8 Transport

8.1 Introduction, Methodology and Assessment Criteria

8.1.1 This Chapter of the ES has been prepared by Fore Consulting Ltd and assesses the effects of the Development on transport and access.

8.1.2 The Chapter describes the methods used to assess the baseline conditions currently existing at the Site and surroundings, the likely direct and indirect effects of the Development, and any mitigation measures required to prevent, reduce, or offset the effects and the residual effects.

8.1.3 The Chapter is supported by the following appendices that have also been prepared by Fore Consulting Ltd:

- Appendix 8.1: Framework Residential Travel Plan (TP), July 2023.
- Appendix 8.2: Framework Workplace Travel Plan (TP), July 2023.

8.1.4 The scope and methodology for assessing the transport impacts of the Development has been discussed and agreed with Barnsley Metropolitan Borough Council (BMBC) as the highway authority, as well as National Highways (NH) who is responsible for the operation of the nearby M1 motorway, as part of the Strategic Road Network (SRN).

8.1.5 As described in Chapter 1, this ES represents an update to the ES submitted in July 2021 given the changes to the Proposed Development since the previous submission and to take into consideration comments received from BMBC and NH. The work now includes an additional future year assessment scenario (2026 Phase 1 (With Full Link Road) – see Section 8.4 for further detail) which has been requested for inclusion by BMBC.

8.2 Competence

8.2.1 Fore Consulting Ltd is an experienced team of transport planners and consultants who advise in relation to transport and highways aspects of development proposals and planning applications, as well as major transport schemes and regeneration projects.

8.2.2 This assessment has been overseen by Paul Irwin MSc (Eng) BSc (Hons) who is a Director at Fore and is a Member of the Chartered Institution of Highways and Transportation. Paul has over 33 years transport planning experience and has been involved in the preparation of transport and highways chapters for numerous EIAs on a wide range of large development proposals. Paul has reviewed and signed off this Chapter.

8.3 Legislation, Planning Policy and Guidance

Planning Policy Context

National

8.3.1 The following national planning policy is relevant to the Development:

- National Planning Policy Framework (2023).
- Department for Transport (DfT) Circular 01/2022 – Strategic road network and the delivery of sustainable development (2022).

Local

8.3.2 The following local planning policy is relevant to the Development:

- Barnsley Local Plan (2019).

Guidance

8.3.3 The following guidance is relevant to the Development:

- Planning Practice Guidance (2014).

8.4 Significance Criteria

Consultation

8.4.1 Consultation has been undertaken with both BMBC highways and NH and their consultant team in respect of the impact of the Development on the local and strategic road networks, through extensive discussions.

Study Area and Scope

8.4.2 The methodology for assessing the transport impacts of the Development has been informed through a number of key stages. These are as follows:

- Identification of the scope of the assessment area. This was agreed with BMBC and NH during pre-application discussions and covers Barugh Green Road, Higham Common Road, the M1 Junction 37 and associated roundabouts and Whinby Road, along with the proposed link road. Further dialogue has been undertaken with BMBC with regard to the predicted peak hour traffic impacts on the wider local highway network.

- Determination and identification of the existing (baseline) local transport conditions, including the local highway network, public transport network, and pedestrian and cycle networks.

- Identification of the forecast vehicle trip generation generated by the Development.

- Assessment of the impact and likely significant effects of the forecast trips on the local transport network, by undertaking detailed capacity assessments of the junctions identified within the study area.

- Assessment of the impact and likely significant effects of the remediation and construction traffic on the local transport network.

- Analysis of the five-year personal injury collision record within the study area, and a qualitative assessment of the impact of the Development on road safety.

- Identification and assessment of any mitigation measures to be provided as part of the Development (including the link road).

8.4.3 For the purposes of assessing the environmental effects of the Development in relation to transport, the following assessment scenarios have been considered within this Chapter:

- 2019 Base – Representing the existing transport conditions in the study area. Traffic flows have been derived from surveyed traffic count data.

- 2026 Do Minimum – Representing a future 'baseline' situation. The 2026 Do Minimum scenario establishes the future transport conditions in the study area if the Development was not brought forward. Background traffic growth factors to 2026, obtained from TEMPro, have been applied to the 2019 Base flows. In addition, predicted traffic flows associated with all known committed developments, as agreed with BMBC, have been included.

- 2026 Phase 1 (Without Full Link Road) – Representing the future scenario if some, but not all, Development was to take place (specifically Phase 1a which is for 216 residential dwellings, the first part of the link road from Barugh Green Road to the northernmost internal roundabout, as well as Phase 1b which includes the full employment site). In addition to the 2026 Do Minimum scenario, predicted traffic flows associated with the Phase 1 Development have been included.

- 2026 Phase 1 (With Full Link Road) – This scenario has been requested for inclusion by BMBC and is as above but with the full proposed link road between the A635 Barugh Green Road and Higham Common Road being constructed and operational. It should be noted that the link road is not proposed to be delivered in full until after 2026. As such, this is a theoretical scenario only.

- 2033 Do Minimum – Representing a future 'baseline' situation. The 2033 Do Minimum scenario establishes the future transport conditions in the study area if the Development was not brought forward. Background traffic growth factors to 2033, obtained from TEMPro, have been applied to the 2019 Base flows. In addition, predicted traffic flows associated with all known committed developments, as agreed with BMBC, have been included.

- 2033 With Development – Representing the future scenario if the full Development was to take place. In addition to the 2033 Do Minimum scenario, predicted traffic flows associated with the Development at maturity have been included.

Assumptions and Limitations

8.4.4 The assessment work is based on surveyed traffic flow data, which is subject to variation in the future. The assessment is also based on an estimated level of trip generation and distribution.

8.5 Baseline Conditions

Existing Conditions

Land Use

8.5.1 The Site is located on the western edge of Barnsley and consists of an undeveloped strip of land between the neighbourhoods of Barugh Green and Gawber, with A635 Barugh Green Road and the M1 motorway forming the northern and southern boundaries of the Site, respectively. Allocated as Site MU1 in the adopted Local Plan, the Site is

approximately 116 hectares of land which is mainly used as pasture with some arable farming.

8.5.2 The Site sits on the north facing side of a wide valley, with Claycliffe Business Park at the bottom of the slope and the M1 at the top.

Highway Network

Strategic Road Network

8.5.3 The Development is located a few hundred metres north of Junction 37 of the M1, which forms part of the Strategic Road Network and provides connections from the Barnsley District to key regional and national towns and cities such as Sheffield, Rotherham, Leeds, Nottingham, Derby and London.

8.5.4 Junction 37 comprises of a roundabout interchange providing connections between the M1 and the A628. The roundabout is signal-controlled and comprises four approaches with three circulating lanes. Footways are provided around the circulating carriageway, linking to uncontrolled crossing points on the slip roads.

Local Highway Network

8.5.5 The local highway network comprises a number of key links and junctions which are described in the following section.

8.5.6 A635 Barugh Green Road is a single-carriageway road is approximately 7.3m in width and runs from a junction with Redbrook Road in the east (the road name changes to A635 Wilthorpe Road beyond this point) to the Barugh Green crossroads in the west. The road is partially fronted by residential properties, with a number of side roads providing access to light industrial and distribution centres. The speed limit is 40mph along the frontage of the site, reducing to 30mph before the Barugh Green crossroads.

8.5.7 A637 Claycliffe Road leads north from a roundabout with A635 Barugh Green Road towards the settlement of Darton. It is a single-carriageway road, is approximately 7.3m wide and is subject to a 40mph speed limit. A635 Wilthorpe Road is the eastern continuation of A635 Barugh Green Road, leading towards Barnsley town centre from a junction with Redbrook Road. It is a single-carriageway road with residential development set back from the carriageway. The speed limit is 40mph.

8.5.8 Redbrook Road is a single-carriageway road of approximate 7.3m width, running from a priority junction with the A635 Barugh Green Road to the northeast of the Site towards Barnsley town centre, passing by Barnsley Hospital. Almost entirely residential in character, the speed limit is 30mph throughout.

8.5.9 Higham Common Road / Higham Lane is a single-carriageway road linking Barugh Green crossroads in the north with Capitol Park and A628 Whinby Road in the south, via the settlement of Higham and a bridge over the M1. Where the road runs alongside the south-western boundary of the Site, the speed limit is 30mph and a bus turning circle is present.

Surveyed Traffic Flows

8.5.10 Base traffic flows have been derived from turning count surveys, commissioned by BMBC and undertaken on Thursday 29 November 2018 and Tuesday 5 February 2019. Fully classified turning count surveys were undertaken at the following locations:

- Site 1: Higham Common Road / Hermit Lane Junction.

- Site 2: A635 Cawthorpe Road / A635 Barugh Green Road / Higham Common Road / B6428 Junction.
- Site 3: A635 Barugh Green Road / Cannon Way Junction.
- Site 4: A635 / A637 Claycliffe Road / Whaley Road Roundabout.
- Site 5: Whinby Road / Higham Lane Roundabout.
- Site 6: Whinby Road / Capitol Close Roundabout.
- Site 7: Whinby Road / B6449 Roundabout.
- Site 8: M1 Junction 37.

Public Transport

Bus Services

8.5.11 The Development is located to the east of the existing residential area of Higham and Barugh Green and as such is served by a number of bus services. The closest bus stops in relation to the Site are on A635 Barugh Green Road, Higham Common Road and Pogmoor Road, providing access to services to Barnsley, Kexborough, Crawthorne, Mapplewell and Wakefield.

