P/2011/01243

Received 25/10/11

Transport Assessment

Land South of Branston, Burton-upon-Trent

St Modwen Developments Ltd

August 2011

Halcrow

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Document history

Transport Assessment

Land south of Branston, Burton-upon-Trent

St Modwen Developments Ltd

This document has been issued and amended as follows:

Version	Date	Description	Created by	Verified by	Approved by
001	17/08/11	Draft Transport Assessment	KG/NG	KG	PS
001A	22/08/11	Final Transport Assessment	KG/NG	NG	PS
001B	23/08/11	Final Transport Assessment	KG/NG	NG	PS

Contents

1 Introduction

1.1 Development Context

Halcrow Group Ltd have been commissioned by St Modwen Developments Ltd to produce a Transport Assessment (TA) to accompany an outline planning application for the development of a site south of Branston, approximately 3.5km from Burton on Trent in East Staffordshire. The site has a long planning history including permission for employment uses generating over 2,000 vehicles per hour.

The development proposals include 659 residential dwellings (C3) taking access off Main Street. The proposals also include 14,307sqm Gross Floor Area (GFA) of general industrial (B2) and 57,226sqm GFA of distribution / storage (B8) development. The combined employment development equates to 71,533sqm or 770,000sqft.

This TA has been produced in accordance with the 'Guidance on Transport Assessments' (Department for Transport (DfT), March 2007), and sets out the key transport issues necessary for Staffordshire County Council (SCC - the local highway authority) and the Highways Agency (HA – the strategic highway authority) to determine the outcome of the planning application.

The methodology for producing a TA has been discussed in detail with SCC and the HA, and much of the method has been agreed during these scoping discussions. Correspondence regarding the agreed scope of this study is provided in **Appendix A**.

This TA sets out the development proposals and identifies its transport impact on the adjoining transport networks. This TA set out access arrangements, parking provision, considerations for sustainable transport accessibility, and mitigation measures where necessary.

1.2 Report Structure

This report is structured as follows:

Chapter 2 details the site location, and the existing traffic conditions and sustainable access links surrounding the site;

Chapter 3 describes transport policy in the context of the site;

Chapter 4 sets out the redevelopment proposals including access arrangements;

Chapter 5 deals with the associated traffic generation, traffic distribution and assignment and describes the transport modelling undertaken to assess the impact that the proposed development traffic has;

Chapter 6 outlines the transport strategy for the site and considers appropriate mitigation measures; and

Chapter 7 provides a summary of the findings and conclusions.

2 Existing Transport Network

2.1 Site location & adjoining network

The site consists of two sections based on the land uses proposed on each. The residential proposals occupy the northern section of the site, which takes access off Main Street. This site complements and provides a natural extension to the residential areas and local centre located to the south of the B5018 Main Street.

Main Street connects to the B5018 Main Street at its eastern periphery via a priority junction, which forms the main route running through Branston. This route also provides a link to the A38 via the grade separated Branston Interchange, and a connection to the A5121Wellington Road to Burton-upon-Trent.

The employment proposals will occupy the south extent of the overall site, and will take access from a left in / left out junction taking access directly from the A38 southbound carriageway. The site will incorporate a link road connecting the two land parcels, but access though the site will only be possible for residential site occupants, pedestrians and cyclists, and for a bus serving the development.

The location of the site is shown below in Figure 2.1.

Figure 2.1: Site Location

2.2 Access by Pedestrians & Cyclists

There are good facilities and infrastructure for walking and cycling in the vicinity of the site. Footpaths and lighting are provided throughout Branston and the residential roads are subject to a 30mph speed limit. Road safety provisions for access to the local schools include toucan crossings outside both schools, signage and a 30mph speed camera on Main Street. Provisions for crossing the railway line include a footway along the north side of the railway bridge on Main Street.

A segregated pedestrian/ cycle path can be accessed from the toucan crossing on Wellington Road outside Rykneld County Primary School. This provides an off-road route to Shobnall Road close to Burton town centre. From the town centre National Route 54 can be accessed as well as a number of other cycle routes providing access to the residential areas to the north of Burton on Trent. National Route 54 provides a largely off-road route to Derby to the north via Stretton, Clay Mils, Egginton, Etwall and Mickleover and Lichfield to the south via Tatenhill, Barton-under-Needwood and Alrewas.

There are also advisory cycle routes to the north east of the site providing access to the residential areas of Stapenhill and Winshill.

On the A38, an off-road footway/cycleway operates along the northbound carriageway of the A38 between the Barton roundabout to the south and the Branston roundabout to the north. To facilitate crossing of the A38 there is pedestrian refuge adjacent to the site access and a subway at Branston roundabout.

In terms of leisure routes there is the 'Way for the Millenium' and Branston Water Park. There are also several public right of ways in the vicinity including the right of ways within the site area, including a footbridge over the railway line.

Figure 2.2 illustrates the walking and cycling routes and facilities in the vicinity of the site.

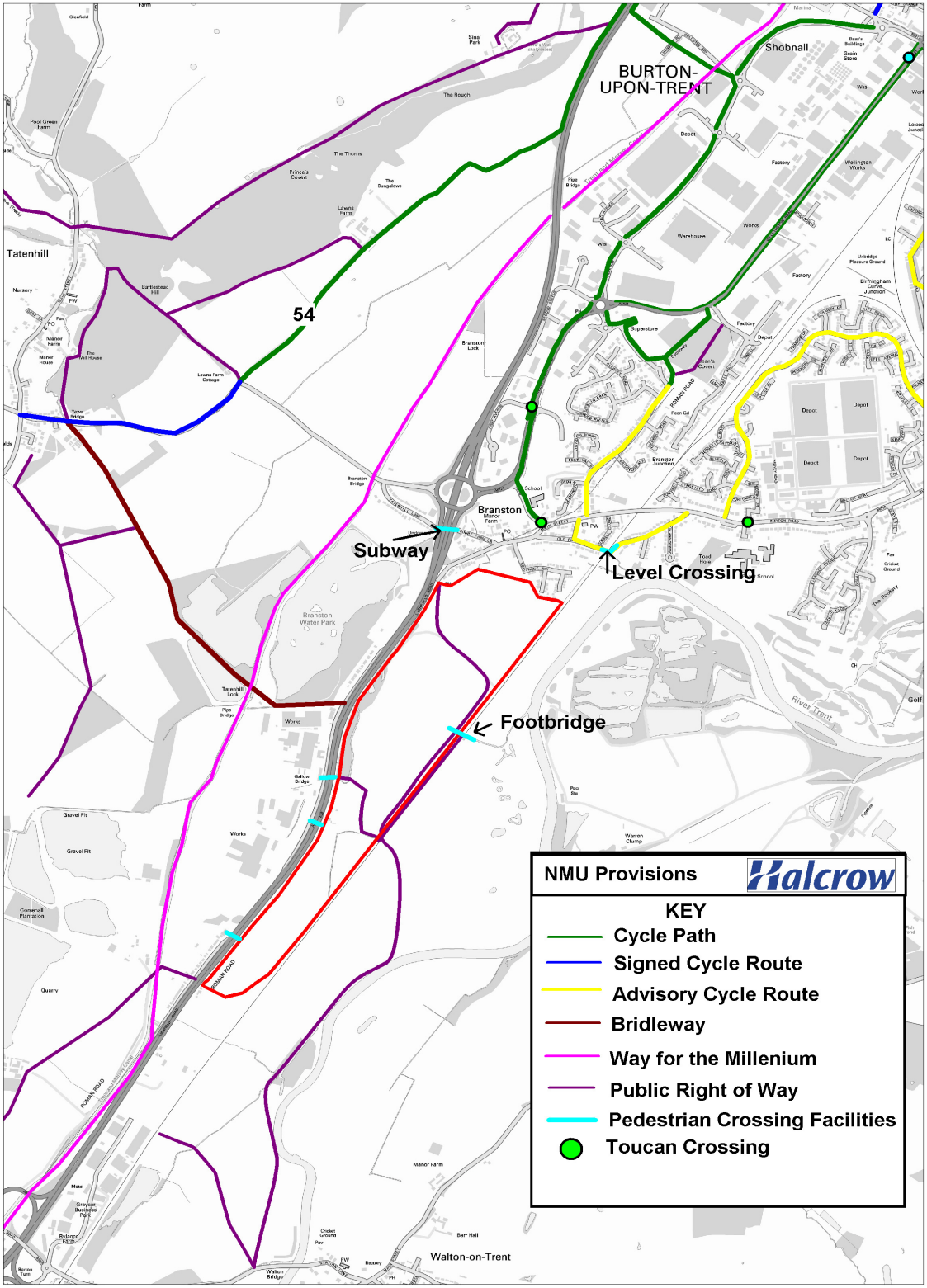

Figure 2.2 Walking & Cycling Facilities

2.3 Access by Public Transport

The site is well served by bus. The closest bus stops are located on Main Street near Branston Church. Bus services X12, 7, 7A, 7E, X7 and V4 all serve these stops. The V4 service provides two buses per hour in the peak and an hourly service off-peak to Centrum Business Park and Burton Town Centre, Service 12 and X12 provide hourly services to Burton in one direction and Lichfield in the other and service 7 provides an hourly service to Burton, Yoxall, Alrewas and Lichfield. Further bus stops are located on Clays Lane where bus services 9 and 403 can be accessed. There is also a bus stop along the A38 served only by the number 7. Figure 2.3 illustrates the bus routes and bus stops in the vicinity of the site and Table 2.1 details the services.

