 (West)	0.61 (+0.03)	1.5 (+0.1)	0.73 (+0.03)	2.7 (+0.4)	0.63 (+0.02)	1.7 (+0.1)
A444 Atherstone Road	0.35 (-0.4)	0.5 (-2.3)	0.39 (-0.53)	0.6 (-6.9)	0.31 (-0.34)	0.4 (-1.4)
JUNCTION DELAY (S)	5.45 (-5.47)		7.68 (-15.32)		6.91 (-9.9)	
*Impact of mitigation shown in brackets						

- 9.53 Table 9.3b demonstrates all arms of the proposed roundabout will also operate within capacity during the PM peak periods inclusive of the impact of the development proposals.
- 9.54 Of note, is that during the 17:00 – 18:00 period, the A5 (East) arm operates close to capacity with an RFC of 0.92. However, the queue of 10.0 vehicles, equivalent to c. 25m of queueing across the two-lane approach, can be accommodated for.
- 9.55 Despite the above, during the 17:00 – 18:00 period, the mitigation proposals result in a decrease of 15.32 seconds in the overall junction delay.
- 9.56 Within the 'Reference Case + Development + DS' scenario of the NBWA model, the additional capacity at the Redgate Island roundabout results in a larger volume of traffic travelling southbound along Higham Lane and into the town centre. This subsequently increases delays on a number of junctions around the town centre.

A5 Watling Street / Woodford Lane

- 9.57 As identified in Section 8, Woodford Lane operates significantly over capacity during both the AM and PM periods under both the 'Reference Case' and 'Reference Case + Development + DS' scenarios. This is likely due to insufficient gaps along the A5 Watling Street to allow traffic to egress Woodford Lane.
- 9.58 To address the capacity issues at the Woodford Lane junction, a signalised junction comprising two lane approaches on the A5 Watling Street is proposed, as shown on MTP Dwg. No. 17059/GA/09 included within Appendix 3 of the TA.
- 9.59 A LINSIG model has been established to assess the performance of the mitigation scheme under the 'Reference Case + Development + DS' scenario, providing a direct comparison with the performance of the existing junction arrangements. Tables 9.4a and 9.4c provide a summary of the results, whilst the full output is included as Appendix 21.

Table 9.4a A5 Watling Street / Woodford Lane With Mitigation – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	Deg. Sat. (%)	Queue (pcu)	Deg. Sat. (%)	Queue (pcu)	Deg. Sat. (%)	Queue (pcu)
Reference Case + Development + DS						
A5 Watling Street (W) – Ahead	43.2	6.4	85.7	29.9	75.8	19.9
A5 Watling Street (W) – Ahead Right	63.2	7.1	68.7	2.9	67.1	2.1
Woodford Lane	39.7	1.9	42.8	2.1	65.0	3.6
A5 Watling Street (E) – Ahead Left	62.1	15.2	50.4	10.6	41.5	7.4
A5 Watling Street (E) – Ahead	62.2	15.5	50.8	10.8	41.7	7.6
PRC (%)	42.5		5.0		18.7	
Delay (pcu/hr)	14.00		14.05		11.12	
Cycle Time (secs)	120		120		120	

- 9.60 From Table 9.4a it is noted that the queue length on Woodford Lane in the AM peak periods reduces significantly with the introduction of traffic signal control. When compared with the queues detailed in Table 8.5a, the signals schemes would result in a reduction of 43.0, 49.6, and 50.8 vehicles queueing on Woodford Lane during the 07:00 – 08:00, 08:00 – 09:00, and 09:00 – 10:00 periods, respectively.
- 9.61 Clearly the signalisation of the junction introduces queues / delays on the A5 Watling Street that would not occur under the existing free-flow conditions. It is however the case that the queues predicted can be accommodated within the highway available and there would be no queuing back to preceding junctions.

- 9.62 A maximum queue of 29.9 in the offside lane of the A5 Watling Street (North-West) arm is equivalent to c. 150m queue length from the stop line which would not even extend as far as the layby access to The Copper Kettle Cafe. A maximum queue of 15.5 in the offside lane of the A5 Watling Street (South-East) will be contained within the section of carriageway between the stop line and the proposed signalised junction with Drayton Lane.
- 9.63 It is also noted that delays reduce as a result of the proposed mitigation albeit LINSIG expresses delay in a different format to PICADY. When comparing the output from PICADY (*'total queuing delay (vehicles per hour)'*) with the equivalent output from LINSIG (*'delay (PCUs per hour)'*), Table 9.4b reveals that the proposed mitigation reduces the average AM delay by circa 17.46 pcu/hr in the *'Reference Case + Development + DS'* scenario.