8.5.12 Details of the buses serving them are in Table 8.1.

No.	Operator	Destinations Served	Daytime Hourly Frequency		
			Mon-Fri.	Saturday	Sunday
43/44	Stagecoach	Barnsley - Worsbrough Common - Kingstone - Pogmoor	30 minutes	30 minutes	60 minutes
93/95/95a	Stagecoach	Barnsley – Gawber – Wilthorpe (95,95a) - Barugh Green – Darton – Kexborough (95,95a) – Bloomhouse Green (93,95a)	15 minutes	20 minutes	30 minutes
94/94a/ 94b	Stagecoach	Barnsley – Gawber - Wilthorpe (94) – Barugh Green (94, 94a) – Higham (94) – Cawthorne (94, 94a, 94b)	60 minutes	60 minutes	120 minutes
96/96b/96c	Globe Holidays	Barnsley - Gawber – Wilthorpe - (96c) Cawthorne (96c) - Kexborough - West Bretton - Crigglestone – Durkar (96b, 96c) – Sandal - Wakefield	60 minutes	60 minutes	60 minutes
Services per hour			8	7	4.5

Table 8.1: Bus Services

8.5.13 In combination the bus stops above offer up to 8 services per hour, providing access to destinations such as Barnsley, Kexborough, Crawthorne, Mapplewell and Wakefield. Most of the services offer early morning services and into the night from Monday to Saturday.

Rail Services

8.5.14 Whilst the Site is not directly served by rail, connections can be accessed at Dodworth station, which is approximately 1.8km southwest of the Site. The station is situated on the Penistone line served by Northern Rail. At peak times, the station provides one direct service per hour to Huddersfield, Barnsley and Sheffield and intermediate local stations.

Pedestrian and Cycle Infrastructure

Pedestrian Facilities

8.5.15 The key pedestrian routes and facilities within the vicinity of the Site are outlined below.

8.5.16 Good quality footways are provided along both sides of most local roads, connecting the Site to Barnsley town centre and the wider area. Street lighting is present on all of the main pedestrian routes.

8.5.17 Signal-controlled pedestrian crossing facilities are provided at the Barugh Green crossroads and at locations close to Barnsley Hospital. Elsewhere, uncontrolled crossing points are typically present at junctions and other locations on the local road network where there is an adjacent footpath.

Cycling

8.5.18 The key cycle routes and facilities within the vicinity of the Site are shown on Figure 4 and are outlined below.

8.5.19 National Cycle Route 62 passes to the south of Dodworth, approximately 3km to the south of the Site, and connects Fleetwood on the Fylde region of Lancashire with Selby in North Yorkshire. It forms the west and central sections of the Trans Pennine Trail which is a long-distance path running from coast to coast across northern England. The section of National Cycle Route 62 within the vicinity of the Site is almost entirely traffic-free between Hadfield and Doncaster.

8.5.20 The western section of the Trans Pennine Trail travels between Southport and Penistone via Liverpool and Stockport, and passes through the Peak District National park.

8.5.21 The central section of the Trans Pennine Trail covers a whole network of routes, linking the major urban centres of the region including Sheffield, Rotherham, Wakefield and Barnsley.

8.5.22 Starting from close to Barnsley Interchange, a local cycle route heads east out of Barnsley town centre, connecting to National Cycle Route 67 in Stairfoot, approximately 5.5km to the east of the site. National Cycle Route 67 runs from Long Whatton near Loughborough to join National Cycle Route 71 near Northallerton in North Yorkshire.

8.5.23 The Barnsley Cycle Hub is located in Barnsley Interchange and offers a range of cycle support services to Barnsley residents and businesses. Amongst other things, the

hub features free secure indoor cycle parking, toilet and shower facilities, and bike servicing and repairs.

8.6 Future Baseline

Highway Network

8.6.1 The approach to considering the operation of the highway network in the future assessment scenarios is summarised as follows:

- Future assessment years of 2026 for Phase 1 and 2033 for the full development, have been assumed, representing a reasonable timescale for construction and occupation of the Development.
- Traffic growth is estimated on the basis of TEMPro growth factors to 2026 and 2033.
- Traffic associated with a series of committed and proposed developments has been taken into account in the assessment of the future baseline scenario.

Public Transport / Pedestrian and Cycle Infrastructure

8.6.2 The adjacent Countryside planning application for 140 dwellings off Barugh Green Road (planning application reference 2020/0977) will undertake minor changes to the public transport / pedestrian and cycle network, which includes the relocation of a bus stop and a new pedestrian crossing island on Barugh Green Road. Aside from this, it is understood that there are no works proposed or committed by other parties, which would have a significant impact on the operation of the public transport networks, or pedestrian or cycling provision within the study area.

8.7 Identification of Likely Effects

Operation of the Highway Network

8.7.1 Vehicular access to the Development will be taken from the new link road through the site, with the exception of one parcel of residential land at Pogmoor for 119 dwellings which will take access from Farm House Lane. The Farm House Lane access will serve this residential parcel of land only and there will be no through-road to the rest of the site. It is anticipated that the link road will provide two internal roundabouts to provide access to the remaining individual development plots. Capacity assessments undertaken demonstrate that the proposed layout would satisfactorily accommodate changes in traffic flows associated with the completed Development.

Construction

8.7.2 For the purposes of this ES, construction of the Development is anticipated to last until the Development is fully built out by 2033. The construction build out has been separated into broad phases, as set out in Chapter 3 of the ES. The residential element of the Development will involve an initial phase of 216 dwellings, anticipated to be completed by 2026, along with the first part of the link road running from the A635 Barugh Green Road to the northernmost internal roundabout and also the proposed primary school. Phase 2 will include the completion of the link road and thereafter in phase 3 the remaining residential development will be built out by 2033. The employment site will be subject to

a separate construction build out, potentially beginning in advance of the completion of the link road.

Operational Development

8.7.3 To establish forecast traffic flows in the 2026 and 2033 future years without the Development taking place, background traffic growth factors to 2026 and 2033, obtained from TEMPro, have been applied to the 2019 Base flows. Predicted traffic associated with all known committed developments has also been included. The resulting 2026 Do Minimum and 2033 Do Minimum traffic flows represent the future 'baseline' situations.

8.7.4 To estimate changes in traffic flows associated with the Development, vehicle trip rates were obtained using the TRICS database, as agreed with BMBC and NH. The resulting vehicle trip generation was assigned to routes on the highway network surrounding the Site using a trip distribution derived from 2011 Census data and agreed with BMBC and NH.

8.7.5 The likely significant effects of the Development are determined by comparing the Do Minimum scenarios with the With Development scenarios, using the significance criteria set out below.

Determining Effect Significance

8.7.6 The significance of an effect is derived from a measurement of the magnitude (or scale) of the change and the sensitivity and/or importance of the receptors affected. Categories of sensitivity and magnitude are defined and assessed to determine the significance of the effect.

8.7.7 The magnitude of change and the sensitivity of the affected receptor are assessed on a scale of high, moderate, low and negligible. Where an effect is considered to be non-significant, or have no influence irrespective of other effects, this is classified as 'negligible'.

8.7.8 The significance of the potential effects of the Development as a result of transportation have been determined using criteria developed from best practice techniques.

Magnitude of Effect

8.7.9 The IEMA guidelines (Environmental Assessment of Traffic and Movement, 2023) identify a number of environment effects that may arise from changes in vehicular travel demand and set out the broad principles of how to assess the magnitude of effect for each category. This is summarised below:

- Severance – This is the perceived division that can occur within a community when it becomes separated by major transport infrastructure. Such division may result from the crossing of a heavily trafficked road or a physical barrier created by infrastructure. The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow and composition, vehicle speed, the availability of crossing facilities and the number of pedestrian movements across the affected route. The IEMA guidelines set out that changes in traffic flow of 30%, 60% and 90% are regarded to produce 'slight', 'moderate' and 'substantial' changes in severance, respectively. It is advised that these broad indicators should be used with care and regard paid to specific local conditions such as sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided and traffic signal settings;

- Driver Delay – The IEMA guidelines note that driver delay can occur at several points on the network and the effects are only likely to be significant when the traffic on the highway network is predicted to already be at, or close to, the capacity of the system. For the purposes of this assessment, reference is made to junction capacity assessments that have been undertaken using the Junctions10 and LinSig computer programs for priority and signal-controlled junctions, respectively;

- Pedestrian Delay – The IEMA guidelines note that changes in the volume, composition or speed of traffic may affect the ability of a person to cross a road. In general, increases in traffic levels are likely to lead to increased pedestrian delay. The guidelines do not set definitive thresholds for assessing pedestrian delay, recommending instead that assessors use their judgement to determine the significance of the effect. The assessment of pedestrian delay serves as a proxy for delay that other modes of non-motorised users may experience when crossing roads;

- Non-Motorised User Amenity – This is broadly defined as the relevant pleasantness of a journey. It is affected by traffic flow, traffic composition, footway width and separation from traffic. The IEMA guidelines suggest a tentative threshold for judging the significance of a change in non-motorised user amenity where the traffic flow (or the heavy good vehicles (HGV) component) is halved or doubled;

- Fear and Intimidation – The impact of fear and intimidation is dependent upon the volume/speed of traffic, the HGV composition, the proximity of traffic to people and the lack of protection caused by factors such as narrow footway width. The IEMA guidelines state that there are no commonly agreed thresholds for estimating fear and intimidation from known traffic and physical conditions. Some thresholds have been identified and are shown in Table 8.2 below.