Bus No.	Route	Weekdays			Sat	Sun
		Peak	Off peak	Eve		
7	Burton – Branston – Barton - Yoxall - Alrewas - Lichfield	1/hr	1/hr	-	1/hr	-
7A	Burton – Branston - Barton – Alrewas – National Memorial Arboretum	1/hr	1/hr	-	1/hr	-
7E	Burton - Yoxall - Alrewas - Lichfield	-	-	0.5/hr	evening	4/day
X7	Lichfield – Streethay – Alrewas – Barton – Branston - Burton	-		1 service	1 service	-
9	Branston - Burton - Swadlincote - Ashby-de-la-Zouch	1/hr	1/hr	-	1/hr	-
X12	Burton - Lichfield (Lichfield Flyer)	1/hr	1/hr	-	1/hr	
403	Burton - Tatenhill - Newborough - Abbots Bromley (Tu, Th & Fri only)	-	1/day	-	-	-
440	National Express London - Manchester	-	1/day	-	1/day	1/day
V4	Burton - Centrum Business Park (Circular)	2/hr	1/hr	-	1/hr	-

Table 2.1 Bus Services & Frequencies

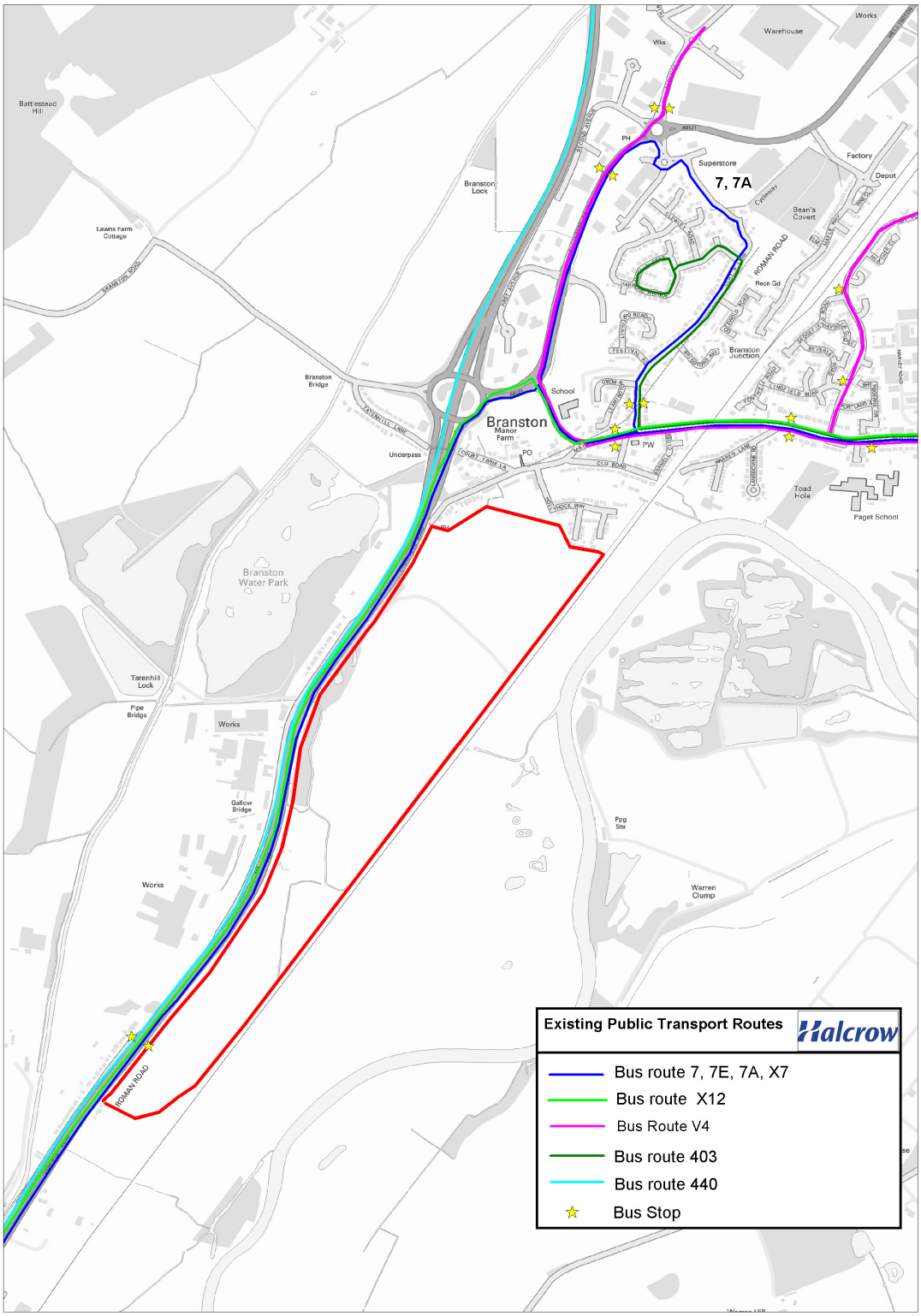

Figure 2.3 Existing Public Transport Routes

2.4 Access by Rail

The nearest Railway Station is Burton on Trent Railway Station located on Borough Road approximately 3.5km from the site. Bus service 403 stop on Borough Street adjacent to the Railway Station and bus service X12 stop on Moor Street approximately 300 meters from the station, providing a connected public transport route for further distances to and from the site. Travel time by bus from the site to the station is approximately 14 minutes. Access to the station is from the Bridge on Borough Road that crosses the railway line. Facilities at the Rail Station include the following:

- Car Park;
- Taxi Rank;
- Newsagents shop;
- Covered cycle parking
- Ticket office (open 0610-1930 Mon-Sat and 0845-1715 Sun);
- Waiting Room;
- Lift;
- Toilets;
- Timetable information on destination boards;
- Ticket Machines;
- Disabled Parking; and
- Full time staff (Mon-Sat 05:45-23:55; Sun: 0810-1200).

The station is situated on the Cross Country Route, between the principal cities of Derby and Birmingham. The services are provided by Cross Country and include the following:

- Nottingham to Cardiff Line providing a service to Birmingham New Street and Derby every 13 – 20 minutes, a half hourly service to Nottingham, an hourly service to Bristol(via Cheltenham and Gloucester) and an hourly service to Cardiff (via Newport).
- South West, north east and Scotland Line providing a service every two hours to Edinburgh via Chesterfield, Sheffield, Leeds, York and Newcastle (with some services extending to Glasgow and Aberdeen) and a service every two hours to Plymouth via Birmingham, Cheltenham, Bristol, Taunton, Exeter) with some services extending to Penzance.

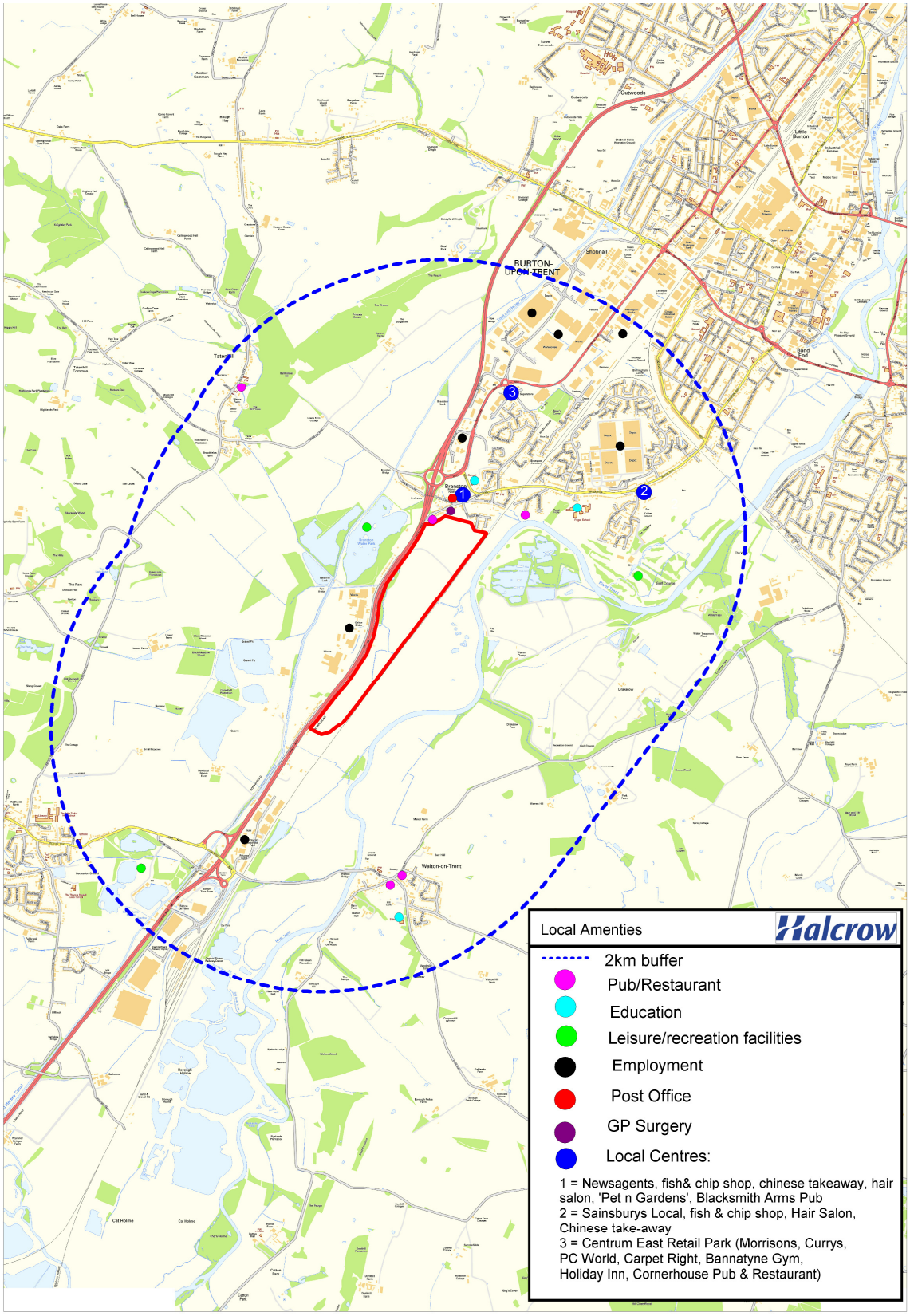

Figure 2.4 Local services & amenities

2.5 Local Amenities & Services

The site has the advantage of being located close to local services and amenities in Branston, including Rykneld County Primary School and Paget County High School, GP surgery, Post Office, local shops and public houses/restaurants. Centrum Retail Park and Faraday Court Employment Park are within 2km of the site Figure 2..4 identifies the local services and amenities close to the site.

2.6 Road Safety

Highways Agency A38 Accident Data

Accident Data for the section of the A38 trunk road between the Branston and Barton was obtained from the Highways Agency for five years. During this period there were a total of 82 accidents (72 slight, 8 serious, 2 fatal). The accidents occurring at each junction are summarised below.

Branston Roundabout

A total of 19 accidents have occurred at the Branston Roundabout, of these 17 were slight and 1 was fatal. Table 2.2 summarises the accidents occurring at Branston roundabout and Figure 2.5 illustrates the location of the accidents. It can be seen that all accidents were as a result of driver error.

