17 Transport & Access

17.1 Introduction

17.1.1 This Chapter of the Environmental Statement ('ES') has been prepared by i-Transport LLP on behalf of Gleeson Land ('the Applicant'). It assesses the Proposed Development described in Chapter 3 in relation to Transport Impacts.

17.1.2 The baseline situation is considered before the likely environmental effects of the Proposed Development are identified during its construction and operational phases. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.

17.1.3 The chapter details the methodology followed, a review of the baseline conditions in the defined study area, and the results of the assessment.

17.1.4 The application is supported by the following Appendices:

- Appendix 17.1 Transport Assessment *(i-Transport report reference ITB17371-011)*
- Appendix 17.2 Framework Travel Plan *(i-Transport report reference ITB17371-012)*
- Appendix 17.3 Transport Scoping Note *(i-Transport report reference ITB17371-010)*
- Appendix 17.4 Committed Development

Legislation, Planning Policy and Guidance

Legislation Context

17.1.5 There is no specific legislation in regard to the assessment of traffic and transport matters.

Planning Policy Context

17.1.6 The following national, regional and local planning policy is relevant to the Proposed Development.

National

- National Planning Policy Framework (December 2024).
- Planning Practice Guidance (PPG)
- Department for Transport (DfT) Circular 01/2022 Strategic Road Network and the Delivery of Sustainable Development (Updated December 2022).

Local

- Wokingham Borough Core Strategy 2010-2026.
- Wokingham Borough Core Strategy Development Plan Document (January 2010).
- Wokingham Borough Local Plan Update 2023 - 2040 - Proposed Submission Plan.
- Wokingham Borough Council Local Transport Plan 3 (LTP3) 2011 – 2026.

- Wokingham Borough Council Local Transport Plan (LTP) 2025.
- Borough Design Guide - Supplementary Planning Guide (June 2012).

Guidance

17.1.7 The following guidance is relevant to the Proposed Development:

- National Planning Practice Guidance (first published in 2014 and which has been updated a number of times since then, including the latest update in February 2024).
- Department for Transport (DfT) Circular 01/2022 Strategic Road Network and the Delivery of Sustainable Development (Updated December 2022).
- Institute of Environmental Management and Assessment's (IEMA) 'Guidelines: Environmental Assessment of Road Traffic and Movement' (2023) ('IEMA Guidelines').
- Active Design Guidance, Sport England and Active Travel England (2023).
- DfT Local Transport Note (LTN) 1/20 Cycle Infrastructure Design (July 2020).
- Manual for Streets, Department for Transport (2007) and Manual for Streets 2 (2010).
- The Design Manual for Roads and Bridges (DMRB).
- Living Streets: A Highways Design Guide for Developers in Wokingham (2019).
- DfT's Healthy Streets Guidance.

17.2 Assessment methodology

Consultation/Scoping Process

17.2.1 Extensive pre-application discussions have been held with WBC to agree the scope of transport impact assessment and transport appraisal. Regular (generally weekly) meetings have been held with WBC Highway Officers between March and July 2025 with additional meetings in September and October 2025 to discuss the parameters and methodology pertaining to highways impact and transport appraisal.

17.2.2 In addition to this, the following documents have informed the extent and methodology undertaken within this ES Chapter:

- EIA Scoping Report (Savills) (Appendix 5.1);
- EIA Scoping Opinion (WBC) (Appendix 5.2);
- Transport Assessment Scoping Report (i-Transport) (Appendix 17.3).

Predicting Effects

Overview

17.2.3 The 'Environmental Assessment of Traffic and Movement' (2023) produced by the Institute of Environmental Management and Assessment ('IEMA') (IEMA became the Institute of Sustainability and Environmental Professionals (ISEP) in 2025) sets out a number of potential environmental effects relating to transport and highways considerations which may require assessment. These have been used as the basis for the method of assessment of the environmental effects of traffic in this Chapter. In addition, and where appropriate, reference will be made to the Design Manual for Roads and Bridges (DMRB) Volume 13 Environmental Assessment published by the Department for Transport.

17.2.4 The assessment is divided into two distinct phases (construction and operation) in accordance with best practice as set out in the IEMA guidelines. The assessments separately consider construction traffic and operational Development traffic. In practice there will be an overlap of these two elements as Development will be phased over a number of years. Given the different characteristics of the traffic generated during each of these phases it is considered appropriate to separate them to enable the impacts to be robustly assessed and quantified. Where appropriate the cumulative effect of both phases will be assessed concurrently as construction activities will continue whilst the development is operational.

17.2.5 The ISEP guidance identifies a number of environmental impacts that could arise from changes in vehicular travel demand. The following assessment criteria which are assessed are:

- Community severance;
- Driver and passenger delay;
- Non-motorised user delay;
- Non-motorised user amenity;
- Fear and intimidation on and by road users;
- Road user and pedestrian safety.

Construction

17.2.6 The key mechanisms through which the Proposed Development could lead to potential adverse transport effects during the construction phase, include:

- Works associated with new site access to Mole Road.
- Potential temporary changes to site access arrangements, including the closure or diversion of Public Rights of Way (PRoWs) and footways within and surrounding the Site and works to the highway during the construction phase. This could cause diversions and longer journey times for drivers and pedestrians and amenity effects.
- Increases in traffic, specifically Heavy Goods Vehicle (HGV) movements, Light Goods Vehicles (LGVs) and from workers during the construction phase; and
- Increased risk of road traffic collisions and hazardous load incidents due to the presence of large construction vehicles.

Completed Development

17.2.7 The key mechanisms through which the Proposed Development could lead to potential effects during the operational phase, which are considered in the assessment, include:

- New permanent access point to the Proposed Development from Mole Road.
- Enhanced active and public transport infrastructure, including new walking, cycling and horse riding facilities and crossings, and traffic calming measures.
- Increased highway capacity to ensure reduced delays to existing and future road users.
- Increased vehicular and public transport traffic from the baseline conditions which could cause conflict between traffic, pedestrians and cyclists as well as increases/decreases in delay, severance and fear and intimidation.
- Increased propensity for road traffic collisions or other accident and safety concerns for pedestrians and cyclists.

Non-Significant Effects

17.2.8 All other transport and access effects are scoped out of further assessment within this chapter and no objection was provided in relation to this approach by the Council, through the Scoping Opinion. Further details and justification for the scope of the assessment are set out in the EIA Scoping Report at Chapter 18.

17.2.9 The Proposed Development is not expected to give rise to hazardous loads. If any such loads were required, they would be subject to relevant legislative provisions such as those for transporting dangerous goods via road under The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended). The movement of large (abnormal) loads is regulated by National Highways and will be subject to separate agreement with the relevant highway authorities and police through the Electronic Service Delivery for Abnormal Loads ('ESDAL'). Hazardous / large loads are therefore not considered further in this assessment.

17.2.10 Environmental effects of transport associated with Landscape and Visual, Air Quality and Dust, Noise and Vibration, Biodiversity, and Water Environment/Flooding are examined in the relevant technical chapters of this ES and are not considered further in this Chapter.

17.2.11 Traffic forecasts for the noise and air quality assessments have been produced using Annual Average Daily Traffic (AADT) and Annual Average Weekly Traffic (AAWT).

Assessing Likely Significant Effects

17.2.12 The following section sets out how impacts have been identified and assessed. The IEMA guidelines require assessment based on the following two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment:

- 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%).
- Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

Community Severance

17.2.13 Severance is defined as the "perceived division that can occur within a community when it becomes separated by major transport infrastructure". In addition, the assessment will include any effects from traffic flow changes, as well as effects from formal diversions or closures required to facilitate the Proposed Development.

17.2.14 The IEMA Guidelines acknowledge that the measurement and prediction of severance is extremely difficult. Factors which need to be considered when determining whether severance is likely to be an important issue at the sensitive receptors include: road width, traffic flow and composition, traffic speeds, the availability of crossing facilities, and the number of movements that are likely to cross an affected route.

17.2.15 The IEMA Guidelines suggests that a 30%, 60% and 90% increase in traffic flows will respectively have a 'slight', 'moderate' and 'substantial' change in severance. However, allowance needs to be made for the presence of existing crossing facilities.

Driver and Passenger Delay

17.2.16 Delays to road vehicles and drivers/passengers occur principally at junctions where vehicles are performing conflicting manoeuvres. Values for driver delay can be determined by the use of journey time data within the Wokingham Strategic Transport Model 4 (WSTM4) which includes estimates of vehicle time and delay through the junctions. As such, in the context of this ES, driver delay is by comparing the baseline with the three assessment scenarios:

- Peak construction (assessed against 2032 future baseline);
- Completion year with and without Proposed Development (assuming full occupation) (assessed against a 2040 future baseline).
- Completion year with and without Proposed Development and The LVGV Project (assuming full occupation) (assessed against a 2040 future baseline).

17.2.17 This assessment is carried out for the network peak periods, which are the times when the local highway network is at its busiest and so impacts of the Proposed Development on driver delay would be greatest.

Non-Motorised User Delay

17.2.18 Pedestrian Delay is utilised as a proxy for other non-motorised user (NMU) delay when crossing a road. Changes in the volume, composition or speed of traffic may affect the ability of pedestrians to cross roads. In general terms, increases in traffic are likely to correspond to increased pedestrian delay. Pedestrian delay will also depend upon the level of pedestrian activity, visibility and physical conditions.

17.2.19 The IEMA Guidelines direct assessors to use their own judgement, based on experience, as to whether or not pedestrian delay is a significant impact. The determination of what constitutes a material impact on pedestrian delay and amenity is generally a matter of judgement of the assessor and knowledge of local factors and conditions.

17.2.20 The IEMA Guidelines refer to DMRB LA112 to determine how pedestrians are delayed, and concludes 8 seconds at flows of 1,000 vehicles per hour and below 20 seconds at 2,000 vehicles per hour for various types of crossings. A two-way flow of 1,400 vehicles per hour has therefore been adopted as a lower threshold for assessment - equating to a mean 10 second delay for a link with no pedestrian facilities. Where there are controlled crossings, the level of pedestrian delays are shorter.

Non-Motorised User Amenity

17.2.21 Non-Motorised User Amenity is defined as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic." The IEMA Guidelines state that a tentative threshold for judging the significance of changes in NMU Amenity would be where the traffic flow is halved or doubled which would lead to a high impact, although that any assessment should pay full regard to local conditions.