Degree of Hazard	**Average hourly traffic flow over 18-hour day**	**Total 18-hour HGV flow**
Extreme	>1800	>3000
Great	1200-1800	2000-3000
Moderate	600-1200	1000-2000
Negligible	<600	<1000

Table 8.2: Fear and Intimidation Thresholds

- Road Safety – The IEMA guidelines refer to the identification of any collision clusters on the local highway network including any patterns or factors that could be exacerbated by traffic or movement generation. For the purposes of this assessment, reference is made to five-year road traffic collision data.

8.7.10 From the IEMA guidelines, it should be noted that it should be assumed that projected changes in traffic flow of less than 10% create no discernible environmental

impact given that daily variations in background traffic flow may fluctuate by this amount under normal operating conditions.

Receptors and Receptor Sensitivity

8.7.11 The IEMA guidelines identify groups, locations and areas which may be sensitive to changes in traffic conditions and which should be considered for assessment. These are set out below:

- People at home.
- People at work.
- Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage, and access and geographic factors).
- Locations with concentrations of vulnerable users e.g. hospitals, places of worship, schools.
- Retail areas.
- Recreational areas.
- Tourist attractions.
- Collision clusters and routes with road safety concerns.
- Junctions and highway links at (or over) capacity.

8.7.12 Categories of receptor sensitivity have been defined as follows:

- The need to identify particular groups or locations which may be sensitive to changes in traffic conditions.
- The list of affected groups and special interests set out in the IEMA guidelines.
- The identification of links or locations where it is felt that specific environmental problems may occur. Such locations could include collision black spots, conservation areas, hospitals, links with high pedestrian flows etc.

8.7.13 These categories have been used to outline, in broad terms, the sensitivity of receptors to traffic for the types of effect assessed in this Chapter, although each receptor assessed will have a different sensitivity to each specific effect.

8.7.14 Table 8.3 below provides a summary of the sensitivity of receptors, categorised either as high, moderate or low.

Category	Receptor Sensitivity	Receptor Type
High	The receptor has little ability to absorb change without fundamentally altering its present character or is of international or national importance.	Schools, colleges, playgrounds, collision black spots, retirement homes, roads used by pedestrians with no footways.

Category	Receptor Sensitivity	Receptor Type
Moderate	The receptor has moderate capacity to absorb change without significantly altering its present character or is of high importance.	Congested junctions, surgeries and clinics, hospitals, shopping areas with roadside frontage, roads used by pedestrians with narrow footways, parks and recreational areas.
Low	The receptor is tolerant of change without detriment to its character or is of low or local importance.	Places of worship, public open space, tourist/visitor attractions and residential and employment areas with adequate footway provision.

Table 8.3: Sensitivity of Receptors

8.7.15 The significance of the effect is judged on the relationship of the magnitude of the effect and the sensitivity and/or importance of the receptor. A matrix of the significance of the effects is set out in Table 8.4. The effects have the potential to be adverse, beneficial or negligible.

Sensitivity of Receptor	Magnitude of Effect			
	High	Moderate	Low	Negligible
High	Major	Major	Moderate	Negligible
Moderate	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible

Table 8.4: Criteria for Assessing Effect Significance

8.7.16 The following terms have been used to define the significance of the effects identified:

- Major effect – where the Development could be expected to have a very significant effect (either positive or negative) on the existing environment.
- Moderate effect – where the Development could be expected to have a noticeable effect (either positive or negative) on the existing environment.
- Minor effect – where the Development could be expected to result in a small, barely noticeable effect (either positive or negative) on the existing environment.
- Negligible effect – where no discernible effect is expected as a result of the Development on the existing environment.

8.7.17 Moderate and major effects are considered to be 'significant' for the purposes of this assessment.

8.7.18 In the context of the Development, short (up to 24 months duration) to medium (up to 60 months duration) term effects are generally determined to be those associated with construction activities and the long-term effects are those associated with the completed and occupied Development.

8.7.19 Although not explicit in the matrix in Table 8.4, duration has, where required, been accounted for in the assessment, for example, whether the effects are permanent or temporary, and if temporary, over what time period.

8.8 Assessment of Effects

Construction Phase

8.8.1 A contractor has not yet been appointed to undertake the construction works and no specific detail in terms of the number of vehicles likely to be generated by the construction process is available at this stage. The Site will be subject to a substantial earthworks exercise with the overall level strategy founded around achieving a net balance of cut and fill across the Site. Whilst this will necessitate the movement of substantial volumes of material this will be within the Site itself and will avoid the need for any export of material, all of which will be retained on Site.

8.8.2 Vehicle movements generated by the construction process are therefore likely to be primarily associated with the delivery of plant and construction materials, as well as construction staff travelling to and from the Site. It is estimated that the likely traffic to and from the construction site is not likely to exceed 100 two-way trips on a daily basis.

8.8.3 Consequently, the movement of construction traffic may result in temporary adverse effects on the operation of the local road network (in terms of pedestrian and driver delay on the main access routes to and from the Site) and may also adversely affect non-motorised user amenity, severance, fear and intimidation, and increase the risk of road traffic collisions. In addition, HGVs accessing the Site during the construction phase vehicles could carry mud or dust on to the local road network.

8.8.4 Standard measures will be put in place to minimise traffic and associated disruption during the construction phase however the likely effects of construction traffic on the main routes to and from the Site are considered to be temporary and of **minor adverse significance.**

Phase 1 Development (Without Full Link Road)

8.8.5 For the purposes of this assessment, the link road is assumed to be completed at a point between 2026 and 2033. Phase 1 of the development therefore consists of some residential development (Phase 1a – 216 residential dwellings and all the employment land (Phase 1b), without the full link road in place. The Phase 1 Development will generate an estimated 351 and 326 new primary two-way trips in the AM and PM peak hours. These trips have been distributed onto the local highway network using the trip distribution as agreed with BMBC and NH.

8.8.6 The resulting impact of the Phase 1 Development (Without Full Link Road) related trips is shown in Table 8.5.

Location	Link	2026 Do Min	2026 With Phase 1 Dev	Percentage Difference

				(Without Full Link Road)			
		Veh	**HGV**	**Veh**	**HGV**	**Veh**	**HGV**
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	9,155	194	9,447	283	3%	46%
	B6428 Barugh Lane	8,964	317	9,580	500	7%	58%
	Barugh Green Road	9,164	341	10,507	665	15%	95%
	Higham Common Road	6,951	217	8,974	814	29%	274%
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	9,909	347	11,253	671	14%	94%
	Cannon Way	2,303	147	2,303	147	0%	0%
	Barugh Green Road east	10,285	376	11,586	701	13%	86%
	Site Access	0	0	749	0	-	-
Barugh Green Rd / Whaley Rd / Claycliffe Rd / A635	Barugh Green Road west	11,344	358	12,644	683	11%	91%
	A637 Claycliffe Road	16,248	282	16,330	282	1%	0%
	Whaley Road	4,688	147	4,688	147	0%	0%
	A635	26,323	505	27,542	830	5%	64%
M1 Junction 37	M1 southbound off slip	8,123	247	8,341	311	3%	26%

	A628 Dodworth Road	29,455	1,000	29,969	1,176	2%	18%
	M1 southbound on slip	13,557	476	14,037	620	4%	30%
	M1 northbound off slip	13,159	579	13,658	722	4%	25%
	Whinby Road	28,918	1,097	30,838	1,689	7%	54%
	M1 northbound on slip	8,511	265	8,721	330	2%	24%
Whinby Rd / B6449 Roundabout	Whinby Road east	27,375	1,051	29,295	1,644	7%	56%
	B6449	11,059	147	11,193	186	1%	27%
	Whinby Road north	20,636	963	22,690	1,595	10%	66%
Whinby Rd / Capitol Close Roundabout	Capitol Close	9,172	106	11,226	737	22%	598%
	Whinby Road south	20,736	1,010	22,790	1,642	10%	63%
	Whinby Road west	12,404	916	12,404	916	0%	0%
Whinby Rd / Higham Lane Roundabout	Higham Lane	2,865	253	3,250	360	13%	42%
	Whinby Road east	12,645	904	12,645	904	0%	0%
	Whinby Road west	15,510	793	15,895	900	2%	14%

Higham Common Rd / Site Access	Higham Common Road north	9,672	235	12,077	831	25%	254%
	Site Access Employment	0	0	3,898	1,335	-	-
	Site Access Link Road	0	0	0	0	-	-
	Higham Common Road south	9,672	235	12,110	974	25%	314%
Penny Pie Park	Dodworth Road west	29,855	1,027	30,369	1,203	2%	17%
	A6133 Broadway	11,426	311	11,584	352	1%	13%
	Dodworth Road east	19,940	627	20,358	750	2%	20%
	Pogmoor Road	11,613	405	11,742	416	1%	3%

Table 8.5: 2026 Future Year Traffic Data (24hr AADT) for Use in the Phase 1 Development (Without Full Link Road) Assessment

8.8.7 As can be seen from Table 8.5, no links in the study area are predicted to experience an increase in traffic flows of more than 30% following the introduction of traffic from the Phase 1 Development (Without Full Link Road).

Severance

8.8.8 The IEMA guidelines set out that changes in traffic flow of 30%, 60% and 90% would be likely to produce 'slight', 'moderate' and 'substantial' changes in severance, respectively. However, regard should be paid to local conditions such as sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided and traffic signal settings.

8.8.9 Examining the daily flows in the 2026 future year with the Phase 1 Development (Without Full Link Road) in place, there are no roads in the study area that are predicted to exceed a change in traffic flows above the thresholds suggested by the IEMA guidelines.

Therefore, the likely effect of the Development, in terms of severance, is considered to be of **negligible significance**.