Barton Junction

A total of 12 accidents have occurred at the Barton junction, of these 3 were serious and 9 were slight. Table 2.3 summarises the accidents occurring at the Barton junction and Figure 2.5 illustrates the location of the accidents. There have been two accidents involving cyclists, one a fatal accident as a result of a HGV passing too close to the cyclist and the other a slight accident as a result of a car failing to look properly at the roundabout. The majority of accidents were as a result of driver error, although one accident did occur as a result of a temporary road layout.

New Site Access Junction

Two serious accidents occurred in close proximity to where the new site access is planned, one as a result of a HGV Articulated lorry performing an illegal U-turn from a location south of the A38, and turning back in the same direction. The other accident occurred as a result of a car performing the same illegal movement.

Slight	Serious	Fatal	Ref	Location	No. of Vehicles	Causation Factors
1			1	Roundabout	2 Cars	Exceeding speed limit/careless driving
1			2	Roundabout	2 Cars	Hit and run, no contributory factors
1			3	Roundabout	3 Cars	Slippery road due to weather/ loss of control
1			4	Roundabout	1 HGV/3 Cars	Failed to look properly
1			5	Roundabout	2 Cars	Failed to look properly
1			6	Roundabout	2 Cars	Careless driving
1			7	Roundabout	1 Motorcycle/1 car	Failed to look properly
1					1 HGV/1 Car	Failed to look properly/distraction in vehicle/careless driving
1			8	Roundabout	1 car/1 motorcycle	Following too close/failed to look properly/sudden braking
1					1 HGV/1 Car	Failed to look properly/Following too close/
1					3 Cars	Slippery road (due to weather)/ travelling too fast/failed to judge speed
1					2 Cars	Failed to look properly/failed to judge speed/following too close
1			9	Roundabout	2 Cars	Slippery road due to wet weather/travelling too fast/following too close
1			10	Roundabout	2 Cars	Poor or defective road surface/travelling too fast/ careless driving
		1	11	Slip road	1 Car	Skidded into tree
1			12	Slip road	2 Cars/1 HGV	Learner/inexperienced driver
1			13	Slip road	1 Car	Slippery road/heavy braking
1			14	Slip Road	1 Car	Impaired by alcohol
1			15	Slip Road	1 Car/2 HGV	Failed to judge speed

Table 2.2: Summary of Accidents occurring at Branston Roundabout

Slight	Serious	Fatal	Location Ref	Location Description	No. of Vehicles	Causation Factors
1			1	Roundabout/slip road	1 Pedal Cycle/1 Car	Failed to look properly/Failed to judge path/speed
1			2	Main Carriageway	2 Cars	Sudden braking
1			3	Main Carriageway	2 Cars	Poor manoeuvre/nervous uncertain
1			4	Main Carriageway	4 Cars	Following too close
1			5	Main Carriageway	2 Cars	None
	1		6	Slip Road	1 Motorcycle	Slippery road due to weather
1			7	Main Carriageway	2 Cars	Temporary road layout (contraflow)
1			8	Main Carriageway	2 Cars	Travelling too fast for conditions
1			9	Main Carriageway	1 HGV/1 Motorcycle	Nervous/uncertain
	1		10	Slip Road	2 HGV/ 4 Cars	Following too close/failed to look properly
	1		11	Main Carriageway	1 pedal cycle/1 HGV	Failing to judge speed /passing too close to cyclist
1			12	Approach to Private entrance	1 Car/HGV	Following too close/sudden braking

Table 2.3:Summary of Accidents occurring at Barton junction

Figure 2.5 Location of Accidents on A38

Staffordshire County Council Accident Data

Personal Injury Accident (PIA) data has also been obtained from SCC for the local highway network surrounding the site. This includes data for a five year period. The PIA data includes details of the location of each accident, its severity, the number of vehicles/pedestrians involved, and other basic details. The full accident records and location plots of all accidents are provided in **Appendix B**.

Along Main Street, PIAs include an accident resulting in a slight injury outside Rykneld Primary School due to the driver loosing control and swerving under the influence of alcohol and an accident resulting in a slight injury for a pedestrian on the railway bridge due to a car driver failing to look properly and driving carelessly.

Two accidents, both resulting in slight injury occurred outside Paget Community School, one as a result of an inexperienced driver failing to look properly and the other involving a pedestrian who crossed the road without looking properly.

A summary of PIAs occurring at the key nearby junctions is set out below:

Location	Slight			Serious			Fatal		
	Tot.	Ped	Cyc	Tot.	Ped	Cyc	Tot.	Ped	Cyc
Main Street junction with Main Street	1								
Burton Road/Lonsdale Road Junction	2								
Burton Road/Warren Lane Junction	2								
Wellington Road/Centrum Retail Park Roundabout	8	1		1					
Burton Road/Regents Park Road junction	2								
Wellington Road/Wellington Park Junction	1		1	1	1				
Main Street/Church Road Junction	2								
Burton Road /Fairway Roundabout	2		1						
Wellington Road/Main Street Roundabout	3								
Main Street/Clay Lanes junction	2								
Tatenhill Lane/Tatenhill Lane Service Road	1								

Table 2.4 Summary of PIAs in vicinity of Branston development

It can be seen that a total of nine PIAs have occurred at the Centrum Retail Park Roundabout (8 slight(including a pedestrian) and 1 serious), three slight PIAs at the Main Street/Wellington Road roundabout and two slight PIAs occurred at the Burton Road/Fairway Roundabout of which one involved a cyclist. Two accidents occurred at the Wellington Road/Wellington Park junction of which one involved a cyclist resulting in slight injury and the other involved a pedestrian resulting in a serious accident.

The contributory factors for each of the key junctions are summarised below in Table 2.5.

Factor	Number
Burton Road/Lonsdale Road Junction	
Failed to look properly	2
Careless Driving	1
Burton Road/ Warren Lane	
Slippery Road (due to weather)	1
Failed to judge other persons path or speed	1
Failed to look properly	1
Wellington Road/Centrum Retail Park Junction	
Failed to judge other persons path or speed	4
Following too close	2
Careless Driving	1
Failed to look properly	4
Loss of control	1
Overloaded or poorly loaded vehicle or trailer	1
Poor turn or manoeuvre	1
Road Layout	1
Slippery road (due to weather)	1
Junction Re-start	2
Distraction in vehicle	1
Burton Road/Regents Park Road	
Swerved	1
Distraction in vehicle	1

Factor	Number
Dazzling Sun	1
Failed to look properly	1
Wellington Park/Wellington Road Junction	
Failed to look properly	2
Dazzling sun	1
Pedestrian wearing dark clothing	1
Main Street/Church Road Junction	
Slippery road	1
Sudden braking	1
Failed to judge other persons path or speed	1
Inexperienced or learner driver/rider	1
Burton Road/Fairway Roundabout	
Illegal turn of direction of travel	1
Passing too close to cyclist	1
Careless driving	1
Loss of control	1
Slippery road	1
Wellington Road/Main Street Roundabout	
Careless driving	2
Impaired by alcohol	1
Temporary Road Layout	1
Fatigue	1
Disobeyed traffic signal	1
Failed to look properly	1

Factor	Number
Main Street/Clay Lane	
Emergency vehicle on call	1
Nervous/Uncertain	1
Swerved	1
Distraction outside vehicle	1
Poor manoeuvre	1
Failed to look properly	1
Failed to judge other persons path or speed	1
Tatenhill Lane/Tatenhill Lane Service Road	
Failed to look properly	1

Table 2.5 Contributory Factors to PIAs

The vast majority of recorded accidents throughout the last five year period were caused by driver error. The road layout was classed as a contributing factor to one accident on the Wellington Road/Centrum Retail Park roundabout, other than this no issues with the road alignment itself or its conditions were highlighted as problematic in the cause of any accident in the last five years.

2.7 Parking

Site visits and car parking surveys were undertaken in Branston in June 2011. It was found that the area was very busy for approximately 15 minutes, twice a weekday when parents park to collect or drop off their children at the local primary school. Outside of these peak periods no problems were observed.

The pub and shop car park are also used by vehicles travelling to drop off/collect children to/from school. The medical centre appears to be less-well used as part of the school journey, with the level of parking observed here remaining constant.

A detailed account of the findings from these visits is provided in **Appendix C**.

2.8 Summary

There are good facilities for pedestrians and cyclists in the area including crossing facilities on Main Street and an off-road cycle route providing access to Burton on Trent the NCN54 and beyond. There are also a number of leisure routes including the public rights of way and the 'Way for the Millennium'.

The site is well served by public transport. Bus services X12, 7, 7A, 7E, X7 and V4 can be accessed from Main Street, close to Branston Church. The V4 service provides two buses per hour during peak periods and one bus per hour off-peak to Centrum Business Park and Burton Town Centre, Service 12 and X12 provide hourly services to Burton in one direction and Lichfield in the other and service 7 provides an hourly service to Burton, Yoxall, Alrewas and Lichfield.

The site is located within walking distance of local services/amenities and attractions, reducing the need to travel further distances by car.

Analysis of the most recent accident data has been undertaken which identifies that all the majority of PIAs were as a result of driver error and there are no issues with the surrounding road network.

3 Policy Context

3.1 Site Planning History

The site has a long planning history. The first planning application that was approved dates back to February 1991 for B1, B2, B8 and C1 uses. Subsequent approved planning applications after this date are summarised as follows and full details are provided in **Appendix D**.

- March 1993 – Planning permission granted for residential, B1, B2, B8 and C1 uses;
- December 1996 – Planning application approved for 50 residential dwellings;
- In September 1997, May 2000 and August 2004 – planning permission approved for 50 residential dwellings with access from Main Street and B1, B2, B8 and C1 uses on approximately 40 hectares with access off the A38;
- August 2004 - Outline application approved to develop 13.27ha of land for B1, B2 and B8 uses including means of access on land east of Lichfield Road.

Previously approved planning applications generated in the order of 2,000 vehicles per peak hour onto the local road network.

3.2 National Policy

Planning Policy Guidance 13 (PPG 13) - Transport (January 2011)

PPG 13 objectives are to integrate planning and transport at the national, regional, strategic and local level and to promote more sustainable transport choices for carrying both people and freight.

PPG 13 identifies that local planning authorities should actively manage the pattern of urban growth, locate facilities to improve accessibility on foot and cycle, and recognise that provision for movement by walking, cycling and public transport are important.

Planning Policy Statement 1 (PPS 1) – Delivering Sustainable Development (2005) and Planning & Climate Change (2007)

PPS 1 outlines how the planning system can promote and facilitate sustainable development through managing the pattern of development to reduce the need to travel. The Supplement to PPS1 Planning and Climate Change (2007) makes clear the Government's commitment to tackling climate change and its expectation that new development should be located and designed to optimise its carbon emission performance.

