12. **Traffic and Transportation**

<table>
<thead>
<tr>
<th>Potential/ Predicted Significant Environmental Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site preparation and Construction Phase</strong></td>
</tr>
<tr>
<td>• Severance;</td>
</tr>
<tr>
<td>• Driver stress;</td>
</tr>
<tr>
<td>• Pedestrian delay;</td>
</tr>
<tr>
<td>• Pedestrian and cyclist amenity;</td>
</tr>
<tr>
<td>• Fear and intimidation;</td>
</tr>
<tr>
<td>• Accidents and safety;</td>
</tr>
<tr>
<td>• Hazardous and Abnormal load movements.</td>
</tr>
<tr>
<td><strong>Operational Phase</strong></td>
</tr>
<tr>
<td>• Link and junction capacity;</td>
</tr>
<tr>
<td>• Severance;</td>
</tr>
<tr>
<td>• Driver stress;</td>
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<tr>
<td>• Pedestrian delay;</td>
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<tr>
<td>• Pedestrian and cyclist amenity;</td>
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<tr>
<td>• Accidents and safety;</td>
</tr>
<tr>
<td>• Hazardous and Abnormal load movements.</td>
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</tbody>
</table>

**Introduction**

12.1 This Chapter evaluates the likely effects of the Proposed Development on Traffic and Transportation.

12.2 This Chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the Front End of this ES (Chapters 1 - 5), as well as Chapter 18 Cumulative Effects and Interaction of Factors.
12.3 This Chapter should also be read in conjunction with the Transport Assessment (TA) and Framework Travel Plan (FTP) (Planning Reference TP/OPA/DOC/07) reports which are core deliverables supporting the outline planning application. The TA and FTP (Planning Reference TP/OPA/DOC/07) are referred to throughout this Chapter and should be read in conjunction with this Chapter.

**Methodology**

12.4 This Chapter of the Environmental Statement (ES) has been prepared in line with guidance specified in the Institute of Environmental Management and Assessment (IEMA) guidelines entitled ‘Guidance for Environmental Assessment of Road Traffic’ (2003) (Ref. 12.1) and the Design Manual for Roads and Bridges (DMRB) (Ref. 12.2).

12.5 This Chapter is dependent upon the findings of the TA and TP (Planning Reference TP/OPA/DOC/07A) which have been prepared in line with the Department for Transport’s (DfT’s) ‘Guidance on Transport Assessment’ (2007) (Ref 12.3).

12.6 WSP have agreed the extents of the highway study area and the subsequent scope of assessment with Nottinghamshire County Council (NCC), Nottingham City Council (NCiC) and the Highways Agency (HA). It is intended that the ES Traffic and Transportation Assessment uses the agreed TA (Planning Reference TP/OPA/DOC/07) study area as this area is considered to be that over which changes in traffic flow volume and composition as a result of the Proposed Development are forecast to be at their greatest.

12.7 The effect of the Proposed Development will be considered by comparing a future year forecast base scenario with the future year base + development scenario.

12.8 The following broad criteria, taken from the IEMA’s Guidelines (Ref. 12.1) are suggested to delimit the scale and extent of traffic assessment in EIA. Any highway links which fall outside of the two rules listed below are not required to be assessed within the EIA:

- Rule 1: Include in the EIA highway links where traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%); and
- Rule 2: Include in the EIA any other especially sensitive areas where traffic flows will increase by 10% or more.
12.9 There are not considered to be any especially sensitive areas on the highway network immediately surrounding the Site, and hence the highway study area.

12.10 Given the residential nature of the Proposed Development, it is not considered that they will generate significant numbers of HGV movements during the operational phase. Accordingly it is not considered that the introduction of the Proposed Development will result in significant changes in terms of HGV numbers or proportions on the area of highway network considered.

12.11 For those highway links which are forecast to experience changes in traffic flow volume or composition greater than the thresholds specified by IEMA (Ref. 12.1), this Chapter includes a formal assessment of the effects of these changes in relation to the following environmental effects:

- Severance;
- Driver stress;
- Driver delay;
- Pedestrian delay;
- Pedestrian and cyclist amenity;
- Fear and Intimidation;
- Accidents and safety; and
- Hazardous loads.

12.12 In each case the receptor is identified as highway users (i.e. pedestrians, cyclists, motorists etc.). On this basis, and given that the receptor is people, it is considered that the receptor will be sensitive to changes in traffic flow as a result of the Proposed Development. The receptor is therefore deemed to be of high sensitivity for the purposes of this assessment.

