9. Traffic and Transport

Introduction

9.1 This chapter assesses the environmental effects of the Proposed Development on Traffic and Transport. In particular it identifies and assesses the anticipated effects of change resulting from the Proposed Development on the existing traffic conditions in the local area.

9.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the Site and surroundings, the potential direct and indirect effects of the development arising from an increase in vehicle trips and alterations to local transport infrastructure, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by SLR Consulting Ltd (SLR).

9.3 This Chapter is supported by the following figures and appendices:

- Proposed Site Layout Plan;
- Transport Assessment (**Appendix 9.1**); and
- Framework Travel Plan (**Appendix 9.2**).

9.4 The application will implement a phasing strategy which will be divided into 2 phases:

- Phase 1 – up to 600 units (pre link road); and
- Phase 2 – full development up to 900 units with link road (this includes everything in phase 1 also).

9.5 This chapter assesses both the phase 1 and phase 2 scenarios. It will make reference to traffic modelling work undertaken in support of the allocation of the Site in the Wrexham Local Plan, which has now been adopted. The traffic modelling work was accepted as part of the evidence base for the Local Plan Examination in Public in 2019, with the support of the Local Authority, Wrexham Country Borough Council (WCBC).

9.6 Whilst the modelling was prepared in 2018/2019, SLR have reviewed the modelling in the context of the current traffic conditions and have concluded that it remains valid and fit for purpose for use to support the planning application for the Proposed Development. This has been agreed with Highways Officers at WCBC. Full details of the modelling approach are provided within the Transport Assessment.

9.7 This chapter has been prepared in line with the EIA Scoping Report produced in November 2023.

Assessment Methodology and Significance Criteria

9.8 This chapter draws upon the Transport Assessment (**Appendix 9.1**) that that has been prepared in accordance with Planning Policy Wales and other relevant local guidelines. The scope of the Transport Assessment has been discussed with the Local

Highway Authority WCBC. The methodology underpinning the Transport Assessment consists of four main components:

- Assessing the existing transportation situation;
- Identifying areas of concern in terms of highways, active travel and public transport provision;
- Addressing any problems with a package of transport measures to encourage travel by means other than the private car; and
- Assessing the impact that the Proposed Development will have on the surrounding highway network by looking at junction capacity.

9.9 The overall approach to the assessment of likely significant effects from transport and access has been as follows:

- Establish existing traffic flows and conditions from survey data and from desk-based analysis;
- Assess the levels of traffic generated by any committed developments and add these to the existing traffic flows to establish the future year base traffic flows;
- Factor in any additional future year background traffic forecasts over and above the committed development already considered;
- Assess future baseline traffic conditions in the model;
- Calculate the traffic flows generated by the Proposed Development and distribute/ assign these to the study area highway network;
- Assess the effects of the traffic generated by the Proposed Development, compared to the future baseline and compare this against the IEMA thresholds; and
- Develop any highway infrastructure schemes that may be necessary to mitigate any traffic effects of development, including any improvements to the Study Area

9.10 The baseline review focused on the nature of the surrounding road infrastructure and the current level of traffic use and was informed by desktop studies and surveys.

Desktop Studies

9.11 The desktop studies to establish existing transportation conditions included reviews and identification of the following:

- Relevant transport planning policy and guidance;
- Accident data;
- Sensitive locations;
- Other traffic sensitive receptors in the area; and
- Topographical and Ordnance Survey mapping.

Surveys

9.12 Peak hour traffic junction turning count surveys at 19 junctions on the surrounding highway network were undertaken in 2017 and 2018 which inform the VISSIM modelling that has been undertaken in support of the KSS2 site allocation. A repeat of the set of surveys that were undertaken to inform the VISSIM modelling has been undertaken in November 2023.

9.13 Site observations have also been carried out in 2017 and during 2023/2024 focused upon Cefn Road, Bryn Estyn Road, Holt Road and Dean Road.

Study Area

9.14 The IEMA guidance suggests two broad rules to identify the appropriate extent of the highways assessment area, which are as follows:

- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

9.15 The change in traffic flows across the whole network covered by the VISSIM model have been considered in this assessment. However, there is a particular focus on impacts on users of the following transport links, due to their proximity to the Proposed Development:

- Cefn Road;
- Holt Road;
- Dean Road; and
- Bryn Estyn Road.

Characterisation of Effect

9.16 An environmental impact can arise through the extra vehicle trips that might arrive at a site and from new transport infrastructure. The potential implications that may arise from additional traffic have been described in the IEMA Guidelines and include impacts on:

- Driver delay;
- Pedestrian/cycle delay;
- Pedestrian/cycle amenity;
- Fear and intimidation;
- Severance of drivers and pedestrians;
- Hazardous and dangerous loads; and
- Accidents and road Safety.

9.17 The IEMA Guidelines set out the broad principles of how to assess the magnitude of the effect for each criteria, which is summarised below:

- Driver delay – such delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.
- Pedestrian/cycle delay – changes in the volume, composition or speed of the traffic may affect the ability of people to cross the roads. The guidance suggests that assessors should use their judgement to determine whether pedestrian delay is a significant impact.
- Pedestrian/cycle amenity – broadly defined as the relative pleasantness of a journey, it is affected by traffic flow, traffic composition and pavement width/separation from traffic. The guidance suggests a tentative threshold for judging the significance of changes in pedestrian amenity of where traffic flow (or its lorry component) is halved or doubled.
- Fear and intimidation – the impact of this is dependent upon the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement (footway) width.
- Severance – the guidance states that severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. It is acknowledged that the measurement and prediction of severance is extremely difficult. The assessment of severance should fully consider specific locations, particularly the location of pedestrian routes to key local facilities and whether or not safe crossing facilities are provided.
- Accidents and safety – the guidance suggests that professional judgement will be needed to assess the implications of local circumstances, or factors, which may elevate or lessen risks of accidents (i.e. junction conflicts).

9.18 The general principles that apply in determining the magnitude of the effect of the impact on the receiving environment in each case is as follows:

- Major (Beneficial/Adverse) - A magnitude of change that materially affects the receiving environment in a situation where there is little or no scope to accommodate change.
- Moderate (Beneficial/Adverse) - A magnitude of change that materially affects a receiving environment that may have the ability to accommodate change.
- Minor (Beneficial/Adverse) - A magnitude of change that has a limited effect on a receiving environment that has the ability to accommodate change.
- Negligible (Beneficial/Adverse) - A magnitude of change that has little effect on a receiving environment that has the ability to accommodate change.

9.19 A summary of the criteria used to assess the magnitude of change for each of the identified potentially significant effects are presented in **Table 9.1**.