Table 9.4b A5 Watling Street / Woodford Lane – AM Peak Delay (Existing v Mitigation)

Arm	Delay		
	AM (07:00 – 08:00)	AM (08:00 – 09:00)	AM (09:00 – 10:00)
Existing Arrangement – Give-way Priority Junction (veh/hr)	22.11	36.48	32.95
Mitigation – Signalised Scheme (pcu/hr)	14.00	14.05	11.12
DIFFERENCE	-8.11	-22.43	-21.83

- 9.64 From Table 9.4c it is noted that the queue length on Woodford Lane in the PM peak periods reduces significantly with the introduction of traffic signal control. When compared with the queues detailed in Table 8.5b, the signals schemes would result in a reduction of 51.1, 71.8, and 69.5 vehicles queueing on Woodford Lane during the 16:00 – 17:00, 17:00 – 18:00, and 18:00 – 19:00 periods, respectively.
- 9.65 As per the AM periods, any queues / delays on the A5 Watling Street can be accommodated within the highway available and there would be no queuing back to preceding junctions.

Table 9.4c A5 Watling Street / Woodford Lane With Mitigation – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue
Reference Case + Development + DS						
A5 Watling Street (W) – Ahead	72.6	17.6	40.8	6.6	67.0	16.7
A5 Watling Street (W) – Ahead Right	65.0	2.5	42.1	7.4	54.4	1.1
Woodford Lane	44.4	2.2	46.5	3.0	65.5	4.7
A5 Watling Street (E) – Ahead Left	48.8	9.9	46.9	8.1	46.8	8.9
A5 Watling Street (E) – Ahead	48.3	9.9	46.7	8.2	45.8	8.7
PRC (%)	24.0		91.9		34.2	
Delay (pcu/hr)	11.38		7.78		11.42	
Cycle Time (secs)	120		120		120	

9.66 Table 9.4d reveals that when comparing the delays from PICADY ('total queuing delay (vehicles per hour)') with the equivalent output from LINSIG ('delay (PCUs per hour)'), the proposed mitigation reduces the average PM delay by circa 26.75 pcu/hr in the 'Reference Case + Development + DS' scenario.

Table 9.4d A5 Watling Street / Woodford Lane – PM Peak Delay (Existing v Mitigation)

Arm	Delay		
	PM (16:00 – 17:00)	PM (17:00 – 18:00)	PM (18:00 – 19:00)
Existing Arrangement – Give-way Priority Junction (veh/hr)	26.77	49.33	34.72
Mitigation – Signalised Scheme (pcu/hr)	11.38	7.78	11.42
DIFFERENCE	-15.39	-41.55	-23.3

A5 Watling Street / Drayton Lane

9.67 As identified in Section 8, Drayton Lane operates significantly over capacity during both the AM and PM periods under both the 'Reference Case' and 'Reference Case + Development + DS' scenarios. This is likely due to insufficient gaps along the A5 Watling Street to allow traffic to egress Drayton Lane.

- 9.68 To address the capacity issues at the Drayton Lane junction, a signalised junction comprising two lane approaches on the A5 Watling Street is proposed, as shown on MTP Dwg. No. 17059/GA/09 included within Appendix 3 of the TA.
- 9.69 A LINSIG model has been established to assess the performance of the mitigation scheme under the 'Reference Case + Development + DS' scenario, providing a direct comparison with the performance of the existing junction arrangements. Tables 9.5a and 9.5c provide a summary of the results, whilst the full output is included as Appendix 22.

Table 9.5a A5 Watling Street / Drayton Lane With Mitigation – AM Peak Periods

Arm	AM (07:00 – 08:00)		AM (08:00 – 09:00)		AM (09:00 – 10:00)	
	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue
Reference Case + Development + DS						
A5 Watling Street (W) – Ahead Left	50.5	10.4	64.8	15.9	66.0	16.0
A5 Watling Street (W) – Ahead	52.3	12.7	66.6	19.1	67.9	19.2
Drayton Lane	68.6	7.7	75.3	9.2	69.9	9.9
A5 Watling Street (E) – Ahead	70.2	19.7	75.7	23.2	68.9	19.5
A5 Watling Street (E) – Right Ahead	67.8	2.7	73.1	4.8	68.2	4.2
PRC (%)	28.2		18.9		29.2	
Delay (pcu/hr)	14.92		22.27		22.22	
Cycle Time (secs)	120		120		120	

- 9.70 From Table 9.5a it is noted that the queue length on Drayton Lane in the AM peak periods reduces significantly with the introduction of traffic signal control. When compared with the queues detailed in Table 8.6a, the signals schemes would result in a reduction of 109.0, 170.6, and 170.2 vehicles queueing on Drayton Lane during the 07:00 – 08:00, 08:00 – 09:00, and 09:00 – 10:00 periods, respectively.
- 9.71 As per the Woodford Lane junction above, the signalisation of the junction will introduce queues / delays on the A5 Watling Street that would not occur under the existing free-flow conditions. It is however the case that the queues predicted can be accommodated within the highway available and there would be no queuing back to preceding junctions.
- 9.72 A maximum queue of 19.29 in the offside lane of the A5 Watling Street (North-West) arm, equivalent to c. 100m queue length, will be contained within the section of carriageway between the stop line and the proposed signalised junction with Woodford Lane. Whilst a maximum queue of 23.2 in the offside lane of the A5 Watling Street (South-East) arm is equivalent to c. 186m queue length from the stop line which would not even extend as far as the give-way priority junction with Leather Mill Lane.