Driver Delay

8.8.10 The IEMA guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at, or close to, the capacity of the system.

8.8.11 Capacity assessments for the junctions within the study area have been undertaken to compare the situation in the 2026 future year, with and without the Phase 1 Development (Without Full Link Road). The results of the modelling assessments show that for each junction in the study area, the changes in traffic flows associated with the Phase 1 Development (Without Full Link Road) will have a minimal effect on driver delay in the 2026 future year. The likely effect of the Phase 1 Development (Without Full Link Road) across the study area, in terms of driver delay, is therefore considered to be of **negligible significance**.

Pedestrian Delay

8.8.12 The IEMA guidelines note that a change in the volume, composition or speed of traffic may affect the ability of a person to cross a road. The guidelines do not set definitive thresholds for assessing pedestrian delay, recommending instead that assessors use their judgement to determine the significance of the effect.

8.8.13 In relation to the Phase 1 Development (Without Full Link Road), as shown on the landscape masterplan there will be a permeable network of high quality pedestrian routes throughout the site, including a connection to Higham village to the west. Phase 1 will provide the north west corner of the site, including the link road to the northernmost internal roundabout. Footways are to be provided adjacent and running parallel to the link road between Barugh Green Road and the internal roundabout. This provides opportunities for alternative routes that are more pleasant than the footways alongside the link road carriageway.

8.8.14 As previously identified no road within the study area will experience an increase in traffic flows of more than 30%. This is taken into account alongside the proposed internal pedestrian network, as described above. The likely effect of the Phase 1 Development, in terms of pedestrian delay, is therefore considered to be of **negligible significance**.

Non-Motorised User Amenity

8.8.15 The IEMA guidelines suggest a tentative threshold for judging the significance of a change in non-motorised user amenity where the traffic flow or the HGV component is halved or doubled. Non-motorised user amenity is also affected by footway width and separation from the carriageway.

8.8.16 Examining the daily flows in the 2026 future year with the Phase 1 Development (Without Full Link Road), there are two roads in the study area that are predicted to exceed a change in the HGV component above the thresholds suggested by the IEMA guidelines.

These are Capitol Close and Higham Common Road. Footways are provided on both sides of the carriageway on both roads.

8.8.17 The likely effect of the Phase 1 Development (Without Full Link Road) in these two areas, in terms of non-motorised user amenity, is therefore considered to be of **minor adverse significance**.

8.8.18 As previously identified, and shown on the illustrative landscape masterplan, the Phase 1 Development will introduce a series of new and high quality permeable pedestrian routes throughout the Site. The pedestrian infrastructure will also have connection points into the surrounding area, for example in Phase 1 there will be a pedestrian route connecting into Higham village to the west and a connection to the section of the link road constructed in this phase. This will enhance the connectivity of the site and the linkages with the wider area, opening up new routes that do not currently exist.

8.8.19 As such, the likely effect of the Phase 1 Development (Without Full Link Road) in this area, in terms of non-motorised user amenity, is considered to be of **minor beneficial significance**.

8.8.20 Therefore, on balance, the likely effect of the Phase 1 Development (Without Full Link Road), in terms of non-motorised user amenity, is considered to be of **negligible significance**.

Fear and Intimidation

8.8.21 The IEMA guidelines state that there are no commonly agreed thresholds for estimating fear and intimidation from known traffic and physical conditions. Some thresholds have been identified and are shown in Table 8.2 within Section 8.7 of this Chapter.

8.8.22 It is predicted that the speed of traffic across the study area will not be materially affected by the Phase 1 Development (Without Full Link Road) and therefore vehicle speed data has not been presented.

8.8.23 The average hourly total vehicle traffic flows over an 18-hour period (06:00-24:00) and the total HGV flows over the 18-hour period are shown in Table 8.6.

Location	**Link**	**Average Hourly Traffic Flows over 18 Hour Day (AAWT)**		**Total 18 Hour HGV Flow (AAWT)**	
		2026 Do Min	**2026 With Dev**	**2026 Do Min**	**2026 With Dev**
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	496	511	189	256
	B6428 Barugh Lane	486	517	309	448
	Barugh Green Road	497	566	332	578

	Higham Common Road	377	479	212	664
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	537	607	338	584
	Cannon Way	125	125	143	143
	Barugh Green Road east	557	625	367	613
	Site Access	-	44	-	-
Barugh Green Rd / Whaley Rd / Claycliffe Rd / A635	Barugh Green Road west	615	682	350	596
	A637 Claycliffe Road	881	885	275	275
	Whaley Road	254	254	143	143
	A635	1,426	1,489	493	739
M1 Junction 37	M1 southbound off slip	440	451	241	291
	A628 Dodworth Road	1,596	1,621	976	1,109
	M1 southbound on slip	735	759	464	571

	M1 northbound off slip	713	738	564	675
	Whinby Road	1,567	1,663	1,070	1,519
	M1 northbound on slip	461	472	259	306
Whinby Rd / B6449 Roundabout	Whinby Road east	1,483	1,580	1,026	1,474
	B6449	599	606	143	173
	Whinby Road north	1,118	1,221	940	1,418
Whinby Rd / Capitol Close Roundabout	Capitol Close	497	600	103	582
	Whinby Road south	1,124	1,227	985	1,464
	Whinby Road west	672	672	894	894
Whinby Rd / Higham Lane Roundabout	Higham Lane	155	175	246	328
	Whinby Road east	685	685	882	882
	Whinby Road west	841	860	773	855
Higham Common Rd / Site Access	Higham Common Road north	524	648	229	681
	Site Access Employment	-	192	-	1,012

	Site Access Link Road	-	-	-	-
	Higham Common Road south	524	647	229	789
Penny Pie Park	Dodworth Road west	1,618	1,643	1,002	1,135
	A6133 Broadway	619	627	303	335
	Dodworth Road east	1,081	1,102	611	705
	Pogmoor Road	629	637	395	403

Table 8.6: 2026 Future Year Traffic Data (18 hr AAWT) for Use in the Phase 1 Development (Without Full Link Road) Assessment

8.8.24 The degree of hazard assessment, in accordance with the thresholds shown in Table 8.2, is shown in Table 8.7. The highway links predicted to experience a change to the degree of hazard (either in relation to the average hourly traffic flows or the total HGV flow), as a result of traffic associated with the Phase 1 Development (Without Full Link Road) are shown.

Location	**Link**	**Average Hourly Traffic Flows over 18 Hour Day (AAWT)** ***(Degree of Hazard Shown in Brackets)***		**Total 18 Hour HGV Flow (AAWT)** ***(Degree of Hazard Shown in Brackets)***	
		2026 Do Min	**2026 With Dev**	**2026 Do Min**	**2026 With Dev**
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	537 (Negligible)	607 (Moderate)	338 (Negligible)	584 (Negligible)
	Barugh Green Road east	557 (Negligible)	625 (Moderate)	367 (Negligible)	613 (Negligible)

M1 Junction 37	A628 Dodworth Road	1,596 (Great)	1,621 (Great)	976 (Negligible)	1,109 (Moderate)
Whinby Rd / B6449 Roundabout	B6449	599 (Negligible)	606 (Moderate)	143 (Negligible)	173 (Negligible)
	Whinby Road north	1,118 (Moderate)	1,221 (Great)	940 (Negligible)	1,418 (Moderate)
Whinby Rd / Capitol Close Roundabout	Capitol Close	497 (Negligible)	600 (Moderate)	103 (Negligible)	582 (Negligible)
	Whinby Road south	1,124 (Moderate)	1,227 (Great)	985 (Negligible)	1,464 (Moderate)
Higham Common Rd / Site Access	Higham Common Road north	524 (Negligible)	648 (Moderate)	229 (Negligible)	681 (Negligible)
	Site Access Employment	-	192 (Negligible)	-	1,012 (Moderate)
	Higham Common Road south	524 (Negligible)	647 (Moderate)	229 (Negligible)	789 (Negligible)

Table 8.7: Degree of Hazard Assessment – Phase 1 Development (Without Full Link Road)

8.8.25 The roads that are predicted to experience an increase in the degree of hazard as a result of the Phase 1 Development (Without Full Link Road) are Barugh Green Road (to the east and west of the approved link road access roundabout), the A628 Dodworth Road, the B6449, Whinby Road, Capitol Close and Higham Common Road (to the north and south of the approved link road access roundabout).

8.8.26 Footways are provided on both sides of Barugh Green Road, Whinby Road, Capitol Close, the B6449, the A628 Dodworth Road and on the western side of Higham Common Road. With regard to Barugh Green Road and Higham Common Road, as previously identified, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road roundabouts and are also provided on the B6449/Whinby Road roundabout and M1 Junction 37. A signal-controlled crossing is

provided across the A628 Dodworth Road, approximately 250m to the east of M1 Junction 37.

8.8.27 Given the above, the likely effect of the Phase 1 Development (Without Full Link Road), in terms of fear and intimidation, is considered to be of **minor adverse significance**.

Road Safety

8.8.28 An assessment of five-year road traffic collision data has been undertaken. The data shows that across the study area, the level of reported collisions is not uncommon for the characteristics of the road network. Furthermore, the number of collisions does not suggest a specific issue at any particular location.

8.8.29 The proposed new access road and associated junctions have been designed to appropriate standards, as well as being subject to Road Safety Audits. As such, the proposed highway design changes will not contribute to any additional collisions caused as a result of the highway layout.

8.8.30 On the basis of the above, the likely effect of the Phase 1 Development (Without Full Link Road), in terms of road safety, is considered to be of **negligible significance**.