Guidance on Transport Assessment (DfT, March 2007)

In March 2007 revised guidance was produced on the development of Transport Assessments. The objective of a Transport Assessment is to set out all the key transport issues relating to a proposed development to ultimately determine whether the transport impact of the development is acceptable.

In the latest guidance emphasis is placed on smarter choices and improving existing infrastructure. Increasing capacity on existing or new roads should be considered only when all other options have been explored.

3.3 Regional Policy

Regional Spatial Strategy

The Coalition Government confirmed its intention to abolish regional strategies, including the West Midlands Regional Strategy, as part of the new Localism Bill (introduced to Parliament in December 2010). This Bill will shift power from central government back into the hands of individuals, communities and councils.

Although the status of the RSS is likely to be subject to change following the introduction of the Localism Bill, it remains as part of the Development Plan at the current time (August 2011) and will do until the legislation is passed.

Its aim is to assist local authorities working with each other and with businesses and communities to consider strategic transport priorities and cross boundary issues. As this policy is in the process of being changed, local policy is currently given a higher priority. However the evidence base for these strategies is still relevant for informing local decision making.

Policy T2 of the RSS states the following:

Local authorities, developers and other agencies should work together to reduce the need to travel, especially by car, and to reduce the length of journeys through:

- encouraging those developments which generate significant travel demands to be located where their accessibility by public transport, walking and cycling is maximised, including close to rail and bus stations and Metro stops. High-density development will be supported in such locations in accordance with policyCF4;
- promoting patterns of development which reduce the need for travel (UR4), including a more balanced provision of different uses in larger settlements including the sub-regional foci;
- encouraging those developments which generate significant freight and commercial movements to locate close to suitable inter-modal freight terminals, rail freight facilities, or roads designed and managed as traffic distributors;
- encouraging the use of telecommunications for the purposes of business and for other service provision; and
- supporting the retention and enhancement of local service provision, especially where public transport provision is poor.

3.4 Local Policy

Local Plan

East Staffordshire Borough Council adopted its Local Plan in July 2006. This Plan was in use from July 2006 to July 2009. Since then the 'Local Plan Saved Policies Extended beyond 20th July' document has been used. These policies are used to determine planning applications submitted. Relevant to this TA includes the following:

- page 55 states that 'The site South of Branston consists of 40ha of land with outline planning consent. The Borough Council encourages high quality employment development of the site.'
- Policy L8 – The Borough Council will approve proposals for the extension of Branston Water Park.

Policy T1 states that applicants for new developments will:

- make an appropriate contribution towards the cost of any necessary highway improvements;
- provide a contribution towards the provision of public transport services and facilities, walking and cycling facilities arising as a result of the development, with the extent of what is required related in scale and kind to the development concerned; and
- prepare and implement a Green Transport Plan encouraging alternative forms of transport from the private car.

Policy T3 (Development proposals affecting the A38) states that the local authority will seek:

- contributions towards improvements to the A38 from developers which will have impact on traffic flows on the A38;
- to reduce any impact on the A38 by requiring developers to implement and monitor effective Green transport plans; and
- to encourage mixed-use development in the vicinity of the A38 to reduce the need to use the A38.

Local Development Framework

LDFs are a suite of documents that will eventually replace Local Plans. The East Staffordshire LDF is due to be adopted in 2012.

Staffordshire Local Transport Plan 3 2011

Staffordshire's third Local Transport Plan (LTP) was published in March 2011 and sets out the County Council's proposals for transport provision within the county, including walking, cycling, public transport, car based travel and freight, together with the management and maintenance of local roads and footways.

Table 3.1 details the LTP objectives relevant to this Transport Assessment and the policies and measures in place to achieve them.

Objectives	Policy	Measures
Supporting Growth and Regeneration	Policy 1.1: stimulate regeneration	Supporting new development that includes or is located in areas with good public transport links, well connected to walking and cycling networks and facilities, and where the demand of 'place' and 'movement' is considered together
	Policy 1.4: maximise the reliable operation of the existing road network.	Promoting the delivery and further development of travel plans. Encouraging walking, cycling and public transport use, particularly on congested corridors.
	Policy 1.6: make best use of roads to increase capacity before considering building new roads.	New road building will be considered where it: - Facilitates new development/regeneration. - Increases capacity at specific congested locations. - Improves local safety. - Enhances conditions for local residents, pedestrians, cyclists, public transport users and businesses.
Making Transport Easier to Use and Places Easier to Get to	Policy 3.1 Support the adoption of sustainable land-use planning polices and reduce the impact of development where it negatively affects the highway network.	Encourage the design and layout of new development that maximises access by smarter travel modes, especially in urban areas. Seek development mixes and patterns that are accessible to a broad range of services and facilities, which reduce the need to travel by private motor vehicle. Working with local planning authorities to include planning obligations which secure highway capacity improvements, pedestrian and cycling facilities, new or improved bus services, demand management measures, public realm enhancements, and travel plans. Ensuring that travel plans, when required to support new development, include modal shift targets, annual performance monitoring, remedies and enforcement obligations.

Objectives	Policy	Measures
Reducing Road Transport Emissions and Their Effects on the Highway Network	Policy 5.1 Promote alternatives to private motor vehicles.	Investing in measures to improve conditions for pedestrians and cyclists, particularly in urban areas where a real opportunity for modal change exists. Encouraging major employers to develop travel plans as a way of managing travel to and from work in a sustainable way. Encouraging local planning authorities to secure development patterns and mixes that reduce the need to travel and enable the use of smarter travel modes. Supporting new development that includes or is located in areas with good public transport links, well-connected to walking and cycling networks and facilities, and where the demand of 'place' and 'movement' is considered together. Working with local planning authorities and developers to mitigate impacts of development in less sustainable locations but which is essential to support regeneration and economic growth. Promoting the financial and environmental benefits to businesses of adopting flexible working practices, especially in areas where traffic levels are approaching their capacity, where future development is expected, in AQMAs or where the workforce travels some distance to get to work. Ensuring transport and access is considered at an early stage in service design and delivery. Promoting the financial, environmental and health benefits of smarter travel modes to individuals, especially in areas where traffic levels are approaching their capacity, where future development is expected or in AQMAs. Promoting (and running) schemes that encourage the take up of smarter travel modes.

Table 3.1: LTP 3 Objectives and Measures

3.5 Summary

A review of the local and national policy has identified the key policy themes that need to be addressed in this TA:

- Reduce the need to travel by private car;
- Provide good accessibility by all modes of transport;
- Promote sustainable trips over those made by private car;
- Design the site to integrate well with existing (and proposed) transport links; and
- Limit traffic congestion and the occurrence of personal injury accidents.

4 Development Proposals

4.1 Development Proposals

The site already has a long planning history, including permission for employment uses which would generate 2190 AM peak trips and 1710 PM trips (Source: Halcrow December 2003 Transport Assessment). The Branston development proposals include 659 residential units to be located to the north of the site and 71,533sqm of employment land use to be located to the south of the site (of which 57,226sqm is B8 use and 14,307sqm is B2 use).

4.2 Site Access Arrangements

It is proposed to access the development via three access points. The employment area will be served by a left in/left out junction on the A38 (as per drawing PJF1160008 in **Appendix E**). The residential area will be served by two access points into Branston, firstly by extending Main Street beyond the Gate Inn, and secondly by extending Hollyhock Way into the site. Residential traffic will be able to travel south to use the A38 exit, but no employment traffic will be permitted to travel north into the residential area. Buses will however be able to travel from the employment area to the residential area by means of a bus-gate.

4.3 Car Parking

Car parking will be provided in line with East Staffordshire Borough Council's (ESBC) 'Maximum Parking Standards' provided in Supplementary Planning Guidance adopted December 2004. The standards are detailed in Table 4.1.

Use	Maximum Car Parking Standard	Resultant level of Car Parking
B2 (industry) 1000sqm+	1 per 20sqm (0 to 240sqm) 1 per 50sqm (240 to 1000sqm) 1 per 80sqm (100sqm+)	193
B8 (storage & distribution) 1000sqm+	1 per 20sqm (0 to 240sqm) 1 per 50sqm (240 to 1000sqm) 1 per 80sqm (100sqm+)	730
C3 (residential dwellings)	1 bedroom: 1 space + 1 space per 3 dwellings for visitors 2 or 3 bedrooms: 2 spaces 4 or more bedrooms: 3 spaces	TBC subject to dwellings mix.

Table 4.1: ESBC's Car Parking Standards & Resultant Provision

4.4 Cycle Parking

Cycle parking will be provided in line with East Staffordshire's Minimum Cycle Parking Standards (December 2004). These are detailed in Table 4.2. Cycle parking will be provided as close to building entrances as possible to ensure that walking distances between cycle parking and the end destinations are as short as possible. For the residential units it is likely that dwellings with a garden or garage will have somewhere to store their bikes. Therefore cycle parking will be provided for those residential dwellings without a garage or garden.

Use	Minimum Cycle Standard	Resultant Level of Parking
B2 (industry)	1 stand per 300sqm gross floorspace in secure weatherproof shelter.	48
B8 (storage & distribution)	1 stand per 300sqm gross floorspace in secure weatherproof shelter.	191
C3 (dwellings)	1 secure space per unit	659
Total no. of spaces		**898**

Table 4.2: ESBC's Cycle Parking Standards & Resultant Provision

4.5 Public Transport Provision

A public transport strategy for the development has been proposed so as to maximise accessibility to key destinations for future residents, whilst providing access for existing and future employees working within the site.

Discussions have taken place with local bus operators regarding options for diverting services to serve the new development proposals. Service 7 (Burton-on-Trent to Lichfield) currently stops along the A38 by the proposed access although Arriva have stated that the service very rarely stops here (and this was confirmed during the recent 12 hour survey on the A38 when no users were observed using this bus stop). The preferred option is therefore to re-locate the southbound bus stop from the A38 to on-site. The 7 service can then be diverted through the site instead of travelling along the A38.

It is also proposed that the bus travelling northbound on the A38, will be able to U-turn at the Branston Interchange, and enter the site via the new A38 access. The bus will then travel north through the site, before continuing on towards Branston/Burton-upon-Trent. With this slight bus detour, there will be no need for people travelling to site by bus service 7 to cross the A38, as the bus will travel both northbound and southbound through the site.

Additionally, the developer will aim to provide a new service linking the site to Burton at a frequency of 2 buses per hour throughout the day (phasing to be agreed). This would result in 2 new services per hour, plus the diverted 7 service serving the site.