Table 9.1: Criteria Used to Assess Magnitude of Change

Magnitude	Negligible	Minor	Moderate	Major
Driver Delay	Less than 5% increase in traffic	5%-10% increase in traffic	10%-30% increase in traffic	Greater than 30% increase in traffic
Pedestrian / cycle delay	Less than 5% increase in traffic	5%-10% increase in traffic	10%-30% increase in traffic	Greater than 30% increase in traffic
	Accompanied by a qualitative assessment of pedestrian/cycle activity and infrastructure			
Pedestrian / cycle amenity	Change in traffic flows greater than 100%		Qualitative assessment based on predicted increase in traffic, levels and predicted level of pedestrian activity	
Severance	Less than 30% increase in traffic	30%-60% increase in traffic	60%-90% increase in traffic	Greater than 90% increase in traffic
	Accompanied by qualitative assessment of pedestrian/cycle activity			
Accidents and Safety	Less than 5% increase in traffic	5%-10% increase in traffic	10%-30% increase in traffic	Greater than 30% increase in traffic
	Accompanied by qualitative assessment of highway infrastructure and traffic composition			

Sensitive Receptors

9.20 It is considered that the Cefn Road and Holt Road corridors are sensitive receptors given their location and function in providing access to the highway network for the Proposed Development for all road users. In addition, Bryn Estyn Road is considered to be a sensitive receptor given its use by vulnerable road users i.e. pedestrians and cyclists.

9.21 Having identified the likely sensitive receptors, it is necessary to consider the sensitivity of each receptor. The sensitivity of a receptor is based on the relative importance of the receptor using the scale set out in **Table 9.2**.

Table 9.2: Receptor Sensitivity Criteria

	Sensitivity		
	High	**Medium**	**Low**
Sensitive Receptor	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.	Moderate - The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance; and	The receptor/resource is tolerant of change without detriment to its character, or is of low or local importance.

9.22 It is considered that Cefn Road and Holt Road already accommodate regular vehicle flows with footways, lighting and crossing facilities thereby providing the ability to accommodate change. They are therefore considered to fall into the moderate category.

9.23 Bryn Estyn Road given its more rural nature and low traffic flows makes it more susceptible to change and is therefore considered to be of high sensitivity.

Significance Criteria

9.24 The significance criteria take the following elements into account when considering the impact of the development proposals:

- Extent and magnitude of the effect;
- Effect duration (whether short, medium or long term);
- Effect nature (whether direct or indirect, reversible or irreversible);
- Whether the effect occurs in isolation, is cumulative or interactive;
- Performance against the IEMA environmental quality standards, DfT Standards set out in the Design Manual for Roads and Bridges, Manual for Street or other Industry Guidance;
- Sensitivity of the receptor; and,
- Compatibility with National and Local Transport Policies relating to the environment.

9.25 The magnitude of impact and the sensitivity of the affected receptor are both assessed using an established effect-significance matrix presented in **Table 9.3.**

Table 9.3: Significance Matrix

Magnitude of Impact	Sensitivity of Receptor		
	High	Medium	Low
Major	Major	Major	Moderate
Moderate	Major	Moderate	Minor
Minor	Moderate	Minor	Minor
Negligible	Negligible	Negligible	Negligible
Where the effect is Negligible/Minor or Minor/Moderate, professional judgement will be applied to determine the appropriate scale of effect.			

Assumptions/ Limitations

9.26 There are a number of limitations and constraints which have been identified whilst undertaking the transportation assessments, summarised as follows.

9.27 The data used in this assessment is from a VISSIM model. This data is all collected and collated by 3rd party specialists. This follows standard industry practice and it is assumed that these data sources are accurate.

9.28 The VISSIM model was developed to assess the traffic effects of more development than is being applied for in this planning application as it assesses the effect of 1,680 dwellings on the whole KSS2 site. The results have been interpreted to account for this.

9.29 Baseline conditions have been established from a variety of sources which are the most up-to-date data available at the time. However, due to the dynamic nature of certain aspects of the environment and the timescales for the implementation of the scheme, conditions may change during the construction and operation of the Proposed Development.

9.30 It is assumed that all the principal existing land uses and transport infrastructure in the vicinity of the application site, other than those specifically identified, remain substantially unaltered.

9.31 Change can be either beneficial or adverse, and effects can also, therefore, be beneficial or adverse. In some cases, significance can be shown as being one or two alternatives. In these cases, a single description is decided upon with a reasoned judgement for the level of significance chosen.

9.32 The baseline annual average daily traffic (AADT) figures are derived from peak hour traffic turning count results from the VISSIM model at local junctions, using a factor from a Department for Transport traffic count point on the local highway network. This allows AADT flows to be estimated to a reasonable degree of accuracy.

9.33 The VISSIM modelling was undertaken in 2018/2019 and surveys undertaken in 2023 show that the baseline level of traffic in the VISSIM Model is higher than the 2023 baseline traffic. The modelling results are therefore likely to be overly pessimistic however are a robust basis upon which to base judgements.

Consultation

9.34 Consultation has been carried out with officers at WCBC to confirm the scope of the TA to be submitted in support of the planning application. **Table 9.4** provides a summary of this consultation.

Table 9.4 – Consultation Table

Consultation	Date and Time	Comments	Actions
EIA Scoping Report	November 2023	Consultation response provided by WCBC Highways and Welsh Government Trunk Roads.	Informed the preparation of this ES chapter.
Pre-application meeting with WCBC Highways	14th December 2023	Updated traffic survey information was presented by SLR and Highways officers agreed that the previous traffic modelling undertaken for the Local Plan evidence base should still be fit for purpose.	Informed the preparation of the TA, FTP and this ES chapter.
Pre-application meeting with WCBC Public Transport Officer, Active Travel Officer and Rights of Way Officer	21st December 2023	Principles of bus access to the Site were discussed. Active travel strategy was discussed including rights of way.	
2nd Pre-application meeting with WCBC Highways	6th February 2024	Proposed approach to phasing discussed.	
Welsh Government Transport Division	23rd April 2024	Email received stating that the Welsh Government Transport Division had no comments in relation to the pre-application consultation dated April 5th.	No action required.

Wrexham Highways Comments Received	6th June 2024	Highway comments were received on the planning application, which raised a number of comments.	A detailed highway response document was prepared by SLR in response to all comments received (dated July 2024). The Transport Assessment (TA) (including drawings) and Travel Plan (TP) have also been updated to reflect the comments received (updated documents dated January 2025). While some comments were addressed with additional supporting evidence or clarification, several amendments were made in response to the feedback, with the transport supporting documents updated accordingly. These updates include: • Increased junction kerb radii to 8m where previously less, and adding additional tactile paving at the southern primary access. • Visibility splays on all drawings updated to show 43m. • Reduced the quantum of development in the northern parcel to 148 dwellings, allowing the retention of a single access point. • Proposed measures to minimise rat running between the southern secondary

			access and the main internal spine road. • Provided more information on the PRoW diversion.
Active Travel Comments Received	12th July 2024	Comments made by Wrexham Highways Active Travel on the planning application. Comments were made both on the site masterplan and the 2024 submitted TA and TP.	Many of the comments received related to internal matters that will be addressed at subsequent stages (detailed design stage) once outline planning permission has been secured. Additionally, a number of the comments made by the Active Travel team were general statements rather than actionable feedback. These were acknowledged and noted as part of the review process. A detailed response was prepared by SLR (dated August 2024), with this document providing an itemised response to each comment received. This document has been attached as an Appendix to an updated TA and TP (dated January 2025).