Phase 1 Development (With Full Link Road)

8.8.31 For the purposes of this assessment, the link road is assumed to be completed by 2026. In this assessment scenario, Phase 1 of the Development therefore consists of some residential development (Phase 1a – 216 residential dwellings and all the employment land (Phase 1b), with the link road in place. The Phase 1 Development will generate an estimated 351 and 326 new primary two-way trips in the AM and PM peak hours. These trips have been distributed onto the local highway network using the trip distribution as agreed with BMBC and NH.

8.8.32 It should be noted that the link road is not proposed to be delivered in full by 2026. As such, this is a theoretical scenario only.

8.8.33 The proposed link road will create an alternative route for vehicular traffic, leading to the reassignment of some local trips. The reassignment impacts of the link road have been obtained from AECOM from the Sheffield City Region Transport Model (SCRTM1) which was updated in 2022 with information to allow the assessment of various schemes across the Barnsley district. The modelling has confirmed that a certain level of traffic reassignment is predicted to occur as a result of the link road but no additional reassignment is to occur as a result of the Development itself coming forward.

8.8.34 The modelling also confirms that with the introduction of the proposed link road, a substantial volume of through trips would be removed from Higham village, with re-assignment to the link road.

8.8.35 The resulting combined impact of both the link road traffic re-assignment and Phase 1 Development (With Full Link Road) related trips is shown in Table 8.8.

Location	Link	2026 Do Min		2026 With Phase 1 Dev (With Full Link Road)		Percentage Difference	
		Veh	HGV	Veh	HGV	Veh	HGV

Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	9,155	194	9,239	283	1%	46%
	B6428 Barugh Lane	8,964	317	9,834	500	10%	58%
	Barugh Green Road	9,164	341	11,511	676	26%	98%
	Higham Common Road	6,951	217	4,957	154	-29%	-29%
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	9,909	347	12,245	665	24%	92%
	Cannon Way	2,303	147	2,303	147	0%	0%
	Barugh Green Road east	10,285	376	17,762	753	73%	100%
	Site Access	-	-	10,945	706	-	-
Barugh Green Rd / Whaley Rd / Claycliffe Rd / A635	Barugh Green Road west	11,344	358	18,815	735	66%	105%
	A637 Claycliffe Road	16,248	282	16,197	293	0%	4%
	Whaley Road	4,688	147	4,688	147	0%	0%
	A635	26,323	505	30,229	812	15%	61%
M1 Junction 37	M1 southbound off slip	8,123	247	8,292	311	2%	26%

	A628 Dodworth Road	29,455	1,000	29,645	1,149	1%	15%
	M1 southbound on slip	13,557	476	13,595	618	0%	30%
	M1 northbound off slip	13,159	579	13,731	722	4%	25%
	Whinby Road	28,918	1,097	31,665	1,710	9%	56%
	M1 northbound on slip	8,511	265	8,550	322	0%	22%
Whinby Rd / B6449 Roundabout	Whinby Road east	27,375	1,051	30,167	1,661	10%	58%
	B6449	11,059	147	10,656	186	-4%	27%
	Whinby Road north	20,636	963	23,406	1,612	13%	67%
Whinby Rd / Capitol Close Roundabout	Capitol Close	9,172	106	11,364	755	24%	614%
	Whinby Road south	20,736	1,010	23,500	1,653	13%	64%
	Whinby Road west	12,404	916	12,976	910	5%	-1%
Whinby Rd / Higham Lane Roundabout	Higham Lane	2,865	253	2,713	354	-5%	40%
	Whinby Road east	12,645	904	13,217	899	5%	-1%

	Whinby Road west	15,510	793	15,930	888	-3%	12%
Higham Common Rd / Site Access	Higham Common Road north	9,672	235	924	137	-90%	-42%
	Site Access Employment	-	-	3,898	1,335	-	-
	Site Access Link Road	-	-	10,754	712	-	-
	Higham Common Road south	9,672	235	11,711	991	21%	322%
Penny Pie Park	Dodworth Road west	29,855	1,027	30,091	1,175	1%	14%
	A6133 Broadway	11,426	311	11,382	352	0%	13%
	Dodworth Road east	19,940	627	20,093	749	1%	20%
	Pogmoor Road	11,613	405	11,875	389	2%	-4%

Table 8.8: 2026 Future Year Traffic Data (24hr AADT) for Use in the Phase 1 Development (With Full Link Road) Assessment

8.8.36 As can be seen from Table 8.8, it is predicted that there will be some increases and decreases in traffic flows across the study area as a result of the Phase 1 Development (With Full Link Road). This is a result of not only Phase 1 Development (With Full Link Road) generated trips but also the impact of the introduction of the proposed link road which is predicted to lead to the reassignment of some local trips.

8.8.37 It is reiterated that the link road is not proposed to be delivered in full by 2026. As such, this is a theoretical scenario only and has been included at the request of BMBC.

Severance

8.8.38 The IEMA guidelines suggest that changes in traffic flow of 30%, 60% and 90% would be likely to produce 'slight', 'moderate' and 'substantial' changes in severance, respectively. However, regard should be paid to local conditions such as sensitivity of

adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided and traffic signal settings.

8.8.39 Examining the daily flows in the 2026 future year with the Phase 1 Development (With Full Link Road) in place, there are some roads in the study area that are predicted to exceed a change in traffic flows above the thresholds suggested by the IEMA guidelines.

8.8.40 The A635 Barugh Green Road is predicted to experience an increase in traffic flows above the thresholds suggested by the IEMA guidelines. Traffic flows are predicted to increase by 73% at a point to the immediate east of the approved link road access roundabout and by 66% at a point to the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at both roundabouts, with pedestrian refuge provided on splitter islands.

8.8.41 Given the above, the likely effect of the Phase 1 Development (With Full Link Road) in this area, in terms of severance, is considered to be of **minor adverse significance**.

8.8.42 Conversely, there is a benefit of a decrease in traffic flows on Higham Common Road through Higham village, through the construction of the link road. This will reduce severance for the local community when compared against the 2026 Do Minimum scenario. As such, the likely effect of the Phase 1 Development (With Full Link Road) in this area, in terms of severance, is considered to be of **minor beneficial significance**.

8.8.43 Therefore, on balance, the likely effect of the Phase 1 Development (With Full Link Road), in terms of severance, is considered to be of **negligible significance**.

Driver Delay

8.8.44 The IEMA guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at, or close to, the capacity of the system.

8.8.45 Capacity assessments for the junctions within the study area have been undertaken to compare the situation in the 2026 future year, with and without the Phase 1 Development (With Full Link Road). The results of the modelling assessments show that for each junction in the study area, the changes in traffic flows associated with the Phase 1 Development (With Full Link Road) will have a minimal effect on driver delay in the 2026 future year. The likely effect of the Phase 1 Development (With Full Link Road) across the study area, in terms of driver delay, is therefore considered to be of **negligible significance**.

Pedestrian Delay

8.8.46 The IEMA guidelines note that a change in the volume, composition or speed of traffic may affect the ability of a person to cross a road. The guidelines do not set definitive thresholds for assessing pedestrian delay, recommending instead that assessors use their judgement to determine the significance of the effect.

8.8.47 In relation to the Development, as shown on the landscape masterplan, there will be a permeable network of high quality pedestrian routes throughout the site, including a connection to Higham village to the west. The landscape led masterplan ensures that there are multiple crossing points across the new link road, as well as paths set back from the link road which run parallel. This provides opportunities for alternative routes that are more pleasant than footways adjacent to the link road carriageway.

8.8.48 As previously identified, traffic flows are predicted to increase by 73% at a point to the immediate east of the approved link road access roundabout and by 66% at a point to

the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at both roundabouts, with pedestrian refuge provided on splitter islands.

8.8.49 Given the above, the likely effect of the Phase 1 Development (With Full Link Road) in this area, in terms of pedestrian delay, is therefore considered to be of **minor adverse significance**.

8.8.50 Conversely, there is a benefit of a decrease in traffic flows on Higham Common Road through Higham village through the construction of the link road. This will reduce pedestrian delay for the local community when compared against the 2026 Do Minimum scenario. Further, the significant additional network of high-quality pedestrian routes that is being introduced through the Development will also reduce pedestrian delay in the area. As such, the likely effect of the Phase 1 Development (With Full Link Road) in this area, in terms of pedestrian delay, is considered to be of **moderate beneficial significance**.

8.8.51 Therefore, on balance, the likely effect of the Phase 1 Development (With Full Link Road), in terms of pedestrian delay, is considered to be of **minor beneficial significance**.

Non-Motorised User Amenity

8.8.52 The IEMA guidelines suggest a tentative threshold for judging the significance of a change in non-motorised user amenity where the traffic flow or the HGV component is halved or doubled. Non-motorised user amenity is also affected by footway width and separation from the carriageway.

8.8.53 The HGV component is predicted to double as a result of the Phase 1 Development (With Full Link Road) on four highway links across the study area. The HGV component is predicted to increase by 100% at a point to the immediate east of the approved link road access roundabout and by 105% on the A635 Barugh Green Road at a point to the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at the roundabout, with pedestrian refuge provided on splitter islands.

8.8.54 The HGV component is predicted to increase by 322% on Higham Common Road at a point to the immediate south of the approved link road access roundabout and by 614% on Capitol Close. Pedestrian movements are likely to be minimal in these locations. Notwithstanding, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road access roundabout, with pedestrian refuge provided on splitter islands. Footways are provided on both sides of Capitol Close.

8.8.55 Given the above, the likely effect of the Phase 1 Development (With Full Link Road), in the areas described above, in terms of non-motorised user amenity, is considered to be of **minor adverse significance**.