- 9.73 Table 9.5b reveals that when comparing the delays from PICADY ('total queuing delay (vehicles per hour)') with the equivalent output from LINSIG ('delay (PCUs per hour)'), the proposed mitigation reduces the average AM delay by circa 94.45 pcu/hr in the 'Reference Case + Development + DS' scenario.

Table 9.5b A5 Watling Street / Drayton Lane – AM Peak Delay (Existing v Mitigation)

Arm	Delay		
	AM (07:00 – 08:00)	AM (08:00 – 09:00)	AM (09:00 – 10:00)
Existing Arrangement – Give-way Priority Junction (veh/hr)	78.82	134.34	135.60
Mitigation – Signalised Scheme (pcu/hr)	14.92	22.27	22.22
DIFFERENCE	-63.9	-112.07	-113.38

- 9.74 From Table 9.5c it is noted that the queue length on Drayton Lane in the PM peak periods reduces significantly with the introduction of traffic signal control. When compared with the queues detailed in Table 8.5b, the signals schemes would result in a reduction of 99.1, 115.1, and 74.1 vehicles queueing on Woodford Lane during the 16:00 – 17:00, 17:00 – 18:00, and 18:00 – 19:00 periods, respectively.

Table 9.5c A5 Watling Street / Drayton Lane With Mitigation – PM Peak Periods

Arm	PM (16:00 – 17:00)		PM (17:00 – 18:00)		PM (18:00 – 19:00)	
	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue	Deg. Sat. (%)	Queue
Reference Case + Development + DS						
A5 Watling Street (W) – Ahead Left	58.6	13.6	55.6	12.7	41.2	7.7
A5 Watling Street (W) – Ahead	60.1	16.4	57.1	14.9	42.8	9.3
Drayton Lane	66.1	6.8	77.7	8.1	67.3	6.2
A5 Watling Street (E) – Ahead	66.4	17.3	76.9	3.8	69.1	18.4
A5 Watling Street (E) – Right Ahead	65.3	3.1	74.5	4.4	67.3	3.5
PRC (%)	35.5		15.8		30.3	
Delay (pcu/hr)	17.38		19.63		12.95	
Cycle Time (secs)	120		120		120	

- 9.75 As per the AM periods, any queues / delays on the A5 Watling Street can be accommodated within the highway available and there would be no queuing back to preceding junctions.

- 9.76 Table 9.5d reveals that when comparing the delays from PICADY ('total queuing delay (vehicles per hour)') with the equivalent output from LINSIG ('delay (PCUs per hour)'), the proposed mitigation reduces the average PM delay by circa 55.39 pcu/hr in the 'Reference Case + Development + DS' scenario.

Table 9.5d A5 Watling Street / Drayton Lane – PM Peak Delay (Existing v Mitigation)

Arm	Delay		
	PM (16:00 – 17:00)	PM (17:00 – 18:00)	PM (18:00 – 19:00)
Existing Arrangement – Give-way Priority Junction (veh/hr)	75.24	91.50	49.40
Mitigation – Signalised (pcu/hr)	17.38	19.63	12.95
DIFFERENCE	-57.86	-71.87	-36.45

Sensitivity Test - Weddington Lane Traffic Calming Measures

- 9.77 As detailed in Section 5, a series of traffic calming measures are proposed along the northern section of the Weddington Lane as part of its downgrading to a local access road. Whilst the NBWA 'Reference Case + Development + DS' scenario accounted for these traffic calming measures there were still in the region of 300 – 400 vehicles using the northern section of Weddington Lane during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods, respectively.
- 9.78 To further understand the available capacity of the nearby junctions (namely the A5 / MIRA roundabout, A444 Weddington Lane roundabout, and the A5 / A444 Redgate Island Roundabout), a manual redistribution exercise and sensitivity test has been conducted which re-routes 50% of the NWBA modelled traffic using the downgraded section of Weddington Lane onto the A5-A444 link road and subsequently the A5 / MIRA roundabout and Redgate Island roundabout junction.