Fear and Intimidation on and by Road Users

17.2.22 Fear and intimidation are defined as "A further environmental impact that affects people […] created by all moving objects. While the traffic and movement assessment has to consider motorcycles, cars, lorries and buses, this scope of consideration is not exclusive – it also has to consider other modes of travel, including horses, cycles, mobility scooters, e-scooters and e-cycles, if appropriate." For the assessment of Fear and Intimidation, the IEMA Guidelines refers to an assessment of the "Degree of Hazard (DoH)" but acknowledges professional judgement should be used with references to local conditions.

17.2.23 The IEMA Guidelines also notes that that "the movement of hazardous / large loads will heighten people's perception of fear and intimidation and, if this is likely to occur, it should be noted."

17.2.24 The IEMA Guidelines suggest thresholds based on 18-hour daily flow, 18-hour HGV flow and vehicle speeds and provide a formula for determining levels of fear and intimidation, based on the volume of traffic, its HGV composition and its proximity to people and / or the lack of protection caused by factors such as narrow pavement widths and is shown in Table 17.1 below.

17.2.25 The degree of hazard is assessed with reference to the established thresholds, and a score provided for each combination on a highway link under consideration.

Table 17.1 Degree of Hazard

Average Traffic Flow over 18-Hour Day (all vehicles / hour 2-way) (a)	Total 18-Hour Heavy Vehicle Flow (b)	Average Vehicle Speed (mph) (c)	Degree of Hazard Score
+1,800	+3,000	>40	30
1,200 – 1,800	2,000 – 3,000	30 – 40	20
600 – 1,200	1,000 – 2,000	20 – 30	10
<600	<1,000	<20	0

Table 17.2 Levels of Fear and Intimidation

Level of Fear and Intimidation	Total Hazard Score (a) + (b) + (c)
Extreme	71+
Great	41 – 70
Moderate	21 – 40
Small	0 - 20

Table 17.3 Fear and Intimidation – Magnitude of Impact

Magnitude of Impact	Change in Step / Traffic Flows (AADT) from Baseline
High	Two step changes in level
Medium	One step change in level, but with 400+ vehicle increase in average 18-hour average two-way all vehicle flows; and / or 500+ HGV increase in total 18-hour flow
Low	One step change in level, with <400 vehicle increase in average 18-hour all vehicle two-way flow; and / or <500 HGV increase in total 18-hour HGV flow
Negligible	No change in step changes

Road User and Pedestrian Safety

17.2.26 IEMA Guidelines do not include any definition of significance in relation to accidents and safety, suggesting that professional judgement would be needed to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents.

17.2.27 There can be some small changes in prevailing road safety conditions arising simply as a result of having a greater number of journeys being made on a network; very simply, the more people that are travelling, the more people that may become involved in an accident. However, consideration needs to be given to other factors including changes in vehicle speed. For example, lower speed limits play a critical role in reducing the severity of collisions. The full results of the accident analysis are reported in the TA and are summarised in this ES chapter.

17.2.28 The assessment has been informed by recent accident data (Personal Injury Data) and consideration of the effects of predicted traffic flows from the Proposed Development.

Significance Criteria

Sensitivity of Receptors

17.2.29 The IEMA Guidelines states that it is essential to identify particular population groups that may be sensitive to changes in traffic conditions at an early stage. The following user groups should therefore be considered:

- Non-motorised users;
- Public right of way users;
- Motorists and freight vehicles;
- Public transport; and
- Emergency services.

17.2.30 The IEMA Guidelines identify that the following receptors are considered to be ‘sensitive’:

- People at home and work;
- Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage, and access and geographic factors);
- Location with concentrations of vulnerable users (e.g. hospital, places of worship, schools);
- Retail areas;
- Recreational areas;

- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highway links at (or over) capacity.

17.2.31 The criteria used to establish the sensitivity is based on the IEMA Guidelines shown in Table H3.4 and have been informed by professional judgement.

Table 17.4 Value/sensitivity assessment

Value/Sensitivity	Receptor Description
High	Highway network with existing capacity issues or high sensitivity for driver delay to small changes in traffic levels. Highway link with high levels of pedestrian activity and commerce and residential accommodation eg schools, colleges, playgrounds etc
Medium	Highway network with susceptibility/sensitivity to reach capacity for limited periods and limited sensitivity for driver delay following changes in traffic level. Highway links with pedestrian activity and commerce and residential accommodation.
Low	Highway network with little or no sensitivity to reach capacity and limited sensitivity for change in traffic flows. Low sensitivity to change such as people at work.
Negligible	Highway network operating well below capacity with little sensitivity for driver delay to changes in traffic levels. Little or no pedestrian activity or commerce and limited residential accommodation.

Magnitude of Impact

17.2.32 The following magnitude criteria for all environmental effects are based on the broad significance thresholds contained within the IEMA Guidelines. These have been used to determine magnitude, although in addition as recommended by the IEMA Guidelines a qualitative approach has also been adopted for individual criteria, where appropriate. The IEMA Guidelines recommend that highway links should be separately assessed when traffic flows have increased by more than 30%. In sensitive areas effects could be significant when traffic increases are 10% or more. These thresholds principally apply to total traffic although similar changes to the total percentage of HGV flows equally warrant appropriate assessment. Table 8.7 sets out the magnitude criteria applied in the assessment.

Table 17.5 Magnitude of impact

Magnitude	Description
High	Over 60% change in traffic volume or composition
Medium	Between 30% and 60% change in traffic volume or composition
Low	Between 10% and 30% change in traffic volume or composition
Negligible	Less than 10% change in traffic volume or composition

Assessing Significance

17.2.33 The magnitude of change and the sensitivity of the receptor are compared to determine the significance of the effect in accordance with Table 17.6.

Table 17.6 Level of effect

Receptor Sensitivity	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Substantial	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

17.2.34 The determination of significant effects considers the existing transport conditions as a baseline and will provide a prediction of the future effect on the transport network for the construction and the complete and occupied phases of the Proposed Development.

17.2.35 In accordance with the IEMA Guidelines, professional judgement is also applied where appropriate as well as consideration of absolute levels of traffic and the percentage change in traffic. Paragraph 1.11 of the IEMA Guidelines states that: “the guidelines are intended to complement professional judgement and the experience of trained assessors” and goes on to state that: “the experience and expertise of the assessor will remain of prime importance in conducting an environmental assessment.” The IEMA Guidelines also state at paragraph 4.2 that: “the assessment of impacts will need to determine both the change in magnitude of the impacts as well as their absolute levels”.

17.2.36 The nature of the effects may be either adverse (negative), beneficial (positive) or negligible. They will also either the temporary (in accordance with the indicative construction programme) or permanent.

Geographic Scope

17.2.37 The traffic data which has formed the basis of the assessment within this ES Chapter has been provided by the Wokingham Strategic Transport Model 4 (WSTM4), which is used to assess transport and highways impact across the borough for future forthcoming development and highway network changes and schemes. The WSTM4 is developed and maintained by WBC as the local highway authority.

17.2.38 The geographical scope of the potential traffic impacts has been informed through pre-application discussions with WBC alongside the modelling extent of the WSTM4. The geographical scope of the ES for the Proposed Development is smaller than that of the ES prepared for the LVGV project.

17.2.39 Given the anticipated traffic generation associated with the Proposed Development and the conditions of the surrounding local highway network, the extent of the traffic impacts has considered the highway links / junctions listed below and depicted in Figure 17.1.

- 1. B3270;
- 2. Shinfield Road;

- 3. Lower Earley Way;
- 4. Hollow Lane;
- 5. B339;
- 6. Arborfield Road;
- 7. Shinfield Eastern Relief Road;
- 8. A327;
- 9. Observer Way;
- 10. Reading Road;
- 11. Church Lane;
- 12. Swallowfield Road;
- 13. Eversley Road;
- 14. School Road;
- 15. Sindlesham Road;
- 16. Mole Road;
- 17. Mill Lane;
- 18. King Street Lane (South);
- 19. King Street Lane (North);
- 20. Longdon Road; and
- 21. Hatch Farm Way.

Figure 17.1 Traffic Impact Study Area

17.2.40 For some routes a number of link IDs are available within the WSTM. The link ID for each route was selected as being the location where the link recorded the highest flow in the 2026 Baseline scenario.

Temporal Scope

17.2.41 The temporal scope for assessing the impacts of the Proposed Development is governed by the assessment years embedded within the WSTM4 which are 2026, 2032, and 2040 which align to the broad programme of delivery of the Proposed Development.

17.2.42 The IEMA Guidelines state that the greatest environmental change will generally be when the development traffic is at the largest proportion of total flow. The IEMA Guidelines therefore recommend that the environmental assessment should be undertaken at the year of opening, or once the development is fully operational. This, combined with the future years available within the WSTM4, means that 2040 is the most appropriate year of undertaking a future year assessment, which has been carried forward for assessment within this ES Chapter.

17.2.43 A 2032 interim assessment has also been undertaken – this incorporates 325 dwellings on the Gleeson Land parcel and provides the peak construction traffic impact.

17.2.44 Committed development across the borough is embedded within the model, meaning that the future year scenarios will be inherently representative of a cumulative assessment.

17.2.45 The scope of future year assessment relating to traffic impacts was agreed with Wokingham Borough Council (WBC) during pre-application discussions.

17.2.46 On the basis of the above, the following assessment scenarios have been assessed within this ES Chapter:

- 2026 Future Baseline;
- 2032 Future Baseline (with Committed Development)
- 2032 Future Baseline plus The Proposed Development. This includes the assessment of construction traffic.
- 2040 Future Baseline (with Committed Development)
- 2040 Future Baseline plus The Proposed Development
- 2040 Future Baseline plus The Proposed Development plus The LVGV project

Assumptions and Limitations

17.2.47 The following assumptions have been made and are considered to give a conservative approach to the assessment:

- Traffic generation estimates for the construction of the Proposed Development are based on the surveyed construction activities of active construction sites but matters such as materials quantities, number of workers, indicative construction programme etc may vary over time.
- The basis of the traffic assessment used in this chapter is set out in the Transport Assessment and is based on the WSTM base traffic model.
- To provide a robust assessment, a 2040 future year has been assumed which assumes that the Proposed Development is fully operational, whilst also accounting for a significant level of committed development, ensuring a robust cumulative assessment has been carried out.
- The construction and operational traffic data is not simultaneous – they are assessed separately as there is no interim year so the peak construction activity has been assessed at the completion year of the Proposed Development. Therefore, the assessment presented provides a robust of the anticipated future year network conditions in the peak construction period.
- The Site, on completion, operates ‘normally’, and does not assess any one-off events that may have impacts on multi-modal transport flows.
- All new travel demand to the Proposed Development is assumed to be ‘new’ demand. In reality, a proportion of people living on the Proposed Development will move from the local area and will represent demands already on the network.