8.8.56 As previously identified, and shown on the illustrative landscape masterplan, the Development will introduce a series of new and high quality permeable pedestrian routes throughout the Site, including a connection to Higham village to the west. The landscape led masterplan ensures that there are multiple crossing points across the new link road, as well as paths set back from the link road which run parallel. This provides opportunities

for alternative routes that are more pleasant than footways adjacent to the link road carriageway.

8.8.57 As such, the likely effect of the Phase 1 Development (With Full Link Road) in this area, in terms of non-motorised user amenity, is considered to be of **moderate beneficial significance**.

8.8.58 Therefore, on balance, the likely effect of the Phase 1 Development (With Full Link Road), in terms of non-motorised user amenity, is considered to be of **minor beneficial significance**.

Fear and Intimidation

8.8.59 The IEMA guidelines state that there are no commonly agreed thresholds for estimating fear and intimidation from known traffic and physical conditions. Some thresholds have been identified and are shown in Table 8.2 within Section 8.7 of this Chapter.

8.8.60 It is predicted that the speed of traffic across the study area will not be materially affected by the Phase 1 Development (With Full Link Road) and therefore vehicle speed data has not been presented.

8.8.61 The average hourly total vehicle traffic flows over an 18-hour period (06:00-24:00) and the total HGV flows over the 18-hour period are shown in Table 8.9.

Location	Link	Average Hourly Traffic Flows over 18 Hour Day (AAWT)		Total 18 Hour HGV Flow (AAWT)	
		2026 Do Min	2026 With Dev	2026 Do Min	2026 With Dev
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	496	500	189	256
	B6428 Barugh Lane	486	531	309	448
	Barugh Green Road	497	620	332	601
	Higham Common Road	377	269	212	150
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	537	660	338	589
	Cannon Way	125	125	143	143

	Barugh Green Road east	557	959	367	664
	Site Access	-	587	-	559
Barugh Green Rd / Whaley Rd / Claycliffe Rd / A635	Barugh Green Road west	615	1,016	350	646
	A637 Claycliffe Road	881	878	275	286
	Whaley Road	254	254	143	143
	A635	1,426	1,635	493	722
M1 Junction 37	M1 southbound off slip	440	448	241	291
	A628 Dodworth Road	1,596	1,604	976	1,082
	M1 southbound on slip	735	735	464	569
	M1 northbound off slip	713	742	564	676
	Whinby Road	1,567	1,708	1,070	1,540
	M1 northbound on slip	461	463	259	299

Whinby Rd / B6449 Roundabout	Whinby Road east	1,483	1,627	1,026	1,491
	B6449	599	577	143	173
	Whinby Road north	1,118	1,260	940	1,435
Whinby Rd / Capitol Close Roundabout	Capitol Close	497	608	103	599
	Whinby Road south	1,124	1,265	985	1,476
	Whinby Road west	672	703	894	888
Whinby Rd / Higham Lane Roundabout	Higham Lane	155	146	246	322
	Whinby Road east	685	716	882	877
	Whinby Road west	841	862	773	843
Higham Common Rd / Site Access	Higham Common Road north	524	51	229	133
	Site Access Employment	-	192	-	1,012
	Site Access Link Road	-	575	-	565
	Higham Common Road south	524	625	229	806
Penny Pie Park	Dodworth Road west	1,618	1,628	1,002	1,108

	A6133 Broadway	619	616	303	335
	Dodworth Road east	1,081	1,087	611	704
	Pogmoor Road	629	644	395	377

Table 8.9: 2026 Future Year Traffic Data (18 hr AAWT) for Use in the Phase 1 Development (With Full Link Road) Assessment

8.8.62 The degree of hazard assessment, in accordance with the thresholds shown in Table 8.2, is shown in Table 8.10. The highway links experiencing a change to the degree of hazard (either in relation to the average hourly traffic flows or the total HGV flow), as a result of traffic associated with the Phase 1 Development (With Full Link Road) are shown.

Location	**Link**	**Average Hourly Traffic Flows over 18 Hour Day (AAWT)** ***(Degree of Hazard Shown in Brackets)***		**Total 18 Hour HGV Flow (AAWT)** ***(Degree of Hazard Shown in Brackets)***	
		2026 Do Min	**2026 With Dev**	**2026 Do Min**	**2026 With Dev**
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Barugh Green Road	497 (Negligible)	620 (Moderate)	332 (Negligible)	601 (Negligible)
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	537 (Negligible)	660 (Moderate)	338 (Negligible)	589 (Negligible)
	Barugh Green Road east	557 (Negligible)	959 (Moderate)	367 (Negligible)	664 (Negligible)
M1 Junction 37	A628 Dodworth Road	1,596 (Great)	1,604 (Great)	976 (Negligible)	1,082 (Moderate)
Whinby Rd / B6449 Roundabout	Whinby Road north	1,118 (Moderate)	1,260 (Great)	940 (Negligible)	1,435 (Moderate)

Whinby Rd / Capitol Close Roundabout	Capitol Close	497 (Negligible)	608 (Moderate)	103 (Negligible)	599 (Negligible)
	Whinby Road south	1,124 (Moderate)	1,265 (Great)	985 (Negligible)	1,476 (Moderate)
Higham Common Rd / Site Access	Site Access Employment	-	192 (Negligible)	-	1,012 (Moderate)
	Higham Common Road south	524 (Negligible)	625 (Moderate)	229 (Negligible)	806 (Negligible)

Table 8.10: Degree of Hazard Assessment – Phase 1 Development (With Full Link Road)

8.8.63 The roads that are predicted to experience an increase in the degree of hazard as a result of the Phase 1 Development (With Full Link Road) are Barugh Green Road (to the east and west of the approved link road access roundabout), the A628 Dodworth Road, the B6449, Whinby Road, Capitol Close and Higham Common Road (to the north and south of the approved link road access roundabout).

8.8.64 Footways are provided on both sides of Barugh Green Road, Whinby Road, Capitol Close, the B6449, the A628 Dodworth Road and on the western side of Higham Common Road. With regard to Barugh Green Road and Higham Common Road, as previously identified, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road roundabouts and are also provided on the B6449/Whinby Road roundabout and M1 Junction 37. A signal-controlled crossing is provided across the A628 Dodworth Road, approximately 250m to the east of M1 Junction 37.

8.8.65 Given the above, the likely effect of the Phase 1 Development (With Full Link Road), in terms of fear and intimidation, is considered to be of **minor adverse significance**.

Road Safety

8.8.66 An assessment of five-year road traffic collision data has been undertaken. The data shows that across the study area, the level of reported collisions is not uncommon for the characteristics of the road network. Furthermore, the number of collisions does not suggest a specific issue at any particular location.

8.8.67 The proposed new access road and associated junctions have been designed to appropriate standards, as well as being subject to Road Safety Audits. As such, the proposed highway design changes will not contribute to any additional collisions caused as a result of the highway layout.

8.8.68 On the basis of the above, the likely effect of the Phase 1 Development (With Full Link Road), in terms of road safety, is considered to be of **negligible significance**.

Completed Development

Highway Network

8.8.69 For the purposes of this assessment, it is assumed that the completion of the full link road will occur at a point between 2026 and 2033. The full completed Development will generate an estimated 814 and 921 new primary two-way trips in the AM and PM peak hours. These trips have been distributed onto the local highway network using the trip distribution as agreed with BMBC and NH.

8.8.70 As previously identified, the proposed link road will create an alternative route for vehicular traffic, leading to the reassignment of some local trips. The reassignment impacts of the link road have been obtained from AECOM from the Sheffield City Region Transport Model (SCRTM1) which was updated in 2022 with information to allow the assessment of various schemes across the Barnsley district. The modelling has confirmed that a certain level of traffic reassignment is predicted to occur as a result of the link road but no additional reassignment is to occur as a result of the Development itself coming forward.

8.8.71 The modelling also confirms that with the introduction of the proposed link road, a substantial volume of through trips would be removed from Higham village, with re-assignment to the link road.

8.8.72 The resulting combined impact of both the link road traffic re-assignment and Development related trips are shown in Table 8.11.

Location	Link	2033 Do Min		2033 With Dev		Percentage Difference	
		Veh	HGV	Veh	HGV	Veh	HGV
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	9,629	204	9,918	293	3%	43%
	B6428 Barugh Lane	9,426	334	10,682	517	13%	55%
	Barugh Green Road	9,651	359	12,326	695	28%	93%
	Higham Common Road	7,318	229	5,587	165	-24%	-28%
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	10,437	365	13,100	683	26%	87%
	Cannon Way	2,426	155	2,426	155	0%	0%

	Barugh Green Road east	10,833	396	19,950	773	84%	95%
	Site Access	-	-	12,875	706	-	-
Barugh Green Rd / Whaley Rd / Claycliffe Rd / A635	Barugh Green Road west	11,914	378	21,025	754	76%	100%
	A637 Claycliffe Road	17,050	297	17,446	309	2%	4%
	Whaley Road	4,939	155	4,939	155	0%	0%
	A635	27,645	532	32,866	839	19%	58%
M1 Junction 37	M1 southbound off slip	8,820	269	9,235	333	5%	24%
	A628 Dodworth Road	32,005	1,090	32,681	1,238	2%	14%
	M1 southbound on slip	14,730	519	15,208	661	3%	27%
	M1 northbound off slip	14,300	630	15,298	774	7%	23%
	Whinby Road	31,321	1,195	35,655	1,808	14%	51%
	M1 northbound on slip	9,241	289	9,535	346	3%	20%