Baseline Conditions

9.35 This section provides a summary of the baseline conditions at the Site and surrounding area, a full description of the traffic and transportation conditions is provided in the TA, included as **Appendix 9.1** of this report.

Highway Network

9.36 Cefn Road forms the western boundary of the Site and forms a north-south route along the eastern side of Wrexham, providing access to the Caia Park residential area and providing connections for the A534 to the north and A525 to the south.

9.37 It is subject to a 20mph speed and there are raised table traffic calming measures in place to help enforce the lower speeds including in the vicinity of the Sutton Drive junction and the Morgan Llwyd School.

9.38 Cefn Road is typically around 6.3m in width and street-lit, with a central hatched median strip along much of the route north of the Hullah Lane junction to encourage low vehicle speeds.

9.39 Bryn Estyn Road runs along the northern edge of the Site. It has the character of a rural lane and connects the Greyhound Roundabout in the west to the industrial estate to the east. It also provides access to the Erlas Victorian Walled Garden. To the east of the Walled Garden the road is closed to motor vehicles so the connection to the east is for cyclists and pedestrians only.

9.40 Cefn Road forms a five-arm roundabout with Holt Road, Dean Road and Bryn Estyn Road, known as the Greyhound Roundabout. The roundabout has a diameter of 35m and all arms have single lane approaches. Facilities for pedestrians at the junction are limited as there are no formal crossing points and there is a lack of basic provision such as dropped kerb crossings and tactile paving.

9.41 The A534 Holt Road is the main arterial route serving the eastern side of Wrexham. It links with the town centre road network at the Tesco's roundabout and then runs through the eastern residential areas of the town to its junction with the A5156. The road through this section is single carriageway with footways and subject to a 30mph speed limit. The road is urban in nature with frontage access, side road junctions and several controlled pedestrian crossing points.

9.42 The junction of Holt Road and A5156 is a large roundabout with a diameter of approximately 90m, subject to the national speed limit. The A534 continues to the east of the junction and the A5156 forms the northern arm of the roundabout. There is also a local access to Wrexham Golf Club between the A5156 and A534 (east) approaches. There is no connection to the southern side of the roundabout which is where access to the northern part of the wider KSS2 site (being brought forward by Bloor and Barratt Homes) will be taken and where the link road through the KSS2 site from Cefn Road will emerge.

9.43 The A5156 is a dual carriageway extending north from the A534 roundabout and connects with the A483 trunk road at Junction 6. The road is derestricted and unlit. The A483 is the strategic road which connects Wrexham with North Wales and Northwest England via the A55, M53 and M56.

Traffic Conditions

9.44 Peak hour traffic surveys were undertaken in 2017 and 2018 which inform the VISSIM modelling that has been undertaken in support of the KSS2 site allocation. The peak hours assessed in the model are 08:00-09:00 and 16:30 to 17:30.

9.45 The flows at the A5156/ Borras Park Road roundabout are from surveys undertaken in June 2017. The flows at the Greyhound Roundabout and A534 Holt Road/ A5156 roundabout are from surveys undertaken in March 2018.

9.46 A repeat of the set of surveys that were undertaken to inform the VISSIM modelling has been undertaken in November 2023. The purpose of the exercise was to determine whether the existing 2018 base model can still be relied upon, and the outcomes of that assessment are still valid.

9.47 The comparison exercise has been undertaken by SLR's modelling team (formerly Vectos Microsim who undertook the VISSIM Modelling for the Local Plan work). It showed that network traffic flows have fallen between 2018-23 by approximately 5%. At the Greyhound Roundabout in particular, traffic flows have fallen by approximately 11% in both the AM and PM peak hours.

9.48 The exercise demonstrates that the Base model and the future year assessments that followed remain a strong evidence base for development control, and proposed mitigation measures identified in the 2019 assessment would be able to accommodate future traffic in light of new 2023 survey data.

9.49 As a result, it can be concluded that the 2019 assessment in relation to KSS2 remains robust and therefore the associated VISSIM model is considered to be fit for purpose, with the previous 2018 base appropriate to use as the 2023 base for the purposes of this assessment.

9.50 Two-way traffic flows on Cefn Road were recorded at 980 vehicles in the morning peak hour. Flows along Bryn Estyn were much lower at 92 two-way movements. Holt Road had two-way traffic flows of around 1,200 vehicles in the morning peak hour.

9.51 There is a large movement from the A5156 to the east towards the Industrial Estate in the morning peak reflecting the draw of this major employment area.

9.52 Two-way traffic flows on Cefn Road were recorded at 973 vehicles in the morning peak hour which is very similar to the traffic flows in the morning peak hour. Flows along Bryn Estyn were recorded at 115 two-way movements. Holt Road had two-way traffic flows of around 1,400 vehicles in the evening peak hour.

9.53 The large movement of vehicles from the A5156 to the A534 east that was in evidence in the morning peak hour is reversed in the evening peak hour, reflecting the commuting patterns associated with the Industrial Estate.

9.54 Observations of the local highway network reveal that the Greyhound junction operates under generally free flow conditions during the morning and evening peak periods, with occasional queues forming on Cefn Road and Holt Road North during the morning peak and evening peak hour, and on Holt Road South during the

evening peak. It was observed that the queues would clear within a short space of time and would not persist for prolonged periods, and this assessment is supported by queue surveys undertaken for the VISSIM modelling.

9.55 Traffic conditions on Holt Road are heavily influenced by the Industrial Estate, with some congestion in evidence during the traditional peaks at the beginning and end of the working day however for the majority of the day this part of the network operates with significant spare capacity and provides the industrial estate with an excellent connection to the strategic road network and Wrexham.