A5 / MIRA Roundabout

- 9.79 The modified A5 / MIRA roundabout has been modelled using ARCADY based on the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hourly periods under the manually redistributed 2031 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 23 and summarised in Table 9.7.
- 9.80 Table 9.6 reveals that during the AM (08:00 – 09:00) peak period, the MIRA Drive, A5 (East), and Site access arm all operate within capacity despite the additional vehicular movements from the redistribution exercise.
- 9.81 However, during the AM (08:00 – 09:00) peak period the A5 (West) arm operates at capacity (i.e., RFC 1.00). Given, the A5 (West) arm has c. 1.2kms of two-lane approach, extending from the Redgate Island roundabout, the queue length of 27.1 vehicles, equivalent to circa 70m of two-lane queuing, would only use approximately 6% of this link length.
- 9.82 Table 9.6 demonstrates that during the PM (17:00 – 18:00) peak period, the A5 / MIRA roundabout operates within capacity despite the additional vehicular movements from the redistribution exercise.

Table 9.6 A5 / MIRA Roundabout – Sensitivity Test

Arm	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)
MIRA Drive	0.10	0.1	0.95	10.9
A5 (East)	0.89	7.8	0.63	1.7
Site Access	0.85	5.1	0.63	1.7
A5 (West)	1.00	27.1	0.79	3.8
JUNCTION DELAY (S)	35.06		15.65	

A444 Weddington Lane Roundabout

9.83 The A444 Weddington Lane roundabout has been modelled using ARCADY based on the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hourly periods under the manually redistributed 2031 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 24 and summarised in Table 9.7.

Table 9.7 A444 Weddington Lane Roundabout – Sensitivity Test

Arm	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)
Weddington Lane	0.09	0.1	0.12	0.1
Site Access	0.19	0.2	0.31	0.5
A444 (South-East)	0.58	1.4	0.32	0.5
JUNCTION DELAY (S)	5.15		3.59	

9.84 Table 9.7 demonstrates that during both the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods the roundabout will operate within capacity and that any impact arising from development proposals, along with the manually redistributed flows, can be accommodated.

A5 / A444 Redgate Island (Modified)

9.85 The modified A5 / A444 Redgate Island roundabout has been modelled using ARCADY based on the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hourly periods under the manually redistributed 2031 'Reference Case + Development + DS' scenarios. The full output is included as Appendix 25 and summarised in Table 9.8.

Table 9.8 A5 / A444 Redgate Island Roundabout (Modified) – Sensitivity Test

Arm	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	RFC	Queue (Veh)	RFC	Queue (Veh)
A5 (East)	0.75	3.0	0.81	4.1
A444 Weddington Lane	0.25	0.3	0.22	0.3
A5 (West)	0.73	2.7	0.73	2.7
A444 Atherstone Road	0.47	0.9	0.40	0.6
JUNCTION DELAY (S)	6.93		7.66	

9.86 Table 9.8 demonstrates that during both the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods the roundabout will operate within capacity and that any impact arising from development proposals, along with the manually redistributed flows, can be accommodated.

9.87 Given the results of the above sensitivity tests, the proposed access arrangements / mitigation proposals have sufficient contingency to accommodate any further rerouting of vehicular traffic as a result of downgrading Weddington Lane to a local access road.

10. Summary & Conclusions

Summary

- 10.1 This Transport Assessment (TA) has been prepared on behalf of ERI MTP Limited to accompany an outline planning application with all matters reserved for the development of a manufacturing campus on land located to the south of the A5 Watling Street (the "Site"), also referred to as the MIRA Technology Park South Site. The outline planning application seeks permission for a set of parameters including the proposed vehicular access points onto the A5 Watling Street and A444 Weddington Lane and the design of the proposed link road connecting these.
- 10.2 The total Site area is 59.5ha of which the total net developable area is 39.3ha.
- 10.3 The outline planning application is for c. 213,500m² Use Class B2 (Industrial) with secondary Use Class E(g)(i) (Offices), Use Class E(g)(ii) (Research and Development) and Use Class B8 (Warehousing) that are complimentary to the existing and emerging uses on MIRA Technology Park located to the north of the A5 Watling Street.
- 10.4 The anticipated date for 1st completions on the Site, subject to planning approvals, is Year 2024. Thereafter, it is anticipated that floorspace will be completed in line with market demand with the final completion of the development anticipated by the end of the Local Plan period, i.e., Year 2031.
- 10.5 The Site will be developed in two Phases, linked to the delivery of associated infrastructure.
- **Phase 1**
 - Up to 110,000sqm of floorspace located towards the northern end of the Site
 - Delivery of the first section of internal multi-user Active Travel Corridor with connections to the NCN52 Weddington Walk
 - Amendments to Public Footpath 144/AE/189/1 including extinguishment of section between multi-user Active Travel Corridor and the A5 Watling Street and upgrades to remaining section (corridor widening, surfacing and wayfinding) south to connection with Public Footpath 330/N27/1
 - Delivery of the first phase of internal recreational path network
 - Extension of existing local bus services to directly serve the Site including provision of necessary bus stop infrastructure on A5-A444 link road
 - Upgrades to the A5 Watling Street / MIRA roundabout to accommodate the principal vehicular access to the Site
 - Delivery of the first section of the A5-A444 Link Road up to and including the proposed internal roundabout (to allow for bus service u-turning), aligned with creation of vehicular accesses to individual development plots
 - Off-site highway capacity improvement to A5 / A444 Redgate Island including the A444 Atherstone Road diversion