17.3 Baseline conditions

Current Baseline

Active Travel

17.3.1 The Site benefits from good connectivity to the Public Rights of Way (PRoW) network. A ‘Byway open to all traffic’ (BOAT) (Route ID – ARBO3) routes along the western edge of the site, connecting with the wider network, in the form of footpaths and BOATs, to the north towards Sindlesham and Arborfield / Arborfield Cross to the south.

17.3.2 A BOAT is also located on Ellis's Hill which heads eastbound, before connecting with Barkham Road towards Wokingham.

17.3.3 A segregated cycleway is present on Observer Way and provides a traffic-free cycle route into Arborfield Cross. Arborfield Cross then provides regional cycleways which provide access to Crowthorne and Bracknell to the east, and Swallowfield and Beech Hill to the west.

17.3.4 A Walking, Cycling and Horse-Riding Assessment and Review (WCHAR) (see Section 5 of the TA) has been undertaken to provide an audit of non-motorised user routes between the Site and key destinations and local facilities.

WBC Planned Routes

17.3.5 WBC has prepared a Public Rights of Way Improvement Plan (2020-2030) which details their strategy and prioritises the management and improvements of PRoW. This identifies several proposals for improving and enhancing the existing PRoW network, which would provide benefits to the site and also to the wider LGV.

17.3.6 Relevant improvements include aspirations for a new Loddon River Walk through the LGV site, whilst other nearby improvements include a new link between Shinfield Footpaths 5 and 6 which route to the west of the River Loddon.

17.3.7 In addition to the existing PRoW network, WBC's Greenways Network aims to create a network of predominantly traffic-free routes that link the major site allocations within the borough with existing communities. These routes are intended to complement the existing footpath network, with the aim to provide 3.0m wide hard-surfaced routes to allow for use in all-weather by both pedestrians and cyclists.

17.3.8 A Greenway (Route A) is proposed on Mole Road to the south of the Site. This Greenway will extend west via Church Lane and connect to the north of Shinfield. To the east, the Greenway will route via Ellis's Hill, linking onto the wider Greenway network, providing access to Arborfield Cross and Woosehill.

17.3.9 WBC's Local Cycling and Walking Infrastructure Plan (LCWIP) has been produced to identify active travel schemes for the borough. Several of the proposed schemes are located in proximity to key corridors near to the site and LGV, particularly Shinfield, Lower Earley and Sindlesham.

Public Transport

Bus Services

17.3.10 The Leopard 3 service routes along the A327 Arborfield Road corridor, which runs immediately adjacent to the southern frontage of LGV. Buses operate at a 20-minute frequency throughout the day between Reading and Arborfield, serving key destinations within Reading, including the railway station, town centre, Royal Berkshire Hospital and the Whiteknights campus associated with the University of Reading. The nearest bus stops to the site served by this route are the Church Lane stops located on Reading Road, which are just over 1.0km (a 17-minute walk) away.

17.3.11 The major bus routes are supplemented by a series of minor services which operate at a lesser frequency. This includes the daily 244 service which runs along the A327 Arborfield Road at the southern frontage of the LGV, as well as the weekly 145 service which runs along Mole Road to the south.

Rail Services

17.3.12 Winnersh Railway Station is located approximately 3.4km northeast of the Site and can be accessed via a 6-minute car journey or a 12-minute (3.6km) cycle. There are 10 cycle parking spaces which are sheltered and secure. Sustainable multimodal trips can therefore be made from the Site.

17.3.13 Wokingham Railway Station is located approximately 4.3km east of the Site and can be accessed via a 9-minute car journey or an 18-minute (4.9km) cycle journey. The station is equipped with 531 car parking spaces and 118 cycle parking spaces, which are sheltered, secured, and monitored by CCTV. Sustainable multimodal trips can therefore be made from the Site, in addition to car-based trips in which a proportion of the journey will be made sustainably.

17.3.14 Reading Railway Station is located approximately 7.7km north of the Site. The Leopard 3 bus service from Church Lane provides connectivity with Reading Railway Station. Reading Railway Station is a major rail interchange, providing frequency services to destinations around the UK.

Table 17.7 Summary of Local Rail Services

Station	Destination	Frequency	Journey Time (Minutes)
Winnersh	Reading (via Winnersh Triangle)	3 per hour	13 minutes
	London Waterloo (via Bracknell)	3 per hour	1-hour 14 minutes
Wokingham	Reading (via Winnersh Triangle)	3 per hour	14-minutes
	Gatwick Airport (via Guildford)	3 per hour	1-hour 22 minutes
	London Waterloo (via Bracknell)	3 per hour	1-hour 10 minutes
Reading	London Paddington	10 per hour	25-minutes
	Manchester Piccadilly (via Birmingham)	2 per hour	3-hours 14 minutes
	Oxford (via Didcot Parkway)	2 per hour	29 minutes
	Bournemouth (via Basingstoke)	2 per hour	1-hour 20 minutes
	Plymouth via Exeter St Davids	2 per hour	1-hour 44 minutes
	Bristol Temple Meads (via Swindon)	3 per hour	1-hour 10 minutes

Local Highway Network

17.3.15 The Site is well-connected to the existing highway network and benefits from good connectivity to both the local and strategic highway networks.

B3030 Mole Road

17.3.16 The B3030 Mole Road is a two-way single carriageway road directly south of the site with a 50mph speed restriction. It is approximately 2.8km in length and forms a junction with King Street Lane and Bearwood Road to the north, and a junction with Sindlesham Road and Church Lane to the south. Mole Road does not have any footway provision or streetlighting.

Church Lane

17.3.17 Church Lane connects Mole Road and Reading Road and is a two-way single carriageway subject to a 30mph speed limit and a 7.5 tonne vehicle weight restriction. It is approximately 5.0m wide, with traffic calming features in the form of carriageway narrowings. Church Lane does not benefit from footways or street lighting. There are several street signs alerting motorists to pedestrians and equestrians being on the carriageway.

Sindlesham Road

17.3.18 At Church Lane, Mole Road becomes Sindlesham Road with a 30mph speed limit. Towards the Arborfield Cross junction, traffic calming features are provided in the form of priority working.

Reading Road

17.3.19 Reading Road two-way single carriageway, subject to a 30mph speed limit and connects the Arborfield Cross Roundabout to the A327 Roundabout. The carriageway is approximately 7m wide with regular priority passing location to slow vehicles. Reading Road benefits from a circa 2m wide footway along the southern side of the carriageway.

A327 Arborfield Road

17.3.20 Arborfield Road continues north from the A327 Roundabout routes into Shinfield via the A327 Eastern Relief Road Roundabout. Arborfield Road is a two-way single carriageway and is subject to a 50mph speed limit before reducing to 40mph when entering Shinfield.

17.3.21 A continuous footway with streetlighting present on the southern side of the carriageway between Shinfield and the A327 Eastern Relief Road Roundabout as well as a small section of footway on the northern side to facilitate access to the bus stop. There is no footway or streetlighting provision between the Reading Road roundabout and the A327 Eastern Relief Road Roundabout.

A327 Eastern Relief Road

17.3.22 The Eastern Relief Road lies to the west of the site and comprises a high-standard 7.3m wide carriageway, as is the case with the Arborfield Relief Road which routes to the south. Hatch Farm Way (Winnersh Relief Road) provides connectivity to the east, with the B3270 Lower Earley Way routes to the north of the site, on the northern side of the M4 motorway.

A327 Observer Way

17.3.23 Observer Way routes south from the Reading Road Roundabout and is a 50mph limited, circa 7.0m wide two-way single carriageway. Observer Way connects the Reading Road Roundabout and the Eversley Road Roundabout. Along the northern side of the carriageway is an LTN 1/20 compliant footway/cycleway which is separated from the carriageway by a verge and fencing.

Strategic Road Network

17.3.24 Access onto strategic road network (SRN) via the M4 can be achieved within 13-minute drive from the site, providing access to destination such West London to the east and Bristol to the west.

Personal Injury Collision Data

17.3.25 Personal injury collision (PIC) data has been obtained from WBC for the latest available period between 01/01/2020 to 31/12/2024 (60-months). This timeframe has been used to understand if there are any preexisting safety issues on the highway network in the vicinity of the site which could be exacerbated as a result of the development proposal.

17.3.26 Collisions are classified into three separate categories based on severity: Slight, Serious and Fatal. The definitions of which are as follows:

- **Slight**: Injuries of a minor nature, such as sprains, bruises, or cuts not judged to be severe, or slight shock requiring only roadside attention (medical treatment is not a prerequisite for an injury to be defined as ‘Slight’);

- **Serious**: Injuries for which a person is detained in hospital, as in-patient, or any of the following injuries, whether or not a person is detained in hospital; fractures, concussion, internal injuries, severe cuts and lacerations, severe general shock requiring medical treatment and injuries which result in death 30 days after the collision. The 'Serious' category, therefore, covers a very broad range of injuries; and
- **Fatal**: Injuries which cause death either immediately or up to 30 days after the collision.

17.3.27 A total of 16 collisions (resulting in 17 casualties) were recorded within the study area. The data has been reviewed in terms of a 12-month rolling year, as detailed in Table 17.8.

