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INTRODUCTION

7.1 This chapter of the ES considers the potential environmental effects related to the movement of vehicles associated with the operation of the proposed quarry at Hatfield Aerodrome.

7.2 Consideration is given to existing and future traffic levels, to the routing of vehicles on the surrounding highway network and to the resultant capacity and environmental impacts of site generated traffic. The chapter concludes with a summary of the assessments undertaken and an overview of the mitigation measures proposed. It should be noted that the effects on air quality associated with vehicle emissions is addressed in Chapter 9 of this volume.

7.3 A Transport Chapter was included within the 2016 ES. This was followed by a supporting Transport Chapter Addendum (August 2016) and a Transport Chapter 'Response to Opus' (September 2016) which provided further information and clarification on subjects highlighted following consideration of the initial planning application submission. This chapter updates the previous ES Chapter, based on the revised proposals, and includes the information contained within the subsequent supporting reports.

Proposed Development Summary

Current Site Usages and Recent History

7.4 The application site has been described in Chapter 2 of the ES. It covers an area of around 87.1ha and comprises the southern part of the former Hatfield Aerodrome. Drawing HQ 2/2 (Chapter 2) shows the extent of the application site along with the extent of the extraction area. It comprises an area of open unoccupied land that is partly used as public open space and grazing.

7.5 A concrete roadway extends west into the centre of the application site from Albatross Way to the east; a number of other tracks also cross the application site.

Proposed Development

7.6 The proposals, which have been described in Chapter 3 of this Volume, would involve the winning and working, together with processing for sale, of some 8Mt of sand and gravel over a period of around 32 years (based on an annual output of around 250,000tpa). The proposed development would also include processing facilities located in the northern part of the application site.

7.7 Processed aggregates would be exported, and inert fill materials imported, via a newly constructed access off the A1057 on the southern side of the quarry.

7.8 An internal road would run between the new site access off the A1057 to the processing facilities at the north of the site, routeing along the western boundary.

7.9 Processed aggregate would be exported from the site via HGVs of an appropriate size and nature; said HGVs would be weighed both on ingress and egress of the site.

7.10 The quarry would be worked on a phased basis to allow for progressive restoration. As such, in addition to the export of aggregate, restoration materials would also be imported to the application site.

7.11 For clarity, pertinent to transport, the proposals have amended the previous scheme as follows:

- The concrete batching plant previously proposed has been removed; and
- The access road from the quarry entrance has been moved slightly to the east; this does not affect the position of the junction onto the A1057.

Hours of Operation

7.12 The quarry would operate to the following hours:

- 0700 hours to 1800 hours Monday to Friday;
- 0700 hours to 1300 hours Saturdays; and
- No operations on Sundays or bank holidays save for emergency repairs.

Staff

7.13 The quarry would have a core staff of 6 employees. This would comprise 1 manager, 1 foreman, 2 loading shovel operatives, 1 dozer operative and 1 weighbridge operative.

7.14 The number of staff would increase up to 10 during earthmoving works which will be undertaken on a campaign basis. This would be over a temporary period.

7.15 For the purposes of any impact assessment a workforce of 10 has been assumed.

CURRENT TRANSPORT POLICY

7.16 The type and location of this development requires the Transport Assessment to give full regard to the current planning policy framework. This chapter considers the following national and local planning policy guidance in the context of highways and transport issues pertinent to the proposed development. In this respect consideration has been given to:

- National Planning Policy Framework (NPPF);
- National Planning Practice Guidance;
- Hertfordshire Local Transport Plan; and
- Hertfordshire Minerals Local Plan Review.

7.17 It should be noted that planning policies relevant to the EIA are also set out in Chapter 4 above.

National Planning Policy Framework

7.18 The NPPF was published on 27th March 2012 (updated in 2021) as part of the Government's reforms to make the planning system less complex and more accessible, with its primary intent to be one of encouraging sustainable patterns of growth.

7.19 It is relevant to note that the NPPF objectives of transport policy '…*have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives*'.

7.20 In this context, it is relevant to note that the NPPF states "*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*" (paragraph 109).

National Planning Practice Guidance

7.21 The National Planning Practice Guidance was published in 2014 and states that there are limitations to minerals as they can only be worked on where they naturally occur. Minerals are in demand but are limited resources and therefore need to be managed. This applies on a national and local level and highlights the importance of combining the two. It suggests that the environmental impacts of mineral extraction need to be considered, including the impact of traffic and the need for the investigation of traffic impacts. It also suggests that the site of extraction should be restored to make it suitable for beneficial after-use.

7.22 It acknowledges the need for extraction of aggregates to meet demand but manage supplies in the chapter 'Planning for Aggregate Minerals'. It highlights the importance of managing markets to meet national and local demands but retaining an understanding of the stocks.

7.23 Demands for aggregates are predicted to rise due to the increase in population expected; the proposed quarry at the site would provide important sand and gravel supplies to the local market within the region as well as some national sales. Supplying the local market would help to reduce the need to transport material from further afield.

Hertfordshire Local Transport Plan 4

7.24 The Hertfordshire LTP4 was adopted in 2018 and sets out Hertfordshire County Council's plan for the transport network from 2018 to 2031.

7.25 The following text has been reproduced from the LTP4 Executive Summary:

'*This plan accelerates the transition from a previous transport strategy that was largely car based to a more balanced approach which caters for all forms of transport and seeks to encourage a switch from the private car to sustainable transport (e.g. walking, cycling and passenger transport) wherever possible*.'

7.26 The vision for Hertfordshire is as follows: '*We want Hertfordshire to continue to be a county where people have to opportunity to live healthy, fulfilling lives in thriving, prosperous communities*.'

7.27 The foundation of the LTP4 is a set of nine objectives across three 'themes', Prosperity, Place and People. The strategy necessary to deliver these objectives is based on the following four principles:

- Application of technology;
- Cost effectiveness;
- Integrating land use and transport planning; and
- Encouraging modal shift and active travel.

7.28 The nine objectives of the plan are as follows:

- Improve access to international gateways and regional centres outside Hertfordshire;
- Enhance connectivity between urban centres in Hertfordshire;
- Improve accessibility between employers and their labour markets;
- Enhance journey reliability and network resilience across Hertfordshire;
- Enhance the quality and vitality of town centres;
- Preserve the character and quality of the Hertfordshire environment;
- Reduce carbon emissions;
- Make journeys and their impact safer and healthier; and
- Improve access and enable participation in everyday life through transport.

7.29 The following excerpt concerns the management of Freight and Logistics on the strategic highways infrastructure within Hertfordshire:

'*A key aspect of managing traffic on the network is managing the movement of freight and logistics vehicles. Effective freight and logistics operations are important to local and national economy, we therefore aim to support these operations but in a way that does not compromise the natural environment and quality of life for residents*.'

7.30 The plan has evolved from the previous version to placing more emphasis on the need to make use of the existing road network and not the building of more roads.

7.31 It explains that the movement of goods within Hertfordshire is primarily by road and that the Primary Road Network is designed to cater for high flows of HGVs, however, due to the nature of the market and location of final destination for these vehicles this often means HGVs have to use local roads and pass through residential areas which can have major impacts on the environment and congestion.

7.32 Where possible alternative methods of transport should be used, such as rail and water freight. However the council appreciates that this has its limitations and may be unsuitable for new developments due to the lack of infrastructure and capacity problems for passenger services on the rail network. Consequently, the focus of the plan is to concentrate on minimising the impact of road traffic.

7.33 The document states that the council will encourage HGVs to use the Primary Road Network. As the site of the proposed development at Hatfield Aerodrome is adjacent to the A1057 which has a direct connection with the A1, a motorway which runs north to south between Peterborough and London, this suggests the site is located in a suitable location to utilise the existing road network. Furthermore the A1 is recognised as part of the County's Primary Road Network.

7.34 Due to the lack of rail and water infrastructure near to the site and the increasing demand for rail services from local residential areas, such as St. Albans and Hatfield, this means it would be unsuitable and unrealistic for these freight methods to be used for the proposed development as it would require the extensive development of new infrastructure.

Hertfordshire Minerals Local Plan Review 2002-2016

7.35 A section within the Hertfordshire Minerals Local Plan Review discusses the implication of transport associated with a mineral extraction development. If this is not suitable then the development would be permitted when traffic movements generated from site operations *'…would not have an unacceptable impact of highway safety, the effective operation of the road network, residential amenity or the local environment*' (p40). It states that proposals which utilise non-road transport will be supported. It highlights that there is a high amount of HGV traffic generated from such sites related to transporting the material from the site to a processing plant and then from the plant to the customer. Where possible this is expected to be reduced as much as possible by means of internal haul routes or preferably conveyor belts. It suggests that transport related to the quarry operations should utilise major roads within the region and avoid local roads and residential areas as much as possible. However it states that this is often limited due to the restriction that minerals can only be worked where they naturally occur. The route from the proposed development would utilise the A1057 and A1 which are both regarded as suitable for HGV use as they are considered a distributor and primary road of the county, respectively.

7.36 A review of the plan reveals that it is necessary to consider sites suitable for mineral extraction within the County to help meet the growing demands for materials. Within this review the proposal site for the quarry, at Hatfield Aerodrome, is identified as a 'Preferred Area' implying that the site is highly suitable for the proposed development.

EXISTING CONDITIONS

7.37 This section of the chapter discusses the current infrastructure around the application site. It includes a description of the existing access of the application site, the local road network and non-vehicular access options.

Study Area

7.38 Operational HGV traffic associated with the movement of material, either importation or exportation, would utilise the principal road network, remaining on the 'A' classified roads and motorways where possible.

7.39 The application site is located conveniently within close proximity of the A1(M) at a distance of under 2km, which can be accessed directly via the A1057, an A classified road. The A1(M) then provides links to the wider strategic road network.

7.40 It is noted that there is a route to the A414 via Station Road and Smallford Lane. However, there is a restriction on vehicles of 7.5t and above which would prevent this route being used. Access to the A414 would therefore be via the A1057 east and then south on the A1001.