- Phase 2

- Remaining 105,000sqm of floorspace
- Completion of internal multi-user Active Travel Corridor to A444 Weddington Lane
- Delivery of off-site multi-user Active Travel Corridor on A444 Weddington Lane south-eastwards to connect with existing infrastructure in Nuneaton
- Delivery of off-site footway upgrades to A444 Weddington Lane north-westwards to A5 / A444 Redgate Island including improved crossing facilities to Caldecote village at the village hall
- Diversion of Public Footpath 144/AE/190/1 to upgraded route (corridor widening, surfacing and wayfinding) east of the cottages and village hall and continuation of upgrades to the A5 Watling Street
- Completion of internal recreational path network
- Additional bus stop and bus gate infrastructure on A5-A444 link road to allow two-way through working of bus services
- Completion of A5-A444 link road including creation of vehicular accesses to individual development plots
- Construction of a new secondary access to the Site in the form of a 3-arm roundabout junction between the A444 Weddington Lane and the A5-A444 link road
- Downgrading of Weddington Lane to Local Access Road with associated traffic calming measures
- Signalisation of the Woodford Lane / Drayton Lane give-way priority junctions with the A5 Watling Street

10.6 The TA considers the implications of development related travel on the operational and safety characteristics of the surrounding highway and transport networks. In addition, the TA considers the appropriateness of this type of development in this location in the context of transport-related policy, both at National and Local level, with emphasis on ensuring that the Site is accessible by all modes of travel.

10.7 The TA demonstrates that in terms of Planning Policy at both National and Local level and through robust interventions including the implementation of a Travel Plan and mitigation measures linked to trigger points coinciding with the delivery of the development, the Site and the surrounding highway and transport networks are capable of accommodating the proposed level of development.

Conclusions

10.8 The MIRA Technology Park South Site development adopts a hierarchical approach to movement and access that ensures priority is given to more sustainable forms of transport and opportunities to reduce travel demand over motor vehicle access.

10.9 This will be delivered through a comprehensive package of combined hard interventions (infrastructure such as improved footways, cycleways and crossing facilities as well as amendments to existing bus service routing) and soft interventions (travel planning, promotions, and marketing) to achieve meaningful changes in travel behaviour and an ambitious shift in modal share targets.

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- 10.10 The MIRA Technology Park South Site development will deliver real incentives to encourage people to change their travel behaviour and to sustain these changes over the long term. A framework of effective measures and smarter choices through the delivery of a Framework Travel Plan (FTP) underpins the development to achieve an overall goal of reducing the impact of generated traffic and to improve accessibility.
- 10.11 The FTP will be implemented in conjunction with the phased delivery of the development, to ensure integration into the local transport network, promotion of healthier lifestyle choices and wider social / community benefits and to assist in minimising the environmental impacts of the MIRA Technology Park South Site development.
- 10.12 The FTP includes a range of physical measures and management techniques such as the implementation of a community website, travel packs, car sharing promotional strategies and personalised travel planning designed to deliver on these objectives. Such measures will be underpinned by taking advantage of the proximity to facilities and services as well as the planned physical improvements to the built environment delivered through the MIRA Technology Park South Site development for enhanced infrastructure for pedestrians, cyclists, and public transport users.
- 10.13 The FTP will be an organic document that will grow and develop as the phased release of land within the MIRA Technology Park South Site development is realised. Measurable targets and over-riding objectives will be continuously monitored and reviewed over the lifetime of the Plan.
- 10.14 Active travel, in particular the freedom of movement for pedestrians and cyclists to access a broad range of local origins and destinations both within and through the development, is a priority of the Movement Infrastructure Strategy.
- 10.15 Street corridors within the development not only provide a permeable, legible circulation pattern but also have essential functions beyond just the movement of traffic, i.e., multi-functional spaces with a much higher 'place' function that are integrated within their surroundings and where pedestrians and cyclists are, in general, afforded greater priority than vehicular traffic.
- 10.16 The principal, formal access active travel corridors will be lit and will be accompanied by a legible signage strategy. Crossing points are intended to be uncontrolled and will tie in with desire lines of movement with refuge islands provided where appropriate.
- 10.17 Cycle priority crossings will be provided at side road junctions with set-backs and in proximity of bus stop boarding areas. Where pedestrian routes cross cycle routes then raised tables and zig-zags provided to reduce cycle approach speeds and provide step-free access. Footways will be provided on both sides of all streets within the development.
- 10.18 In addition to the on-site formal pedestrian / cycle infrastructure, the Site will also deliver a comprehensive improvement plan for the existing PROW network in proximity to the Site as well as the provision of additional recreational footpaths within the perimeter of the Site.
- 10.19 Beyond the development boundary, the focus is to provide direct, cohesive, attractive active travel connections to key local origins and destinations and existing, established infrastructure.