9.56 The 2023 baseline traffic flows are presented in **Table 9.5**.

Table 9.5: 2023 Baseline Traffic Flows

Ref.	Link	2023		
		Vehs	HGV	HGV (%)
1	Stryt Holt/ Holt Road (South of Hullah)	13,389	139	0
2	Stryt Holt/ Holt Road (Hullah – Cefn, at Hullah)	10,984	133	0
3	Stryt Holt/ Holt Road (Hullah – Cefn, at Cefn)	11,126	130	0
4	Stryt Holt/ Holt Road (Cefn - A534, at Cefn)	14,540	186	0
5	Stryt Holt/ Holt Road (Cefn - A534, at A5156)	13,662	181	0
6	A534 (East of A5156)	28,499	464	0
7	Cefn Road (Holt - Hullah)	11,132	51	0
9	Cefn Road (Hullah - Access)	8,657	51	0
10	Cefn Road (South of site)	8,354	54	0
11	Hullah Lane (at Holt Road)	8,354	54	0
12	Hullah Lane (at Cefn Road)	4,132	6	0
13	Dean Road	1,668	6	0
14	Bryn Estyn Road	10,105	39	0
15a	A5156 (North of A534, at Holt)	1,081	24	0
15b	A5156 (North of A534, at Borras)	27,929	352	0
16	A5156 W. (West of Borras)	27,846	352	0
17	Borras Road	30,019	285	0

Ref.	Link	2023		
		Vehs	HGV	HGV (%)
18	Borras Park Road	1,526	93	0

Highway Safety

9.57 There have been two accidents on Cefn Road, both resulting in slight injury. One occurred close to the junction with Ceiriog Road and one occurred just to the north of the junction with Fenwick Drive. Neither involved vulnerable road users. There have been no accidents recorded on Bryn Estyn Road.

9.58 Two slight injury accidents occurred on the Greyhound Roundabout north-western circulatory and both involved a cyclist.

9.59 The safety record on this local network can be considered to be relatively good, given the levels of traffic and presence of other road users in this area and does not show any trends that would call into question the proposed Phase 1 development.

Walking Links

9.60 Pedestrian facilities in the vicinity of the Proposed Development include formal footways, shared footways/cycleways, and public rights of way (PRoW).

9.61 Through the Site, two PRoW footpaths cross the northern area and a bridleway passes along the southern boundary of the Site.

9.62 The public right of way passing through northern part of the Site provides an east-west link between the Site and Erlas Lane, facilitating another route on foot to Wrexham Industrial Estate.

9.63 There is continuous footway provision along the western side of Cefn Road. There is footway provision along the eastern side of Cefn Road to serve the existing properties and PRoW connections on this side of the road however it does not currently extend all the way along Cefn Road on this side.

9.64 There are three uncontrolled crossing points on Cefn Road linking to the Phase 1 North parcel. Cefn Road has a 20mph speed limit which helps to create a pedestrian-friendly environment, assisting with crossing safety and comfort for pedestrians.

9.65 The informal crossing points on Cefn Road are formed of dropped kerbs and tactile paving, with the southernmost crossing also being on a raised table, helping to increase the visibility of the crossing.

9.66 In the wider area, pedestrian infrastructure in the Caia Park, Rhosnesni and Borras residential areas is of a good standard with an established network of footways and rights of way. This existing network of footways also allows for connections for pedestrians to Wrexham Town Centre.

Cycle Links

9.67 Bryn Esty Road is an advisory cycle route that leads to Wrexham Industrial Estate and there will be an access point onto Bryn Estyn Road from the Site facilitating direct access for cyclists between the Site and this cycle route to the Industrial Estate.

9.68 Much of Cefn Road is designated as an advisory cycle route with a shared footway/ cycleway running along part of the western side of the road and it is all now a 20mph zone, helping to encourage a cyclist-friendly environment. The Caia Park Estate is also a 20mph zone and this along with the advisory route along Holt Road provides for cycle connections between the Site and Wrexham Town Centre.

Public Transport Links

9.69 There are several bus stops located within a 400 metre walk from the edge of the Site. The closest bus stops are located on Sutton Drive outside Ysgol Morgan Llwyd, with stops also located close by to the north on St Andrews Crescent.

9.70 Circular routes operating from Wrexham Bus Station and provide good accessibility during the day to Wrexham Town Centre. All services start and terminate at Wrexham Bus Station.

9.71 The combination of three circular routes from the Site to Wrexham town centre provides good bus connectivity during weekdays and on Saturdays.

9.72 The Site is therefore well located for access to bus travel, for commuting and school journeys but also for access to the other facilities and transport links available in Wrexham Town Centre.

9.73 There are two railway stations – Wrexham Central and Wrexham General – located on the western side of Wrexham Town Centre both approximately 4 kilometres from the Site. Both stations can be reached by taking a bus to Wrexham Bus Station in the centre of town and walking approximately 260 metres to Wrexham Central or 550 metres to Wrexham General.

9.74 Wrexham Central is the southern terminus of the Wrexham to Bidston Line (Borderlines Line) and connects North-East Wales to Merseyside with a service operated on an hourly frequency Monday to Saturday and 2 hour frequency on Sundays. Services are run by Transport for Wales (TfW). These services also stop at Wrexham General before continuing on to Wrexham Central.

9.75 Wrexham General is a main line railway station and the main station serving Wrexham and north-east Wales. It is operated by TfW but services are also provided by Avanti West Coast which operates a service to London Euston with a change in Chester. Wrexham General provides connections to Cardiff, Holyhead, Chester, Birmingham as well as stations along the North Wales train line. The Site is therefore well located to present opportunities for travel by rail as part of a public transport journey chain.

Embedded Mitigation

9.76 This section describes the measures which have been 'embedded' into the development.

The Completed and Operational Development

9.77 The primary vehicle access to the Site will be from Cefn Road. Here there will be three new access points provided to access the Site. There will be pedestrian and cycle access also on Cefn Road. Bryn Estyn Road will provide pedestrian and cycle access only, with no vehicle access from this road other than emergency vehicles.

9.78 Once the link road is delivered through the Site (phase 2), access to and from the north will be possible through KSS2 north, which will emerge ono the A534 / A5156 roundabout.

9.79 The pre-link road scenario comprises phase 1 of the Proposed Development and for the purposes of this assessment, it has been assumed that up to 600 dwellings could be delivered on the Site in phase 1. This is a robust approach as the phase 1 proposals are currently proposed at up to 600 dwellings.

9.80 For Phase 2 it is assumed that the link road is delivered and that 900 dwellings are present on the Site.

9.81 In order to facilitate bus accessibility, it is considered that a bus service will be able to access the Site from Cefn Road to connect the Site with the centre of Wrexham. Discussions are ongoing with local bus operators regarding potential routing arrangements, however, for the purposes of this ES chapter, it is considered that the internal road layout will be designed so that a bus will be able to route within the Site in a looped arrangement prior to the link road, and, with the link road in place, buses would be able to route along the link road between Cefn Road and the A534 / A5156 roundabout.

9.82 Numerous dedicated pedestrian and cycle routes, both as part of the internal road network and via segregated routes will connect the Site to the surrounding pedestrian and cycle network. These will include connections to Bryn Estyn Road Cefn Road.

9.83 The provision of pedestrian and cycle access throughout the Site will be addressed as part of future reserved matters/detailed planning applications as each phase of the application site is brought forward, however, the principal points of pedestrian/cycle access into the Site are defined on the Parameters Plan accompanying this application.