12.13 The significance of changes in traffic flow volume on receptors for each of the environmental effects listed above have been considered in relation to the significance matrix summarised in Table 12.1 below.
Table 12.1 Matrix of Significance for the Consideration of Environmental Effects

<table>
<thead>
<tr>
<th>Magnitude of Change /effect</th>
<th>Sensitivity of receptor/receiving environment to change/effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>High</td>
<td>Major</td>
</tr>
<tr>
<td>Medium</td>
<td>Moderate to Major</td>
</tr>
<tr>
<td>Low</td>
<td>Minor to Moderate</td>
</tr>
<tr>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

12.14 This analysis has been informed by the following data:

- Traffic count data;
- Site observations;
- Personal Injury Accident data; and
- Traffic and Transportation information from Committed Developments.

12.15 A description of the data is included below.

Traffic Count Data

12.16 WSP commissioned Nationwide Data Collection, an independent traffic survey company, to undertake traffic surveys at ten junctions in Nuthall and the surrounding areas. The surveys were undertaken on Wednesday 20 July 2011 between 07:00 and 10:00 hours and between 16:00 and 19:00 hours. It was agreed with the local highway authority that the date on which the surveys were undertaken was acceptable. The surveys were undertaken at the following junctions:

- Woodhouse Way/Mornington Crescent signal controlled junction (i.e. three arm junction);
- A6002 Woodhouse Way/Mornington Crescent priority junction;
- A6002 Woodhouse Way/Lawrence Drive/Nottingham Business Park roundabout;
- A6002 Woodhouse Way/B6004 Strelley Road/A6002 Bilborough Road signal controlled junction;
• B6004 Broxtowe Lane/B690 Aspley Lane/Beechdale Road/B6004 Strelley Road roundabout;
• B6010 Nottingham Road/A610 On/Off slips/A6096 Gin Close Way partially signal controlled roundabout;
• M1 Junction 26 On/Off slips/A610 signal controlled roundabout;
• B600 Nottingham Road/A6002 Low Woods Road/A610/A6002 Woodhouse Way signal controlled roundabout;
• Millennium Way (Park and Ride)/A610 signal controlled junction; and
• Cinderhill Road/A610/B6008 Bells Lane partially signal controlled roundabout.

12.17 Automatic Traffic Count (ATC) data was obtained from Nottinghamshire County Council (NCC) for the link between the proposed site accesses on A6002 Woodhouse Way.

12.18 Data from the TRADS (Highways Agency) website for the month of November 2011 was used for the following links/ TRADS link references:
• M1 between Junctions 25 and 26 (30031860 & 30031861)
• M1 between Junctions 26 and 27 (30031780 & 30031783)

12.19 Annual Average Daily Traffic (AADT) Data from the DfT website for 2011 was used for the following links:
• A609 Nottingham Road
• A6007 Ilkeston Road

12.20 Traffic generation data from the TA (Planning Reference TP/OPA/DOC/07A) was used for the following links:
• Site Access (N)
• Site Access (S)

12.21 Traffic data was growthed to different years using TEMPRO v6.2 and adjusted by the National Transport Model (NTM) AF09 dataset. 2038 factors were not adjusted using NTM as the NTM dataset does not span this far.

12.22 Those links obtained from AM and PM peak hour traffic count data have been factored to AADT and Average Annual Weekday Traffic (AAWT) values using an
Automatic Traffic Count (ATC) undertaken on Woodhouse Way. It has been assumed that 8hr (23:00 to 07:00) traffic flow is 10% of AM peak hour flow.

12.23 Speeds are recorded in mph and are based on the posted speed limit. Where more than one speed is listed, the speed limit varies along the link.

Site Observation Data

12.24 WSP have undertaken various site visits, including a visit on Thursday 15 September 2011 which comprised observations of the highway network surrounding the proposed site during the AM peak period of 07:30 to 10:30 hours. This site visit also included assessment of existing sustainable transport infrastructure and timetabling information relative to the Site.

Personal Accident Injury (PIA) Data

12.25 Personal Accident Injury (PIA) data was obtained from Nottinghamshire County council and Nottingham City Council. The data covered the agreed study area for the latest five year period available.

Committed Developments

12.26 This analysis considers a number of committed planned developments in the area surrounded the Site. The list of committed developments was outlined during scoping discussions with Broxtowe Borough Council and are as follows:

- 08/00162/FUL - Construct Hotel and Associated Car Parking;
- 07/00516/OUT - Mushroom Farm Mansfield Road Eastwood;
- 12/00539/FUL - 125 dwellings on Land Adjacent to Hempshill Hall; and
- 12/00644/OUT - Proposed sports village.

12.27 The scale of the hotel development falls below the threshold for formal transport assessment outlined in ‘Guidance on Transport Assessment’ (2007) (Ref. 12.3). Therefore any potential effects in traffic and transportation terms are incorporated in background traffic growth factors.