- 10.20 On key strategic corridors, appropriately scaled measures have been identified to significantly improve the user experience through pavement widening, lighting, wayfinding signage and markings, minimising conflicts with and separation from vehicular traffic wherever possible as well as improved crossing facilities incorporating priority over vehicular movement where such interaction cannot be avoided.
- 10.21 Cycle parking is a key deliverable within the MIRA Technology Park South Site development and will be delivered in accordance with the NWDC Adopted Local Plan policy. Cycle parking will be located close to the main entrance of the respective building within the MIRA Technology Park South Site development where natural surveillance is available. Both long term spaces (staff) and short-term spaces (customers / visitors) will be secure (using 'Sheffield-type' stands), covered and lit. In support of the long term (staff) cycle spaces, showers, changing and equipment storage facilities will be provided in the respective buildings. Short term (customer / visitor) spaces will be clearly signed.
- 10.22 A balanced approach has been taken to car parking provision within the MIRA Technology Park South Site development recognising the need to encourage sustainable transport access and reduce car use whilst at the same time ensuring that operational needs are met and that inappropriate overspill of parking onto surrounding roads is avoided.
- 10.23 Car parking provision will fall within the maximum standards as set out within the NWDC Adopted Local Plan policy. Parking zones for each plot within the development will be overlooked and will incorporate the use of differing materials and landscape features to improve attractiveness to end users.
- 10.24 As per policy LP34 of the NWDC Adopted Local Plan, active electric charging points to an agreed technical specification and location will be provided at a ratio of 20% of the total number of spaces within each plot. This will include employee and visitor rapid charging points. The remaining 80% of spaces will be provided as passive provision, incorporating the underlying infrastructure necessary for connection to be activated in the future as technologies evolve and uptake increases.
- 10.25 Disabled car parking will be provided in accordance with BS 8300-1: 2018 and will be located close to building entrances at a ratio of 6 bays plus 2% of total capacity. Motorcycle provision will be provided at 1 space plus an additional space for every 10 spaces required by maximum car parking standard.
- 10.26 A fundamental deliverable of the Movement Infrastructure Strategy is that, where practicable, all building accesses will be within 400m walk distance of regular public transport services that provide competitive journey times to key destinations and present a realistic alternative to private car use for employees within the MIRA Technology Park South Site development.
- 10.27 The proposal is to collaborate with the bus operator, Arriva Midlands, and the WCC Passenger Transport Operation team to instigate the diversion of Service 65 via the new spine road within the development as part of its route between Tamworth and Nuneaton via Atherstone and MIRA Technology Park.
- 10.28 The intention is to restore a 30-min frequency on Service 65 on weekdays on the core element of the route between Atherstone and Nuneaton. The phased introduction of the revised Service 65 bus service will be linked with the phased build programme within the MIRA Technology Park South Site development.