7.41 There may be the occasional export load which travels to a local site in St. Albans, bearing west out of the site access. However, it is expected that the vast majority would travel towards the A1(M), to the east.

7.42 The study area has therefore been determined as the A1057 to the east of the proposed access to the connection with the A1 by means of Comet Way in both a north and south direction.

Local Highway Network

A1057 Hatfield Road

7.43 The A1057 routes along the southern boundary of the application site. It runs in an east-to-west direction between St. Albans and Hatfield.

7.44 To the west the A1057 links with the A1(M), via Comet Way, at a location approximately 2.0km east of the application site.

7.45 In the proximity of the application site the A1057 is a single carriageway road classified as a principal rural road by the Department for Transport. The road is subject to 40mph speed limit and is street lit. There is a footway flanking the southern side of the road past the frontage of the application site. A photograph of the A1057 close to the application site is shown at Figure 7-1.

Figure 7-1
A1057 View Westbound

7.46 To the west of the application site is the Notcutts Garden Centre. This is a large garden centre with a wide, formal, simple priority junction access. Footway on the northern side of the carriageway terminates at this junction. A photograph of the garden centre access is shown at Figure 7-2.

Figure 7-2
A1057 Notcutts Garden Centre Access

7.47 On the opposite side of the carriageway to the garden centre there is a public house/restaurant, petrol filling station, and the residential area known as Smallford. A photograph of the A1057 to the west of the garden centre showing the petrol filling station and footways on both sides of the carriageway is shown at Figure 7-3.

Figure 7-3
View West to Petrol Filling Station

7.48 To the west of the application site, approximately 150 metres west of the garden centre access junction, the A1057 forms a roundabout junction with Oaklands Lane and Station Road; the junction is shown within Figure 7-4.

Figure 7-4
A1057/Oaklands Lane/Station Road Roundabout

7.49 The roundabout has an approximate Inscribed Circle Diameter (ICD) of 28 metres and is therefore capable of accommodating larger vehicles.

7.50 To the south of the roundabout junction Station Road links with the A414 to the north of Colney Heath. This link is subject to a 7.5t weight restriction.

7.51 To the north Oaklands Lane loops round to the west and provides an alternative route into St. Albans.

7.52 On the opposite side of the road, broadly in line with the centre of the application site's southern boundary, Wilkin's Green Lane, a narrow single width road, joins the A1057 from the south by means of a simple priority junction. This lane provides access to a few residential properties and connects to Ellenbrook Way to the west of Hatfield.

7.53 The A1057 is a relatively straight road. Whilst this provides good forward visibility it can result in higher vehicle speeds. This is also apparent due to the positing of a speed camera on the southern boundary of the application site, near to the Wilkin's Green Lane junction, as shown within Figure 7-5.

Figure 7-5
A1057 Speed Camera

7.54 Approximately 600 metres east of the Wilkin's Green Lane junction Poplar Avenue meets the A1057 from the south by means of a simple priority junction. Poplar Road provides access to the Bramble Road residential development.

7.55 A further 200 metres east of the Poplar Avenue junction the A1057 forms a junction with Albatross Way and Ellenbrook Way.

Albatross Way/Ellenbrook Lane Roundabout

7.56 Albatross Way forms the northern arm of the Albatross Way/Ellenbrook Lane roundabout junction with the A1057.

7.57 It provides a route around the western and northern boundary of the University of Hertfordshire campus, routeing past the Hertfordshire Sports Village. It also provides a link to the existing access to the application site.

7.58 Ellenbrook Lane, the southern arm of the roundabout junction, provides access to residential development. It links with Wilkins Green Lane and Selwyn Drive which both loop back and junction with the A1057. A photo of the junction is provided at Figure 7-6.

Figure 7-6
Albatross Way/Ellenbrook Way Roundabout

Mosquito Way/Comet Way

7.59 To the east, adjacent with the University of Hertfordshire, the A1057 forms a roundabout junction with Mosquito Way and then Comet Way. Both roundabouts are large, signalised junctions connected via a short section of dual carriageway.

7.60 The Mosquito Way roundabout junction comprises three arms. Mosquito Way comprises the northern arm, and links with Albatross Way on the northern side of the University, thereafter continuing northbound towards Hatfield Garden Village.

7.61 The Comet Way roundabout junction comprises four arms, and is adjacent to the A1(M) and 'The Galleria' shopping centre. Comet Way forms the northern and southern arms of the junction, and runs parallel to the A1. Approximately 1.0km south of this roundabout, Comet Way provides access both to the northbound and southbound carriageway of the A1 motorway via a signalised, grade separated roundabout junction.

A1(M)

7.62 In this location the A1(M) forms a six lane motorway which runs in a north-to-south direction. The A1(M) links with the M25 London Orbital approximately 8km to the south, which provides access to the wider strategic road network.

7.63 To the north the A1(M) provides access to Stevenage and Peterborough, continuing northbound with links to the wider network.

A414

7.64 The A414 is a major route running through the south-east of England. Commencing in Hertfordshire at a junction of the A41, west of Hemel Hempstead, the A414 routes through Hemel Hempstead towards Junction 8 of the M1 at Buncefield.

7.65 From Buncefield, the A414 continues running parallel to the M1 until the vicinity of Junction 7. At this point it bears south of St Albans and continues east through Hatfield and Hertford, crossing the A10 into Essex via Harlow, Chipping Ongar, and Chelmsford. The A414 terminates at Maldon, approximately 107km from its origin.

A414 Corridor Strategy

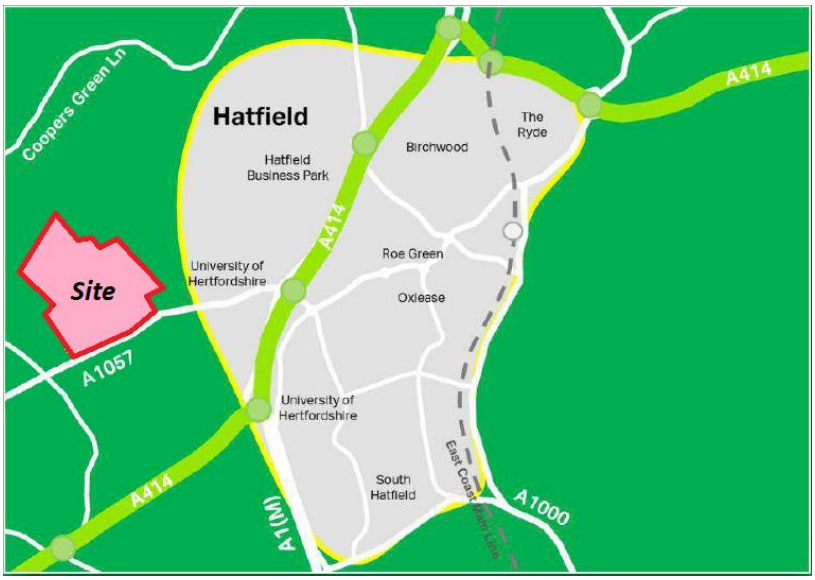
7.66 The following text is reproduced from the Hertfordshire County Council website (www.hertfordshire.gov.uk) and summarises the A414 Corridor Strategy:

'*The A414 corridor strategy covers the strategic east-west transport corridor which runs from Harlow to St Albans, where it divides with one leg running to Hemel Hempstead as the A414 and the other running through to Watford as the A405.*

The strategy identifies key challenges along the corridor and develops a series of objectives which were used to identify transport schemes, including the development of an East-West Mass Rapid Transit system'.

7.67 A Technical Report was produced by the Council in 2019; Figure 7-7 below comprises an annotated image taken from the report and serves to illustrate, broadly, the location of the application site in relation to the A414 Corridor.

Figure 7-7
A414 Corridor in context of Application Site



7.68 The following text is reproduced from the Technical Report:

'*There are very few opportunities for continuous travel by public transport which increases reliance on the car to make even fairly short journeys along the corridor…*

There are over 100,000 new homes planned for Hertfordshire and fifty per cent of these will be along the A414 route, with further development expected beyond 2031. The impacts on the route are likely to be significant…

The Local Transport Plan… has been used to develop the A414 Corridor Strategy. The emphasis will be providing alternatives to the car along the corridor through the development of a Mass Rapid Transit system.

The Mass Rapid Transit is considered to be a critical piece of infrastructure as it will encourage people to travel more sustainably, connect people with jobs, schools, shops and key services, and could lead to a reduction in traffic growth.'

Existing Non-Car Accessibility

7.69 Although the vast majority of vehicular movement from the application site is anticipated to be comprised of HGVs transporting material to and from the proposed quarry, access to the site by other modes (specifically pedestrian, cycle, and public transport) must also be considered. These modes may potentially be utilised by staff working on site, and the current infrastructure relevant to each mode needs to be investigated and assessed to determine its suitability.

Pedestrian Access

7.70 Pedestrian footway runs the entire length of the A1057, providing an option for pedestrians to access the application site from the southern side of the carriageway.

7.71 The footway runs continuously through the residential areas of Smallford and Hatfield, and within these areas footway typically flanks both sides of the road. There is also a zebra crossing to the west of the application site within Smallford and crossing facilities at the signalised roundabouts to the east of the site, near Hatfield.

7.72 There are also bus stops located along this footpath which could be used when combining sustainable transport options. These are discussed in the 'Public Transport' section below.

7.73 Whilst the site access by its nature would be unsuitable for pedestrian access, a system could be arranged for pedestrians to be given lifts by colleagues from the site access junction to the site facilities.

Cycle Access

7.74 Approximately 50 metres to the south of the A1057, Route 61 'Alban Way' of the National Cycle Network links St Albans and Hatfield with a traffic free route. Route 61 continues to both Welwyn Garden City and Maidenhead in each direction. As the A1057 is subject to a 40mph speed limit this would also be a suitable route for cyclists to utilise.