Table 17.8 Personal Injury Collision Review

Casualty Mode	Injury Severity	Year 1 1 Jan 2020 to 31 Dec 2020	Year 2 1 Jan 2021 to 31 Dec 2021	Year 3 1 Jan 2022 to 31 Dec 2022	Year 4 1 Jan 2023 to 31 Dec 2023	Year 5 1 Jan 2024 to 31 Dec 2024	Total
Pedestrian	Slight	0	0	0	0	0	0
	Serious	0	0	1	0	0	1
	Fatal	0	0	0	0	0	0
	Total	**0**	**0**	**1**	**0**	**0**	**1**
Cyclists	Slight	2	3	1	1	0	7
	Serious	0	1	0	0	0	1
	Fatal	0	0	0	0	0	0
	Total	**2**	**4**	**1**	**1**	**0**	**8**
Mobility Scooter	Slight	0	0	0	1	0	1
	Serious	0	0	0	0	0	0
	Fatal	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**1**	**0**	**1**
Motor Vehicles	Slight	0	0	1	0	3	3
	Serious	0	1	0	1	0	2
	Fatal	0	1	0	0	0	1
	Total	**0**	**2**	**1**	**1**	**3**	**7**
Total for All Modes	Slight	2	3	2	2	3	12
	Serious	0	2	1	1	0	4
	Fatal	0	1	0	0	0	1
	Total	**2**	**6**	**3**	**3**	**3**	**17**

17.3.28 Table 17.8 demonstrates that the 16 collisions resulted in 17 casualties, with Year 2 having the highest total with 6 casualties. The following severity split was recorded over the study period:

- Slight - 71% (12);
- Serious - 23% (4); and
- Fatal - 6% (1).

17.3.29 The PIA assessment is provided in Section 4 of the TA (Appendix 17.1).

Future Baseline

17.3.30 The future baseline has been informed by the future year scenarios built into the WSTM4. The WSTM4 contains committed development embedded within the model, allowing for an assessment of future impacts in the absence of the Proposed Development, but accounts for other forthcoming development within the borough.

17.3.31 The WSTM4 will provide a 2026 future baseline, a 2032 interim scenario which will be used to inform the construction impact, and a 2040 assessment which will assess the operational impact of the Proposed Development.

17.3.32 The IEMA Guidelines state that the greatest environmental change will generally be when the development traffic is at the largest proportion of total flow. The IEMA EATM Guidance therefore recommends that the environmental assessment should be undertaken at the year of opening, or once the development is fully operational. This, combined with the future years available within the WSTM4, means that 2040 is the most appropriate year of undertaking a future year assessment.

17.3.33 The committed development which is included within the model runs and forms the 2040 future year assessment is provided in a Table in **Appendix 17.4.**

17.3.34 **Table 17.9** provides the 2026 baseline and 2032 and 2040 reference case traffic flows on the highway links within the study area, and includes the committed development set out in **Appendix 17.4**.

Table 17.9 2026, 2032 and 2040 Future Baseline Traffic Flows (AADT)

Link Number	WSTM Link ID	Link Name	2026 Baseline			2032 Future Baseline			2040 Future Baseline		
			Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)
1	560	B3270	27649	351	1.3%	29492	375	1.3%	31949	406	1.3%
2	540	Shinfield Road	12444	202	1.6%	13396	217	1.6%	14666	238	1.6%
3	352	Lower Earley Way	24521	135	0.6%	26259	144	0.6%	28576	157	0.6%
4	456	Hollow Lane	6638	12	0.2%	7626	14	0.2%	8944	16	0.2%
5	444	B3349	6647	31	0.5%	7446	35	0.5%	8512	40	0.5%
6	10772	Arborfield Road	5602	27	0.5%	6470	31	0.5%	7628	37	0.5%
7	11739	Shinfield Eastern Relief Road	8684	241	2.8%	10737	298	2.8%	13474	375	2.8%
8	10774	A327	14966	350	2.3%	16433	385	2.3%	18389	430	2.3%
9	11677	Observer Way	13140	365	2.8%	14981	416	2.8%	17436	485	2.8%
10	10798	Reading Road	703	2	0.3%	770	2	0.3%	859	2	0.3%
11	461	Church Lane	3446	14	0.4%	4054	16	0.4%	4865	19	0.4%
12	1784	Swallowfield Road	2244	60	2.7%	2459	65	2.7%	2746	73	2.7%
13	448	Eversley Road	3817	33	0.9%	6730	58	0.9%	4260	37	0.9%
14	1613	School Road	223	1	0.4%	248	1	0.4%	281	1	0.4%
15	460	Sindlesham Road	7697	115	1.5%	8100	122	1.5%	8637	130	1.5%
16	462	Mole Road	10912	125	1.2%	11903	137	1.2%	13225	152	1.2%
17	263	Mill Lane	10498	173	1.7%	11359	187	1.7%	12507	206	1.7%
18	269	King Street Lane (South)	15795	197	1.3%	17375	217	1.3%	19482	244	1.3%
19	296	King Street Lane (North)	7585	77	1.0%	8021	81	1.0%	8603	87	1.0%
20	11677	Longdon Road	13140	256	2.0%	14981	292	2.0%	17436	340	2.0%
21	11679	Hatch Farm Way	12817	281	2.2%	14369	315	2.2%	16438	360	2.2%

Summary of Receptors and Sensitivity

17.3.35 Based on a review of the baseline conditions and the analysis in the Transport Assessment, **Table 17.10** presents the receptors likely to be affected by the Proposed Development, and their sensitivity. This takes into account the location of the receptor and its relationship with the Site. The sensitivity of the receptor does not change in the future baseline year of 2040. No new receptors have been identified in the future as a result of committed developments.

Table 17.10 Summary of Receptors and Sensitivity

Receptor and Distance from centre of site	Reason for Inclusion	Link Roads	Sensitivity (Value)
The Coombes CofE Primary School (1.5km)	School	School Road	Very High
St Bartholomews Church (300m)	Place of Worship	Church Lane	Medium
Bearwood Recreation Ground (2.7km)	Recreation ground	Mole Road	Very High
PRoW ARB08 Ellis' Hill (430m)	PRoW	N/A	Negligible
PRoW ARB03 Arborfield Church (250m)	PRoW	N/A	Negligible
Mole Road (300m)	Road without footway used by pedestrians	Mole Road	Very High
Church Lane (300m)	Road without footway used by pedestrians	Church Lane	Very High
Reading Road Commercial Estate (1.4km)	People at Work	Reading Road	Low
Arborfield Cross Junction (1.1km)	Residential Area with adequate footway provision	Sindlesham Road Cole Lane School Road Eversley Road Swallowfield Road Reading Road	Medium
Nirvana Spa Junction (2.6km)	Congested junction	Mole Road S Mill Lane New Road Mole Rd N	High

During Construction

Construction Environment Management Plan and Construction Traffic Management Plan

17.3.36 Prior to any planning permission granted to the Proposed Development, a Construction Environment Management Plan (CEMP) and a Construction Traffic Management Plan (CTMP) will be prepared and secured via a suitably worded condition.

17.3.37 These documents will included measures and information to encourage appropriate management of the environment and construction traffic. Such measures include:

- The use of approved routes for construction vehicles including approved routing plans;
- The management of working hours and delivery times to minimise disturbance caused by traffic (e.g. avoiding deliveries during school peak hours);
- Covering loads coming and to leaving the Site;
- Provision of wheel washing / vehicle cleaning facilities within the Site; and
- Inspection of local highway network and cleaning as necessary.

During Operation

Proposed Development

17.3.38 The Proposed Development will be served by a newly constructed access from the B3030 Mole Road. This will be in the form of a ghost island priority-controlled junction, which has been designed in accordance with the relevant Design Manual for Roads and Bridges (DMRB) guidance and WBC's Living Street guidance. An internal spine road featuring traffic calming and designed to provide an appropriate environment for all modes will connect to the LVGV project at the northern end.

17.3.39 The Proposed Development will provide a network of walking and cycling routes which divert active travellers / equestrians into the Proposed Development and connect to the LVGV project area. The following pedestrian/cycle accesses are proposed:

- Incorporated at the main vehicular access to Mole Road
- At the emergency vehicle access to Church Lane
- To Mole Road in the vicinity of Ellis' Hill (facilitating the Greenway – see below)
- To Church Lane close to the western site boundary (facilitating the Greenway – see below)
- To the wider LVGV at the northern end of the spine road
- To the wider LVGV on the western site boundary (two points of access).

17.3.40 A number of routes will be traffic-free, connecting with the wide PRoW network whilst the internal spine road through the Proposed Development will provide dedicated active travel infrastructure in the form of LTN1/20 compliant routes. The Proposed Development will provide Greenway route A proposed by WBC's Public Rights of Way Improvement Plan (2020-2030) connecting Ellis' Hill with Church Lane.

17.3.41 A signal-controlled crossing point will be provided on the B3030 Mole Road, at the point with Ellis's Hill, which forms part of the local PRoW network as ARBO8. Users of the crossing will be able to safely cross over the B3030 Mole Road before being brought into the Proposed Development, achieving access to the internal active travel / equestrian routes.

17.3.42 The Proposed Development will remove the existing priority working traffic calming on Sindlesham Road and replace this with a new scheme of traffic calming comprising central refuge islands with localised widening. These are designed to be appropriate to forecast flows on Sindlesham Road while maintaining low vehicle speeds.

17.3.43 The Proposed Development is expected to provide a temporary bus stop on Mole Road in the interim phase, connecting to a new bus route linking the site to Winnersh Station and Wokingham. The Public Transport Strategy is provided within the TA and includes a Phase 1 bus service to Winnersh with details of onwards routes to ether Wokingham or Reading under

development. Once fully developed the Proposed Development will have access to a comprehensive network of buses through the wider LVGV project – see below.

17.3.44 Other on-site mitigation provided with the Proposed Development includes:

- Electric vehicle charging – each dwelling will be equipped with an electric vehicle (EV) charging points to promote sustainable transport and a shift to cleaner fuels.
- High-quality cycle parking will be provided in accordance with WBCs parking standards to promote active travel and reduce car-based travel demand.
- On-site car club.
- Numerous measures to promote behavioural change and modals shift through the implementation of a Framework Residential Travel Plan.

LVGV Project

17.3.45 The LVGV Project is based around a walkable neighbourhood concept, with functional local neighbourhood centre with a variety of services and facilities including primary and secondary education, local shopping, a supermarket and open space, designed to bring residents together. Alongside the LVGV project, the Proposed Development therefore provides the opportunity to contain a significant proportion of the travel demands generated by the Site within its boundaries and 'internalising' the generated trips.