12.28 The location of the mushroom farm development is outside of the agreed TA study area. Therefore any potential effects in traffic and transportation terms are incorporated in background traffic growth factors.
The residential development and sports village are pending consideration and are therefore not considered as committed developments in traffic and transportation assessments.

In summary, the method of forecasting future year traffic flows has incorporated the cumulative effects of the committed developments within this assessment.

**Legislation / Policy Framework**

The following planning policy documents have been considered in relation to the Proposed Development:

- Nottinghamshire Third Local Transport Plan (2012) *(Ref. 12.5)*.
- The Greater Nottingham Aligned City Core Strategy (ACS) (2012) *(Ref. 12.6)*; and
- The Broxtowe Local Plan (2005) *(Ref. 12.7)*;

### National Planning Policy Framework (March, 2012)

The National Planning Policy Framework (NPPF) *(Ref. 12.4)* was published on 27th March 2012 to streamline the national planning policies set out in previous Planning Policy Guidance Notes (PPGs), Planning Policy Statements (PPSs), Minerals Policy Statements and Minerals Policy Guidance Notes, plus a number of related circulars. These are combined into a single document to make the planning system less complex and more accessible, whilst protecting the environment and promoting sustainable growth.

The NPPF sets out the Government’s planning policies for England and how these are expected to be applied. It lays down the Government’s requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It states that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment, alongside a Travel Plan.

The purpose of the planning system is to contribute to the achievement of sustainable development in three mutually dependent dimensions: economic, social and environmental. This is building a strong, responsive and competitive economy, supporting strong, vibrant and healthy communities and protecting and enhancing our natural, built and historic environment.
12.35 Seeking the improvement of people’s quality of life is also involved in sustainable development, including, amongst others, improving the conditions in which people live, work, travel and take leisure.

12.36 It is recognised that transport policies have an important role to play in facilitating sustainable development, but also in contributing to wider sustainability and health objectives.

12.37 There is a presumption in favour of sustainable development in the NPPF, whereby Local Plans meeting assessed needs should be approved without delay, and granted permission where a "local plan is absent, silent or relevant policies are out of date". Decision taking should be done positively to deliver sustainable development.

12.38 Significantly, according to the NPPF, development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe. The effect of the Proposed Development is assessed in detail in this Chapter and in the TA (Planning Reference TP/OPA/DOC/07A).

Nottinghamshire Third Local Transport Plan (LTP3) (2012)

12.39 The Third Nottinghamshire Local Transport Plan (LTP3) (Ref. 12.5) was published in April 2012. LTP3 details the transport strategy for the whole of the county of Nottinghamshire for the fifteen year period 1 April 2011 to 31 March 2026.

12.40 The LTP3 transport goals are to:

- Provide a reliable, resilient transport system which supports a thriving economy and growth whilst encouraging sustainable and healthy travel;
- Improve access to key services, particularly enabling employment and training opportunities, and
- Minimise the impacts of transport on people’s lives, maximise opportunities to improve the environment and help tackle carbon emissions.

12.41 These goals are underpinned by 12 local transport objectives which identify how transport in the county will help support economic growth; protect the environment; improve health and safety; improve accessibility; and maintain and improve existing infrastructure.
Greater Nottingham Aligned Core Strategy (ACS) (June 2012)

12.42 Broxtowe Borough Council, Gedling Borough Council and Nottingham City Council have jointly prepared an Aligned Core Strategy (Ref. 12.6) to guide development for the next 15 years. The ACS contains policies to protect the environment whilst dealing with demand for new homes, jobs, roads, schools, shops and other facilities. It also contains a list of saved policies from the Broxtowe Local Plan (2004).

12.43 Policy 14 on the ACS relates to Managing travel demand and states that: ‘The need to travel, especially by private car, will be reduced by securing new developments of appropriate scale in the most accessible locations following the Spatial Strategy in Policy 2, in combination with the delivery of sustainable transport networks to serve these developments’.

12.44 A hierarchical approach is adopted in the ACS to ensure delivery of sustainable transport networks to serve Sustainable Urban Extensions. Additionally, the ACS notes that Travel Plans will be required for significant new developments. The development proposals will be supported by a FTP (Planning Reference TP/OPA/DOC/07B).

Broxtowe Local Plan (2004)

12.45 The Broxtowe Local Plan (Ref. 12.7) was adopted in September 2004 and was the main reference document for forward planning in the Borough up to 2011. It contains a number of policies which have been saved until they are replaced by new Development Plan Documents which will be introduced in the Local Development Framework.

12.46 Chapter 6 of the Local Plan relates to Transport. Policies relating to pedestrian and cycle facilities have been replaced by policies in the ACS. However, Policy T1 relating to contributions to transport infrastructure and Policy T11 which provides guidance for Parking Provision have been saved.