7.75 Route 61 meets up with other routes such as Route 6 in St Albans, which runs between Milton Keynes and Luton to the west of the site, and Route 12 to the east of the site, which provides links to Stevenage and St Neots.

7.76 Within the built up area of Hatfield, to the east of the application site the footway or footpath that runs alongside the carriageway provides an off road facility for cyclists to utilise. This would help connect the application site to cycle routes from Hatfield.

Public Transport

7.77 To the west of the site access, within the residential area of Smallford, bus stop facilities can be found at the Three Horses Public House. Both stops comprise covered bus shelters and are situated within laybys, avoiding the need for busses to stop on the carriageway and thereby ensuring the free-flow of traffic.

7.78 Table 7-1 below summarises the services available, and the relative frequencies thereof, from the above mentioned stops.

7.79

Table 7-1
Bus Service Summary

Service Number	Route	Nearest Stop	Frequency
302	Hemel Hempstead to Welwyn Garden City	Oaklands/Three Horses Public House (200m from site access)	Mondays-Fridays Up to 4 services an hour from 06:18 to 19:00 Saturdays Up to 4 services an hour from 06:15 to 17:51 Sundays Up to 1 service an hour from 09:16 to 17:16
601	Borehamwood - Hatfield - Welwyn Garden City	Oaklands/Three Horses Public House (200m from site access)	Mondays-Fridays Up to 4 services an hour from 06:23 to 19:30 Saturdays Up to 1 service an hour from 07:24 to 16:18 Sundays No services

Existing Traffic Flows

7.80 Recent traffic levels are impacted by the restrictions and changes in behaviour influenced by the COVID-19 pandemic, therefore new traffic counts would not be considered representative.

7.81 As a result, this ES Chapter is based on the Department for Transport (DfT) data obtained online and previous traffic count data commissioned as part of the 2016 ES.

Department for Transport Data

7.82 The DfT Road Traffic Statistics website was interrogated to acquire data recorded by the following Count Points, 1-4:

1) Count Point 7074, *A1057 West of Ellenbrook Lane*

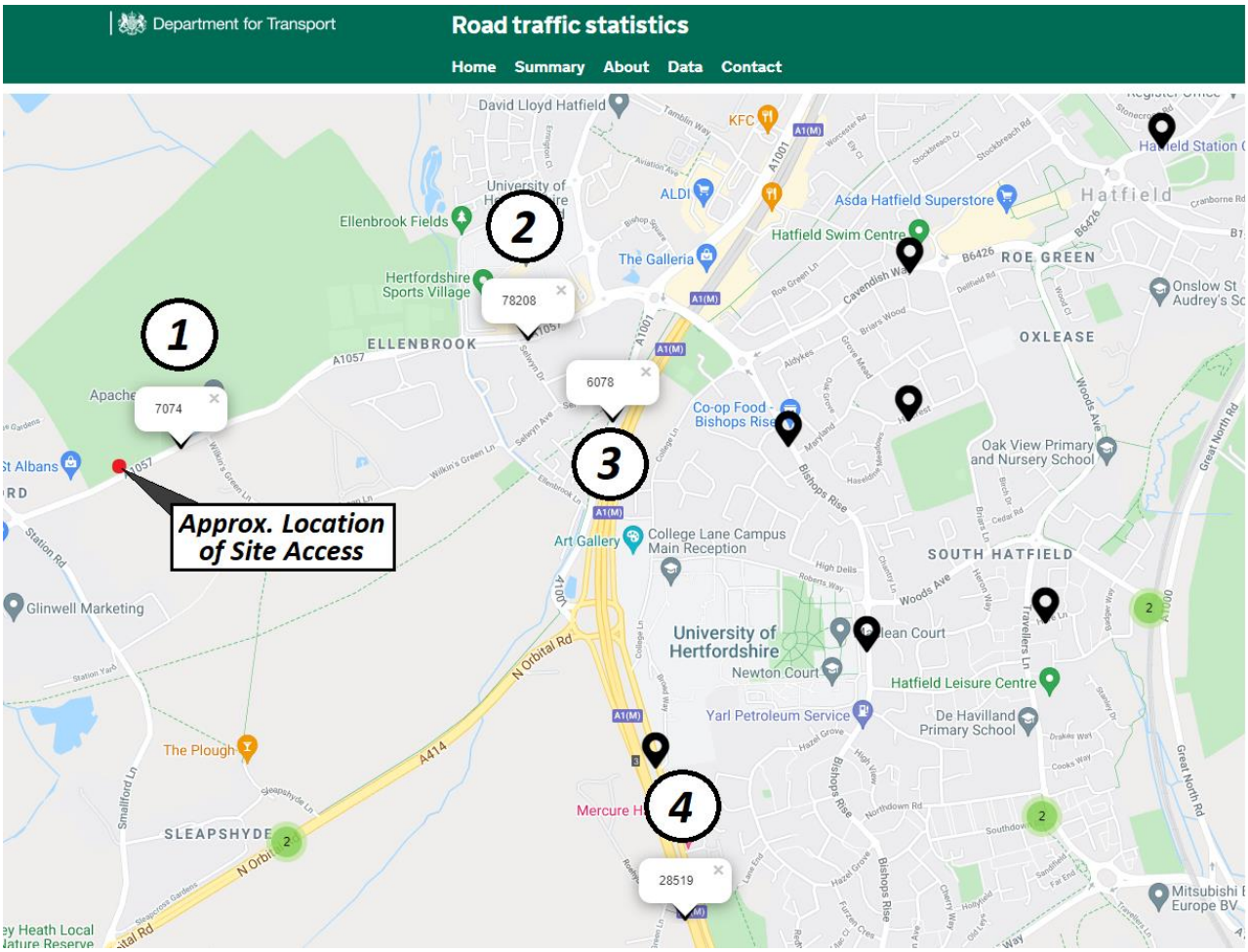
2) Count Point 78208, *A1057 East of Ellenbrook Lane*

3) Count Point 6078, *Comet Way*

4) Count Point 28519, *A1(M)*

7.83 Figure 7-8 comprises an annotated image taken from the DfT website and shows the location of the relevant Count Points, 1-4, and the approximate location of the Site Access.

Figure 7-8
Annotated Screenshot from DfT Website



7.84 The following extracts have been reproduced from the DfT website and explain the methodology and technology used to capture the data.

"The Department for Transport's road traffic statistics team have approximately 300 automatic traffic counters at locations on Great Britain's road network. The locations are a stratified panel sample, and provide sufficient observations so that in-year traffic variations can be estimated by road type and vehicle type.

The automatic traffic counters are permanent installations embedded in the road surface, which combine Inductive Loops with Piezoelectric Sensors in a 'Loop – Piezo Sensors – Loop' array, and record information about vehicles passing over them, including vehicle length and wheelbase, to classify vehicles.

The Department for Transport's road traffic statistics also make use of automatic traffic counter data that is collected and maintained by other organisations. These are:

- *Highways England: operate over 10,000 automatic traffic counters on some of the motorways and 'A' roads in England.*
- *Transport Scotland: operate over 900 automatic traffic counters on some of the motorways and 'A' roads in Scotland.*
- *Transport for London: operate over 300 automatic traffic counters on roads in London"*

Data Summary

7.85 Data for a given Count Point can be downloaded from the DfT website in a spreadsheet format and provides AADF data on the total number of vehicles passing through the Count Point, and also provides figures by vehicle category e.g. HGV's, cars, motorcycles etc.

7.86 A summary of the average weekday traffic data recorded by each of the 4 count points during 2018 is provided within Table 7-2.

Table 7-2
DfT Traffic Data 2018

Count Point	Link name	Total Vehicles	HGV's
1	A1057 West of Ellenbrook Lane	13,604	584
2	A1057 East of Ellenbrook Lane	15,101	648
3	Comet Way	18,822	1,592
4	A1(M)	60,601	4,060

ATC Data

7.87 For the purposes of the previous planning application traffic survey specialists 'Axiom Traffic Limited' were commissioned to undertake an Automatic Traffic Count (ATC) on the A1057 Hatfield Road in order to determine existing traffic conditions.

7.88 The ATC was undertaken by means of pneumatic tubes positioned in the carriageway on the A1057 Hatfield Road, located approximately 75 metres east of the entrance to the garden centre, as shown within Figure 7-9. The pneumatic tubes measure directional traffic flow/vehicle speed and also classify vehicles into various groups.

Figure 7-9
ATC Location on the A1057

7.89 Data was recorded between 25th April 2015 and 1st May 2015 and therefore reflects typical weekday traffic flow conditions on the local highway network (i.e. non-school holiday periods, typical weather conditions etc.). The ATC data 'as received' is provided in **Appendix 7/1**.

7.90 While the data would normally be considered as time-expired, the effects of the Covid 19 Pandemic cannot be underestimated in terms of disruption to 'normal' traffic volumes, and as such it is considered that growthing the previously acquired data would serve better in context of any assessment work.

7.91 The data confirms that across the surveyed weekdays, the AM peak occurs between 08:00 – 09:00hrs. The weekday PM peak was observed between 17:00 – 18:00hrs. The data also confirms that the Saturday and Sunday highway network peak periods occur between 12:00 – 13:00hrs, and 14:00-15:00hrs respectively.