17.3.46 The Proposed Development will connect to the facilities and services provided within the LVGV project to the north via the spine road for pedestrians, cycles and vehicles alongside further points of pedestrian and cycle access. These are designed to connect with the proposed comprehensive active travel network across the LVGV project area. The Active Travel Strategy for the Proposed Development and the LVGV project is set out within the TA.

17.3.47 Once fully developed the Proposed Development will take access to buses via the spine road within the LGV to the north. The bus stop will be located within a 400m walking distance of all dwellings within the Proposed Development. Buses will provide frequent connections between the site and Reading, Wokingham and Winnersh Station. The Public Transport Strategy for the Proposed Development and the LVGV project is set out within the TA.

17.3.48 Off-site mitigation for the LVGV project is embedded within the WSTM traffic model.

- At 2032 this includes:
  - Provision of an additional southbound lane between Black Boy roundabout and South Avenue and improvements to the roundabout;
  - New arm on Arborfield Relief Road roundabout and possible ICD increase if required;
  - New access to Mole Road;
  - Mill Lane closed to through traffic;
  - New access to Mille Lane and connection to Winnersh Relief Road; and
  - Dual carriageway links in both directions on a section of Eastern Relief Road between Black Boy roundabout and South Avenue.
- At 2040 this further includes:
  - Additional northbound lane along Lower Earley Way;

- Upgrade to Lower Earley Way / Hatch Farm Way signal junction;
- Carriageway widening along Shinfield Eastern Relief Road, north of TVSP access roundabout;
- Shinfield Road gyratory – additional circulatory lanes with gyratory;
- Additional westbound lane between Whitley Wood Lane and M4 Junction 11;
- M4 Junction 11 optimisation and changes to lane markings to accommodate additional lane for traffic movement into B3270;
- Two-lane north-eastbound exit Long Lower Earley Way between Rushey Way roundabout and River Loddon bridge; and
- Additional southbound lane on Lower Earley Way.

17.3.49 As set out above a wider package of mitigation measures are being developed through the Infrastructure Delivery Plan and will be delivered by the Proposed Development and the LVGV project. In proximity to the site this package includes signalisation of the Nirvana Spa roundabout.

Phasing

17.3.50 As set out in Chapter 3: The Proposed Development, the infrastructure provided by the Proposed Development (described in paragraph 17.3.38-17.3.44) and delivery of residential dwellings, is anticipated to be brought forward over a period of approximately 8 years, with the first completion in 2028. The Proposed Development will be built out over a number of years with construction activity varying depending upon the intensity of construction and with housing delivery peaking at 100 per year.

17.4 Potential effects prior to additional mitigation

Construction Phase

Construction Traffic Demand

17.4.1 The initial stages of the construction will include formation of a new permanent access into the development from Mole Road. This will take the form of a ghost island priority junction and will include a controlled crossing of Mole Road to the east of the proposed access. The formation of the access is assessed to have a temporary moderate adverse effect on driver delay.

17.4.2 No diversion of PRoW ARB08 is expected to enable the formation of the crossing and connection to Ellis' Hill. The formation of the crossing is assessed to have a temporary moderate adverse effect on driver delay and a temporary minor adverse effect on user amenity.

17.4.3 An estimate of the associated construction traffic details has been undertaken using data observed from the construction related vehicle movements into and out of a new residential led mixed-use development at The Steadings, Cirencester (including up to 2,350 residential dwellings, 9.1 hectares of employment land, a primary school, a neighbourhood centre as well as community facilities and public open space.). The survey was undertaken during the time Phase 1A was being built out, which comprised a total of 68 dwellings. All stages of construction were being undertaken on the survey days from groundworks, footings and foundations, roads sewers, and superstructures, as well as internal works including the fit out of the first dwellings to be completed.

17.4.4 On this basis, during a typical working day (10 hours a day) assuming a maximum of 100 completions per year, construction traffic movements at the Proposed Development would total approximately 190 vehicle daily two-way movements. The majority of these (i.e. 120 movements) would be light vehicle movements (i.e. cars and LGVs) associated with on-site personnel travelling to and from the Site. Some 60 movements each day are predicted to be HGV's/plant transporting various materials to and from Site.

17.4.5 The geographical availability of construction materials is unknown at this stage. For the purpose of this assessment, it has been assumed that construction materials are likely to be sourced within a 60-minute drive time of the Site. Therefore, in order to undertake a robust assessment of the likely origin of the construction material, a simple P/T^2 gravity model within a 60-minute drive time of the Site been developed. The population within a 60-minute drive time of the Site has been calculated using data contained within the 2021 Census. Journey times have been estimated using route planning software within Google.

17.4.6 It has been assumed construction traffic would primarily use A and B roads, as well as the M4 motorway, where possible. Based on the likely routing of traffic that will be controlled by the CTMP (embedded mitigation), the total construction traffic has been assigned to the local highway network in accordance with the following distribution and then added to the 2032 Baseline with Proposed Development Flows. This provides a robust assessment of the peak of construction allowing for partial occupation of the Site.

17.4.7 A summary of the construction impacts on the highway links within the study area is provided in **Table 17.11**.

Table 17.11 Summary of Construction Traffic Impacts

Link Number	Link Name	2032 Future Baseline			2032 Future Baseline plus Construction Traffic			Change (Vehicles)		Change (%)	
		Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Total Vehicles	Heavy Vehicles
1	B3270	29492	375	1.3%	29556	395	1.3%	64	20	0.2%	5%
2	Shinfield Road	13396	217	1.6%	13396	217	1.6%	0	0	0.0%	0%
3	Lower Earley Way	26259	144	0.6%	26342	170	0.6%	83	26	0.3%	18%
4	Hollow Lane	7626	14	0.2%	7626	14	0.2%	0	0	0.0%	0%
5	B3349	7446	35	0.5%	7446	35	0.5%	0	0	0.0%	0%
6	Arborfield Road	6470	31	0.5%	6470	31	0.5%	0	0	0.0%	0%
7	Shinfield Eastern Relief Road	13037	362	2.8%	13158	400	3.0%	121	38	0.9%	10%
8	A327	16433	385	2.3%	16554	423	2.6%	121	38	0.7%	10%
9	Observer Way	14981	416	2.8%	14981	416	2.8%	0	0	0.0%	0%
10	Reading Road	770	2	0.3%	891	40	4.5%	121	38	3.1%	137%
11	Church Lane	4054	16	0.4%	4054	16	0.4%	0	0	0.0%	0%
12	Swallowfield Road	2459	65	2.7%	2459	65	2.7%	0	0	0.0%	0%
13	Eversley Road	6730	58	0.9%	6767	70	1.0%	37	12	0.5%	21%
14	School Road	248	1	0.4%	248	1	0.4%	0	0	0.0%	0%
15	Sindlesham Road	8100	122	1.5%	8257	171	2.1%	157	49	1.9%	40%
16	Mole Road	11903	137	1.2%	12088	195	1.6%	185	58	1.6%	42%
17	Mill Lane	11359	187	1.7%	11359	187	1.7%	0	0	0.0%	0%
18	King Street Lane (South)	17375	217	1.3%	17403	226	1.3%	28	9	0.2%	4%
19	King Street Lane (North)	8021	81	1.0%	8021	81	1.0%	0	0	0.0%	0%
20	Longdon Road	14981	292	2.0%	14981	292	2.0%	0	0	0.0%	0%
21	Hatch Farm Way	14369	315	2.2%	14397	324	2.2%	28	9	0.2%	3%

17.4.8 With reference to the thresholds set out in the IEMA guidance (see 'Assessment Methodology' earlier in this Chapter), **Table 17.11** identifies that no link will experience an increase in AADT of more than 10% due to overall construction traffic.

17.4.9 When considering just HGV flows, the following links will experience an increase in HGVs of more than 30%:

- Mole Road
- Sindlesham Road
- Reading Road

17.4.10 The following Sensitive Receptor Links will experience an increase in HGVs of more than 10%:

- Eversley Road

17.4.11 Mole Road is identified as receptor of medium sensitivity due to its lack of existing footway provision. It is not currently a residential area and the key impact would be on pedestrians, cyclists and equestrians accessing public right of Way ARB08 from Mole Road.

17.4.12 Sindlesham Road, Reading Road and Eversley Road are identified as receptors of Medium sensitivity in the vicinity of the Arborfield Cross junction only due to the proximity of the residential area. Within the residential area adjacent to this junction adequate footways are present on both arms connecting to existing properties.

17.4.13 The increase in HGV movements when spread over a working day equates to a maximum of approximately 8 movements per hour, i.e. one movement every 7½ minutes. This is a low level of increase in real terms and is unlikely to be significant. It also needs to be viewed in the context that the baseline position in terms of HGV movements along this corridor is very low.

17.4.14 The CTMP will establish measures to ensure that construction traffic is managed to avoid the network peaks period where possible, so as to reduce inconvenience and delay to other roads users. No diversion of the access to ARB08 from Mole Road is required to accommodate construction. A detailed CTMP will be agreed with the local highway authority as part of Section 278 detailed design works to manage the timings and methods of works to the public highway to maintain effective flow and safety for all users.

17.4.15 In accordance with IEMA Guidelines, the change in total traffic and the composition of traffic during the construction phases is assessed as a temporary, direct, Negligible effect (Not Significant). As such, further assessment of the environmental effects of the Proposed Development is not required under IEMA Guidelines.

Operational Phase

17.4.16 As discussed within this ES Chapter, the operational impact has assessed a 2032 and a 2040 future year, due to availability within the WSTM4 and the construction of the Proposed Development.

17.4.17 The anticipated trip attraction of the Proposed Development has been estimated using empirical data from the industry standard TRICS database, National Traffic Survey data, and a first principles assessment with professional judgement. The assessment included a multi-modal approach to derive practical trip rates to assess on the internal and external network with a self-containment of trips associated with different land use classes. A detailed assessment of the trip generation of the Site is contained within Section 7 of the Transport Assessment.

17.4.18 The assessment considers the potential modal shift from car-based travel to trips undertaken by foot, cycle and by public transport whilst taking into account both internal and external travel demand.

17.4.19 The approach and methodology for the multi modal trips have been calculated for each journey purpose of the residential element and the non-residential elements of the Proposed Development. This includes calculated internal, external and total trips by travel mode for typical weekday AM and PM peak hours.