Whinby Rd / B6449 Roundabout	Whinby Road east	28,729	1,108	33,108	1,717	15%	55%
	B6449	11,577	155	11,290	194	-2%	26%
	Whinby Road north	21,689	1,015	26,142	1,664	21%	64%
Whinby Rd / Capitol Close Roundabout	Capitol Close	9,600	111	13,436	760	40%	583%
	Whinby Road south	21,794	1,064	26,242	1,707	20%	60%
	Whinby Road west	13,062	965	13,674	959	5%	-1%
Whinby Rd / Higham Lane Roundabout	Higham Lane	3,017	266	3,273	367	8%	38%
	Whinby Road east	13,316	953	13,928	947	5%	-1%
	Whinby Road west	16,333	835	17,201	931	5%	-11%
Higham Common Rd / Site Access	Higham Common Road north	10,185	248	1,701	149	-83%	-40%
	Site Access Employment	-	-	3,898	1,335	-	-
	Site Access Link Road	-	-	13,068	712	-	-
	Higham Common Road south	10,185	248	14,277	1,004	40%	306%
Penny Pie Park	Dodworth Road west	31,528	1,084	32,249	1,233	2%	14%

	A6133 Broadway	12,066	329	12,257	370	2%	13%
	Dodworth Road east	21,057	662	21,570	785	2%	19%
	Pogmoor Road	12,264	427	13,039	412	6%	-4%

Table 8.11: 2033 Future Year Traffic Data (24hr AADT) for Use in the 2033 With Development Assessment

8.8.73 As can be seen from Table 8.11, it is predicted that there will be some increases and decreases in traffic flows across the study area as a result of the Development. This is a result of not only Development generated trips but also the impact of the introduction of the proposed link road which is predicted to lead to the reassignment of some local trips.

Severance

8.8.74 The IEMA guidelines suggest that changes in traffic flow of 30%, 60% and 90% would be likely to produce 'slight', 'moderate' and 'substantial' changes in severance, respectively. However, regard should be paid to local conditions such as sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided and traffic signal settings.

8.8.75 Examining the daily flows in the 2033 future year with the Development in place, there are some roads in the study area that are predicted to exceed a change in traffic flows above the thresholds suggested by the IEMA guidelines.

8.8.76 The A635 Barugh Green Road is predicted to experience an increase in traffic flows above the thresholds suggested by the IEMA guidelines. Traffic flows are predicted to increase by 84% at a point to the immediate east of the approved link road access roundabout and by 76% at a point to the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at both roundabouts, with pedestrian refuge provided on splitter islands.

8.8.77 Traffic flows are predicted to increase by 40% on Higham Common Road at a point to the immediate south of the approved link road access roundabout. Pedestrian movements are likely to be minimal in this location. Notwithstanding, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road access roundabout, with pedestrian refuge provided on splitter islands.

8.8.78 Given the above, the likely effect of the Development in these two areas, in terms of severance, is considered to be of **minor adverse significance**.

8.8.79 Conversely, there is a benefit of a decrease in traffic flows on Higham Common Road through Higham village, through the construction of the link road. This will reduce severance for the local community when compared against the 2033 Do Minimum scenario.

As such, the likely effect of the Development in this area, in terms of severance, is considered to be of **minor beneficial significance**.

8.8.80 Therefore, on balance, the likely effect of the Development, in terms of severance, is considered to be of **negligible significance**.

Driver Delay

8.8.81 The IEMA guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at, or close to, the capacity of the system.

8.8.82 Capacity assessments for the junctions within the study area have been undertaken to compare the situation in the 2033 future year, with and without the Development. This indicates that the local junctions in the study area will operate within capacity in the 2033 future year, regardless of whether the Development is brought forward.

8.8.83 The results of the modelling assessments show that for each junction in the study area, the changes in traffic flows associated with the Development will have a minimal effect on driver delay in the 2033 future year. The likely effect of the Development across the study area, in terms of driver delay, is therefore considered to be of **negligible significance**.

Pedestrian Delay

8.8.84 The IEMA guidelines note that a change in the volume, composition or speed of traffic may affect the ability of a person to cross a road. The guidelines do not set definitive thresholds for assessing pedestrian delay, recommending instead that assessors use their judgement to determine the significance of the effect.

8.8.85 In relation to the Development, as shown on the landscape masterplan, there will be a permeable network of high quality pedestrian routes throughout the site, including a connection to Higham village to the west. The landscape led masterplan ensures that there are multiple crossing points across the new link road, as well as paths set back from the link road which run parallel. This provides opportunities for alternative routes that are more pleasant than footways adjacent to the link road carriageway.

8.8.86 As previously identified, traffic flows are predicted to increase by 84% at a point to the immediate east of the approved link road access roundabout and by 76% at a point to the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at both roundabouts, with pedestrian refuge provided on splitter islands.

8.8.87 Traffic flows are predicted to increase by 40% on Higham Common Road at a point to the immediate south of the approved link road access roundabout. Pedestrian movements are likely to be minimal in this location. Notwithstanding, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road access roundabout, with pedestrian refuge provided on splitter islands.

8.8.88 Given the above, the likely effect of the Development in these two areas, in terms of pedestrian delay, is therefore considered to be of **minor adverse significance**.

8.8.89 Conversely, there is a benefit of a decrease in traffic flows on Higham Common Road through Higham village through the construction of the link road. This will reduce pedestrian delay for the local community when compared against the 2033 Do Minimum scenario. Further, the significant additional network of high-quality pedestrian routes that is being introduced through the Development will also reduce pedestrian delay in the area.

As such, the likely effect of the Development in this area, in terms of pedestrian delay, is considered to be of **moderate beneficial significance**.

8.8.90 Therefore, on balance, the likely effect of the Development, in terms of pedestrian delay, is considered to be of **minor beneficial significance**.

Non-Motorised User Amenity

8.8.91 The IEMA guidelines suggest a tentative threshold for judging the significance of a change in non-motorised user amenity where the traffic flow or the HGV component is halved or doubled. Non-motorised user amenity is also affected by footway width and separation from the carriageway.

8.8.92 The HGV component is predicted to double as a result of the Development on three highway links across the study area. The HGV component is predicted to increase by 100% on the A635 Barugh Green Road at a point to the immediate west of the A635/A637/Whaley Road four-arm roundabout. Crossing facilities in the form of dropped kerbs and tactile paving are provided at the roundabout, with pedestrian refuge provided on splitter islands.

8.8.93 The HGV component is predicted to increase by 306% on Higham Common Road at a point to the immediate south of the approved link road access roundabout and by 583% on Capitol Close. Pedestrian movements are likely to be minimal in these locations. Notwithstanding, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road access roundabout, with pedestrian refuge provided on splitter islands. Footways are provided on both sides of Capitol Close.

8.8.94 Given the above, the likely effect of the Development, in the areas described above, in terms of non-motorised user amenity, is considered to be of **minor adverse significance**.

8.8.95 As previously identified, and shown on the illustrative landscape masterplan, the Development will introduce a series of new and high quality permeable pedestrian routes throughout the site, including a connection to Higham village to the west. The landscape led masterplan ensures that there are multiple crossing points across the new link road, as well as paths set back from the link road which run parallel. This provides opportunities for alternative routes that are more pleasant than footways adjacent to the link road carriageway.

8.8.96 As such, the likely effect of the Development in this area, in terms of non-motorised user amenity, is considered to be of **moderate beneficial significance**.

8.8.97 Therefore, on balance, the likely effect of the Development, in terms of non-motorised user amenity, is considered to be of **minor beneficial significance**.

Fear and Intimidation

8.8.98 The IEMA guidelines state that there are no commonly agreed thresholds for estimating fear and intimidation from known traffic and physical conditions. Some

thresholds have been identified and are shown in Table 8.2 within Section 8.7 of this Chapter.

8.8.99 It is predicted that the speed of traffic across the study area will not be materially affected by the Development and therefore vehicle speed data has not been presented.

8.8.100 The average hourly total vehicle traffic flows over an 18-hour period (06:00-24:00) and the total HGV flows over the 18-hour period are shown in Table 8.12.

Location	Link	Average Hourly Traffic Flows over 18 Hour Day (AAWT)		Total 18 Hour HGV Flow (AAWT)	
		2033 Do Min	2033 With Dev	2033 Do Min	2033 With Dev
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Cawthorne Road	522	537	199	267
	B6428 Barugh Lane	511	578	326	465
	Barugh Green Road	523	666	350	618
	Higham Common Road	397	304	223	161
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	566	708	356	607
	Cannon Way	131	131	151	151
	Barugh Green Road east	587	1,085	386	683
	Site Access	-	700	-	559
Barugh Green Rd / Whaley Rd	Barugh Green Road west	646	1,143	368	665

/ Claycliffe Rd / A635	A637 Claycliffe Road	924	948	290	301
	Whaley Road	268	268	151	151
	A635	1,498	1,783	519	748
M1 Junction 37	M1 southbound off slip	478	501	263	312
	A628 Dodworth Road	1,734	1,771	1,063	1,169
	M1 southbound on slip	798	825	506	611
	M1 northbound off slip	775	829	615	727
	Whinby Road	1,697	1,931	1,166	1,635
	M1 northbound on slip	501	517	282	322
Whinby Rd / B6449 Roundabout	Whinby Road east	1,557	1,793	1,080	1,546
	B6449	627	612	151	181
	Whinby Road north	1,175	1,416	990	1,486
	Capitol Close	520	727	109	604

Whinby Rd / Capitol Close Roundabout	Whinby Road south	1,181	1,421	1,038	1,528
	Whinby Road west	708	741	941	936
Whinby Rd / Higham Lane Roundabout	Higham Lane	163	178	260	335
	Whinby Road east	722	755	929	924
	Whinby Road west	885	933	815	885
Higham Common Rd / Site Access	Higham Common Road north	552	94	241	146
	Site Access Employment	-	192	-	1,012
	Site Access Link Road	-	711	-	565
	Higham Common Road south	552	773	241	818
Penny Pie Park	Dodworth Road west	1,709	1,747	1,058	1,164
	A6133 Broadway	654	665	320	352
	Dodworth Road east	1,141	1,169	646	738
	Pogmoor Road	665	709	417	399

Table 8.12: 2033 Future Year Traffic Data (18 hr AAWT) for Use in the 2033 With Development Assessment

8.8.101 The degree of hazard assessment, in accordance with the thresholds shown in Table 8.2, is shown in Table 8.13. The highway links experiencing a change to the

degree of hazard (either in relation to the average hourly traffic flows or the total HGV flow), as a result of traffic associated with the Development are shown.