9.84 Pedestrian and cycle access into the Site will be provided for at each of the vehicular access points, with footways, dropped kerbs and tactile paving provided as appropriate. The footways will link with existing infrastructure located in the vicinity of the development site, including bus stops, as well as providing linkages to the other areas surrounding the Site.

9.85 Each of the pedestrian and cycle routes across the Site will be lit, surfaced, be generally overlooked and be of high quality to ensure access on foot and by cycle is maximised.

9.86 Existing Public Rights of Way will be retained along existing and diverted alignments to be determined within the detailed panning applications as the Site is brought forward.

9.87 The extent of any required off-site highway works, and infrastructure contributions, will be discussed and agreed with WCBC during the planning process.

9.88 A Framework Travel Plan (FTP), included as **Appendix 9.2** of this Report, has been submitted in support of this planning application. The FTP serves as embedded mitigation, encouraging future residents of the development to travel by sustainable modes.

Assessment of Likely Significant Effects

9.89 This section sets out the potential traffic and transport effects of the scheme and their significance, accounting for embedded mitigation.

Construction

9.90 This section sets out the effects during construction including assessment of significance in accordance with criteria stated.

9.91 The timing and generation of construction traffic is not yet known and will depend upon the contractors associated with each phase of development. However, it is currently assumed that the Proposed Development would be built out at a rate of circa 100 dwellings per annum. This is considered an appropriate assumption for both assessment scenarios.

9.92 During the construction of the development, HGVs and other small site/plant vehicles together with construction works will undertake trips to and from the Site.

9.93 **Table 9.6** presents the forecast daily traffic flows generated during the construction phase of the Proposed Development. It has been estimated based on experience of other similar residential developments and a housing construction compound established to build around 100 units per year.

Table 9.6: Construction Traffic Flows

Ref.	Link	Total Veh	HGVs
1	Stryt Holt/ Holt Road (South of Hullah)	9	0
2	Stryt Holt/ Holt Road (Hullah - Cefn)	9	0
4	Stryt Holt/ Holt Road (Cefn - A534)	56	41
6	A534 (East of A5156)	0	0
7	Cefn Road (Holt - Hullah)	70	40
9	Cefn Road (Hullah - Access)	70	40
10	Cefn Road (South of site)	0	0
13	Dean Road	6	0
15	A5156 (North of A534)	55	40

Ref.	Link	Total Veh	HGVs
16	A5156 W. (West of Borras)	55	40

9.94 The volume of construction traffic will make up a progressively lower proportion of the overall traffic volumes as the development site is delivered, with overall traffic volumes anticipated to be the highest on completion. It is also important to consider that the construction period is relatively short-term and temporary in its effects.

9.95 The construction process will require a range of skills from general labourers and skilled operatives through to professionals and management. It is envisaged that workers will originate from a variety of sources with the core coming from the Wrexham area with more skilled employees originating from a wider catchment.

9.96 The quantum of workers on site at any one time will primarily depend on factors such as the timing of the primary infrastructure along with demand for the development proposals. The provision of infrastructure will include the construction of the internal highway network, and drainage along with the installation of utilities. The development of individual plots will include the creation of the relevant accesses and car parking, along with the erection of buildings, plus fit-out.

9.97 The volume of construction traffic HGV's has been estimated in **Table 9.6** but will largely depend on the construction period, on the construction programme and phasing of the development which will be confirmed as the application progresses. However, worst case estimates of the potential volume of HGV's have been considered and it is proposed that the first stage of construction will consist of the proposed site access off Cefn Road.

9.98 The primary route for construction traffic will be via Cefn Road and the A534 corridor in order to reduce any impact on the existing residential areas in the vicinity of the Site.

9.99 The volume of construction traffic, as estimated in **Table 9.6**, is not expected to represent a significant increase in traffic.

9.100 Based on the above, the construction phase is therefore considered to have a **negligible** effect on vehicular severance and driver delay.

Impact on Pedestrians and Cyclists

9.101 As estimated in **Table 9.6**, there would be increased volumes of traffic on the local highway network associated with construction traffic as workers travel to and from the Site each day along with the movement of materials by HGV. Based on the delivery of circa 100 dwellings a year and with the primary construction access via Cefn Road, it is considered that the patterns of traffic will be the same in phase 1 and phase 2 assessment scenarios. In addition, there would be increased delays associated with the implementation of the Site access junctions for both scenarios.

9.102 Pedestrian Severance will be negligible during the delivery of development. Whilst pedestrian routes do exist in the vicinity of the Site, appropriate routes will be maintained and disruption to pedestrians will be **negligible**.

9.103 However, the changes due to construction traffic would be relatively low in comparison to existing traffic flows. As such, it is considered there would be a short-term **minor adverse** impact on pedestrians and cyclists due to construction activity in terms of delay, amenity, fear and intimidation and accidents and safety.

Impact of Road Users

9.104 As estimated in **Table 9.6**, there would be increased volumes of traffic on the local highway network within the surrounding area associated with construction traffic as workers travel to and from the Site each day along with the movement of material by HGV. In addition, there would be short term increased driver delays associated with the implementation of the Site access junctions due to general traffic management measures employed to facilitate the construction of the Site accesses. However, the changes due to construction traffic would be relatively low in comparison to existing traffic flows and increased delay would be negligible. As such, overall it is considered that there would be a short term **minor adverse** impact on road users due to construction activity.

The Completed and Operational Development

Access Proposals

9.105 The vehicular access to the main part of the Site will be via a signal-controlled junction from Cefn Road. Additional accesses to the Site will be provided further north and further south on Cefn Road via priority junction arrangements. However, it should be noted that these secondary accesses will provide limited access to the overall site for general traffic, acting primarily as limited-use residential access roads, cycling and pedestrian access.

9.106 The main vehicular route through the Site will provide a road width of 6.75m with the main access corridor through the southern part of the Site wide enough to provide segregated cycle and pedestrian routes.

9.107 The provision of pedestrian and cycle access throughout the application site will be addressed as part of future detailed planning applications as each part of the application site is brought forward, however it is proposed to provide a shared pedestrian/cycleway as part of the Link Road which on completion will connect Cefn Road with the A534 / A5156 Roundabout.

Predicted Vehicular Flows

9.108 It should be borne in mind that the VISSIM Modelling assessed the whole KSS2 LDP allocation of 1,680 dwellings along with the KSS3 allocation which was an extension of the Wrexham Industrial Estate. The 'development' traffic flows in the model are therefore much higher than the Proposed Development alone, and judgement has been applied in assessing the results of the VISSIM modelling in terms of impacts that can be attributed to the Proposed Development alone.

9.109 **Table 9.7** includes a summary of the potential number of vehicular trips associated with the phase 1 development (allowing for up to 600 units). The assessment is based on the trip rate assumptions contained within the TA.