17.4.20 The assessment provides a car driver trip rate on the external network which has been used in strategic modelling for both the Proposed Development and the full LVGV project. The impact of the Operational Phase has been assessed against the Future Baseline (with Committed Development) for the following scenarios:

- 2032 Future Baseline plus The Proposed Development (Interim Assessment - 325 Dwellings)
- 2040 Future Baseline plus The Proposed Development (Full Assessment – 430 Dwellings)

17.4.21 A summary of operational impacts on the highway links within the study area is provided in **Table 17.12** for 2032 with the Proposed Development and **Table 17.13** for 2040 with the Proposed Development.

Table 17.12 Summary of Daily Operational Traffic Impacts – 2032 (Gleeson 325 Dwellings)

Link Number	Link Name	2032 Future Baseline			2032 Future Baseline plus Proposed Development (325 Dwellings)			Change (Vehicles)		Change (%)	
		Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Total Vehicles	Heavy Vehicles
1	B3270	29492	375	1.3%	29614	375	1%	122	0	0.4%	0.0%
2	Shinfield Road	13396	217	1.6%	13412	217	2%	16	0	0.1%	0.0%
3	Lower Earley Way	26259	144	0.6%	26335	144	1%	76	0	0.3%	0.0%
4	Hollow Lane	7626	14	0.2%	7669	14	0%	43	0	0.6%	0.0%
5	B3349	7446	35	0.5%	7476	35	0%	30	0	0.4%	0.0%
6	Arborfield Road	6470	31	0.5%	6572	31	0%	102	0	1.6%	0.0%
7	Shinfield Eastern Relief Road	13037	362	2.8%	13191	362	3%	154	0	1.2%	0.0%
8	A327	16433	385	2.3%	16689	385	2%	256	0	1.6%	0.0%
9	Observer Way	14981	416	2.8%	15017	416	3%	36	0	0.2%	0.0%
10	Reading Road	770	2	0.3%	872	2	0%	102	0	13.2%	0.0%
11	Church Lane	4054	16	0.4%	4159	16	0%	105	0	2.6%	0.0%
12	Swallowfield Road	2459	65	2.7%	2495	65	3%	36	0	1.5%	0.0%
13	Eversley Road	6730	58	0.9%	6983	58	1%	253	0	3.8%	0.0%
14	School Road	248	1	0.4%	248	1	0%	0	0	0.0%	0.0%
15	Sindlesham Road	8100	122	1.5%	8392	122	1%	292	0	3.6%	0.0%
16	Mole Road	11903	137	1.2%	12304	137	1%	401	0	3.4%	0.0%
17	Mill Lane	11359	187	1.7%	11464	187	2%	105	0	0.9%	0.0%
18	King Street Lane (South)	17375	217	1.3%	17575	217	1%	200	0	1.2%	0.0%
19	King Street Lane (North)	8021	81	1.0%	8080	81	1%	59	0	0.7%	0.0%
20	Longdon Road	14981	292	2.0%	15119	292	2%	138	0	0.9%	0.0%
21	Hatch Farm Way	14369	315	2.2%	14474	315	2%	105	0	0.7%	0.0%

Table 17.13 Summary of Operational Traffic Impacts – 2040 (Gleeson 430 Dwellings)

Link Number	Link Name	2040 Future Baseline			2040 Future Baseline plus Proposed Development			Change (Vehicles)		Change (%)	
		Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Total Vehicles	Heavy Vehicles
1	B3270	31949	406	1.3%	32111	406	1%	162	0	0.5%	0.0%
2	Shinfield Road	14666	238	1.6%	14688	238	2%	22	0	0.1%	0.0%
3	Lower Earley Way	28576	157	0.6%	28677	157	1%	101	0	0.4%	0.0%
4	Hollow Lane	8944	16	0.2%	9001	16	0%	57	0	0.6%	0.0%
5	B3349	8512	40	0.5%	8551	40	0%	39	0	0.5%	0.0%
6	Arborfield Road	7628	37	0.5%	7764	37	0%	136	0	1.8%	0.0%
7	Shinfield Eastern Relief Road	14266	397	2.8%	14472	397	3%	206	0	1.4%	0.0%
8	A327	18389	430	2.3%	18731	430	2%	342	0	1.9%	0.0%
9	Observer Way	17436	485	2.8%	17484	485	3%	48	0	0.3%	0.0%
10	Reading Road	859	2	0.3%	995	2	0%	136	0	15.8%	0.0%
11	Church Lane	4865	19	0.4%	5005	19	0%	140	0	2.9%	0.0%
12	Swallowfield Road	2746	73	2.7%	2794	73	3%	48	0	1.8%	0.0%
13	Eversley Road	7062	61	0.9%	7399	61	1%	337	0	4.8%	0.0%
14	School Road	281	1	0.4%	281	1	0%	0	0	0.0%	0.0%
15	Sindlesham Road	8637	130	1.5%	9027	130	1%	390	0	4.5%	0.0%
16	Mole Road	13225	152	1.2%	13759	152	1%	534	0	4.0%	0.0%
17	Mill Lane	12507	206	1.7%	12647	206	2%	140	0	1.1%	0.0%
18	King Street Lane (South)	19482	244	1.3%	19749	244	1%	267	0	1.4%	0.0%
19	King Street Lane (North)	8603	87	1.0%	8682	87	1%	79	0	0.9%	0.0%
20	Longdon Road	17436	340	2.0%	17620	340	2%	184	0	1.1%	0.0%
21	Hatch Farm Way	16438	360	2.2%	16578	360	2%	140	0	0.9%	0.0%

17.4.22 Based on the thresholds identified by the IEMA guidance, Table 17.12 identifies that no link is predicted to experience a greater than 30% increase in AADT with the proposed development in 2032 (see the 'Assessment Methodology' section of this chapter). The following links identified as Sensitive Receptors are predicted to experience between a 10%-30% increase in AADT with the proposed development in 2032:

- Link 10 - Reading Road

17.4.23 Based on the thresholds identified by the IEMA guidance, Table 17.13 identifies that no link is predicted to experience a greater than 30% increase in AADT with the proposed development in 2040. The following links identified as Sensitive Receptors are predicted to experience between a 10%-30% increase in AADT with the proposed development in 2040:

- Link 10 - Reading Road

17.4.24 This link therefore requires further assessment and has been assessed against the potential environmental effects of road traffic as set out in the methodology above.

17.4.25 The forecast changes on all other links within the study area would be below 10% and no further assessment is required.

Severance

17.4.26 The proportional increase in AADT flows above, assuming full build out and occupation of the Proposed Development is likely to result in the following:

- Change in flow over 90% - substantial magnitude – No links identified in 2032 or 2040
- Change in flow of over 60% and up to 90% - moderate magnitude – No links identified in 2032 or 2040
- Change in flow over 30% and up to 60% - slight magnitude – No links identified in 2032 or 2040

17.4.27 The change in flow on Reading Road (and all other links within the study area) is forecast to be less than 30% and therefore the Proposed Development is likely to have only a negligible separation effect in terms of community severance for this link.

17.4.28 In accordance with IEMA Guidelines, the change in severance during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

Driver Stress and Delay

17.4.29 Section 11 of the TA provides a summary of the WSTM outputs for the local and strategic network, demonstrating the level of delay for drivers and vehicle passengers (private and public transport). The results demonstrate the following:

- Reading Road 2032 – Minor increase in delay of 1-2 seconds forecast in each of the peak hours. Low magnitude of effect resulting in negligible effect.
- Reading Road 2040 - Minor increase in delay of 2-3 seconds forecast in each of the peak hours. Low magnitude of effect resulting in negligible effect.

17.4.30 In accordance with IEMA Guidelines, the change in driver stress and delay during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

Pedestrian Delay

17.4.31 All roads are forecast to experience significantly less than a 1,400 vehicles per hour change in flows as a result of the Proposed Development under all scenarios.

17.4.32 As a result, Reading Road (and all other links within the study area) are classed as having a negligible change in pedestrian delay in comparison to the reference case.

17.4.33 In accordance with IEMA Guidelines, the change in pedestrian delay during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

Non-Motorised User Amenity

17.4.34 The IEMA Guidelines set out that traffic flow would have to half or double for the effect to be noticeable. The increase in traffic flows on the majority of links is well below this threshold, as follows:

- Reading Road 2032 with proposed development – 13% increase resulting in a negligible effect
- Reading Road 2040 with proposed development – 15.8% increase resulting in a negligible effect

17.4.35 In accordance with IEMA Guidelines, the change in pedestrian delay during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

Fear and Intimidation

17.4.36 The IEMA Guidelines suggest how to determine what the level of fear and intimidation of vehicle movements may be on vulnerable users, and the magnitude of impact that occur as a result of the Proposed Development.

17.4.37 Referring back to the Assessment Methodology section, Table 17.25 sets out an analysis of the links without the proposed development. Table 17.26 provides an assessment with the proposed development.

Table 17.14 Fear and Intimidation - Baseline

Link Name and Scenario	Average hourly two-way	Total 18hr HGV	Vehicle Speed	a score	b score	c score	Total Score	Degree of Hazard
Reading Road 2032	234	2	40	0	0	20	20	Small
Reading Road 2040	285	1	40	0	0	20	20	Small

Table 17.15 Fear and Intimidation – With Development Scenarios

Link Name and Scenario	Average hourly two-way	Total 18hr HGV	Vehicle Speed	a score	b score	c score	Total Score	Degree of Hazard
Reading Road 2032 With Proposed Development	246	67	40	0	0	20	20	Small
Reading Road 2040 With Proposed Development	293	13	40	0	0	20	20	Small

17.4.38 The Proposed Development will result in changes to the degree of hazard for fear and intimidation on the following links as a result of the proposed increases in vehicle movements.

Table 17.16 Fear and Intimidation – Forecast Change

Link Name	Sensitive Receptors (Value)	Degree of Hazard Future Year	Change in Level	Magnitude of Impact
Reading Road 2032 With Proposed Development	None	Small	No change in step changes	Negligible
Reading Road 2040 With Proposed Development	None	Small	No change in step changes	Negligible

17.4.39 As a result of reviewing the above factors, the significance effect of fear and intimidation will be negligible on all links and all identified receptors.

17.4.40 In accordance with IEMA Guidelines, the change in fear and intimidation during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

Road Safety

17.4.41 The IEMA Guidelines are clear that an assessment on road safety is based on professional judgement. A review of the local PIA data presented in the TA and summarised in the existing conditions section does not indicate an underlying issue with road safety (relating to personal injuries) on the links identified for assessment.