Existing Baseline Conditions

Existing Highway Network and Site Access

12.47 The Site is located to the north-west of Nottingham. To the west the Site is bounded by the M1, of which Junction 26 lies to the north-west. To the north of the Site lies the A610 which provides a major arterial route into Nottingham. To the east the Site is
bounded by the A6002 Woodhouse Way which runs north to south through Broxtowe Borough. To the south of the Site lies the Nottingham Business Park and Nottingham Belfry Hotel. Within the vicinity of the Proposed Development the A6002 Woodhouse Way is subject to the national speed limit of 60mph. The speed limit is lowered to 40mph to the north of the Nottingham Business Park roundabout.

12.48 At present the Proposed Development does not have a formal site access junction and access to the fields is taken through two gates located on the A6002 Woodhouse Way and one gate located on the A610.

**Existing Walking Facilities**

12.49 There are currently footways throughout the local highway network including along the A6002 Woodhouse Way which are along the eastern side of the carriageway. There are also footways alongside the carriageway on local roads within the residential areas to the east of the A6002 Woodhouse Way. There are a number of ‘shortcuts’ through the residential area which pedestrians can utilise which provide shorter routes than those taken by car.

12.50 There are pedestrian and cycle crossings at the following locations within close proximity of the Site and these are illustrated in the TA *(Planning Reference TP/OPA/DOC/07A)*:

- Toucan crossing (for both pedestrian and cyclist use) on Mornington Crescent at the junction formed with the A6002 Woodhouse Way;
- Toucan crossing on the A6002 Woodhouse Way south of the roundabout formed with the Nottingham Business Park access;
- Toucan crossing on the A6002 Woodhouse Way north of the roundabout formed with the Nottingham Business Park access;
- Toucan crossing on the A610 (E) arm of the A610/Woodhouse Way/Low Wood Road roundabout;
- Pelican crossing on the Low Wood Road arm of the A610/Woodhouse Way/Low Wood Road roundabout;
- Pelican crossing on the A610 at the signal controlled junction formed with the access to Phoenix Park;
- Pedestrian refuge with dropped kerbs and tactile paving on Nottingham Road near the junction formed with the A610; and
• Pedestrian refuge with dropped kerbs and tactile paving on the B600 Nottingham Road north west of the A610/Woodhouse Way/Low Wood Road roundabout.

12.51 To conclude, the local pedestrian routes are wide and well lit.

12.52 In addition to footways running along the carriageway on local roads, there is a public footpath running to the south of the Site on the A6002 Woodhouse Way which links into Nottingham Business Park and onto the A6002 Woodhouse Way adjacent to the toucan crossing to the north of the the A6002 Woodhouse Way/Nottingham Business Park roundabout.

12.53 In order to ascertain the distance that can be covered on foot from the Site, walking isochrones have been plotted for 5, 10 and 15 minute journey times using Geographic Information Systems (GIS) software. The distances measured are taken along the road network and therefore represent actual walking distances rather than distances as the crow flies. The walking isochrone is included in the TA (Planning Reference TP/OPA/DOC/07A).

12.54 It is possible to walk to a variety of local amenities and local public transport stops within a 15 minute journey time from the site access points.

**Existing Cycling Facilities**

12.55 The cycle map produced by NCiC (Ref. 12.11) for the area to the north of the city centre has been used to ascertain local cycle routes. These routes were verified during site observations. The local roads of Mornington Crescent, Roland Avenue, Drummond Road and Horsendale Avenue are all classified as ‘recommended road for cycling’ on the NCiC cycle map.

12.56 In addition, there is an off-road section of cycle route linking Mornington Crescent to Temple Drive, thus shortening the route for those travelling between the Site and the A610 and a similar route is provided through Broxtowe Park. There are a number of ‘shortcuts’ through the residential area to the east of the Site which are for those on foot and on bicycle which provide shorter journeys than travelling by car.

12.57 There is an off-road cycle route running parallel to the carriageway on the A6002 Woodhouse Way fronting the Site which runs as far as the footpath link to the south of the Nottingham Business Park access roundabout and north beyond the A610/Woodhouse Way/Low Woods Road roundabout onto Low Woods Road.
There is an on-road cycle lane on Nottingham Road, providing access towards the Phoenix Park Nottingham Express Transit (NET) station where there is cycle parking and cycle lockers for those wishing to cycle to the station.

To aid cyclists crossing busy routes, there are various conveniently placed toucan crossings as detailed in the previous section (Paragraph 12.50 above). Cycle facilities are illustrated in the appended TA.