Table 9.7: Estimated Number of Two-way External Trips Phase 1

	Two-way vehicle flow	% HGV
Phase 1 (600 Dwellings)	4531	0%

9.110 **Table 9.9** overleaf provides a summary of the potential changes in traffic on the local highway network based the phase 1 assessment scenario. Judgement has been applied to assess the results of the VISSIM modelling in terms of impacts that can be attributed more to the Proposed Development rather than KSS2 North i.e. the Proposed Development represents 54% of the total KSS2 traffic assessed in the VISSIM model.

9.111 Links 3, 4, 13, 14, 7, 8 and 9 are closest to the Site and include the sensitive receptors of Cefn Road, Bryn Estyn Road, Dean Road and Holt Road. These have been shown in bold to highlight them as most relevant to this assessment.

9.112 **Table 9.8** below includes a summary of the potential number of vehicular trips associated with the full phase 2 development (allowing for up to 900 units). The assessment is based on the trip rate assumptions contained within the TA.

Table 9.8: Estimated Number of Two-way External Trips Phase 2

	Two-way vehicle flow	% HGV
Phase 2 (900 Dwellings)	5149	0%

9.113 **Table 9.10** provides a summary of the potential changes in traffic on the local highway network based the phase 2 assessment scenario. Judgement has been applied to assess the results of the VISSIM modelling in terms of impacts that can be attributed more to the Proposed Development rather than KSS2 North. Links 3, 4, 13, 14, 7, 8 and 9 are closest to the Site and include the sensitive receptors of Cefn Road, Bryn Estyn Road, Dean Road and Holt Road. These have been shown in bold to highlight them as most relevant to this assessment.

Table 9.9: 2026 Opening Year Traffic Flows with Operational Development (Phase 1)

Ref.	Link	Without Development			With Development			Veh Change %	HGV Change %
		Veh	HGV	HGV %	Veh	HGV	HGV %		
1	Stryt Holt/ Holt Road (South of Hullah)	12493	95	0.76	13835	120	0.87	10.7	27.00
2	Stryt Holt/ Holt Road (Hullah – Cefn, at Hullah)	10316	109	1.06	11623	119	1.02	12.7	9.57
3	**Stryt Holt/ Holt Road (Hullah – Cefn, at Cefn)**	**10523**	**109**	**1.04**	**11724**	**120**	**1.03**	**11.4**	**10.43**
4	**Stryt Holt/ Holt Road (Cefn - A534, at Cefn)**	**13324**	**180**	**1.35**	**15614**	**183**	**1.17**	**17.2**	**1.58**
5	Stryt Holt/ Holt Road (Cefn - A534, at A5156)	12740	180	1.41	15204	188	1.24	19.3	4.74
6	A534 (East of A5156)	29454	473	1.61	31547	484	1.53	7.1	2.40
7	**Cefn Road (Holt - Hullah)**	**10114**	**50**	**0.49**	**13077**	**52**	**0.40**	**29.3**	**5.77**
8	**Cefn Road (Holt – Hullah, at Hullah)**	**7661**	**54**	**0.70**	**10675**	**55**	**0.52**	**39.4**	**1.75**
9	**Cefn Road (Hullah - Access)**	**7925**	**58**	**0.73**	**11191**	**54**	**0.48**	**41.2**	**-6.56**
10	Cefn Road (South of site)	7930	58	0.73	8576	54	0.63	8.1	-6.56
11	Hullah Lane (at Holt Road)	4052	6	0.14	4041	1	0.04	-0.3	-83.33
12	Hullah Lane (at Cefn Road)	1521	7	0.47	1409	3	0.20	-7.4	-57.14
13	**Dean Road**	**9900**	**51**	**0.51**	**10490**	**64**	**0.61**	**6.0**	**24.07**
14	**Bryn Estyn Road**	**1016**	**21**	**2.09**	**1016**	**20**	**1.95**	**0.0**	**-4.55**
15a	A5156 (North of A534, at Holt)	26401	333	1.32	30043	367	1.22	5.8	-2.27
15b	A5156 (North of A534, at Borras)	26322	333	1.33	29578	364	1.23	5.0	-2.53
16	A5156 W. (West of Borras)	28376	269	0.95	32642	289	0.88	7.1	-0.33
17	Borras Road	1442	88	5.92%	1510	91	6.00%	1.9	3.23
18	Borras Park Road	6460	27	0.52%	6909	27	0.39%	-1.9	-28.21

Table 9.10: 2035 Future Year Traffic Flows with Operational Development (Phase 1 + 2)

Ref.	Link	Without Development			With Development			Veh Impact %	HGV Impact %
		Veh	HGV	HGV %	Veh	HGV	HGV %		
1	Stryt Holt/ Holt Road (South of Hullah)	12622	106	0.84	14250	126	0.88	12.9	18.75
2	Stryt Holt/ Holt Road (Hullah – Cefn, at Hullah)	10495	105	1.00	12050	125	1.03	14.8	18.92
3	**Stryt Holt/ Holt Road (Hullah – Cefn, at Cefn)**	**10187**	**108**	**1.06**	**12364**	**125**	**1.01**	**21.4**	**15.79**
4	**Stryt Holt/ Holt Road (Cefn - A534, at Cefn)**	**13279**	**187**	**1.41**	**12364**	**125**	**1.01**	**-6.9**	**-33.33**
5	Stryt Holt/ Holt Road (Cefn - A534, at A5156)	13408	188	1.40	11904	159	1.33	-11.2	-15.58
6	A534 (East of A5156)	30840	460	1.49	34758	521	1.50	12.7	13.14
7	**Cefn Road (Holt – Hullah, at Holt)**	**9171**	**51**	**0.56**	**9653**	**21**	**0.22**	**5.3**	**-59.26**
8	**Cefn Road (Holt – Hullah, at Hullah)**	**6965**	**51**	**0.73**	**6909**	**21**	**0.31**	**-0.8**	**-59.26**
9	**Cefn Road (Hullah - Access)**	**7218**	**54**	**0.75**	**7560**	**24**	**0.32**	**4.7**	**-56.14**
10	Cefn Road (South of site)	7218	54	0.75	10142	64	0.63	40.5	17.54
11	Hullah Lane (at Holt Road)	3609	1	0.04	4019	1	0.04	11.3	0.00
12	Hullah Lane (at Cefn Road)	1128	3	0.25	1397	1	0.10	23.9	-66.67
13	**Dean Road**	**8166**	**51**	**0.62**	**11635**	**37**	**0.32**	**42.5**	**-27.78**
14	**Bryn Estyn Road**	**876**	**20**	**2.26**	**876**	**20**	**2.26**	**0.0**	**0.0**
15a	A5156 (North of A534, at Holt)	29881	345	1.16	32990	389	1.18	10.4	12.88
15b	A5156 (North of A534, at Borras)	30094	351	1.17	32749	388	1.18	8.8	10.51
16	A5156 W. (West of Borras)	31418	280	0.89	35819	327	0.91	14.0	16.50
17	Borras Road	1476	89	6.04	1487	89	6.00	0.8	0.00
18	Borras Park Road	6258	24	0.38	6196	23	0.37	-1.0	-4.00

Completed Development Effects - Phase 1

Effect on Pedestrians and Cyclists

9.114 **Table 9.10** shows the phase 1 assessment scenario results. This shows that on Cefn Road there is expected to be up to a 41% increase in traffic as a result of the development.