The internal site layout will ensure the majority of developments will be within a 350m walking distance of the bus route. The indicative location of the new bus stops and routes are illustrated on Figure 4.1. Bus stops will include sheltered seating areas and include timetable/routing information.

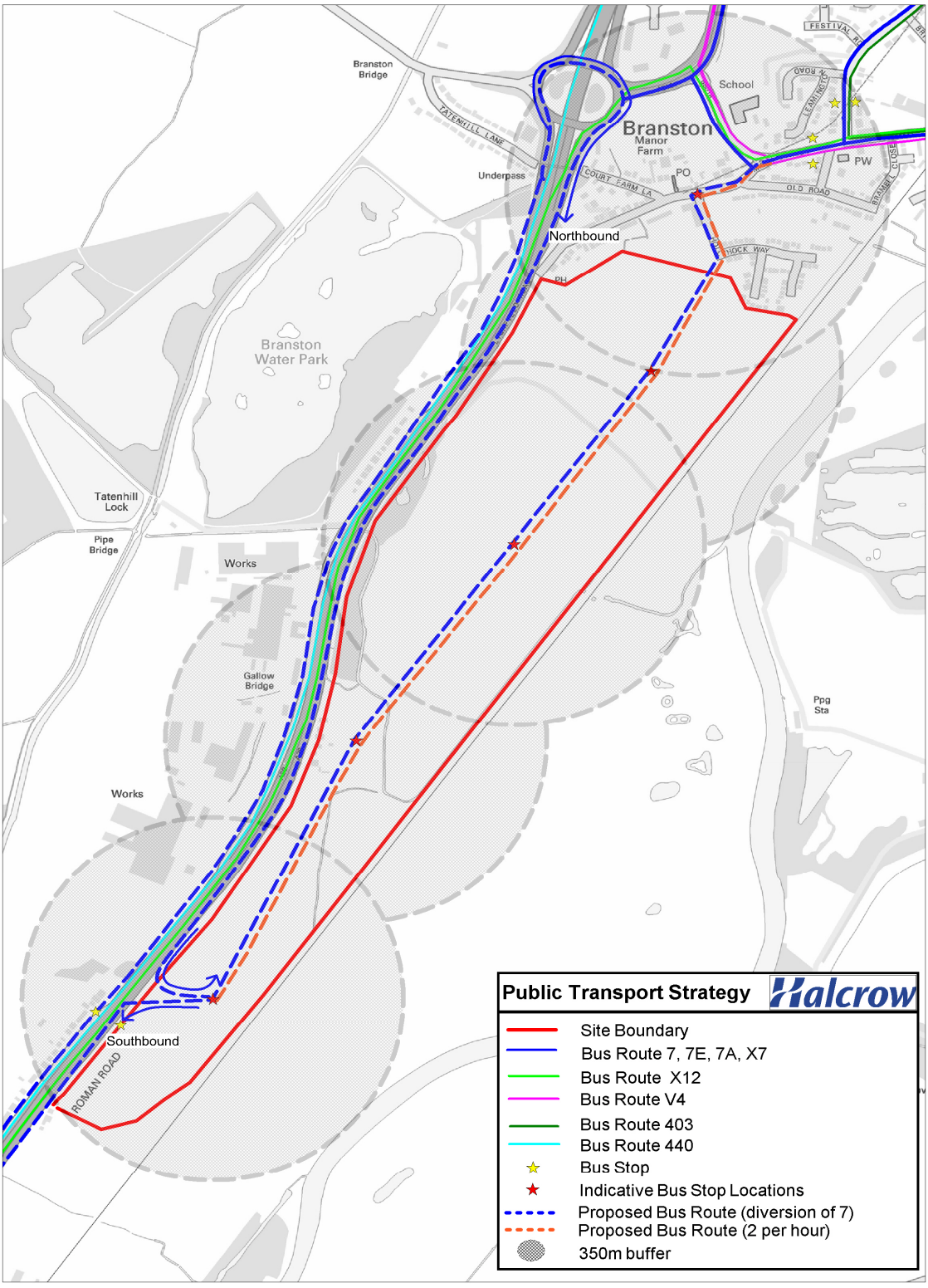

Figure 4.1 Public Transport Strategy

5 Development Impact

5.1 Method

It was agreed at the scoping stage with both SCC and the Highways Agency that the most appropriate method of modelling the traffic impact of the development proposals would be by using the Staffordshire County Council's Burton SATURN Traffic Model. The SCC SATURN Model is a strategic traffic model used by SCC to model the transport implications of land use changes, transport improvements and impact of policy changes. The model has been validated such that it forms a sound and acceptable basis for modelling future transport patterns in Burton, and the two future years for which the model has been produced are 2016 and 2026.

The assumptions and parameters in the SCC SATURN model have been produced in agreement with the Highways Agency, as the model covers not only the local SCC road network, but also the A38 Trunk Road in Burton. Parameters such as future network and development assumptions, trip generation rates and trip distribution have been agreed with the Highways Agency in production of the model.

Full details of the proposed development and its access points were supplied by Halcrow to SCC and SCC undertook runs of their SATURN model for 2016 and 2026 years for both the 'with' and 'without' Branston development scenarios.

As a result of analysing the results of the SATURN model, SCC identified that they considered that further detailed 'standalone' junction assessments would be required to examine the development impacts in more detail at the following eight junctions:

1. A38 Branston Interchange
2. A38 Barton Junction
3. New A38 Site Access Junction (left in / left out)
4. Branston – Main Street/Hollyhock Way T Junction
5. Branston Main Street/B5018 Burton Road T Junction
6. B5018/A5121 Wellington Road Traffic Signals
7. A5121 Wellington Road/First Avenue Signals
8. A5121 Wellington Road/Parkway/Retail Park Access

(Relevant junction location/plans are provided in **Appendix F**.)

For junctions 3 to 8 above, new junction models were created and the SCC SATURN model flows were used to model impacts at each junction in isolation.

For both the A38 junctions at Branston and Barton, the Highways Agency had already produced their own standalone junction models, using VISSIM software. The HA VISSIM models for each junction were supplied to Halcrow and the SCC SATURN model traffic flows were then input to the two VISSIM models to assess the development impact in more detail at the A38 Barton and A38 Branston interchanges.

Liaison between Halcrow, SCC and the HA has been ongoing such that detailed modelling parameters and assumptions are acceptable to all parties in terms of the model runs which have been undertaken.

Whilst model runs have been provided by SCC for 2016 and 2026, the assessments undertaken in this TA relate solely to 2026. This is because the scale of the development is such that only a small proportion of the site (20% approximately) will be completed by 2016, although it is anticipated that full development will be complete by 2026. This is a robust assessment year with which to test the development impact, as the National Transport Assessment guidelines suggest that in this instance 2016 and 2021 would normally be the assessment years (for SCC and HA networks respectively).

The junction assessments have been based on the traffic flows calculated for 80,000sqm of employment, however subsequent masterplan changes have resulted in a reduction in employment proposed on the site, with the total GFA now being 71,533sqm of employment. Table 5.1 sets out the reduced number of trips as a result of the subsequent masterplan changes.

	AM		PM	
Trip Rate per 100sqm and	Arrivals	Departures	Arrivals	Departures
B2 (14,307sqm)	0.266	0.068	0.059	0.33
B8 (57,226sqm)	0.219	0.102	0.12	0.315
Residential	0.133	0.444	0.42	0.213
Year 2026 (100% build out)				
B2 (14,307sqm)	38*(43*)*	10*(11*)*	8*(9*)*	47*(53*)*
B8 (57,226sqm)	125*(140*)*	58*(65*)*	67(77*)	180*(202*)*
Residential	87	293	277	140
Total 71,533sqm	**250***(269*)*	**361***(365*)*	**352***(359*)*	**367***(393*)*
Total Reduction	**-19**	**-4**	**-7**	**-26**

**trip generation for 80,000sqm as included in the SATURN model*

Table 5.1: Reduction in trips for Proposed Masterplan

It can be seen that there are a total of 23 less trips in the AM peak and 33 less trips in the PM peak. The junction capacity results presented in this chapter therefore provide robust assessments as they are based on a larger amount of development and trips.

5.2 Committed and Planned Development

The 2026 SATURN model contains a number of committed or planned developments within the Branston and Burton area. The development traffic associated with these developments is therefore included within the SATURN outputs. In total there are 13,000 committed or planned residential dwellings including the proposed development. The main committed and planned developments are summarised in Table 5.2.

Site Location	Housing (no.of dwellings)	Employment (Hectares)
Beamhill	850	
North of Harehedge Lane	400	
Lawns Farm	3000	10
Branston Depot	500	2
Hospital	60	
Town Centre	500	
North of Stretton	350	
Rocester	90	
Barton	250	
Tutbury	225	
West of Uttoxeter	500	
Additional Uttoxeter	690	
Drakelow	2239	5

Table 5.2: Committed & Planned Developments

Halcrow have assumed that the 2026 Do Minimum traffic flows include all committed and planned developments, as identified in the table above.

5.3 Committed and Planned Mitigation

A wider strategic study of the A38 corridor has been undertaken by the Highways Agency and consultants, who have identified a number of improvements / measures that are needed to ensure the current operation of the junctions and its network is maintained, taking account future background traffic growth and committed/ planned schemes coming forward in the local area. Two stages have been identified for the implementation of the various improvement measures referred to a Phase One and Phase Two.

As part of the recent planning consent of the Bullivant / EON development site – Drakelow Park in Branston, the full Phase One improvements are now considered to be committed, and forming a new baseline situation for future development considerations. The Drakelow Park site will provide, via a Section 278 agreement, completed Phase One improvement schemes, as well as contributing to the Phase Two schemes.

Details of Phase One and Phase Two improvements are available with the associated Drakelow Park Transport Assessment and plans provided in **Appendix G**.

Halcrow have been provided by the Highways Agency, VISSIM model networks which include Phase one network changes. Halcrow have included the 2026 do minimum traffic flows from the SCC SATURN model to these model networks.

The wider study has identified a range of additional Phase Two improvements. The Drakelow Park development has committed to a contribution, upon reaching a set trigger points for these Phase Two measures. Halcrow seek to demonstrate as part of this Transport Assessment, that specific segments of Phase Two will be sufficient to mitigate the impact of the development proposals. Halcrow have identified the following Phase Two schemes for inclusion in the assessment:

- Branston Interchange – Southbound Off Slip widening and signalisation of remaining circulatory.
- Branston Interchange – Upgrade A5121 / B5018 signal junction controller to MOVA control.
- Barton Turns Interchange – Widening of link road south of New Station road / Walton road / A38 (S) proposed signal junction.