In order to ascertain the distance which can be covered by bicycle from the site, cycling isochrones have been plotted for 5, 10 and 15 minute journey times by bicycle using GIS software. The distances measured are taken along the road network and therefore represent actual cycling distances rather than distances as the crow flies. The cycling isochrone is included in the TA (Planning Reference TP/OPA/DOC/07A).

It is possible to cycle to a variety of local amenities within five minutes. Within 10 minutes, it is possible to reach Phoenix Park NET Station and within 15 minutes it is possible to reach Bulwell Railway Station and Kimberley.

**Existing Public Transport Facilities**

An audit of the current level of public transport accessibility has been carried out and is detailed below:

**Bus Services**

The nearest existing bus stops are located on Mornington Crescent, approximately 250m from the Mornington Crescent / Woodhouse Way northern junction, and are served by route 33. A summary of this bus route is given in the TA (Planning Reference TP/OPA/DOC/07A).

Bus route 33 provides a link to Phoenix Park NET park and rail station which is approximately 2.2km from the site. This provides the opportunity for those travelling to Nottingham City Centre and other destinations on the NET route to travel by sustainable modes.

Additionally, the W3 bus service runs from Nottingham City Centre to Nottingham Business Park in the AM peak period, and from Nottingham Business Park to Nottingham City Centre in the PM peak period. A summary of this bus service is given in the TA (Planning Reference TP/OPA/DOC/07A).
Nottingham Express Transit (NET) Services

12.66 The nearest NET station is Phoenix Park and is located approximately 2.2km from the Site. The station is a park and ride site and provides parking for over 650 vehicles. Parking is free for those using the park and ride facilities and tram fares start at £1.90 for an off-peak single ticket rising to £2.50 for a peak single ticket. Daily tickets can be purchased for £3.50 and weekly season tickets can be purchased for £15.00.

12.67 The station is on the Phoenix Park to Station Street line serving Highbury Vale, Wilkinson Street, The Forest, Nottingham Trent University and City Centre stops. A summary of the frequency and journey times of services is provided in the TA (Planning Reference TP/OPA/DOC/07A).

12.68 The NET provides a frequent and reliable service into Nottingham City Centre taking less than half an hour.

12.69 In addition, construction of NET Phase Two is planned to be open to the public in late 2014. This will provide two new routes (serving the south and south-west of Nottingham), together with updating the ticketing processes and depot facilities on the existing line between the City Centre and Hucknall.

Rail Services

12.70 The nearest railway station is Bulwell Railway Station and is located approximately 3.8km from the Site. The station is managed by East Midlands Trains and is an unstaffed station with limited facilities. The station has a 70 space car park for the use of those boarding rail services at the station.

12.71 Bulwell Railway Station lies on the Nottingham to Mansfield railway line and provides hourly services in each direction. A summary of the typical journey times to various destinations for rail services serving this station is provided the TA (Planning Reference TP/OPA/DOC/07A).

Predicted Effects

Site Preparation and Construction Phase

12.72 At the present outline planning stage, detailed information regarding construction methodology for the Proposed Development, specific activities and traffic movements is not available. In order to produce a robust assessment of the likely...
effect of the construction phase, estimated traffic volumes have been calculated based upon scheme experience in other UK locations.

12.73 The forecast volume of construction traffic has been calculated based upon the most up to date information available from the Applicant. The forecast volume of construction traffic has been calculated based upon the following quantum of land use/material volumes:

- Construction of up to 555 dwellings;
- A Retirement Village of 90 nurse care beds, 28 independent living apartments and 37 independent living cottages;
- 1 Single form of entry Primary School;
- Construction of up to 1,700 m² neighbourhood centre land uses;
- Construction of 950 m length link road (excluding minor access roads as the location of these are indicative only at this stage); and
- No import or export of materials associated with earthworks, demolition or remediation works.

12.74 Whilst it is appreciated that the Proposed Development will comprise a number of infrastructure elements, due the outline status of this Planning Application it is impossible at this stage to accurately account for all anticipated material requirements for a scheme of this size and nature until more detailed design work has taken place. Therefore, a first principles approach will be taken in order to provide forecast estimates of construction traffic for those scheme elements defined above.

12.75 It should be noted that the programme of construction is forecast to last for a duration of approximately seven years commencing in around 2014, planning permission permitting, and ending around 2022. All construction traffic calculations are summarised in Appendix 12.1.

12.76 Appendix 12.1 includes the anticipated construction timetable and indicates the quantum of development or construction activity per annum. It should be noted that the construction timeline will be largely determined by market conditions and may change following commencement. The details contained therefore only provide an indication of the activities and timing during the site preparation and construction phase.
Using values based upon previous construction traffic assessments, the number of construction vehicle trips that would be generated by the Proposed Development has been calculated. For a robust assessment, it has been assumed that the retirement village aspect has comparable construction trip rates to the other dwellings. A summary of the total construction vehicle trip rates (which include an aspect of road construction) is set out in Table 12.2, below.