9.115 North – south pedestrian movements along Cefn Road currently mainly occur on the western side of the road as this is where there is continuous footway provision. There is limited footway on the eastern side of the road however there is a desire line across Cefn Road for some people to access the playing fields and PRoW routes there.

9.116 The Proposed Development will deliver new sections of footway and footway / cycleway along the eastern side of Cefn Road to help facilitate safe pedestrian movements in and out of the Proposed Development. New crossing points are also proposed on Cefn Road including two signal-controlled crossing points to help pedestrians and cyclists to cross the road.

9.117 New off-road pedestrian and cycle routes will also be provided within the Site to help facilitate north-south movements parallel to Cefn Road helping to mitigate any delay caused by the Proposed Development traffic on Cefn Road.

9.118 Therefore, whilst the proposed increase in traffic on Cefn Road in phase 1 would be up to 41%, the delivery of new pedestrian and cycle infrastructure would in many cases improve conditions for these active travel modes by providing new controlled crossing points, new dedicated paths and new off-road routes to facilitate connections within the Site and to the wider area.

9.119 Overall, it is anticipated that there would be a **negligible** impact on pedestrian and cyclists on Cefn Road as a result of the phase 1 Proposed Development.

9.120 On Holt Road and Dean Road, the forecast change in traffic is much lower than Cefn Road and more would be attributed to KSS2 North than on Cefn Road where the Proposed Development access points would be. There is existing pedestrian and cycle infrastructure on these roads that can accommodate these users and the impact is therefore considered to be **negligible**.

9.121 On Bryn Estyn Road there is no forecast change in traffic in the phase 1 scenario and therefore the impact on pedestrians and cyclists is **negligible**.

Effect of Road Users

9.122 The forecast increases in traffic of up to 41% on Cefn Road would result in some additional delays to vehicles travelling along this route and at the Greyhound Roundabout during peak times however the modelling results show that overall the level of additional delays as measured in the journey time analysis (and presented in the TA at **Appendix 9.1**) are not significant. As reported in the Transport Assessment (**Appendix 9.1**), the traffic impact assessments also indicate that the Proposed Development would be able to be accommodated on the local highway network.

9.123 Drivers would experience slight increased delay due to the Proposed Development during peak periods when traffic flows are at their highest. However, it is important

to note that the proposals have been designed to enable delivery of the Local Plan i.e. the Proposed Development and KSS2 North and relieve existing congestion on the surrounding highway network. This is also facilitated by highway improvements to two off site junctions linked to other development (KSS2 North and KSS3). Assessments contained within the TA have demonstrated that the junctions will operate efficiently, and mitigation will be applied where applicable. Therefore, delay isn't expected to be significant.

9.124 Based on the above it is concluded that drivers would experience slight increased delay during the peak periods but with minimal changes at other times of the day. Overall, it is anticipated that there would be a **minor adverse** impact on road users in the vicinity of the Site.

Completed Development Effects - Phase 2

Effect on Pedestrians and Cyclists

9.125 **Table 9.11** shows the phase 2 assessment scenario results. This shows that on Cefn Road there is expected to be up to a circa 5% increase in traffic as a result of the development. The effects are smaller compared to phase 1 because in phase 2 the link road is delivered which has the effect of providing an alternative route for traffic to avoid Cefn Road.

9.126 The Proposed Development will deliver new sections of footway and footway / cycleway along the eastern side of Cefn Road to help facilitate safe pedestrian movements in and out of the Proposed Development. New crossing points are also proposed on Cefn Road including two signal-controlled crossing points to help pedestrians and cyclists to cross the road.

9.127 New off-road pedestrian and cycle routes will also be provided within the Site to help facilitate north-south movements parallel to Cefn Road helping to mitigate any delay caused by the Proposed Development traffic on Cefn Road.

9.128 Therefore, the delivery of new pedestrian and cycle infrastructure would in many cases improve conditions for these active travel modes by providing new controlled crossing points, new dedicated paths and new off-road routes to facilitate connections within the Site and to the wider area.

9.129 Overall, it is anticipated that there would be a **negligible** impact on pedestrian and cyclists on Cefn Road as a result of the phase 2 Proposed Development.

9.130 On Holt Road and Dean Road, the forecast change in traffic is higher than Cefn Road however more of that traffic would be attributed to KSS2 North than on Cefn Road where the Proposed Development access points would be. There is existing pedestrian and cycle infrastructure on these roads that can accommodate these users and the impact is therefore considered to be **negligible**.

9.131 On Bryn Estyn Road there is no forecast change in traffic in the phase 2 scenario and therefore the impact on pedestrians and cyclists is **negligible**.

Effect of Road Users

9.132 As reported in the Transport Assessment (**Appendix 9.1**), the delivery of the link road in phase 2 helps to relieve congestion at the Greyhound Roundabout and along with

mitigation proposed at two off-site junction, the effects of the KSS2 traffic are mitigated to an acceptable degree.

9.133 Drivers may experience slight increased delay at some locations on the network due to the Proposed Development during peak periods when traffic flows are at their highest. However, there are also some notable reductions in journey time for sections of the local highway which are reflected in reductions in flows on parts of Holt Road for example.

9.134 It is important to note that the proposals have been designed to enable delivery of the Local Plan i.e. the Proposed Development and KSS2 North and relieve existing congestion on the surrounding highway network. This is also facilitated by highway improvements to two off site junctions linked to other development (KSS2 North and KSS3). Assessments contained within the TA have demonstrated that the junctions will operate efficiently, and mitigation will be applied where applicable. Therefore, delay isn't expected to be significant.

9.135 Based on the above it is concluded that there would be a **minor adverse** impact on road users in the vicinity of the Site.

Additional Mitigation/ Enhancement Measures

Construction

9.136 The Applicant will commit to implementing a Construction Environment Management Plan (CEMP), which will outline the measures to be introduced to minimise impacts during this phase. This will detail the pattern of HGV arrivals and departures and routings to be used. Any large items of plant, or other large loads that need to be brought to or from the Site, will be transported during off-peak periods.