- 10.29 Within the MIRA Technology Park South Site development additional bus stop infrastructure will be provided with the phased construction of the new spine road linking the A5 to the A444. The bus stop infrastructure will incorporate wide footways at bus stops, passenger waiting facilities, flag, timetable and mapping, provision of infrastructure to enable real-time information (RTPI), low-floor kerbs and bus cage markings. The RTPI will also be incorporated into accessible locations within each of the building units.
- 10.30 The Framework Travel Plan (FTP) that accompanies the TA describes in full the sustainable travel initiatives and measures that are to be implemented in conjunction with the proposed development on the MIRA Technology Park South Site, the principal objectives of which are to:
- Minimise travel by private car where practically possible, to achieve fewer trips from the development than would otherwise have been the case.
 - Encourage safe and viable alternatives to the private car that minimise the environmental impact on the surrounding community through the promotion of attractive, safe, viable and efficient modes.
 - Achieve a reduction in congestion on surrounding roads and effect of development-related traffic (cars and HGVs) on emissions, noise, visual intrusion and road traffic accidents.
 - Ensure people are aware of their travel options as well as creating a safe and accessible location for people to work and visit.
 - Have a positive long-term impact on the environment and personal health.
- 10.31 Through sustainable design and location, the Site-wide community will be able to access a broad range of local facilities and services by foot and cycle. This will include the on-site Country Park and Outdoor Gym facilities as well as interactive personalised travel planning. These elements will be a key focus of the material included within the TIP that can be made available to each employee of each individual building occupier via their Travel Plan representative.
- 10.32 Through the circulation of the TIP via each building occupier and their Travel Plan representatives, all employees will be offered either free or discounted taster tickets for a time-limited period to encourage uptake of public transport services. The purpose being to make use of the ticket as a means of familiarising themselves with the services and associated facilities available.
- 10.33 Other measures promoted through the FTP will include a cycle loan / hire scheme, a site-wide car share scheme and a tailored travel planning service for employees, highlighting the most sustainable transport choices for long and short distance journeys.
- 10.34 The FTP identifies targets in the form of both short and long-term objectives. In the event that targets are not met, the Site Wide TPC will ensure that corrective measures are put in place in consultation with the Council.
- 10.35 The scale and form of the MIRA Technology Park South Site development is such that it has the potential to generate both light vehicle movement (i.e., cars / vans) as well as heavy goods vehicle movement throughout the day, primarily during weekdays. The vehicular access strategy therefore seeks to deliver the most efficient movement of vehicles between the Site and the surrounding road network.

- 10.36 The primary access to the development is based around the construction of a fourth arm with a flared two-lane approach to the southern side of the existing MIRA Roundabout on the A5 Watling Street. The Site will be provided with a left slip from the A5 (east) to the A5-A444 link road. Additionally, and as part of the Site access proposals, increased entry widths will be provided on both the A5 (east) and A5 (west) arms of the roundabout.
- 10.37 The geometric design of the existing MIRA roundabout is such that it can be easily adapted to accommodate the DMRB requirements for a full access road in place of the existing field access track that can accommodate the anticipated volumes of light vehicles and HGVs without requiring any Departures from Standard.
- 10.38 A new 3-arm roundabout will be constructed on the A444 Weddington Lane to the south-east of Caldecote, providing a second primary access to the Site.
- 10.39 The A444 Weddington Lane will be diverted from its existing alignment just south-east of Nos. 17/18 Weddington Lane to a new 45m ICD roundabout offset approx. 52m (centre to centre) from the existing A444 Weddington Lane. All three approach arms of the roundabout will be provided with single lane entries and exits and a toucan crossing is proposed on the A5-A444 link road arm of the roundabout.
- 10.40 The realignment of the A444 and positioning of the roundabout form part of a proposal to direct all through traffic along the A444 corridor to use the A5-A444 link road, facilitating the downgrading of Weddington Lane to a local access road.
- 10.41 The downgrading of the existing section of Weddington Lane between the Site access roundabout and the Redgate junction to a local access road will be supported by a package of traffic calming / management measures to redirect through traffic away from Caldecote village and will comprise:
- A comprehensive package of revised Advanced Direction Signage (ADS) to direct 'A' road traffic, including HGVs via the A5/A444 spine road through the Site, with associated additional / altered ADS at the MIRA roundabout and Redgate junction;
 - A seeking of reduction in the speed limit on Weddington Lane through Caldecote village (between the Site access roundabout and the Redgate junction) from 50mph to 30mph;
 - Additional traffic calming measures to reinforce speed limit change to include 'Gateway' road markings / signage, speed cushions and carriageway narrowing;
 - A raised table crossing adjacent to the village hall.
- 10.42 The two external accesses will be connected by a new, adoptable link road, designed to standards applied by the Highway Authorities, namely the Design Manual for Roads & Bridges (DMRB) and the Warwickshire Design Guide, from which direct access will be taken to individual plots.
- 10.43 In cross-sectional terms, the A5-A444 link road will have a minimum width of 7.3m (10.5m where ghosted right turn lanes are provided) flanked by verges (min. 2.0m width) and footways (min. 2.0m width). Segregated two-way cycle facilities (min. 3.0 width) will also be accommodated on at least one side of the carriageway.