<table>
<thead>
<tr>
<th>Land Use/Infrastructure</th>
<th>Unit</th>
<th>One-Way Construction Vehicle Trip Rate</th>
<th>Two-Way Construction Vehicle Trip Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Road</td>
<td>Linear metre*</td>
<td>0.62</td>
<td>1.24</td>
</tr>
<tr>
<td>Residential</td>
<td>Unit</td>
<td>10.6</td>
<td>21.2</td>
</tr>
<tr>
<td>Education</td>
<td>m²</td>
<td>50.4</td>
<td>100.8</td>
</tr>
<tr>
<td>Neighbourhood Centre</td>
<td>m²</td>
<td>7.1</td>
<td>14.2</td>
</tr>
</tbody>
</table>

* Assuming a link road with 7.3m wide carriageway, a single 2.0m wide footway and 3.0m wide footway/cycleway.

A trip rate of 1.24 trips per linear metre has been calculated for the link road assuming a 7.3m wide carriageway, a single 2m wide footway and a 3m wide shared foot/cycleway. The trip rates assume standard construction techniques and details and that a tipper truck is capable of carrying 10m³ materials.

Appendix 12.1 provides a summary of HGV trips by activity and year. In summary, during the predicted busiest year of 2019/20, 3,040 two-way trips are calculated to occur.

Therefore, the forecast volume of two-way construction trips per week and per day has been calculated assuming a 50 week working year, five day working week and eight hour working day. This equates to 61 two-way construction trips per week, 12 per day and two per hour when construction activity is forecast to be at its heaviest. This volume of construction traffic is not considered to be significant when considered in these terms.
12.81 Routes for HGV construction traffic is yet to be finalised at this stage. It is usual best practice to route construction traffic via more strategic highway links rather than through more sensitive residential areas. It is therefore likely that site preparation and construction traffic will arrive and depart from the Site via the M1 using the A610 and the A6002 Woodhouse Way.

12.82 The calculated daily volume of HGV construction traffic has therefore been considered in relation to calculated 18 hour AAWT volumes on links to and from the M1 via the A610 and the A6002 Woodhouse Way.

12.83 This assessment time period has been selected considering that this analysis assumes movements will be outside of the AM and PM peak hour periods and weekends. The analysis is summarised in Appendix 12.1 and concludes that the percentage change in terms of HGV numbers on the links on which HGV traffic would route is well below the 30% threshold specified by IEMA (Ref. 12.1) for formal assessment.

12.84 The number of construction workforce trips has been determined using values based upon previous construction traffic assessments. The calculated AM Peak hour of construction workforce traffic has therefore been considered in relation to calculated AM Peak hour volumes on links to and from the M1 via the A610 and the A6002 Woodhouse Way.

12.85 The analysis is summarised in Appendix 12.1 and concludes that the percentage change in terms of vehicle numbers on the links on which construction workforce traffic would route is well below the 30% threshold specified by IEMA (Ref. 12.1) for formal assessment.

12.86 The sensitivity of highway users including pedestrians and cyclists is high and the magnitude of change is predicted to be negligible on all roads within the assessment. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users (including pedestrians and cyclists) of negligible significance prior to the implementation of mitigation measures.

**Severance**

12.87 Due to the length of the construction period over a number of years, the addition of construction traffic on the local highway network during the site preparation and construction phase is not expected to result in a sufficient increase in AADT flows to cause a significant change in severance levels.
12.88 The sensitivity of highway users including pedestrians and cyclists is high and the magnitude of change is predicted to be negligible on all roads within the assessment. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users (including pedestrians and cyclists) of negligible significance prior to the implementation of mitigation measures.

Driver Stress and Delay

12.89 The calculations used to derive driver stress and delays are based on guidance in DMRB (Volume 11, Section 3, Part 9-Vehicle Travellers) (Ref. 12.2). The calculations are affected by both the volume of traffic and the composition. As such, the addition of HGVs and non-HGV traffic onto the local highway network as a result of the site preparation and construction phase may have a direct bearing on the level of driver stress and delay but any effect will be temporary in nature.

12.90 The addition of site preparation and construction traffic is not expected to cause a change in flow and composition sufficient to cause an increase in the driver stress threshold level. The sensitivity of highway users including motorists is high. The magnitude of change is predicted to be negligible. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users (including motorists) of negligible significance prior to the implementation of mitigation measures.

Pedestrian Delay

12.91 The expected increase in traffic flows due to HGV and construction traffic movements is not likely to lead to any significant increase in pedestrian delay since the additional traffic movements are likely to be spread throughout the site preparation and construction phase and on a day-to-day basis spread throughout the course of the day.