7.92 A summary of the average weekday traffic data recorded on the A1057 is provided within Table 7-3

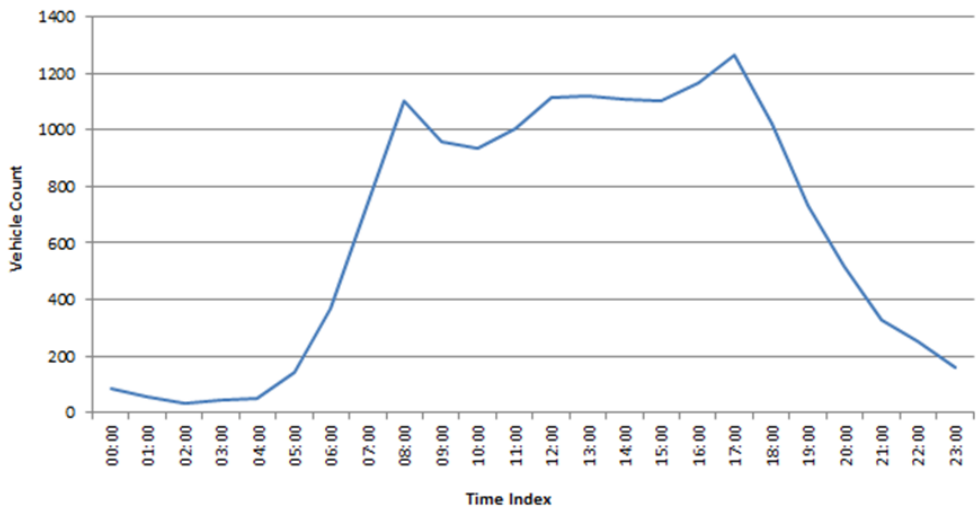
Table 7-3
2015 Baseline traffic Flows

	Eastbound		Westbound		Two-way	
Weekday	**Tot**	**HGV**	**Tot**	**HGV**	**Tot**	**HGV**
AM Peak (08:00-09:00hrs)	479	22	620	33	1,099	55
PM Peak (17:00-18:00hrs)	572	15	693	22	1,266	37
24 Hour (00:00-24:00hrs)	7,150	390	8,269	354	15,420	744
Saturday	**Tot**	**HGV**	**Tot**	**HGV**	**Tot**	**HGV**
Peak (12:00-13:00hrs)	549	18	725	13	1,274	31
24 Hour (00:00-24:00hrs)	6,979	205	8,058	221	15,037	426
Sunday	**Tot**	**HGV**	**Tot**	**HGV**	**Tot**	**HGV**
Peak (14:00-15:00hrs)	593	8	593	8	1186	16
24 Hour (00:00-24:00hrs)	5,336	107	6,037	150	11,373	257

7.93 The above summary table shows that the highest 24 hour vehicular traffic flow occurs during weekdays. It also determines that the average weekday PM peak and Saturday afternoon peak are the busiest periods on the A1057 Hatfield Road, with almost 1,300 two-way movements.

7.94 The average weekday two-way traffic profile is shown in graph form at Figure 7-10.

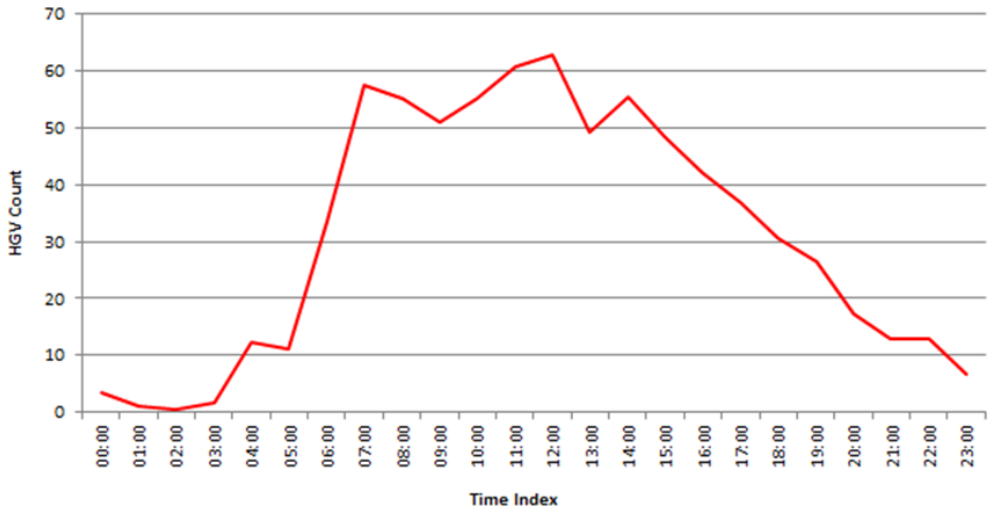
Figure 7-10
Average Weekday Two-way Traffic Profile



7.95 The average weekday traffic profile shows two defined peak periods occurring at 08:00 and 17:00, with a slight inter-peak at 13:00, consistent with standard rush-hour trends. After the 08:00 peak volumes of two-way movements drop by approximately 50 movements until 10:00hrs, and then increase steadily until the evening peak at 17:00hrs. Post 17:00hrs, volumes decline steadily until 02:00hrs.

7.96 The average weekday two-way HGV traffic profile is shown in graph form at Figure 7-11.

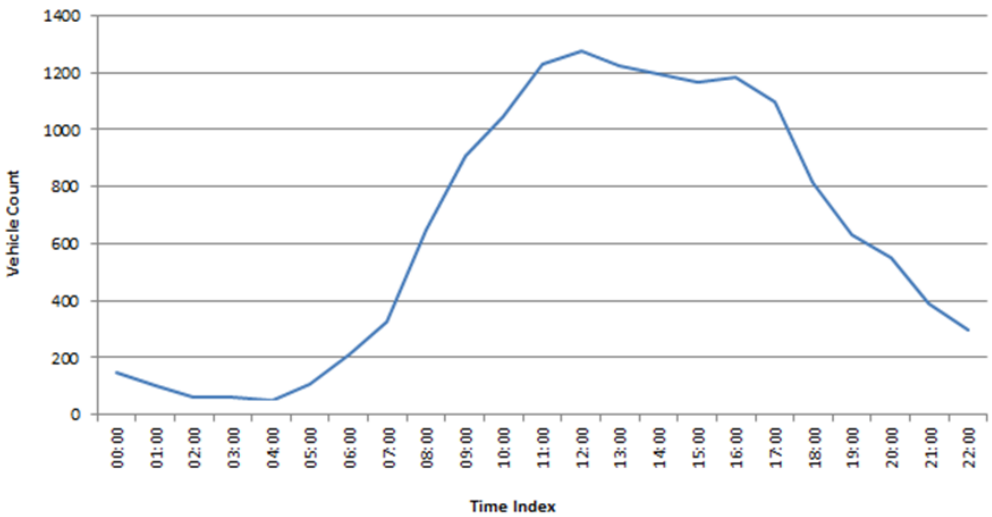
Figure 7-11
Average Weekday Two-way HGV Traffic Profile



7.97 The average weekday HGV profile shows three recognisable peaks at 07:00, 12:00, and 14:00hrs. Between 06:00 – 14:00hrs movements remain fairly constant at approximately 49 or more movements per hour, with the variation range at approximately 13-14 movements per hour. Post 14:00hrs, HGV movements decline at a steady rate until 02:00hrs. On an average weekday, HGV movements account for 4% of movements at peak times, and 5% of total movements in a 24hr period.

7.98 The Saturday traffic profile is shown in graph form at Figure 7-12.

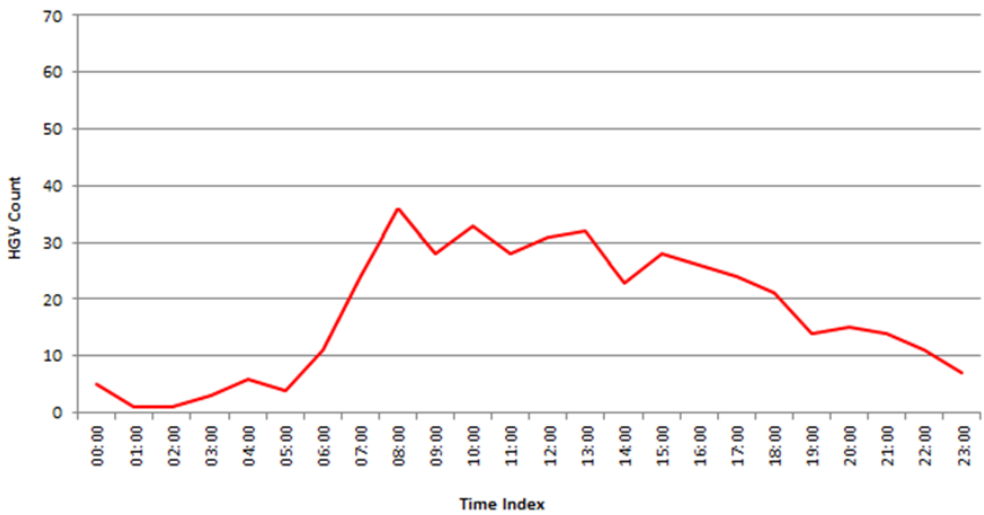
Figure 7-12
Saturday Two-way Traffic Profile



7.99 The Saturday traffic profile shows a gradual increase of traffic throughout the morning resulting in a single peak between 12:00-13:00hrs. Traffic flows then gradually decrease throughout the afternoon and early evening staying between 1,000 and 1,300 movements until 17:30hrs, after which traffic flows decline steadily until 02:00hrs.