A number of other measures are included within Phase Two, which include technology based solutions, including: ramp metering and traffic management using Variable Message Signs. Also the introduction of two new lay bys and improvements to existing lay-by and upgrading of the A38 southbound merge at Branston. It has however been identified that these proposed measures are not required to mitigate the traffic generated by the proposals, and therefore have not been modelled. Halcrow have been provided, by the Highways Agency, VISSIM model networks which include all Phase Two network changes. Halcrow have used these models and removed the measures deemed unnecessary.

Halcrow have made a number of minor changes to the operation of the VISSIM models. These will not change the phase two proposed designs and merely improve the model efficiency, these measures include:

- Branston Interchange – changes to the routeing and lane utilisation of the modelled vehicles. These are consistent with the Phase Two designs supplied
- Barton Turns Interchange – Adjusting and improving the signal timings at the proposed Phase One junctions

All other model parameters and assumptions are consistent with the approved models provided.

5.4 Junction Capacity Assessments

Full details of all the junction capacity assessments can be found in **Appendix H,** and this section of the TA summarises the results of capacity assessments at all of the junctions identified by SCC and the HA to receive a significant impact to warrant assessment and possible mitigation. All junctions have been assessed for the year2026 for a weekday morning and evening peak hour, and have considered a worst-case traffic scenario that includes 2026 base and proposed development traffic. For those junctions where no mitigation has been identified, a 2026 baseline assessment has also been provided to show the comparison of results between the two scenarios, showing that no mitigation is required.

Junction capacity assessment have been undertaken for each junction in turn, starting with those located on the strategic road network

A38 Branston Interchange

The Branston development is expected to generate 289 (342) two way trips in the morning (evening) peak, travelling through the Branston Interchange., based on the robust flows included in the SATURN model. The development trips will travel primarily on the B5018 Main Street and the A38 mainline carriageway. These movements are summarised below in Table 5.3 below.

Road Link	Morning Peak		Evening Peak	
	Inbound	Outbound	Inbound	Outbound
B5018 Main Street	56	146	155	66
A38 South	60	27	36	85
Total	116	173	191	151

Table 5.3: Development Trips through A38 Branston Interchange (*Total Vehicles*)

This junction has been assessed in VISSIM using an approved Highways Agency Phase One network model. Traffic flows provided by the highway authority have also been used to run and test the scenarios needed to identify the traffic impact and determine the scale of mitigation required.

The following traffic scenarios have been tested in the VISSIM model for the Branston Interchange:

- 2026 Do Minimum and Phase One network (Baseline Network);
- 2026 With Development and Phase One network;
- 2026 With Development and Partial Phase Two network;

The results of each scenario run in the VISSIM model for the Branston junction is set out below in Table 5.4.

Scenario	Average delay per Vehicle (secs)		Number of Vehicles through network	
	AM	PM	AM	PM
2026 Do minimum and Phase 1 network	142	168	7256	7493
2026 With development and Phase 1 network	148	177	7334	7451
2026 With development and partial Phase 2 network	57	62	8702	9321
% Change Phase 2 / Phase 1	-60%	-63%	+20%	+24%

Table 5.4: A38 Branston Interchange global network comparison

The VISSIM model has only included a partial amount of the Phase Two improvements identified for the junction, including only those needed to fully mitigate the traffic impact generated by the development proposals. These improvements have included:

- the full signalisation of the Branston circulatory carriageway, beyond that part signalised as an improvement in Phase One;
- the provision of MOVA control technology at the signals, to allow the optimisation of signal timings to meet demand

The mitigation schemes identified above are shown in Figures Figure 5.1 and 5.2 in **Appendix H**.

The above table of results shows that the average delay, for each vehicle on the modelled network, is expected to decrease by -60%, despite the increase in traffic from the development. Note: the increase of 20-24%in traffic is not just the development increase but the release of suppressed demand through the provision of capacity improvements at the junction.

The results show that the partial phase two improvements are more than sufficient to mitigate the proposed development traffic at the Branston interchange.

A38 Barton Junction

The Branston development is expected to generate 181 (320) two way trips in the morning (evening) peak hours, travelling through the Barton Turns Junction. The development trips will primarily U-turn from the north. These movements are set out below in Table 5.5.

Road Link	Morning Peak		Evening Peak	
	Inbound	Outbound	Inbound	Outbound
U-turners	-	52	-	127
A38 North	35	53	39	93
Walton Lane	26	15	49	12
Total	61	120	88	232

Table 5.5: Development Trips through A38 Barton Turns (Total Vehicles)

Whilst the Phase One improvements are committed schemes, the partial Phase Two improvements required to mitigation the proposed traffic impact at the junction are identified as being:

- The widening of the link road

This is the improvement identified in the VISSIM model for Phase Two, of which the full scenario results are set out below in Table 5.6.

Scenario	Average delay per vehicle (secs)		Number of vehicles through network	
	AM	PM	AM	PM
2026 Do minimum and Phase 1 network	21	32	6845	7007
2026 With development and Phase 1 network	24	177	6979	5930
2026 With development and partial Phase 2 network	23	24	6996	7333
% Change Phase 2 / Phase 1	+12%	-25%	+2%	+5%

Table 5.6: A38 Barton Turns Interchange global network comparison

These models suggest that in the morning peak, the arm under the greatest pressure is the junction east of the A38, the westbound arm. In the evening peak, U turning vehicles travelling from the A38 southbound off slip towards the link road south of New Station Road / Walton Road / A38 junction.

The Phase Two scheme measures identified, (the widening of the link road), results in the full mitigation of queue increases associated with the development proposals, and this is shown in Figures 5.3 and 5.4 in **Appendix H**.

The above results show that average delay is expected to increase slightly in the morning (from a low base) and a decrease of -25% in the evening, which is the most critical period, and overall, more than mitigating the impact at this junction.

Therefore the partial phase two improvements identified are sufficient to mitigate the proposed development at the Barton Turns interchange.

A38 Site Access (Left in / Left Out) Junction

The proposed site access from the A38 has been assessed using a merge/diverge assessment. DMRB Volume 6 Section 2 (TD22/06) sets out the design parameters for grade separated junctions, including the on and off slips. In this case, a left off and left on slip on the A38 between the Branston and Barton junctions.

The assessment is based on the total anticipated flows using the access and the southbound mainline flow on the A38. Figures 2/3 and 2/5 within TD22/06 set out the type of merge and diverge layouts required based on these flows.

The results of the merge/diverge assessment for the proposed access is summarised in Table 5.7, the information from TD22/06 is contained in **Appendix H** with the capacity assessment results.

Scenario	Morning Peak		Evening Peak	
	S'bound Diverge	S'bound Merge	S'bound Diverge	S'bound Merge
Merge/Diverge Flow	201	143	99	346
Mainline Flow	2503	2503	2960	2960
Junction Layout Required	Type A – Taper Diverge	Type A – Taper Merge	Type A – Taper Diverge	Type A – Taper Merge

Table 5.7: A38 Site Access – Merge/Diverge Assessment (2026 Base and Development traffic)

The results demonstrate that the proposed site access junction with the A38 should take the form of Taper Merges and Diverges, in accordance with the proposed access layout shown in drawing number PJF1160008.

Main Street Priority Junction

As part of the development proposals, it is proposed to change the priority of the Main Street/Hollyhock Way junction with the minor arm changing from Hollyhock Way to Main Street (West). As a result, the existing junction arrangement has not been modelled in this chapter, but a PICADY model of the new junction arrangement has been modelled for a 2026 base and proposed development traffic scenario. In this assessment, Hollyhock Way has become an extension to Main Street. The results are set out below in Table 5.8.

Arm	Morning Peak			Evening Peak		
	RFC	Q	Delay	RFC	Q	Delay
Main Street West (left)	0.199	0	0.11	0.200	0	0.11
Main Street West (right)	0.000	0	0.00	0.000	0	0.00
Main Street East	0.248	0	0.15	0.228	0	0.14

Table 5.8: Main Street Junction 2026 Base and Development traffic

Key

RFC – Ratio of flow to capacity. Considered within capacity at a value of 0.85 and below, but also taking into account figures for queues and delay.

Q – Vehicle queues predicted at each key turning movements at the junction;

Delay – vehicle delays as seconds per vehicle

The results demonstrate that the new Main Street priority junction is able to operate within capacity for a worst-case traffic scenario during both peaks hours, and on this basis, will form a change to the carriageway associated with the proposals.

B5018 Main Street/Main Street Junction

As part of the development proposals, it is intended to retain the B5018 Main Street junction as a priority junction, but with the provision of a ghost right turn and central pedestrian island incorporated into the pedestrian crossing. This junction arrangement has been identified to provide sufficient capacity at the junction (effectively a site access junction) for a future year of 2026 with proposed development traffic.

The mitigation scheme for this junction and all junctions (on SCC roads) are provided in **Appendix I**.

SCC initially had concerns on a previous junction design that they did not want pedestrians to cross more than two lanes at a single time at the pedestrian crossing, as this would provide added delay to vehicles and pedestrians using the B5018 Main Street carriageway. Whilst a priority junction with a crossing over three lanes is provided in accordance with design standards, an improved junction arrangement has been identified.

The PICADY model incorporates the operation of the pelican crossing arrangement situated on the western approach to the junction on the B5018 Main Street. This has been modelled in both peak hours, but with significantly more pedestrians predicted to cross the carriageway in the morning peak hour. Prior to school start times, 20 pedestrians per minute are predicted in the morning peak hour model, taking on board a very robust assessment. Only during the latter parts of morning peak hour would this crossing be activated as pupils cross the carriageway to access the primary school located off the north side of the carriageway.

The design of the junction provides a ghost right turn box for right turning vehicles at the junction, and the capacity results (below) suggest a maximum of two vehicles wanting to turn at any one time. The junction has been designed to accommodate approximately 8 right turning vehicles before the mainline carriageway is obstructed, and therefore is more than sufficient for the vehicle demand generated.

The results for the 2026 base and proposed development scenario is summarised in Table 5.9. No baseline model has been created for this junction, as this junction arrangement would only be constructed with the provision of proposed development traffic using it.