- 10.44 There will be a combination of side road connections and direct accesses to development plots off the A5-A444 link road. These junctions are designed to accommodate the turning movement requirements of light vehicles and HGVs and will be give-way priority controlled with ghosted right turn lane facilities, as appropriate.
- 10.45 The likely trip generation of the MIRA Technology Park South Site has been based on identifying refined trip rates from the TRICS database through detailed scrutinisation of site characteristics in conjunction with the Highway Authorities to reach an agreed position. The resultant refined trip rates are based on three analogous sites within the TRICS sub-category 'Industrial Unit' (02-C) where ancillary uses such as E(g)(i) office floor area are also embedded within the trip rate on an individual unit basis.
- 10.46 To fully understand the impact of the MIRA Technology Park South Site development proposals on the operation of the wider highway network, including the SRN, the Nuneaton and Bedworth Wide Area (NBWA) Paramics model has been used which encompasses the A5 and A444 highway corridors and associated junctions that will experience the greatest traffic impact arising from the proposed development. As one extends further away from proposed development, beyond these corridors, the level of impact arising from development-related traffic will reduce significantly as it is dispersed through multiple routes.
- 10.47 The NBWA scenarios cover the AM 07:00 – 10:00 period and the PM 16:00 – 19:00 period. To understand the potential impact of development-related traffic flows during the AM and PM peak periods, analysis was undertaken on the maximum queue length information for the individual junctions under the 2031 NBWA 'Reference Case' and 'Reference Case + Development' scenarios.
- 10.48 Individual junction assessments have then been conducted using ARCADY / PICADY where appropriate to determine the queuing and delay characteristics at each of the key junctions on the highway network surrounding the Site.
- 10.49 The TA demonstrates that the modified A5 / MIRA roundabout and the new A444 Weddington Lane roundabout, both serving as primary accesses to the Site, can accommodate development-related traffic generation during both the AM and PM peak periods with queue lengths that can be accommodated within the available link lengths.
- 10.50 The TA identifies that the operation of the existing A5 / A444 Redgate Island elongated roundabout is compromised in both the AM and PM peak periods, even under 2031 'Reference Case' conditions. Junction performance is then further compromised as a consequence of the additional traffic demand generated by the proposed development.
- 10.51 The proposed development will deliver substantial upgrades to the A5 / A444 Redgate Junction through the construction of a new 4-arm 50m ICD roundabout that replaces the existing elongated roundabout junction. These mitigation works ensure that the junction will operate within capacity with substantial improvements in queuing conditions and delays during both AM and PM peak periods under 2031 'Reference Case' and 'Reference Case + Development' flow conditions.
- 10.52 As part of these works, the existing A444 Atherstone Road approach, adjacent to the Redgate PH, will be closed up and replaced with a new link road across land to the east of the public house to connect into the new 4-arm roundabout. There will also be a new give-way controlled junction to serve the Redgate PH and adjacent business units and new field gate accesses onto the A444 link road to serve the adjoining, retained, agricultural fields.

- 10.53 It is also proposed to widen the existing A5 carriageway between the MIRA roundabout and the new Redgate junction to provide a continuous two lanes in a westbound direction between the roundabouts. Likewise, and with the closure of the existing A444 Atherstone Road / removal of the elongated roundabout, an extending two-lane approach and exit is delivered on the A5 towards Atherstone.
- 10.54 The proposed mitigation includes the provision of uncontrolled pedestrian crossing points with dropped kerbs, tactile paving, and pedestrian refuge islands on the A444 Atherstone Road and the A5 (East) arms. The proposed mitigation also increases the entry width and flare length on Weddington Lane to improve the length of carriageway for vehicles to queue side-by-side.
- 10.55 The TA identifies that the existing priority junctions of Woodford Lane and Drayton Lane with the A5 Watling Street are compromised in both the AM and PM peaks, even under 2031 'Reference Case' conditions, with a deficiency in terms of gaps in traffic for traffic to emerge from these side roads. The lack of capacity at the A5 / A444 Redgate Island exacerbates the conditions realised at these side road junctions, in particular Drayton Lane where it is observed that rat-running is occurring.
- 10.56 To address the capacity issues at the Woodford Lane and Drayton Lane junctions with the A5 Watling Street, it is proposed that both junction will be signalised.
- 10.57 The TA demonstrates that with signalisation, queue lengths and delays on both Woodford Lane and Drayton Lane reduce significantly during both the AM and PM peak periods under 2031 'Reference Case' and 'Reference Case + Development' flow conditions. It is also demonstrated that queueing and delay characteristics can be accommodated on the A5 Watling Street without any impact back to preceding junctions in both directions.
- 10.58 Within the TA a Sensitivity Test has been conducted to assess the impact of redistributing through traffic from the downgraded section of Weddington Lane. This Sensitivity Test analysis demonstrates that the A5 / MIRA roundabout, A444 Weddington Lane roundabout, and the A5 / A444 Redgate Island modified roundabout have sufficient contingency to accommodate any further rerouting of vehicular traffic as a result of downgrading Weddington Lane to a local access road.

Overall Summary

- 10.59 Based on the findings within this Transport Assessment and in the context of the guidelines within para. 111 of the NPPF, it is considered that there are no residual cumulative impacts in terms of highway safety or the operational capacity of the surrounding road network and therefore planning permission should not be withheld on transport grounds.