7.100 The Saturday two-way HGV traffic profile is shown in graph form at Figure 7-13.

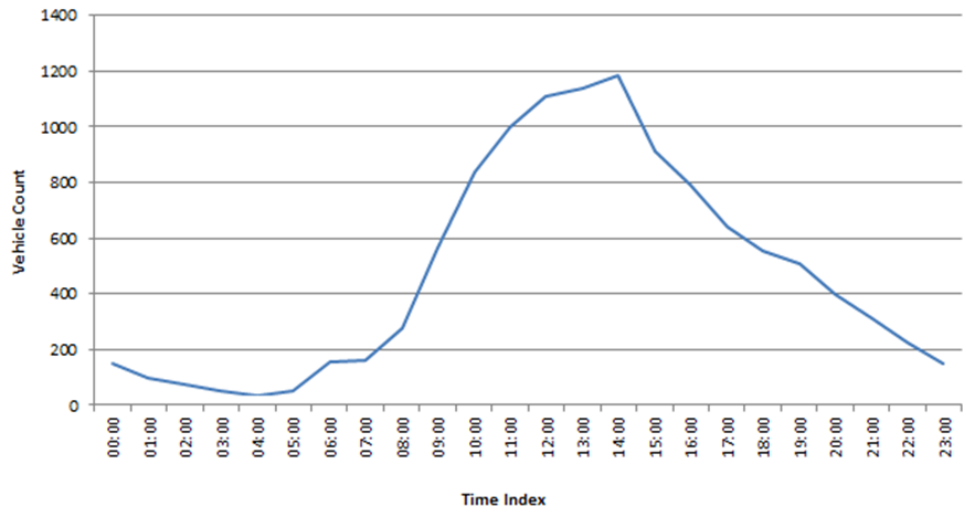
Figure 7-13
Saturday Two-way HGV Traffic Profile



7.101 The Saturday two-way HGV traffic profile shows the volumes are significantly smaller in comparison with weekday volumes, equating to around 57% of the weekday average. There is only one relative defined peak occurring at 08:00hrs after which volumes decline steadily, with a maximum variance of 5 movements per hour, until 01:00hrs. Saturday HGV movements account for 2.5% of total movements at peak times, and 3% of total movements in a 24hr period.

7.102 The Sunday total traffic profile is shown in graph form at Figure 7-14.

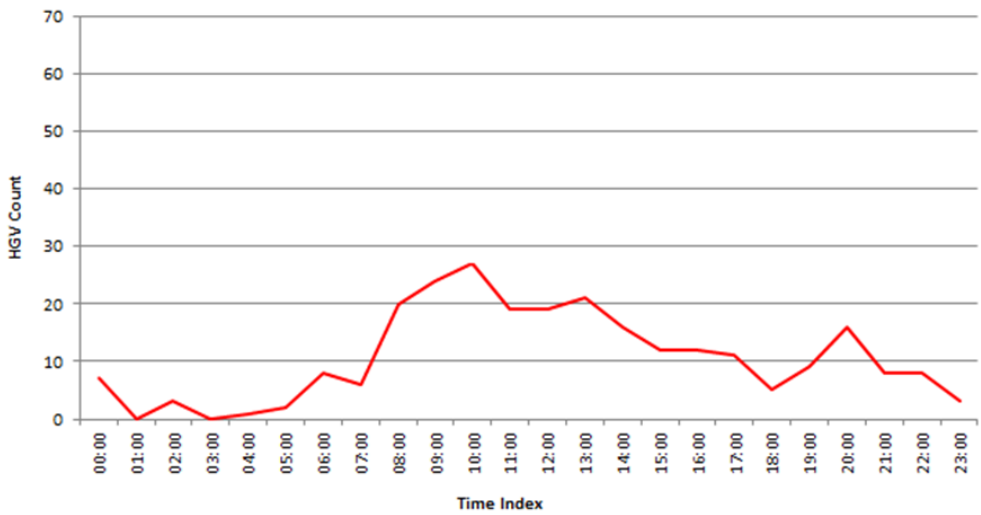
Figure 7-14
Sunday Two-way Traffic Profile



7.103 The Sunday traffic profile shows a gradual increase of traffic throughout the morning resulting in a single peak between 13:00-14:00hrs. From 14:00hrs onwards, traffic flows fall at a steady rate of decline until 04:00hrs.

7.104 The Sunday two-way HGV traffic profile is shown in graph form at Figure 7-15.

Figure 7-15
Sunday Two-way HGV Traffic Profile



7.105 The Sunday two-way HGV traffic profile shows the volumes are significantly smaller in comparison with weekday volumes, equating to around 35% of the weekday average. HGV movements on Sunday, peak at 27 movements per hour at approximately 10:00hrs and decline relatively steadily thereafter, until 20:00 where a second lesser peak of 16 movements per hour can be observed. Sunday HGV movements account for 1.3% of total movements at peak times, and 2.25% of total movements in a 24hr period.

Vehicle Speeds

7.106 The A1057 Hatfield Road in proximity of the southern boundary of the application site is subject to a 40mph speed restriction.

7.107 The ATC also provided speed data across the study period. A summary of the recorded vehicle speeds is provided at Table 7-4.

Table 7-4
Vehicle Speed Summary

Direction	85th %ile Speed	Mean Speed
Eastbound	40.0	35.2
Westbound	39.3	33.4

7.108 The above summary confirms that the 85th percentile vehicle speeds in both directions adhere to the posted speed limit.

Accident Records

7.109 Hertfordshire County Council has provided details of recorded road traffic incidents over the most recent five-year period available up to the end of 2020 within an identified study area.

7.110 The study area includes 1.4km of the A1057 Hatfield Road/St Albans Road West, between and including the roundabouts at Hatfield Rd/Station Rd and St Albans Road West/Ellenbrook Lane.

7.111 The data was forwarded by email on 14th June 2021 in a report format, which featured an incident location plan and details of each incident in the form of raw data.

7.112 The report did not include any plain text summaries of the listed accidents, and as such the summaries within in the summary table below (under the column 'Likely Cause') are interpretations of the raw data supplied, based on SLRs previous experience in processing similar datasets.

7.113 The raw data provided a description of each incident and vehicle group, broken down into individual categories and collisions and resulting casualty severities; fatal, serious and slight, as defined below:

- **Fatal** (a crash resulting in a death);
- **Serious** (detention in hospital; includes paralysis, fractures and severe lacerations); or
- **Slight** (includes whiplash, sprains and minor lacerations).

7.114 The raw incident data as received is included at **Appendix 7/2**. A summary of the data is shown within Table 7-5 below.

Table 7-5
Summary of Accident Data

Incident Ref	Severity	Location	Likely Cause	Likely Highway Deficiency
2019-410828884 01/03/2019 19:05hrs	Slight	A1057 Hatfield Road/Station Road RBT	Data suggests Vehicle 1 failed to give way at the roundabout junction, resulting in collision	No
2016-410070241 01/05/2016 12:00hrs	Slight	A1057 Hatfield Road/Station Road RBT	Data suggests Vehicle 2 failed to give way at the roundabout junction, resulting in collision	No
2016-410066193 12/05/2016 20:46hrs	Slight	A1057 Hatfield Road/Station Road RBT	Data suggests Vehicle 1 failed to give way at the roundabout junction, resulting in collision	No
2017-410248241 16/11/2017 13:36hrs	Serious	A1057 Hatfield Road Approx. 170m northeast of Station Road RBT	Data suggests the incident comprised a rear end shunt between two Goods Vehicles, the driver of the following vehicle sustained injury	No
2019-410818811 23/01/2019 15:20hrs	Serious	Approx. 800m east from Notcutts Garden Centre access	Data suggests the incident comprised a rear end shunt between two cars and a Goods Vehicle, a passenger in the 2nd vehicle sustained serious injury.	No
2018-410806883 20/12/2018 08:24hrs	Slight	Approx. 90m west from A1057 St Albans / Ellenbrook Lane RBT	Data suggests the incident comprised a rear end shunt between three cars, a passenger in the 2nd vehicle sustained slight injury.	No
2019-410917460 08/11/2019 14:20hrs	Slight	A1057 St Albans / Ellenbrook Lane RBT	Data suggests Vehicle 1 failed to give way at the roundabout junction, resulting in collision	No
2019-410874714 08/08/2019 15:50hrs	Slight	A1057 St Albans / Ellenbrook Lane RBT	Data suggests Vehicle 1 failed to give way at the roundabout junction, resulting in collision	No
2018-410804057 07/12/2018 07:40hrs	Slight	A1057 St Albans / Ellenbrook Lane RBT	Data suggests Vehicle 2 failed to give way at the roundabout junction, resulting in collision	No
2019-410843620 25/04/2019 18:55hrs	Slight	A1057 St Albans / Ellenbrook Lane RBT	Data suggests Vehicle 1 failed to give way at the roundabout junction, resulting in collision	No

7.115 Eight (8) of the 10 incidents were categorised as 'Slight', with 2 incidents categorised as 'Serious'; none of the incidents resulted in a fatality.

7.116 While the received dataset did not include any narrative descriptions of the incidents, the data available is considered sufficient to extrapolate the likely course of events in all cases.

7.117 Those incidents which have been determined to comprise rear end shunts occurred on straight sections of highway, away from junctions, and the available information is considered to support the determination.

7.118 Likewise, those incidents which occurred at roundabout junctions have been analysed in terms of the direction of each vehicle and the point of impact; it is reasonable to conclude that a vehicle entering the roundabout junction from the south, impacted on the offside by a vehicle originating from the east has not given way and driven into the path of the other vehicle. This is a common cause of collisions at roundabout junctions, and is considered to be reasonably attributable to several incidents within the data set.

7.119 Detailed analysis of the data set has not revealed any information which may be considered suggestive of a highways deficiency at any of the locations of the incident and it is considered reasonable to conclude that all incidents occurred as a result of driver/rider error.

7.120 It is recognised that a fatal incident occurred within relative proximity of the site on the A1057 Hatfield Road at a location approximately 263 metres northeast of its roundabout junction with Station Road. The incident occurred during October of 2010, which is more than 10 years prior to the writing of this report. The incident was concluded to have occurred as a result of a pedestrian stepping into traffic without looking; while tragic, it is considered that this incident was the fault of the pedestrian concerned and is not indicative of a highways deficiency at the location.

7.121 No patterns have been identified among the incidents occurring along the defined main HGV route, and it is considered that there are no highway safety concerns to be exacerbated by the proposed application.

Other Development Considerations

Hatfield Quarry (CEMEX)

7.122 CEMEX UK Operations Ltd have operated the Hatfield Quarry, located off Oaklands Lane (AL4 0HS) for several decades. Hertfordshire County Council approved planning permission (6/0439-03) for the extraction of sand and gravel and subsequent restoration of the land to agriculture (Symondshyde). The permission stipulated that development should be completed within 15 years of commencement, allowing works to continue up to 1st October 2020.