17.4.42 As a result of reviewing the road safety record above factors, the significance effect on road safety will be negligible on all assessed links and identified receptors.

17.4.43 In accordance with IEMA Guidelines, the change in road safety during the operational phases is assessed as a permanent, direct, Negligible effect (Not Significant).

17.5 Additional Mitigation

Construction Phase

17.5.1 The Proposed Development includes the requirement for a detailed CTMP to be secured by planning condition which will mitigate the impact of construction traffic. This will be developed/reviewed and monitored against over the construction period of the Proposed Development.

17.5.2 The CTMP measures are inherent in the assessment and therefore no additional mitigation is required.

Operational Phase

17.5.3 Mitigation as described in Section 17.3 is built into the WSTM model. These measures are inherent in the assessment.

17.5.4 In addition, the Proposed Development will contribute to a wider package of measures being developed through the Infrastructure Delivery Plan (IDP). In proximity to the Proposed Development this package includes signalisation of the Nirvana Spa roundabout, a replacement scheme of traffic calming on Sindlesham Road and a footway/cycleway improvement on Arborfield Road.

17.6 Residual effects

Construction Phase

17.6.1 There is no additional mitigation during the construction phase therefore the residual effects during the construction phase remain the same as previously assessed, i.e. a temporary, direct, negligible (not significant) impact.

Operational Phase

17.6.2 The residual effects during the operational phase remain the same as previously assessed, i.e. a temporary, direct, negligible (not significant) impact on the following:

- Severance
- Driver Stress and Delay
- Pedestrian Delay
- Non-motorised User Amenity
- Fear and Intimidation
- Road safety

17.7 Implications of Climate Change

17.7.1 The transport sector is responsible for a large percentage of national greenhouse emissions. Mitigation for the Proposed Development seeks to influence modal choice through placemaking measures to ensure that walking and cycling are the preferred modes to local journeys and to encourage use of shared public transport and sustainable car use including electric vehicles. These built in mitigations are supported by a Framework Travel Plan to promote and encourage new residents to adopt sustainable travel modes, thereby reducing personal carbon emissions.

17.7.2 Climate change is affecting weather patterns and resulting in more frequent extreme weather events. The impact of these cannot be quantified and no allowance has been made for the impact of extreme weather events on travel in this assessment.

17.8 Cumulative effects

Loddon Valley Garden Village Strategic Development Location

17.8.1 A summary of the LVGV project impacts on the highway links within the study area is provided in Table **17.17**.

Table 17.17 Summary of Operational Traffic Impacts – 2040 Plus Proposed Development and LVGV project.

Link Number	Link Name	2040 Future Baseline			2040 Future Baseline plus Proposed Development and LVGV project			Change (Vehicles)		Change (%)	
		Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Heavy Vehicles (%)	Total Vehicles	Heavy Vehicles	Total Vehicles	Heavy Vehicles
1	B3270	31949	406	1.3%	37699	479	1.3%	5750	73	18.0%	18.0%
2	Shinfield Road	14666	238	1.6%	16397	266	1.6%	1731	28	11.8%	11.8%
3	Lower Earley Way	28576	157	0.6%	24254	133	0.6%	-4322	-24	-15.1%	-15.1%
4	Hollow Lane	8944	16	0.2%	9277	17	0.2%	333	1	3.7%	3.7%
5	B3349	8512	40	0.5%	10764	51	0.5%	2252	11	26.5%	26.5%
6	Arborfield Road	7628	37	0.5%	10708	51	0.5%	3080	15	40.4%	40.4%
7	Shinfield Eastern Relief Road	14266	397	2.8%	18095	503	2.8%	3829	106	26.8%	26.8%
8	A327	18389	430	2.3%	22811	534	2.3%	4422	103	24.0%	24.0%
9	Observer Way	17436	485	2.8%	17721	493	2.8%	285	8	1.6%	1.6%
10	Reading Road	859	2	0.3%	831	2	0.3%	-28	0	-3.3%	-3.3%
11	Church Lane	4865	19	0.4%	4399	18	0.4%	-466	-2	-9.6%	-9.6%
12	Swallowfield Road	2746	73	2.7%	2758	73	2.7%	12	0	0.4%	0.4%
13	Eversley Road	7062	61	0.9%	7856	68	0.9%	794	7	11.2%	11.2%
14	School Road	281	1	0.4%	318	1	0.4%	37	0	13.2%	13.2%
15	Sindlesham Road	8637	130	1.5%	9573	144	1.5%	936	14	10.8%	10.8%
16	Mole Road	13225	152	1.2%	14191	163	1.2%	966	11	7.3%	7.3%
17	Mill Lane	12507	206	1.7%	11536	190	1.7%	-971	-16	-7.8%	-7.8%
18	King Street Lane (South)	19482	244	1.3%	18638	233	1.3%	-844	-11	-4.3%	-4.3%
19	King Street Lane (North)	8603	87	1.0%	8753	88	1.0%	150	2	1.7%	1.7%
20	Longdon Road	17436	340	2.0%	17721	346	2.0%	285	6	1.6%	1.6%
21	Hatch Farm Way	16438	360	2.2%	14368	315	2.2%	-2070	-45	-12.6%	-12.6%

17.8.2 Table 17.17 considers the cumulative effect of the proposed development and the LVGV project. Based on the thresholds identified by the IEMA guidance, Table 17.17 identifies that the following links are predicted to experience a greater than 30% increase in AADT with the Proposed Development and the LVGV project in 2040:

- Link 6 - Arborfield Road

17.8.3 The following links are predicted to experience between a 10%-30% increase in AADT with the proposed development and the LVGV project in 2040:

- Link 1 – B3270
- Link 2 – Shinfield Road
- Link 5 – B3349
- Link 7 – Shinfield Eastern Relief Road
- Link 8 – A327
- Link 13 – Eversley Road
- Link 14 - School Road
- Link 15 – Sindlesham Road

17.8.4 While not all of these links are identified as sensitive receptors for the Proposed Development, further assessment has been undertaken for consistency with the LVGV project. These links have been assessed against the potential environmental effects of road traffic as set out in the methodology above.

17.8.5 The forecast changes on all other links within the study area would be below 10% and no further assessment is required.

Severance

17.8.6 The proportional increase in AADT flows above, assuming full build out and occupation of the Proposed Development plus LVGV project is likely to result in the following:

- Change in flow over 90% - substantial magnitude – No links identified in 2032 or 2040
- Change in flow of over 60% and up to 90% - moderate magnitude – No links identified in 2032 or 2040
- Change in flow over 30% and up to 60% - slight magnitude – Link 6 Arborfield Road in 2040. It is noted that Arborfield Road provides access to small number of residential properties on the southern side of the road and a footway is present on the property frontages. There are no destinations to cross to on the northern side of the road. At the Arborfield Road/Hollow Lane roundabout, dropped kerb crossing points are provided. It should be noted that a new footway / cycleway is proposed on the southern side of the carriageway as well as crossing points. As a result a residual moderate beneficial effect (significant) is identified in this location.

17.8.7 The change in flow on all other links within the study area is forecast to be less than 30% and therefore the Proposed Development and LVGV project combined are likely to have only a negligible separation effect in terms of community severance for the other links assessed.

17.8.8 In accordance with IEMA Guidelines, the change in severance for the Proposed Development and LVGV project combined during the operational phases is assessed as a permanent, direct, minor adverse effect (Not Significant).

Driver Stress and Delay

17.8.9 Section 10 of the TA provides a summary of the WSTM outputs for the local and strategic network, demonstrating the level of delay for drivers and vehicle passengers (private and public transport). The analysis demonstrates that the proposed site access arrangements would operate within capacity with the full LVGV in 2040.

17.8.10 At Link 6, Arborfield Road 2040 - Minor increase in delay of 14-15 seconds forecast in each of the peak hours. Low magnitude of effect resulting in permanent direct minor adverse (insignificant) effect.

17.8.11 Across the other identified links on the network the capacity analysis demonstrates that the off-site highway mitigation measures that are inherent within the 'With Development' scenario would ensure that queuing delay would not increase substantially along the adjacent areas of the highway network when compared to the 'Forecast Baseline' scenario. A low magnitude of effect is identified resulting in permanent direct minor adverse (insignificant) effect.

17.8.12 The TA analysis demonstrates that the Mole Road/Mill Lane (Nirvana Spa) roundabout would operate over capacity in the peak periods without any mitigation and that the situation would worsen when the LVGV is fully built out. Before mitigation there could be the potential for moderate adverse effects (significant) in terms of driver delay in these locations. A mitigation scheme is proposed which reduces driver delay at the junction. With mitigation the residual effect would reduce to negligible (insignificant) effect.

Pedestrian Delay

17.8.13 Paragraph 17.2.20 identifies that where controlled crossings are not proposed, pedestrians are delayed on average 8 seconds at 1,000 vehicles per hour and 10 seconds at 1,400 vehicles per hour.

17.8.14 Assessed on this basis, all links experience pedestrian delay of less than 10 seconds with the Proposed Development and LVGV project combined with the exception of:

- Link 1 – B3270 – 2,094 vph – circa 20 seconds delay

17.8.15 A controlled crossing is available on Link 1. Where controlled crossings are available there is unlikely to be any noticeable impact on pedestrian delay resulting in a negligible (insignificant) effect.

17.8.16 All other assessed links are forecast to experience less than a 10 second delay to pedestrians as a result of the Proposed Development and LVGV project combined under all scenarios. As a result, all links within the study area are classed as having a negligible change in pedestrian delay in comparison to the reference case. There is therefore a negligible (insignificant) effect on all of the receptors.

17.8.17 In accordance with IEMA Guidelines, the change in pedestrian delay for the Proposed Development and LVGV project combined during the operational phases is assessed as a permanent, direct, negligible effect (Not Significant).