12.92 The sensitivity of highway users including pedestrians is high and the magnitude of change is forecast to be negligible on all roads within the assessment. The changes in traffic flow and composition due to the site preparation and construction phase will be temporary and restricted to the agreed hours of operation only. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users (including pedestrians and cyclists) of negligible significance prior to the implementation of mitigation measures.
Pedestrian and Cyclist Amenity

12.93 The addition of site preparation and construction traffic onto the local highway network and the subsequent associated increase in HGV movement could potentially cause pedestrians and cyclists to become more hesitant in using pedestrian facilities.

12.94 The sensitivity of highway users including pedestrian and cyclists is high. Due to the relatively low numbers of HGVs forecast as part of the construction phase, the magnitude of change across the study area is forecast to be negligible on all roads within the assessment area. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users including pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

Fear and Intimidation

12.95 The level of fear and intimidation is generally determined by traffic flow and composition and the degree of pedestrian amenity and protection. Traffic generated during the site preparation and construction phase of the Proposed Development is likely to include a significant degree of HGV movements (although relatively low when compared to background levels); and the actual magnitude of construction traffic on individual links will vary.

12.96 It is considered that the level of fear and intimidation may increase, however the HGV movements would be restricted to certain roads and therefore not all of the local highway network would experience an increased level of fear and intimidation.

12.97 The sensitivity of highway users including pedestrians and cyclists is high. The magnitude of change is forecast to be negligible on all roads within the assessment. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users including pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

Accidents and Safety

12.98 Due to the planning application being outline in nature, a formal analysis and forecast of the possible PIAs occurring during the site preparation and construction phase has not been undertaken at this stage as the exact construction details of the Proposed Development are not yet known.

12.99 In addition, site preparation and construction traffic is likely be limited to strategic roads as much as practicable.
12.100 The sensitivity of highway users including motorists, pedestrians and cyclists is high. The magnitude of change is forecast to be negligible across the local highway network. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Hazardous and Abnormal Load Movement**

12.101 The site preparation and construction phase of the Proposed Development is likely to use typical methods and materials and therefore it is unlikely that there will be any movements of abnormal or hazardous loads. Therefore, there is likely to be a direct, temporary, medium-term effect on highway users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Operational Phase**

12.102 This section assesses the likely environmental effects of transport related to the operational phase of the Proposed Development. This assessment is based upon a comparison of traffic conditions assuming full build-out of the Site in 2023 in relation to a forecast 2023 base case scenario.

12.103 The following broad criteria, taken from the IEMA’s Guidelines (Ref. 12.1) are suggested to delimit the scale and extent of traffic assessment in EIA. Any highway links which fall outside of the two rules listed below are not required to be assessed within the EIA:

- Rule 1: Include in the EIA highway links where traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%); and
- Rule 2: Include in the EIA any other especially sensitive areas where traffic flows will increase by 10% or more.

**Link Flows**

12.104 An assessment of the road links upon which traffic flows are forecast to change by 30% or more has been undertaken using 2023 Base traffic flows and 2023 Base + Development traffic flows. This assessment compares two-way link flows in the AM Peak hour, PM peak hour, 18 hour AAWT and 24 hour AADT flows. As set out previously, it is considered that the receptor, i.e. people, will be sensitive to change, and therefore any link with greater than a 10% effect will also be considered.
12.105 The link flow analysis is included in Appendix 12.2. Those road links where traffic flows are forecast to increase by 10% during one or more of the time periods considered are summarised in Appendix 12.2.

12.106 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore there is likely to be a direct, permanent, long-term effect on highway users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Severance**

12.107 Severance is defined in the DMRB (Ref 12.2) as: “...the separation of residents/site users from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows.”

12.108 Several factors are considered in determining the existing level of severance. These include road width, traffic flow and composition, traffic speeds and the availability of pedestrian crossing facilities.

12.109 The DMRB (Ref. 12.2) provides a set of measures for the identification of community severance and offers guidance as to the level of pedestrian diversion that may follow in terms of the two-way AADT of a link. Table 12.3 below outlines the thresholds of community severance as prescribed by the DMRB.

<table>
<thead>
<tr>
<th>Severance Level</th>
<th>Two-Way Traffic Flow (AADT)</th>
<th>Diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight</td>
<td>&lt;8,000</td>
<td>&lt;250m</td>
</tr>
<tr>
<td>Moderate</td>
<td>8-16,000</td>
<td>250-500m</td>
</tr>
<tr>
<td>Significant</td>
<td>&gt;16,000</td>
<td>&gt;500m</td>
</tr>
</tbody>
</table>

12.110 An analysis of the change in levels of severance between the 2023 Base and Base + Development scenarios is included in Appendix 12.3
The severance levels in the 2023 Base scenario do not change in the 2023 Base + Development scenario, although there is an increase in traffic flows between the two scenarios.