7.123 Production subsequently experienced delays, falling behind schedule, and as such a planning application pursuant to Section 73 of the Town and Country Planning Act 1990 (ref. PL/0165/20) was made to vary Condition 2 of the planning permission, extending the operational life of the quarry until 1st October 2022.

7.124 Applications have also been submitted in 2016 (PL\0820\16) and 2018 (PL\0963\18) for extensions to Hatfield Quarry. The former released around 0.45Mt and was approved in October 2018 and has an end date of 31 December 2023. The latter application would release around 3.5Mt and so extend the duration of operations by around ten years; planning permission has yet to be formally issued despite a resolution to approve (made in October 2020).

7.125 None of the recent applications seek to amend the output of the operations or alter HGV movements. The CEMEX proposals would not therefore see any additional traffic added to the

network, and as such these proposals do not raise a cause for concern in the context of the Hatfield Aerodrome scheme.

Land to the West of Hatfield (Arlington Business Parks GP Ltd)

7.126 Arlington Business Parks GP Limited submitted an Outline Planning Application (6/2018/2768/OUTLINE) to Welwyn Hatfield Borough Council for a "…*large-scale mixed use development including 1,100 new homes and supporting infrastructure including a primary school, local centre and open space with all matters reserved*".

7.127 At the time of writing Hertfordshire County Councils' planning portal records the status of the application as 'Under Consideration'.

7.128 Documentation supporting the application, including a Planning Statement authored by Maddox Planning Consultants (2018), and an Environmental Statement authored by Vectos (2018), is available through the Welwyn Hatfield Borough Council planning portal.

7.129 The assessment work by Vectos concluded that the significance of the effects of the completed development on the relevant factors - i.e. Severance, Pedestrian Delay, Pedestrian Amenity, Driver Delay, Accidents & Safety, and Public Transport – would be 'Negligible' in all cases save for Severance and Pedestrian Amenity, both of which were expected to suffer only 'Minor Adverse' effects.

PROPOSED OPERATION

Development Trip Generation

7.130 This section describes the determination of the various aspects of vehicular movements associated with the proposed development. This includes the quantity and composition of vehicle trips generated, arrival and departure profiles and route assignment from both sites due to the new development.

Trip Generation

7.131 Traffic associated with the proposal site will consist of operational HGV traffic associated with the import/export of material and light vehicle movements generated by staff and visitors.

Heavy Vehicle Trip Generation

7.132 Table 7-6 provides a forecast of the total daily traffic that could be generated by the proposed development based on a 275 day working year[1].

[1] Based on a 5.5 day week, 50 weeks per year.

Table 7-6
Daily HGV Traffic Forecast

	Volume	Unit	Average Load	HGV Trips
Exported Material				
Aggregates	250,000	tonnes	17t	54
Imported Material				
Restoration Infill	155,000	tonnes	20t	28
Totals				
HGV Trips				**82**
HGV Movements				**164**

7.133 The above calculation indicates that the proposed site would generate a total of 82 HGV trips, which equates to 164 HGV movements, across a typical 10-hour working day; therefore an average of 16 HGV's per hour.

Light Vehicle Trip Generation

7.134 For the purposes of a robust assessment, light vehicle traffic has been based on the number of staff employed, assuming they all drive individually. In reality some employees would lift share and some would use sustainable transport modes.

7.135 Therefore 10 light vehicle trips would be generated each day, arriving and leaving in line with the site's planned operational hours.

Total Vehicle Trip Generation

7.136 Table 7-7 provides a forecast of the total traffic that could be generated by the proposed development across a typical 10-hour working day.

Table 7-7
Total Traffic Forecast

	Total Vehicles	HGV
Operational Traffic	82	82
Staff Vehicles	10	0
Total Trips	92	82
Total Movements	184	164

7.137 The above summary shows that a total of 92 trips would be generated each day of which 82 would be classified as HGV. This equates to 184 vehicle movements, of which 164 will be classified as HGV.

Trip Distribution/Assignment

7.138 Operational HGV traffic associated with the movement of aggregates or restoration materials would utilise the principal road network remaining on the 'A' classified roads and motorways where possible.

7.139 As set out earlier, the application site is located conveniently within close proximity of the A1(M) at a distance of under 2km, which can be accessed directly via the A1057. The A1(M) then provides links to the wider strategic road network. There may be the occasional export load which travels to a local site in St. Albans, bearing west out of the site access, but it is expected that the vast majority will travel to the east.

7.140 No HGVs would s use Station Road and Smallford Lane to access the A414.

7.141 In order to be robust it has been assumed that 100% of all traffic would be routed to/from the east.

Traffic Profiles

7.142 HGV traffic would operate throughout the working day, scheduled evenly to ensure the site operates efficiently.

7.143 It is proposed that the operational hours of the development would be from 07:00 - 18:00 Monday to Friday, and 07:00 – 13:00 Saturday.

7.144 For robustness, on the basis of a ten hour day, 16 HGV movements (i.e. 8 in and 8 out) would be generated per hour, or one every 3.75 minutes.

7.145 Light vehicle movement patterns would be commensurate with staff shifts, arriving at the start of the working day and leaving as the site shuts.

Construction Traffic

7.146 The level of traffic that the construction phase is anticipated to generate would be well within the level of traffic assessed for the proposal site. Therefore any assessment of the site operation would be more robust than any construction scenario.

Site Access

7.147 A 1.16km internal road would run along the western boundary of the application site and junction with the A1057 forming the Site Access.

Principle of Access Served off an A Class Road

7.148 During the junction design process reference was made to the Hertfordshire County Council Local Transport Plan 3 (LTP3) which sets out the county's main transport policies.

7.149 Paragraph 3.20 provides guidance on Road Hierarchy and Network Development. It states that:

'The county council will maintain and develop a road hierarchy so that traffic is concentrated onto roads appropriate to its journey purpose'.

7.150 The LTP3 would classify the A1057 as a Rural Main Distributor Roads. It defines these roads as:

'…connect the main towns with the Primary Route Network and link neighbouring towns within the PRN grid. Single carriageways will usually be adequate. Main distributor roads consist of those county 'A' roads which do not form part of the Primary Route Network and are identified by the white backed signs'.

7.151 The LTP3 states that the County Council will develop and maintain strategies for roads within the urban and inter urban network that:

'B. In Rural Main Distributor Roads:

- *Discourage through traffic from using rural main distributor roads.*
- *Not allow new access except where special circumstances can be demonstrated'.*

'H. Consider the 'place and movement' function of a road in conjunction with the hierarchy when assessing a highway proposal, whether county council or development promoted'.

7.152 There appears to be no direct equivalent to this policy within the LTP4. There are references to a Network Management Strategy document which is marked as being available from early 2021, but this is currently not available within the public domain. The principle of access off an A class road has therefore been considered on the basis of the LTP3 requirements.

7.153 Whilst the A1057 has 'A' road status, in the proximity of the application site access it is a single carriageway road with pedestrian footways, streetlights, and mean average speeds of 33.4mph westbound and 35.2mph eastbound; many of the characteristics of an area which could be defined as 'place'.

7.154 The proposed operation and its surrounding environment would benefit from direct and dedicated access served off an A Class road.

7.155 Following an initial assessment it was considered that a ghost right turn lane was not required to meet any general design guidelines or address any issues relating to junction capacity or safety. However, a ghost right turn lane facility is now proposed as a precautionary measure in acknowledgement that the access location would be an exception from the County Policy advice.

7.156 The access junction design, as detailed within Section 4 of the Transport Chapter Addendum, was designed with a Ghost Island (ghost right turn lane) facility.

7.157 It was also noted that the application site only has frontage onto the A1057 and the applicant does not control any further land to allow for an alternative access option onto another road.

7.158 As such it was determined that an exceptional case exists.

Proposed Access Design

7.159 Technical guidance provided within DMRB CD123 states that the use of 'simple' priority junctions, in new build situations, is appropriate up to a level of 300 vehicles Annual Average Daily Traffic (AADT) 2-way flow on the minor arm.

7.160 An AADT 2-way flow of 500 vehicles is quoted as being the desirable maximum level of use for an existing junction without upgrading being considered, or where vehicles waiting on the major road to turn right inhibit the through flow and create a hazard.

7.161 On the basis of the above, the arrangement proposed as part of the 2016 submission comprised a simple priority junction.

7.162 However, following discussions with HCC it was advised that a central ghost island arrangement may be preferable to allow for the free flow of traffic, although it was accepted that the volume of traffic may demonstrate that the current arrangement would be acceptable. Notwithstanding, it was advised that having a ghost island would help in demonstrating the exceptional case.

7.163 A Stage 1 Road Safety Audit was undertaken to assist the access design; following the audit, the access design was amended to reflect the recommendations. The Road Safety Audit is included at **Appendix 7/3**.

7.164 Additionally, the design was assessed in terms of operational capacity. The analysis included a sensitivity test which multiplied the proposed site traffic by a multiple of ten. The sensitivity test showed that the junction would still work well within acceptable parameters even when subjected to significantly higher traffic scenarios.

7.165 The proposed site access is included at **Drawing HQ 7/1**. The junction features a ghost right-turn lane with the standard required deceleration taper and turning lengths.

7.166 Junction visibility splays of 4.5m x 120m can be achieved. The envelope of visibility would be cleared and maintained in order to meet the necessary requirements. In addition, new hedgerow planting would be undertaken along the boundary of the quarry on the northern side of the visibility splay to compensate for any loss of hedgerow needed to accommodate the highway works.

7.167 An island has been included which facilitates pedestrian crossing and also prevents overtaking to protect the right turn lane.

7.168 In order to promote sustainable modes of travel, a pick up point layby is proposed at the site access junction. The layby is served by footway and will operate as a hail a ride service whereby colleagues would undertake pick-ups as they pass. Alternatively management could arrange a lift. This would also discourage any pedestrians from walking up the access road conflicting with HGVs.