Arm	Morning Peak			Evening Peak		
	RFC	Q	Delay	RFC	Q	Delay
Main Street to B5018(W)	0.380	1	0.19	0.132	0	0.13
Main Street to B5018(E)	0.545	1	0.45	0.224	0	0.34
B5018(W) to (E)	0.608	1	0.14	0.659	2	0.16
B5018(W) to Main Street	0.618	2	0.15	0.691	2	0.21

Table 5.9: A5018 Main Street/Main Street Junction 2026 Base and Development traffic

The results demonstrate that the proposed junction arrangement operates within capacity in the morning and evening peak hours in 2026 with the inclusion of all committed/planned and proposed development traffic flows.

It is therefore considered that the mitigation scheme identified for this junction has more than mitigated the impact of the proposed development, and has retained a pedestrian crossing operation inline with the highway authorities' requirements.

Wellington Road A5121 /B5018 Main Street Signal Controlled Junction

The impact of proposed development traffic has on this existing junction arrangement has been identified using the SATURN traffic flows provided by the highway authority, and the creation of a LINSIG model to replicate the operation of the junction. Table 5.10 provides the capacity assessment results of the 2026 base traffic scenario, and Table 5.11 provides those for a 'with development' scenario. The difference in results shows the traffic impact of the proposals on the operation of this existing junction arrangement.

Arm	Morning Peak			Evening Peak		
	DoS (%)	Del (s/pcu)	Q (pcu)	DoS (%)	Del (s/pcu)	Q (pcu)
Wellington Road West (Ahead)	55.8%	5.6	10	26.9%	3.7	3
Wellington Road West (Ahead)	52.1%	5.1	9	25.1%	3.5	3
Wellington Road West (Right)	75.5%	26.1	17	103.4%	139.7	48
B5018 (Left/Right)	77.7%	25.6	23	95.7%	67.0	33
Wellington Road North (Ahead/Left)	70.3%	34.5	12	103.5%	120.0	54
Wellington Road North (Ahead)	79.0%	39.3	15	101.8%	96.2	49
AM Peak Cycle Time: 120s PRC: 13.9%						
PM Peak Cycle Time: 120s PRC: -15.0%						

Table 5.10: Wellington Road/A5018 Main Street Junction 2026 Base

Arm	Morning Peak			Evening Peak		
	DoS (%)	Del (s/pcu)	Q (pcu)	DoS (%)	Del (s/pcu)	Q (pcu)
Wellington Road West (Ahead)	55.9%	5.6	10	27.2%	3.7	3
Wellington Road West (Ahead)	52.3%	5.1	10	25.4%	3.5	3
Wellington Road West (Right)	77.8%	26.5	18	112.3%	263.9	89
B5018 (Left/Right)	88.6%	34.5	32	97.0%	70.8	37

	Morning Peak			Evening Peak		
Wellington Road North (Ahead/Left)	76.5%	39.0	13	113.0%	263.6	89
Wellington Road North (Ahead)	85.3%	47.0	17	110.8%	228.6	81
AM Peak Cycle Time: 120s PRC: 1.6%						
PM Peak Cycle Time: 120s PRC: -25.6%						

Table 5.11: Wellington Road/A5018 Main Street Junction 2026 Base + Development

Key

DOS – Degree of Saturation. Considered within capacity at a value of 90% and below, but also taking into account figures for queues and delay.

Q – Passenger Car Unit (PCU) queues predicted on approach to each stop line of the signal junction. A PCU is identified as a vehicle 6m in length.

Delay –delays as seconds per PCU

The results demonstrate that the existing junction operates with reserve capacity in the morning peak hour with base and proposed development traffic. However, during the evening peak hour, both traffic scenarios are shown to operate over capacity, with the development proposals shown to have a small impact on two or three junction approaches.

Taking this into account, it is considered that some small scale mitigation measure would be required in this location, in order to return the capacity of the junction to a level prior to development traffic being added. Given the size of this junction with between 2 and four lanes provided on approach to most stop lines at the junction, and the limited highway land availability, it is not considered that any mitigation scheme commensurate with the scale of the impact can be identified in this location. It is considered that this junction is already built to a size that is best able to maximise capacity, and this includes changes to the signal timing and signal staging, which are already working at peak efficiency.

On this basis, mitigation has been identified over and above the typical requirement elsewhere (Morrison's Roundabout) on the highway network, as a means of offsetting against the lack of mitigation options available at this junction. Details are provided later in the chapter.

Wellington Road/First Avenue/Ninth Avenue Signal Junction

The capacity assessment results for the '2026 base' and '2026 base and proposed development' scenarios at this junction are summarised below in Tables 5.12 and Table 5.13.

Arm	Morning Peak			Evening Peak		
	DoS (%)	Del (s/pcu)	Q (pcu)	DoS (%)	Del (s/pcu)	Q (pcu)
Wellington Road South (Left/Ahead)	87.5%	34.7	23	42.1%	19.7	9
Wellington Road South (Ahead/Right)	91.4%	40.8	34	48.5%	18.5	9
First Avenue (Right/Left/Ahead)	19.0%	65.8	1	50.7%	76.4	3
Wellington Road North (Ahead/Left)	40.8%	19.6	9	78.1%	30.1	24
Wellington Road North (Ahead/Right)	42.7%	21.8	9	80.0%	31.8	25
Ninth Avenue (Left/Ahead)	8.3%	66.6	0	51.4%	81.0	3
Ninth Avenue (Right)	15.1%	68.0	1	34.8%	73.4	2
AM Peak Cycle Time: 120s PRC: -1.5%						
PM Peak Cycle Time: 120s PRC: 12.5%						

Table 5.12: Wellington Road/First Avenue/Ninth Avenue Junction 2026 Base traffic

Arm	Morning Peak			Evening Peak		
	DoS (%)	Del (s/pcu)	Q (pcu)	DoS (%)	Del (s/pcu)	Q (pcu)
Wellington Road South (Left/Ahead)	87.7%	35.0	23	42.5%	19.9	9
Wellington Road South (Ahead/Right)	95.9%	53.4	39	51.9%	18.0	9
First Avenue (Right/Left/Ahead)	19.0%	65.8	1	50.1%	76.1	3
Wellington Road North (Ahead/Left)	42.6%	19.9	9	80.2%	31.4	25

	Morning Peak			Evening Peak		
Wellington Road North (Ahead/Right)	44.6%	22.0	10	82.2%	33.2	26
Ninth Avenue (Left/Ahead)	8.3%	66.6	0	51.4%	81.0	3
Ninth Avenue (Right)	15.1%	68.0	1	34.8%	73.4	2
AM Peak Cycle Time: 120s PRC: -6.6%						
PM Peak Cycle Time: 120s PRC: 9.5%						

Table 5.13: Wellington Road/First Avenue/Ninth Avenue Junction – 2026 Base and Development traffic

The results demonstrate that the junction operates with reserve capacity in the evening peak hour, but shown to be operating at capacity in both scenarios in the morning peak hour. The proposed development traffic is shown to have an insignificant impact on the operation of this junction, with almost no change in queues on all approaches. It is considered that no mitigation is required at this junction based the changes in capacity from comparing the results set out in the tables above.

Wellington Road/Second Avenue/Parkway/Morrison's Roundabout

The results provided in Table 5.14 provide the capacity assessment results for a 2026 base traffic scenario ARCADY assessment at this jucntion, and Table 5.15 provides those for a 2026 base and proposed development traffic scenario.

Arm	Morning Peak			Evening Peak		
	RFC	Q	Delay	RFC	Q	Delay
Parkway	0.302	0	0.07	0.608	2	0.09
Wellington Road East	0.597	1	0.07	0.642	2	0.08
Morrisons	0.390	1	0.04	0.393	1	0.05
Wellington Road South	1.000	31	0.34	0.500	1	0.05
Second Avenue	0.151	0	0.09	0.416	1	0.08

Table 5.14: Wellington Road/Second Avenue/Parkway/Morrison's Roundabout 2026 Base traffic

Arm	Morning Peak			Evening Peak		
	RFC	Q	Delay	RFC	Q	Delay
Parkway	0.309	0	0.07	0.635	2	0.10
Wellington Road East	0.618	2	0.08	0.661	2	0.08
Morrisons	0.307	1	0.04	0.402	1	0.05
Wellington Road South	1.026	47	0.47	0.523	1	0.05
Second Avenue	0.154	0	0.10	0.427	1	0.08

Table 5.15: Wellington Road/Second Avenue/Parkway/Morrison's Roundabout 2026 Base and proposed Development traffic

The above results show the development traffic to have a very small impact on the operation of this junction in the morning peak hour, and this is largely because the junction approach (Wellington Road South) is already shown to be operating over capacity for a 2026 base traffic scenario.

It is often the case that the modelling programs increase queues exponentially on junction approaches operating over capacity (RFC / DOS of 0.85/90 and above) and often by amounts larger than the total amount of additional new traffic adding onto the approach in the peak hour period. Therefore a degree of caution should be taken in the queue reporting for junctions shown to be over capacity, noting that queues may well be shorter than what the modelling program is suggesting. This will effectively overestimate the impact of the development proposals in some situations, and is a well known issue in the transport industry.

Whilst baring in mind the limitations of the modelling software, a mitigation scheme has been identified for this junction to negate the impact on the operation of this junction. However, as mitigation has not been identified for another junction on the highway network (Wellington Road Signal Junction), the mitigation identified in this location has been provided to a requirement over and above that needed, in order to offset this circumstance.

Mitigation has included the widening of the entry width to the Wellington Road south approach to a level that mitigates the traffic impact. A further improvement scheme has included the marking of lining around the junction in order to maintain good lane discipline around the junction, and to maximise the capacity of vehicles using the circulatory. The roundabout has sufficient width around the circulatory for two lanes of traffic, and whilst this is observed at the junction on occasion, the physical marking of lanes would ensure it is used, and therefore giving more traffic the opportunity to enter/exit the junction. This proposal is similar to a recent highway authority scheme adopted for two similar sized roundabouts on the A5189 Shobnall Road in Burton-upon-Trent.

Whilst the capacity benefits of the lining scheme can not be identified from the ARCADY modelling software, it is clear that an additional capacity benefit will be obtained from this improvement. The capacity results for the mitigation scheme taking into account the widening on the Wellington Road South approach are set out below in Table 5.16.

Arm	Morning Peak			Evening Peak		
	RFC	Q	Delay	RFC	Q	Delay
Parkway	0.315	0	0.07	0.608	2	0.09
Wellington Road East	0.622	2	0.08	0.642	2	0.08
Morrison's	0.397	1	0.04	0.393	1	0.05
Wellington Road South	0.980	23	0.27	0.479	1	0.04
Second Avenue	0.161	0	0.10	0.416	1	0.08

Table 5.16: Wellington Road/Second Avenue/Parkway/Morrison's Roundabout 2026 Base and proposed Development traffic – mitigation scheme

The mitigation scheme is provided in **Appendix I.**

The above results show that the mitigation scheme identified fully mitigates the impact of the development traffic impacting on this junction (compared to Table 5.14), although these results do not take account of the additional capacity benefits that would be gained from the white lining strategy.