Location	**Link**	**Average Hourly Traffic Flows over 18 Hour Day (AAWT)** *(Degree of Hazard Shown in Brackets)*		**Total 18 Hour HGV Flow (AAWT)** *(Degree of Hazard Shown in Brackets)*	
		2033 Do Min	**2033 With Dev**	**2033 Do Min**	**2033 With Dev**
Cawthorne Rd / B6428 Barugh Lane / Barugh Green Rd / Higham Common Rd	Barugh Green Road	523 (Negligible)	666 (Moderate)	350 (Negligible)	618 (Negligible)
Barugh Green Rd / Cannon Way / Site Access	Barugh Green Road west	566 (Negligible)	708 (Moderate)	356 (Negligible)	607 (Negligible)
	Barugh Green Road east	587 (Negligible)	1,085 (Moderate)	386 (Negligible)	683 (Negligible)
	Site Access	-	700 (Moderate)	-	559 (Negligible)
M1 Junction 37	Whinby Road	1,697 (Great)	1,931 (Extreme)	1,166 (Moderate)	1,635 (Moderate)
Whinby Rd / B6449 Roundabout	Whinby Road north	1,175 (Moderate)	1,416 (Great)	990 (Negligible)	1,486 (Moderate)
Whinby Rd / Capitol Close Roundabout	Capitol Close	520 (Negligible)	727 (Moderate)	109 (Negligible)	604 (Negligible)
	Whinby Road south	1,181 (Moderate)	1,421 (Great)	1,038 (Moderate)	1,528 (Moderate)

Higham Common Rd / Site Access	Site Access Employment	-	192 (Negligible)	-	1,012 (Moderate)
	Site Access Link Road	-	711 (Moderate)	-	565 (Negligible)
	Higham Common Road south	552 (Negligible)	773 (Moderate)	241 (Negligible)	818 (Negligible)

Table 8.13: Degree of Hazard Assessment – Full Development

8.8.102 The roads that are predicted to experience an increase in the degree of hazard as a result of the Development are Barugh Green Road (to the east and west of the approved link road access roundabout), Higham Common Road (to the south of the approved link road access roundabout), Whinby Road and Capitol Close.

8.8.103 With regard to Barugh Green Road and Higham Common Road, as previously identified, crossing facilities in the form of dropped kerbs and tactile paving are to be provided at the approved link road roundabouts. Footways are provided on both sides of Barugh Green Road, Whinby Road and Capitol Close and on the western side of Higham Common Road. Pedestrian movements on Higham Common Road in this location are likely to be minimal.

8.8.104 Given the above, the likely effect of the Development, in terms of fear and intimidation, is considered to be of **minor adverse significance**.

Road Safety

8.8.105 An assessment of five-year road traffic collision data has been undertaken. The data shows that across the study area, the level of reported collisions is not uncommon for the characteristics of the road network. Furthermore, the number of collisions does not suggest a specific issue at any particular location.

8.8.106 The proposed new link road and associated junctions have been designed to appropriate standards, as well as being subject to Road Safety Audits. As such, the proposed highway design changes will not contribute to any additional collisions caused as a result of the highway layout.

8.8.107 On the basis of the above, the likely effect of the Development, in terms of road safety, is considered to be of **negligible significance**.

8.9 Cumulative Effects

8.9.1 The anticipated traffic generations from the committed developments which includes the application for 140 dwellings at the adjacent site at Land off Barugh Green Road (planning application reference 2020/0977), which also forms part of the MU1 Allocation, have been included as part of all future year traffic flow scenarios identified in Tables 8.5 to 8.13. Therefore, the cumulative effects on severance, driver delay,

pedestrian delay, non-motorised user amenity, fear and intimidation, and road safety are inherently included within the impact analysis.

8.9.2 It is therefore considered that the likely cumulative effects remain as per those identified in Section 8.8 of this Chapter. The identified level of significance for each effect is considered to be the same for both future years 2026 and 2033. The likely cumulative effects are summarised below:

- The likely cumulative effect in terms of severance is considered to be of negligible significance in both future years 2026 and 2033.
- The likely cumulative effect in terms of driver delay is considered to be of negligible significance in both future years 2026 and 2033.
- The likely cumulative effect in terms of pedestrian delay is considered to be of negligible significance in 2026 (without the full link road) and minor beneficial significance (with the full link road) in both 2026 and 2033.
- The likely cumulative effect in terms of non-motorised user amenity is considered to be of negligible significance in 2026 (without the full link road) and minor beneficial significance (with the full link road) in both 2026 and 2033.
- The likely cumulative effect in terms of fear and intimidation is considered to be of minor adverse significance in both future years 2026 and 2033.
- The likely cumulative effect in terms of road safety is considered to be of negligible significance in both future years 2026 and 2033.

8.10 Mitigation and Monitoring Measures, and Residual Effects

Construction Phase

8.10.1 Potential construction phase effects will be mitigated, as far as possible, through the CEMP and CTMP which will be secured through planning conditions and would require the method of working to be approved by BMBC highways.

8.10.2 The likely residual effects of the construction phase on the operation of the highway network following mitigation is therefore considered to be of **minor adverse significance**.

Highway Network

8.10.3 In accordance with the approach set out in this Chapter, no measures are required to mitigate the likely environmental effects of the Development. Embedded mitigation is provided in the form of the provision of the new link road which is predicted to remove a substantial volume of through trips from Higham village, with re-assignment to the link road. In addition, there will be a permeable network of high quality pedestrian routes throughout the Site, including a connection to Higham village to the west. The landscape led masterplan ensures that there are multiple crossing points across the new link road, as well as paths set back from the link road which run parallel. This provides opportunities for alternative routes that are more pleasant than footways adjacent to the link road carriageway.

8.10.4 Further, Framework Residential and Workplace Travel Plans have been prepared and accompany the planning application. A Travel Plan has been prepared and

accompanies the planning application. The Travel Plan will encourage and promote sustainable travel to and from the Development once operational.

8.10.5 The likely identified effects of the Phase 1 Development (with and without the full link road), and the full Development, are summarised in turn below.

Severance

8.10.6 The likely effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of severance, has been identified as being of **negligible significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of severance, is considered to be of **negligible significance**.

Driver Delay

8.10.7 The likely effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of driver delay, has been identified as being of **negligible significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of driver delay, is considered to be of **negligible significance**.

Pedestrian Delay

8.10.8 The likely effect of the Phase 1 Development (without the full link road), in terms of pedestrian delay, has been identified as being of **negligible significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (without the full link road), in terms of pedestrian delay, is considered to be of **negligible significance**.

8.10.9 The likely effect of the Phase 1 Development (with the full link road), and the full Development, in terms of pedestrian delay, has been identified as being of **minor beneficial significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (with the full link road), and the full Development, in terms of pedestrian delay, is considered to be of **minor beneficial significance**.

Non-Motorised User Amenity

8.10.10 The likely effect of the Phase 1 Development (without the full link road), in terms of non-motorised user amenity, has been identified as being of **negligible significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (without the full link road), in terms of non-motorised user amenity, is considered to be of **negligible significance**.

8.10.11 The likely effect of the Phase 1 Development (with the full link road) and the full Development, in terms of non-motorised user amenity, has been identified as being of **minor beneficial significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (with the full link road) and the full Development, in terms of non-motorised user amenity, is considered to be of **minor beneficial significance**.

Fear and Intimidation

8.10.12 The likely effect of the Phase 1 Development (with and without the full link road) and the full Development, in terms of fear and intimidation, has been identified as being of **minor adverse significance**. No mitigation is therefore required and the likely

residual effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of fear and intimidation, is considered to be of **minor adverse significance**.

Road Safety

8.10.13 The likely effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of road safety, has been identified as being of **negligible significance**. No mitigation is therefore required and the likely residual effect of the Phase 1 Development (with and without the full link road), and the full Development, in terms of road safety, is considered to be of **negligible significance**.

8.11 Summary

8.11.1 This Chapter has been prepared by Fore Consulting to assess any potentially significant environmental effects that could arise from the changes in traffic flows during the construction and operational phases of the Development. The assessment has been undertaken in accordance with the IEMA guidelines.

8.11.2 Potential construction phase effects will be mitigated, as far as possible, through the CEMP and CTMP which will be secured through planning conditions and would require the method of working to be approved by BMBC highways.

8.11.3 The results of the operational assessments have indicated that the potential environmental effects resulting from the increase in traffic generated by the Development are predicted to be minor or negligible. As such, no measures are required to mitigate the likely environmental effects of the Development. This reflects the overall conclusion of the assessments undertaken within the previous ES submitted in July 2021.