7.169 A wheel wash facility is also proposed to address any concerns of dust and debris on the highway network.

7.170 The junction will be subject to the Section 278 design procedures. This will include consideration of adequate and appropriate lighting levels at the junction.

7.171 A swept-path analysis has been undertaken which considers the turning requirements of a maximum sized articulated vehicle. The site access design demonstrates that two HGVs can pass without any issues. The swept-path analysis is included at **Drawing HQ 7/2**.

IMPACT OF THE PROPOSALS

7.172 The following section combines the determined existing highway conditions and proposed traffic forecast to assess the likely level of impact that the proposed development would bear on the local highway network.

Safety and Capacity

Suitability of Operational Traffic Route

7.173 The A1057 Hatfield Road is a classified 'A' road which currently accommodates an Annual Average Weekday Traffic (AAWT) flow of over 15,000 vehicles (of all sizes). It has a consistent standard carriageway width suitable for HGV movement and all of the junctions between the site access and the A1(M) are of sufficient size to accommodate large vehicles without any concerns.

7.174 The accident data has been considered in detail and it has been determined that there are no accident patterns that could be attributed to poor highway design. The incidents recorded are as a result of adverse weather conditions or human error, typically poor driver judgement.

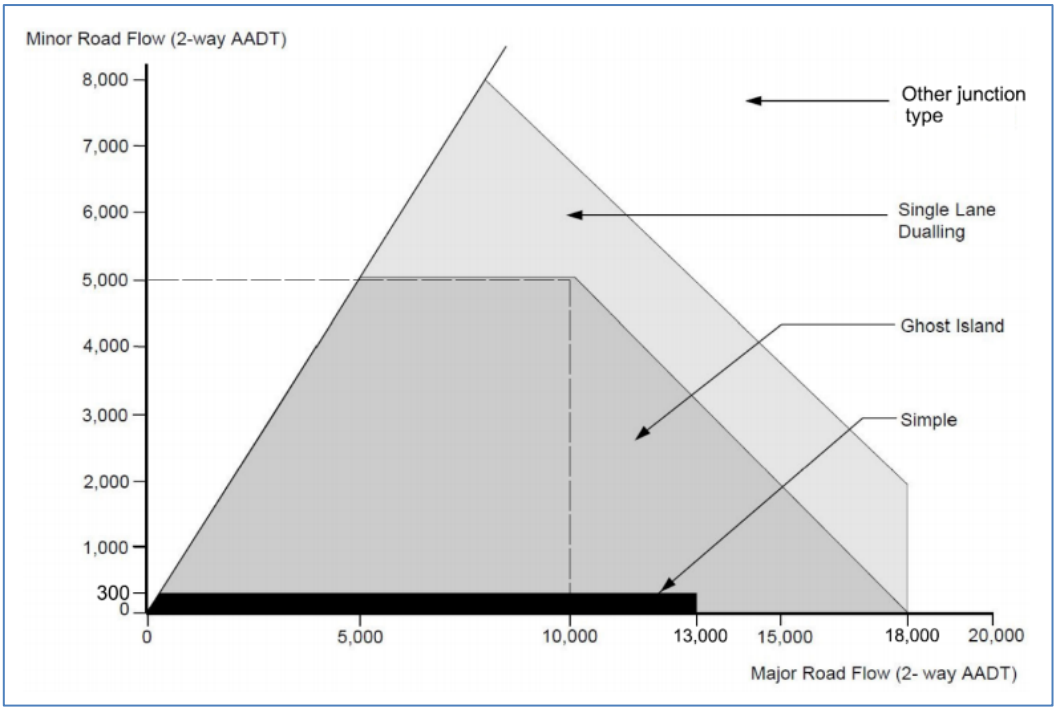
7.175 It is considered that the proposed operational traffic route is suitable for the development proposals would provide access to the county's principal roads, whilst limiting impact to residential areas.

Junction Capacity

7.176 Technical guidance provided within DMRB CD 123 (formerly TD42/95, withdrawn August 2020) provides guidance on the provision of Ghost Island junctions (ghost right-turn lanes) on single carriageway roads based on 2 Way AADT flows.

7.177 Figure 7-16 comprises a reproduction of Figure 2.3.1 'Approximate priority junction provision on single carriageway roads based on flows only', from DMRB CD 123.

Figure 7-16
Figure 2.3.1 from DMRB CD 123



7.178 The diagram above is intended to '*…determine the approximate level of junction provision prior to more detailed traffic modelling to check capacity*'.

7.179 The approximate AADT of the A1057, as recorded by the SLR commissioned ATC equates to 15,420.

7.180 Where the Major Road Flow (in this case, the A1057) experiences an AADT of 15,500, the upper limit on the AADT of the Minor Road Flow (in this case, the Site Access), for a Ghost Island junction to remain appropriate, is approximately 1,600.

7.181 The proposed application is forecast to generate a total of 168 daily vehicle movements, of which 164 would be classified as HGV.

7.182 This level of vehicular traffic across the day would comfortably be accommodated within the proposed access junction arrangements without any capacity concerns.

7.183 Additionally, as part of the access junction design a capacity analysis was undertaken which demonstrated that the junction would still work well within acceptable parameters. This included a sensitivity test which multiplied the proposed site traffic by a multiple of ten.

7.184 The A1057/Oaklands Lane/Station Road roundabout junction has been observed during the weekday peak periods and no congestion occurred. The proposals would not be routeing very much operational traffic to/from a westerly direction and the level of light vehicle traffic would be minimal. Therefore it is deemed that the proposals would not impact the existing operation of this junction.

Environmental Impact

Methodology

7.185 This section assesses the environmental impact associated with the movement of vehicles associated with the development. The assessment refers to guidance provided by the Institute of Environmental Management and Assessment (IEMA) in 'Guidelines for the Environmental Assessment of Road Traffic' (the 'IEMA guidelines').

7.186 The IEMA guidelines provide two broad rules which can be used to determine the need for a full environmental assessment. The rules form a threshold, below which the predicted environmental impact is considered to be insignificant:

- highway links where traffic flows would increase by more than 30% (or where the number of HGVs would increase by more than 30%); or
- in sensitive areas where traffic flows increase by more than 10%.

7.187 Given the determined existing conditions of the local highway network, road classification, lack of sensitive receptors and its lack of accident history, for the purposes of this assessment the links studied are not considered to be sensitive. Based on this, the 30% threshold as defined in the IEMA Guidelines is deemed to apply for assessment purposes.

7.188 If the above thresholds are exceeded then a full environmental impact assessment must be undertaken to determine the level of transport related impact borne of the proposed development. The IEMA guidelines advise that traffic flow variations within +/-10% of baseline levels are indiscernible from the day-to-day fluctuations in traffic flow, creating no material environmental impact. Therefore, increases in traffic of less than 10% are considered to have a negligible impact. Based on the guidance, the following criteria are used to determine the environmental impact of the proposed development:

- noise and vibration – a doubling of traffic flow leads to a 3dB(A) increase in noise level, below which is deemed imperceptible to change receptors;
- dust and dirt – the potential effects arising from dirt and detritus being brought onto the highway, assessment is required where the increase in traffic is above 10%;
- driver severance and delay – capacity assessments are required where traffic levels change by 10% or more, or where the links/junctions experience congestion in the baseline situation;
- community severance and delay – the existing level of community severance is determined and the relative impact of additional traffic assessed based on a sliding scale; and
- vulnerable road users and road safety – assessment is required where the increase in traffic is above 10%.

7.189 Based on the above, the assessment would determine the sensitivity and magnitude of transport related impacts according to the criteria established in Table 7-8 below.

Table 7-8
Transport Impact Criteria

Impact	Sensitivity			Magnitude			
	Low	Medium	High	Negligible	Minor	Moderate	Major
Noise & Vibration	No sensitive receptors	Presence of sensitive receptors	Presence of sensitive receptors adjacent to the road	<99% increase in traffic i.e. a doubling of traffic flow	Quantitative assessment based on predicted increase in traffic against measured baseline		
Dust & Dirt	Limited presence of sensitive receptors	Low to medium presence of sensitive receptors	High presence of sensitive receptors	No off-road vehicle movements /no loose material transport	Qualitative assessment based on type of traffic generated, materials transported and traffic speeds through sensitive areas		
Driver Severance & Delay	Road network not affected	Road network not experiencing congestion at peak times	Road network experiencing congestion at peak times	<10% increase in traffic	Quantitative assessment of road capacity based on existing traffic flows and predicted future traffic levels		
Community Severance & Delay	Moderate to high baseline traffic flows / presence of existing severance	Moderate baseline traffic flows / presence of existing severance	Low baseline traffic flows / no presence of existing severance	<10% increase in traffic	<30% increase in traffic	<60% increase in traffic	>60% increase in traffic
Vulnerable Road Users	N/A	Limited presence of vulnerable road users	Presence of vulnerable road users	<10% increase in traffic	Qualitative assessment of existing provision and future traffic levels		
Road Safety	N/A	No existing safety risk	Existing safety risk	<10% increase in traffic	Quantitative assessment of existing accident records and predicted increases in traffic		

7.190 The sensitivity and magnitude of each impact are combined to determine the significance, from which the need for mitigation can be identified. The significance definitions are detailed in Table 7-9 below. In terms of the EIA Regulations, an 'Moderate/substantial' and 'Substantial' effect are taken as being a 'significant' effect.

Table 7-9
Determination of Impact Significance

Magnitude	Sensitivity		
	Low	Medium	High
Negligible	Negligible	Slight	Slight/Moderate
Minor	Slight	Slight/Moderate	Moderate
Moderate	Slight/Moderate	Moderate	Moderate/Substantial
Major	Moderate	Moderate/Substantial	Substantial

Link Impact

7.191 The A1057 Hatfield Road has been considered in terms of the link impact that would occur as a result of the traffic forecasted for the proposed application.

7.192 All traffic forecasted to be generated by the site has been routed via the A1057 to/from the A1(M).

7.193 Furthermore, despite staff shifts starting before the AM peak period and finishing after the PM peak period all light vehicle trips have been applied to peak periods to ensure a robust link impact assessment.