5.5 Summary

This chapter has described the flow scenarios obtained from the highway authority and used to determine the traffic impact of the development proposals on a wide range of junctions located in Branston and on the A38.

Capacity assessment have been created and have taken into account all committed and planned developments / schemes identified for a future year of 2026, in order to determine the impact generated, and to identify possible mitigation schemes.

Mitigation has been identified for a series of junctions, and for one junction where mitigation is not feasible, the mitigation at this junction has been offset by a more significant mitigation scheme identified at an alternative junction. As a result, it is considered that the impact of the development proposals has been fully mitigated through physical highway schemes, prior to taking account of the other sustainable transport improvements (identified in the Travel Plan) that would be provided in the area as a result of the proposals coming forward.

6 Transport Strategy & Mitigation Package

6.1 Travel Plan

An Area Wide Travel Plan (AWTP) has been developed for the entirety of the Branston development. It is too early to identify end users at this stage so the AWTP acts as a framework, setting out the overreaching commitments to be made. A Travel Plan Manager (TPM) will be appointed to be responsible for the overall management of the AWTP, ensuring the initiatives set out within the AWTP are implemented and monitored.

The objectives, targets and initiatives of the AWTP are summarised below:

Objectives of the Travel Plan

- Encourage and promote the use of more sustainable modes of transport for staff, residents' and visitors;
- Maximise opportunity for residents/staff/visitors to travel within, to and from the proposed development by public transport, walking and cycling;
- Reduce the traffic generated by the development, especially single-occupied car journeys; and
- Promote healthy lifestyles and sustainable, vibrant local communities.

Targets

- To achieve the site's trip generation (based on Staffordshire County Council's strategic SATURN traffic model) as identified in Table 6.1 below. The timescale for achieving the trip generation is 12 months after full occupation.

Land Uses	Morning Peak		Evening Peak	
Trip Rate per 100sqm and	Arrivals	Departures	Arrivals	Departures
B2 (14,440sqm)	0.266	0.068	0.059	0.33
B8 (57,760sqm)	0.219	0.102	0.12	0.315
Residential	0.133	0.444	0.42	0.213
Year 2026 (100% build out)				
B2 (14,440sqm)	38	10	9	48
B8 (57,760sqm)	126	39	34	182
Residential	87	293	277	140
Total	**251**	**342**	**320**	**370**

Table 6.1 Trip Generation Targets for the Branston development

Area-wide Initiatives

- Travel Plan Manager to assist all occupiers on travel and travel plan issues, to negotiate discounts with cycle retails/public transport operators, to organise sustainable travel events and set up bi-annual Steering Group Meetings/Bicycle User Groups and walking/Cycling Buddy Groups;
- Residential road layout developed to favour non-car modes with home-zone/shared space characteristics;
- High quality pedestrian/cycle routes with dropped kerbs and crossing points, providing linkages to existing routes;
- Covered, secure cycle parking in line with SCC's standards;
- Directional and distance signage of walking/cycling routes;
- High quality bus stops located within 350 meters of the site;
- Bus services provision linking the site to Burton and Lichfield.
- Travel community website including links to transport information and the AWTP;
- Resident's Welcome Packs including bike vouchers and free bus vouchers;
- Communal notice boards displaying all travel information;
- Site Travel Bureau;
- Residents Car Club;
- Promotion of Staffordshire Share-a-Lift Scheme;
- Induction meetings with new homeowners; and
- Personalised journey planning service to all households.

Each occupier will appoint a Travel Plan Co-ordinator to develop their own site-specific Travel Plan using the Travel Plan Pack provided in an appendix of the AWTP. These will include site specific aims, targets and initiatives. These Individual Travel Plans will feed into the AWTP.

The success of the AWTP will be monitored through staff questionnaires, residents' travel diaries, multi-modal surveys at exit/entry points, bus patronage levels and by reviewing the number of registered car club/car share database users.

6.2 Transport Strategy & Mitigation

The Transport Strategy for the Branston development is set in the context of national and local policy, as well as good practice and local transport studies (e.g. the Highway Agency's A38 study report). The strategy consists of three main themes which are linked together and can be summarised as;

1. Integration with Branston strategy;
2. Access and circulation strategy; and

3. Mitigation strategy.

Integration with Branston

- New pedestrian/cycle links will be provided on site to offer convenient and safe routes within the new development and linking to Branston. Convenient linkages from Branston into the sites' new open spaces, recreational areas and employment opportunities will be provided.
- Enhancements to the centre of Branston to provide more of a local centre focus.
- Improvements in Branston to reduce vehicular speeds and manage traffic and parking more efficiently.
- Provision of new car parks in the centre of Branston to provide over 50 new parking spaces to accommodate/improve the school car parking problems in Branston.
- Creation of new bus shelters near the Medical Centre in the centre of Branston.
- Bus services provision linking the site to Burton and Lichfield
- Inclusion of existing Branston residents in the residential Travel Plan Pack distribution to provide existing residents with the same travel information/discounts etc that the residents receive, so that those wishing to benefit from Travel Plan incentives can be included.

Access & Circulation

- Traffic is spread over the A38 and Branston due to the new access points at these locations.
- Large vehicles associated with the commercial/employment areas will only access the site from the A38, not from Branston.
- New residential development traffic can exit via the A38 or Branston accesses.
- The link between the residential and employment areas will be fully permeable in both directions solely for pedestrians, cyclists, buses and emergency vehicles.
- On site design and measures on Branston Main Street will be in accordance with 'Manual for Streets' principles, seeking to put the needs of pedestrians and cyclists as a higher priority in the urban design framework.

Mitigation Strategy

- An Area Wide Travel Plan will be provided to promote sustainable modes of travel.
- New homes will have home welcome packs with travel information, initiatives and discounts to encourage sustainable travel.
- Existing Branston residents will also receive the travel information packs.
- Existing residents will be invited to participate in the development of a Travel Plan, and where common movements exist, benefit from the travel incentives being provided.

- An on-site network of foot/cycle links and local links to Branston and beyond will be provided in order to provide the opportunity for pedestrian and cycle trips to be made to the wide range of services and facilities that are within acceptable walking/cycling distances.
- New bus shelters in the centre of Branston, plus new bus shelters on site within a 350 metre radius of homes and employment areas.
- On site bus priority measures to ensure that buses have a direct route through Branston, into and out of the new development on key roads within the road network hierarchy.
- Diversion of the number 7 bus service through Branston and the development in both directions to link the site with an hourly service in each direction to Burton and Lichfield.
- Bus services provision linking the site to Burton and Lichfield
- A series of junction/highway improvements at key locations to mitigate the development's traffic impact.
- Contribution to provision of highway improvements to the A38 Branston and A38 Barton junctions.
- Provision of junction/highway improvements at the following local locations:
    - Branston Main Street/Hollyhock Way;
    - Branston Main Street/B5018 Burton Road; and
    - Wellington Road corridor between A38 Branston interchange and the Parkway/Retail Park access roundabout.

7 Summary & Conclusions

7.1 Summary

Halcrow Group Ltd have been commissioned by St Modwen Developments Ltd to produce a Transport Assessment (TA) to accompany an outline planning application for the development of a site south of Branston The development proposals include 659 residential dwellings (C3) taking access off Main Street. The proposals also include 14,307sqm Gross Floor Area (GFA) of general industrial (B2) and 57,226sqm GFA of distribution / storage (B8) development.

In terms of sustainable transport accessibility, the site has good facilities for pedestrians and cyclists including crossing facilities on Main Street and an off-road cycle route providing access to Burton on Trent via the NCN54 and beyond. There are also a number of leisure routes including the public rights of way and the 'Way for the Millennium', and an existing local centre is within a short walk distance. The site is well served by public transport. Bus services X12, 7, 7A, 7E, X7 and V4 can be accessed from Main Street.

The existing safety of the highway network has been identified and shows that few injury accidents have occurred in a most recent five year period, of which those accidents occurring were a result of driver error, and not related to the operation or design of the surrounding road network.

A review of the local and national policy has identified the key policy themes that this report has addressed, including:

- Reducing the need to travel by private car;
- Providing good accessibility by all modes of transport;
- Promoting sustainable trips over those made by private car;
- Design of a site that is able to integrate well with existing (and proposed) transport links; and
- The limiting of traffic congestion and the occurrence of personal injury accidents.

Traffic flow scenarios have been agreed and obtained from the highway authority and used to determine the traffic impact of the development proposals on a wide range of junctions located in Branston and on the A38. Capacity assessment have been created and have taken into account all committed and planned developments / schemes identified for a future year of 2026, in order to determine the traffic impact and to identify possible mitigation.

Mitigation has been identified for a series of junctions, and for one junction where mitigation is not feasible, the mitigation at this junction has been offset by a more significant mitigation scheme identified at an alternative junction. As a result, it is considered that the impact of the development proposals has been fully mitigated through physical highway schemes, prior to taking account of the other sustainable transport improvements (identified in the Travel Plan) that would be provided in the area as a result of the proposals coming forward.

An Area Wide Travel Plan (AWTP) has been developed for the entirety of the Branston development, and includes measures to significant improve public transport provision in the local area, and a series of other measures to promote and encourage sustainable transport accessibility.

7.2 Conclusion

This report has been prepared in accordance with DFT and HA guidance, and each step of analysis has been discussed in detail with the highway authorities. The proposals will provide a significant benefit to the local area in terms of sustainable transport improvements, and an enhanced local centre. The proposals have identified other physical mitigation measures that fully mitigate the traffic impact on all key junctions, providing junction operation at worst, no different than prior to the proposals coming forward.

Based on the analysis and conclusions set out in this report, it is considered that the Highway Authority and Highways Agency should have no highways objections to the outline planning application for which this report accompanies.

Appendix A

Scoping Discussions

Appendix B

Accident Data

Appendix C

Branston Parking Technical Note

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Appendix D

Site's Planning History

Appendix E

A38 Access Drawing

Appendix F

Junction Location Plans

Appendix G

Drakelow Park TA & HA Mitigation Schemes

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Appendix H

Junction Capacity Assessments

Appendix I

Mitigation Strategy

For details of your nearest Halcrow office, visit our website
halcrow.com

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