9.137 In order to minimise any potential construction traffic impact at the Site entrance, the CEMP will include temporary signing to highlight the presence of the works access. Wheel washing facilities will also be used to ensure that there is no transfer of mud or other dust and debris onto the road surfaces

9.138 Roadworks and temporary lane closures will be coordinated to have the least possible impact during peak times.

9.139 The Site-wide CEMP will impose requirements for the various contractors to liaise with the Project Management consultant to ensure that the construction activities with high HGV generation do not occur together, to ensure the construction impact is managed. This CEMP provides some self-regulation, and the ability for the development manager to monitor and control the construction flows to those assessed here.

Completed and Operational Development

9.140 Potential mitigation measures for the Proposed Development will be subject to a continuing process of evolution, relating to the results of consultation with the local authority, and in response to the resolution of detail design issues. Notwithstanding this, the following measures are identified within the Transport Assessment to mitigate the potential effects of the Development.

- The developer would be required to prepare and implement a Travel Plan to encourage residents to travel by sustainable modes;
- Retention of the existing footpath network in the vicinity of the Site; and
- New pedestrian and cycle linkages between the Site and the surrounding areas.

9.141 The Travel Plan will include regular review and monitoring of the effectiveness of the Plan and taking actions to progress Plan objectives and achieve targets.

Residual Effects

9.142 The residual impact assessment should assume that the mitigation described in the section above has been implemented.

Construction

9.143 Contractors would be required to implement strategies to minimise the potential effects of construction works on pedestrians and cyclists. Notwithstanding this, there would be **short term minor adverse** residual effects on pedestrians and cyclists in terms of severance, amenity and delay due to construction activity.

9.144 Prior to the completion of the Site access junction, there would be increased delay on Cefn Road associated with the Site access construction works which would result in **minor adverse** effect on road users.

Completed and Operational Development

9.145 The mitigation measures proposed would ensure that the potential traffic impact associated with the Proposed Development phases 1 and 2 can be satisfactorily accommodated. There would be slight increased delay along some roads due to development traffic when compared to existing conditions. However, these effects would be minimal and typically constrained to the commuter peak periods when the roads are busiest.

9.146 Residual impacts on road users and pedestrians and cyclists at completed development stage are **negligible** or **minor adverse**.

Table 9.12 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Driver Delay	None	Minor Adverse	CEMP	Minor Adverse
Pedestrian / Cycle Delay	None	Minor Adverse	CEMP	Minor Adverse
Pedestrian / Cycle Amenity	None	Minor Adverse	CEMP	Minor Adverse
Severance	None	Minor Adverse	CEMP	Minor Adverse
Accidents and Safety	None	Minor Adverse	CEMP	Minor Adverse
Operation				
Driver Delay	Provision for new link connection through the Site to connect to KSS2 North in the future.	Minor Adverse	Contribution to off-site junction capacity improvements.	Minor Adverse
Pedestrian / Cycle Delay	New pedestrian and cycle infrastructure within the Site.	Minor Adverse	Delivery of new off-site pedestrian and cycle infrastructure.	Negligible
Pedestrian / Cycle Amenity	New pedestrian and cycle infrastructure within the Site.	Minor Adverse	Delivery of new off-site pedestrian and cycle infrastructure.	Negligible

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Severance	New pedestrian and cycle infrastructure within the Site.	Minor Adverse	Delivery of new off-site pedestrian and cycle infrastructure.	Negligible
Accidents and Safety	New pedestrian and cycle infrastructure within the Site.	Minor Adverse	Delivery of new off-site pedestrian and cycle infrastructure.	Negligible

Conclusions

9.147 The Proposed Development will not result in any significant adverse effects on the surrounding local highway network in either of the assessment scenarios.

9.148 The primary aspects of the development proposals relating to Transport and Access consist of:

- The traffic impact associated with the two assessment scenarios;
- Vehicular Access via new access roads and junctions off Cefn Road which will include pedestrian and cycle facilities;
- Linkages to proposed and existing pedestrian and cycle infrastructure within the vicinity of the Site; and
- An appropriately managed, planned and phased approach to the construction period.

9.149 There would be minimal increases in traffic flows in Wrexham and the surrounding areas as a result of the completed development with the highest increases expected to occur on the roads in the immediate vicinity of the Site access. Increases elsewhere would be less noticeable and generally confined to peak periods.

9.150 The proposed vehicular access points will provide a safe and efficient vehicular access arrangement. Pedestrian and cyclists will be accommodated with new dedicated crossing points on Cefn Road and on the main site access road. New footway and cycleway infrastructure will be provided on Cefn Road and within the Site.

9.151 All construction traffic to and from the Proposed Development will be controlled by a routing agreement, which will prevent access via residential roads in the immediate vicinity of the Site. Further best practice measures will be implemented to minimise associated impacts of the construction phase. As such, impacts of the construction phase will be minor adverse on road users, pedestrians and cyclists during the short term only, and Not Significant.

9.152 Mitigation measures including hard measures, such as, the provision of walking and cycling routes within the Site and soft measures, such as, the provision of a Travel Plan to encourage sustainable modes of travel and a CEMP to minimise the impact during the construction phase will be implemented to ensure the residual effects of the development are Not Significant.

Assessment of Cumulative Effects

9.153 The proposed development within the northern part of the allocated site has been included within the traffic modelling assessment. The Site is known as KSS2 North, as detailed in **Table 9.13**.

Table 9.13: Cumulative Development Sites

Site Ref.		Application No.	Distance and Direction	Proposal	Scoped-in/ Scoped-out	Justification
1		P/2021/0436 (original application reference) currently subject to a pending appeal (P/2021/0436)	Approx 250m north	Land South of Holt Road, Wrexham (KSS2 North) 'Outline application for construction of up to 600 dwellings, with social landscaping, public open space and on-site establishment, with all matters retained except for north site access'	Scoped In	KSS2 North was included within the traffic modelling that supports the Proposed Development. It forms part of the same site allocation.

9.154 The KSS2 North forms part of the same allocation as the Proposed Development and the traffic modelling undertaken in support of the Local Plan process assessed the KSS2 site allocation as a whole. The effect of the KSS2 North development is therefore included within the assessment of the Proposed Development.

Approach

9.155 The traffic modelling assessment undertaken to support the Site's allocation within the Local Plan was undertaken in conjunction with the developer of the KSS2 North site and included the KSS2 North development traffic. The Site allocation as a whole was therefore assessed and is included in the modelling results reported in this chapter and in the Transport Assessment. This is considered to be an appropriate approach which ensures a robust assessment of the traffic effects arising from the Proposed Development.

Likely Residual Cumulative Effects and their Significance

Construction

9.156 As detailed in the Assessment of Cumulative Effects section, potential traffic and transport impacts associated with cumulative developments are accounted for in the Assessment of Likely Significant Effect section, and cannot be disaggregated for the purposes of environmental assessment within this chapter. A robust assessment has therefore been provided and no further accounting of potential cumulative assessment impacts is required.