7.194 Table 7-10 identifies the maximum total and HGV traffic increases on each of the key links over the course of a typical weekday. This is based on the DfT data growthed to a 2023 opening year (localised Tempro growth factor 2018-2023 of 1.034) to reflect the cumulative increase of traffic generated by new and forthcoming development.

Table 7-10
Link Impact

Link	All Vehicles			HGVs		
	2023	Proposed Traffic	% Change	2023	Proposed Traffic	% Change
1	14,061	184	1.3	604	164	27.2
2	15,608		1.2	670		24.5
3	19,454		0.9	1,645		10.0
4	62,637		0.3	4,196		3.9

7.195 The link impact assessment shows that the proposed traffic forecasted would result in a maximum increase of 1.3% on the total existing traffic flow, and a maximum increase of 27.2% on the existing HGV traffic flow.

7.196 This level of increase is within the advisory thresholds classified as 'slight' in terms of significance on the basis that it is a minor increase in an area deemed to have low level of highway sensitivity.

Noise and Vibration

7.197 As stated in the IEMA Guidelines, variation of +/-3dB(A) represents the minimum perceptible change in noise to nearby receptors, which is typically produced by a doubling or halving of traffic flow. As demonstrated within the link impact assessment the proposals would not result in a doubling of background traffic levels.

7.198 As development traffic would not travel outside of the typical operational hours, the assessment of traffic noise during the night-time is not required.

7.199 The above assessment confirms that the proposed development traffic would lead to no perceptible change in noise or vibration along any link within the study area road network during hours of operation. The magnitude of the proposed development impact on noise and vibration would therefore be negligible.

7.200 It should be noted that transport related noise is also addressed in Chapter 10 of this Volume.

Dust and Dirt

7.201 The sensitivity to the impact of dust and dirt is based upon the proximity of sensitive receptors to the roadside. The IEMA Guidelines state that "*…problems with dust and dirt are unlikely to occur at distances greater than 50m from the road*". The site access is not located within 50 metres of any sensitive receptors.

7.202 The IEMA guidelines explain that the impact of dust and dirt will depend, to a large extent, upon the management practices undertaken on site. This includes the washing down of wheels and sheeting of material during transport on the public highway. This assessment determines the level of impact generated by the proposed development under the assumption that no management practices are undertaken.

7.203 The transportation of materials in uncovered containers could lead to dust and dirt impacting the proposed access route network.

7.204 It is expected that, without sufficient mitigation measures, the magnitude of the impact of dust and dirt throughout the study area road network would be high. Appropriate mitigation measures are proposed in order to minimise any impact that is caused in terms of dust and dirt. Such mitigation measures follow best practice guidelines and are routinely used at quarry operations throughout the UK. The effectiveness of the mitigation measures is therefore well understood.

7.205 As noted in the next section, the residual impact in terms of dust and dirt would therefore be slight.

Driver Severance and Delay

7.206 The A1057 Hatfield Road is a classified 'A' road which currently accommodates an Annual Average Weekday Traffic (AAWT) flow of approximately 15,000 comprising mixed size vehicles.

7.207 The link capacity assessment undertaken has demonstrated that the A1057 currently operates within its theoretical capacity and it would continue to do so comfortably with the addition of the proposal traffic.

7.208 The link impact assessment has demonstrated that the maximum likely increase would be 1.3% in terms of total vehicles, which is well within the daily fluctuations in traffic levels experienced and is therefore unlikely to be perceptible away from the site access junction.

7.209 The impact to driver severance and delay would therefore be negligible.

Community Severance and Delay

7.210 The sensitivity of this impact is based upon the presence of communities around the local road network and the existing level of severance due to traffic flow.

7.211 The A1057 Hatfield Road is a classified 'A' road which currently accommodates an Annual Average Weekday Traffic (AAWT) flow of approximately 15,000 comprising mixed size vehicles.

7.212 The link capacity assessment undertaken has demonstrated that the A1057 currently operates within its theoretical capacity and it will continue to do so comfortably with the addition of the proposal traffic.

7.213 The link impact assessment has demonstrated that the likely increase would be 1.3% in terms of total vehicles, which is well within the daily fluctuations in traffic levels experienced.

7.214 Furthermore, adequate pedestrian crossing facilities are provided at the A1057 Hatfield Road. Weight restrictions are also in place along Station Road and Smallford Lane which prevent any detrimental impact caused by HGVs routing through Smallford and Sleapshyde.

7.215 The magnitude of the impact on community severance would therefore be negligible.

Road Safety

7.216 The accident data obtained has been considered in detail and it has been determined that there are no accident patterns that could be attributed to poor highway design. The incidents recorded are as a result of adverse weather conditions or human error, typically poor judgement.

7.217 It is therefore considered that the type and quantity of additional traffic generated by the proposed development would have a negligible impact on the safety of the local road network.

Vulnerable Road Users

7.218 The review of local accident data has also demonstrated that there is currently no safety issue relating to vulnerable road users.

7.219 The link capacity assessment undertaken has demonstrated that the road operates within its theoretical capacity. The link impact assessment has demonstrated that the likely increase would be 1.3% in terms of total vehicles, which is well within the daily fluctuations in traffic levels experienced and is therefore unlikely to be perceptible away from the site access junction.

7.220 The impact to driver vulnerable road users will therefore be negligible.

MITIGATION

7.221 Mitigation measures are proposed to facilitate safe access to the site, whilst also offsetting the potential impact caused by additional HGV traffic on the surrounding road network.

Access Junction Design

7.222 The proposed access junction includes a Ghost Island (ghost right turn lane) to maintain the safe free-flow of through traffic on the A1057. The site operator will ensure that good visibility is maintained at the proposed site access junction i.e. any trees/hedges trimmed.

A Traffic Management Plan

7.223 A Traffic Management Plan (TMP) will be produced and agreed with the local authority in writing prior to the commencement of site operations. The TMP will include:

- HGV Routeing Plan; specify on exiting the site HGVs shall travel eastbound towards Comet Way (A1001);
- Clarification of vehicle booking/scheduling systems;
- Details of wheel washing facilities at the site exit, to prevent the transfer of site material onto the public road network;
- Details of measures to ensure that all loose material transported to/from the site is suitably covered and that HGVs are not overloaded, to minimise the impact of dust resulting from material transport;
- Detail HGV turning arrangements should access not be permitted;
- Details regarding the induction of drivers of all HGV traffic accessing the development, highlighting safety issues and ensuring they follow agreed access routes to and from the site; and
- Specify methods to monitoring, reporting and enforcement of non-compliance.

Site Signage

7.224 It is recognised that too many signs at an entrance have a similar impact to that of clutter, and can often prove difficult to read, therefore becoming counterproductive. Clear and concise signage would be provided at the site entrance which follows Brett's corporate style and provides the following information:

- Site details;
- Incident/issue reporting contact information;
- State when the site is open / closed; and
- Conditions of entry.

7.225 All signs would be kept clean and securely fixed in order to not detract from the overall appearance of the quarry entrance.

RESIDUAL IMPACT

7.226 The sensitivity and magnitude of impacts associated with the additional traffic generated by the proposed development are combined according to the significance definitions provided in Table 7-9 above. Table 7-11 below summarises the significance of each impact pre- and post-mitigation, providing a number of suggested mitigation measures that could be employed to achieve the impact reduction.

Table 7-11
Significance of Traffic Impacts associated with the Proposals

Impact	Pre-Mitigation Significance	Suggested Mitigation	Residual Impact
Noise and Vibration	Negligible	N/A	Negligible
Dust and Dirt	Moderate	• No overloading of HGVs • Wheel washing facilities at site exit • Covering of materials in transit • Monitoring of dust and dirt levels	Slight
Driver Severance and Delay	Negligible	N/A	Negligible
Community Severance and Delay	Negligible	N/A	Negligible
Road Safety	Slight	HGV driver induction	Negligible
Vulnerable Road Users	Negligible	HGV driver induction	Negligible

CONCLUSIONS

7.227 An assessment of the potential impacts on the local transportation network resulting from the proposed development has been undertaken.

7.228 Access would be served off the A1057 by means of a new junction with a Ghost Island (ghost right-turn lane). It is proposed that the operational hours of the development would be from 07:00 - 18:00hrs, Monday to Friday, and 07:00 – 13:00hrs on Saturdays.

7.229 The proposals are forecast to generate up to 184 vehicle movements of which 164 would be classified as HGV. These would be generated evenly throughout the day. HGV traffic would operate throughout the working day, scheduled evenly to ensure the site operates efficiently. For robustness, on the basis of a ten hour day, 16 HGV movements (i.e. 8 in and 8 out) would be generated per hour, or one every 3.75 minutes.

7.230 A detailed audit of the existing highway conditions has been undertaken which includes a review of the local accident history in the proximity of the application site.

7.231 The A1057 provides good links with the A1(M). The A1057 Hatfield Road is a classified 'A' road which currently accommodates an Annual Average Weekday Traffic (AAWT) flow of over 15,000 mixed size vehicles. A review of the most recent 5 years of accident records have not highlighted any incident patterns or concerns.

7.232 The link impact assessment has demonstrated that the likely increase in total traffic levels on the A1057 would be approximately 1.3% in terms of total vehicles, which is well within the daily fluctuations in traffic levels experienced and is therefore unlikely to be perceptible away from the site access junction. The increase in terms of HGV traffic on this link would be under 30%.

7.233 The assessment has also demonstrated that on the wider highway network the impacts of the proposed traffic would be minimal and would not materially impact the operation of the highway network.

7.234 Appropriate mitigation measures are proposed to minimise any impacts of the proposed development relating to road safety and dust and dirt.

7.235 In view of the above, the residual impacts of the operation of the application proposals would be negligible and would not result in an unacceptable impact on road or junction capacity, driver delay, road safety or amenity; by virtue of this, the application proposal is deemed acceptable in traffic and highways terms.