Non-Motorised User Amenity

17.8.18 The IEMA Guidelines set out that traffic flow would have to half or double for the effect to be noticeable. The increase in traffic flows on all links is well below this threshold, as follows:

- Link 1 – B3270 with proposed development and LVGV project – 18% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 2 – Shinfield Road with proposed development and LVGV project – 11.8% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 5 – B3349 with proposed development and LVGV project – 26.5% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 6 - Arborfield Road 2040 with proposed development and LVGV project – 40% increase resulting in a negligible effect. It should be noted that a new footway / cycleway is proposed on the southern side of the carriageway as well as crossing points. As a result a residual moderate beneficial effect (significant) is identified in this location.
- Link 7 – Shinfield Eastern Relief Road with proposed development and LVGV project – 26.8% increase resulting in a permanent, direct, negligible effect (Not Significant). While new controlled and uncontrolled crossing points are proposed, these are located north of the assessed link. As a result these are not included as mitigation for this assessment and the residual effect is assessed as negligible (Not Significant)
- Link 8 – A327 with proposed development and LVGV project – 24.0% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 13 – Eversley Road with proposed development and LVGV project – 11.2% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 14 - School Road 2040 with proposed development and LVGV project – 10.8% increase resulting in a permanent, direct, negligible effect (Not Significant).
- Link 15 – Sindlesham Road 2040 with proposed development and LVGV project – 13.2% increase resulting in a permanent, direct, negligible effect (Not Significant).

Fear and Intimidation

17.8.19 The IEMA Guidelines suggest how to determine what the level of fear and intimidation of vehicle movements may be on vulnerable users, and the magnitude of impact that occur as a result of the Proposed Development.

17.8.20 Referring back to the Assessment Methodology section, **Table 17.18** sets out an analysis of the links without the proposed development. **Table 17.19** provides an assessment with the proposed development.

Table 17.18 Fear and Intimidation – 2040 Baseline

Link Name	Average hourly two-way	Total 18hr HGV	Vehicle Speed	a score	b score	c score	Total Score	Degree of Hazard
1 – B3270	1,889	432	40	30	0	20	50	Great
2 – Shinfield Road	867	253	30	10	0	10	20	Small
5 – B3349	503	43	30	0	0	10	10	Small
6 - Arborfield Road	451	39	40	0	0	20	20	Small
7 – Shinfield Eastern Relief Road	844	422	50	10	0	30	40	Moderate
8 – A327	1087	458	60	10	0	30	40	Moderate

Link Name	Average hourly two-way	Total 18hr HGV	Vehicle Speed	a score	b score	c score	Total Score	Degree of Hazard
13 – Eversley Road	418	65	30	0	0	10	10	Small
14 - School Road	17	1	30	0	0	10	10	Small
15 - Sindlesham Road	511	138	50	0	0	30	30	Moderate

Table 17.19 Fear and Intimidation – 2040 With Proposed Development and LVGV project

Link Name and Scenario	Average hourly two-way	Total 18hr HGV	Vehicle Speed	a score	b score	c score	Total Score	Degree of Hazard
1 – B3270	2,229	510	40	30	0	20	50	Great
2 – Shinfield Road	970	283	30	10	0	10	20	Small
5 – B3349	637	54	30	10	0	10	20	Small
6 - Arborfield Road	633	55	40	10	0	20	30	Moderate
7 – Shinfield Eastern Relief Road	807	404	50	10	0	30	40	Moderate
8 – A327	1349	568	60	20	0	30	50	Great
13 – Eversley Road	243	38	30	0	0	10	10	Small
14 - School Road	19	1	50	0	0	10	10	Small
15 - Sindlesham Road	566	153	30	0	0	30	30	Moderate

17.8.21 The Proposed Development will result in changes to the degree of hazard for fear and intimidation on the following links as a result of the proposed increases in vehicle movements.

Table 17.20 Fear and Intimidation – Forecast Change 2040 with Proposed Development and LVGV project (Cumulative)

Link Name	Degree of Hazard Future Year	Change in Level	Magnitude of Impact
1 - B3270	Great	No change in step changes	Negligible
2 – Shinfield Road	Small	No change in step changes	Negligible
5 – B3349	Small	No change in step changes	Negligible
6 - Arborfield Road	Moderate	One step (<400 veh increase in average 18hr)	Low
7 - Shinfield Eastern Relief Road	Moderate	No change in step changes	Negligible
8 – A327	Great	One step (<400 veh increase in average 18hr)	Low
13 – Eversley Road	Small	No change in step changes	Negligible
14 - School Road	Small	No change in step changes	Negligible
15 - Sindlesham Road	Moderate	No change in step changes	Negligible

17.8.22 As a result of reviewing the above factors, the significance effect of fear and intimidation will be low or negligible on all links and all identified receptors.

17.8.23 In accordance with IEMA Guidelines, the change in fear and intimidation for the Proposed Development and LVGV project combined during the operational phases is assessed as a permanent, direct, minor effect (Not Significant). With the proposed footway on Arborfield Road, a permanent residual moderate beneficial effect (significant) is identified in this location.

Road Safety

17.8.24 The IEMA Guidelines are clear that an assessment on road safety is based on professional judgement. A review of the local PIA data presented in the TA and summarised in the existing conditions section does not indicate an underlying issue with road safety (relating to personal injuries) on the links identified for assessment.

17.8.25 As a result of reviewing the road safety record above factors, the significance effect on road safety will be negligible on all assessed links and identified receptors.

17.8.26 In accordance with IEMA Guidelines, the change in road safety for the Proposed Development and LVGV project combined during the operational phases is assessed as a permanent, direct, negligible effect (Not Significant).

17.9 Summary

17.9.1 A summary of the assessment is set out in Table 7.22 overleaf.

17.10 References

- Institute of Environmental Management and Assessment (IEMA) Guidelines; Environmental Assessment of Traffic and Movement (July 2023)
- Environmental Impact Assessment, A Guide to Procedures, Department for Transport, Local Government and the Regions (2000)
- National Planning Policy Framework (December 2024)
- Planning Practice Guide (March 2014)
- Wokingham Borough Council (January 2010) Wokingham Borough Adopted Core Strategy Development Plan Document, January 2010
- Wokingham Borough Council (February 2025) Local Plan Update 2023-2040: Proposed Submission Plan
- Wokingham Borough Council Wokingham Borough Local Transport Plan 2011 – 2026 (LTP3) (March 2011)
- Department for Transport LTN1/20 Cycle Infrastructure Design (July 2020)
- Department for Transport Manual for Streets (March 2007)

Table 17.21 Assessor information

Chapter	Responsibility	Name	Qualifications	Assessor information
17 Transport and Access	i-Transport	Emily Pearson	BSc, CILT, CIHT	Emily has over 20 years of experience working on the transport impact of development projects across the UK.
		Tim Wall	BA, MSc, FCIHT, CMILT	Tim has over 20 years of experience working on the transport impact of development projects across the UK and possesses experience at both local authority and private consultancy level.
		Marcus Kingman	BSc, MSc, MCIHT	Marcus has over 5 years of experience working on the transport impact of development projects across the UK.

Table 17.22 Summary of effects

Receptor	Receptor sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Construction Phase					
Formation of Access Junction to Mole Road	Medium	Driver delay Moderate Adverse	CEMP	Moderate Adverse	Not Significant
Formation of Crossing of Mole Road	Medium	Non-motorised user amenity - Minor Adverse	CEMP	Minor Adverse	Not Significant
Adjacent Road Network	Various	Driver delay - Minor Adverse	CEMP	Minor Adverse	Not Significant
Adjacent Road Network	Various	Non-motorised user amenity - Minor Adverse	CEMP	Minor Adverse	Not Significant
Operation Phase – Proposed Development					
Reading Road – 2032	Low	Severance - negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay - negligible	N/A	Negligible	Not Significant
		Pedestrian Delay - negligible	N/A	Negligible	Not Significant
		Non-motorised user amenity - negligible	N/A	Negligible	Not Significant
		Fear & Intimidation - negligible	N/A	Negligible	Not Significant
		Road safety - negligible	N/A	Negligible	Not Significant
Reading Road – 2040	Low	Severance - negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay - negligible	N/A	Negligible	Not Significant
		Pedestrian Delay - negligible	N/A	Negligible	Not Significant
		Non-motorised user amenity - negligible	N/A	Negligible	Not Significant
		Fear & Intimidation - negligible	N/A	Negligible	Not Significant
		Road safety - negligible	N/A	Negligible	Not Significant

Receptor	Receptor sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Operation Phase – Proposed Development and LVGV project – 2040 Cumulative					
1 - B3270	Low	Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant
2 – Shinfield Rd	High	Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant
5 – B3349		Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant
6 – Arborfield Road	Medium	Severance – Minor adverse	Proposed footway/cycleway on Arborfield Road and new crossings	Minor Beneficial	Not Significant
		Driver Stress & Delay – minor adverse		Negligible	Not Significant
		Pedestrian Delay - negligible		Minor Beneficial	Not Significant
		Non-motorised user amenity - negligible		Minor Beneficial	Not Significant

Receptor	Receptor sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
		Fear & Intimidation – minor adverse		Minor Beneficial	Not Significant
		Road safety - negligible		Negligible	Not Significant
7 – Shinfield Eastern Relief Road	Low	Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant
8 – A327	Medium	Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – minor adverse		Minor adverse	Not Significant
		Road safety - negligible		Negligible	Not Significant
13 – Eversley Road	Medium	Severance – negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant
14 - School Road	Very High	Severance - negligible	N/A	Negligible	Not Significant
		Driver Stress & Delay – minor adverse		Minor Adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation - negligible		Negligible	Not Significant

Receptor	Receptor sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
		Road safety - negligible		Negligible	Not Significant
15 - Sindlesham Road	Medium	Severance - negligible	Proposed replacement traffic calming on Arborfield Road	Negligible	Not Significant
		Driver Stress & Delay - Minor Adverse		Minor adverse	Not Significant
		Pedestrian Delay - negligible		Negligible	Not Significant
		Non-motorised user amenity - negligible		Negligible	Not Significant
		Fear & Intimidation – negligible		Negligible	Not Significant
		Road safety - negligible		Negligible	Not Significant

Table 17.23 Summary for Securing Mitigation

Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	Delivered by	Auditable by
Construction Phase				
All	CEMP	Planning Condition	Contractor	Contractor
Operation Phase				
All	Off-Site Highway Mitigation	S106 or Planning Condition	Applicant	Wokingham Borough Council
All	Off-Site Active Travel Mitigation	S106 or Planning Condition	Applicant	Wokingham Borough Council
All	Travel Plan	S106 or Planning Condition	Applicant	Wokingham Borough Council