The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore there is likely to be a direct, permanent, long-term effect on highway users including pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Driver Stress and Delay**

Driver stress, as outlined in the DMRB *(Ref 12.2)*, has three principal elements: frustration, fear of potential accidents, and uncertainty relating to the route being followed. The weight of these factors varies depending on the driver. For example, those who drive for commuting purposes will often have a higher stress threshold due to their experience and knowledge of a route compared to those who may only drive occasionally for leisure or personal purposes.

The DMRB *(Ref 12.2)* outlines the thresholds of traffic flow and average journey speeds at which driver stress is perceived to change. These thresholds are summarised for single carriageway roads in **Table 12.4**.

**Table 12.4: Driver Stress Thresholds**

<table>
<thead>
<tr>
<th>Average Peak Hourly Flow per Lane (Units)</th>
<th>Average Journey Speed (KPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;50</td>
</tr>
<tr>
<td>&lt;600</td>
<td>High</td>
</tr>
<tr>
<td>600 - 800</td>
<td>High</td>
</tr>
<tr>
<td>&gt;800</td>
<td>High</td>
</tr>
</tbody>
</table>

The evaluation of driver stress and delay has been considered using the methodology described in the DMRB *(Ref. 12.2)*. Traffic data from both the AM and PM peak hour periods have been used to inform this analysis. All calculations are included in **Appendix 12.4**.
12.116 The threshold levels of driver stress thresholds for each link in the 2023 Base scenario do not change in the 2023 Base + Development scenario, although there is an increase in traffic flows between the two scenarios.

12.117 The sensitivity of the receptor (highway users including motorists) is high and the magnitude of change is negligible. Therefore there is likely to be a direct, permanent, long-term effect on highway users including motorists of negligible significance prior to the implementation of mitigation measures.

**Pedestrian Delay**

12.118 Increases in traffic levels as a consequence of a development are potentially likely to lead to a greater delay to pedestrians wishing to cross roads at uncontrolled crossing points. The degree of pedestrian delay is therefore considered to be correlative with the assessment of severance. The changes in traffic flows resulting from the Proposed Development are illustrated in Appendix 12.2. On the links considered in this section, it can be seen that traffic flows do increase with the inclusion of the proposed development. However, it is proposed to implement pedestrian crossing points at key locations to aid pedestrians.

12.119 The sensitivity of the receptor (highway users including pedestrians) is high and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term effect on highway users including pedestrians of negligible significance prior to the implementation of mitigation measures.

**Pedestrian and Cyclist Amenity**

12.120 Pedestrian and cyclist amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition, pavement widths and their separation from traffic. This environmental effect is considered to be a broad assessment category which also encompasses fear, intimidation and exposure to noise and air pollution. A tentative threshold for judging the significance of changes in pedestrian and cyclist amenity is described as instances where total traffic flow or its HGV component halves or doubles.

12.121 This criterion does not apply to any of the links considered, apart from those links which are new (i.e. the Proposed Development roads). These links will be designed to cater for the level of vehicular demand and anticipated pedestrian and cyclist activity.
The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term effect on highways users including pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Fear and Intimidation**

IEMA (Ref. 12.1) suggest the use of degree of hazard thresholds as set out in Table 12.5 in order to assess fear and intimidation in the first instance.

<table>
<thead>
<tr>
<th>Degree of Hazard</th>
<th>Average traffic flow over 18 hour day (vehicle/hour)</th>
<th>Total 18 hour HGV flow</th>
<th>Average speed over 18 hour day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme</td>
<td>1800+</td>
<td>3000+</td>
<td>20+</td>
</tr>
<tr>
<td>Great</td>
<td>1200 - 1800</td>
<td>2000 - 3000</td>
<td>15 - 20</td>
</tr>
<tr>
<td>Moderate</td>
<td>600 - 1200</td>
<td>1000 - 2000</td>
<td>10 - 15</td>
</tr>
</tbody>
</table>

The fear and intimidation levels for each link in the 2023 Base scenario do not change in the 2023 Base + Development scenario, although there is an increase in traffic flows between the two scenarios. All calculations are included in Appendix 12.5.

The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term effect on highway users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Accidents and Safety**

The IEMA guidelines (Ref. 12.1) state that an assessment of road safety on the highway network should be undertaken based on recent accident records.

An assessment of the accident data for the local highway network has been undertaken in the TA (Planning Reference TP/OPA/DOC/07A) which demonstrates that there is no evidence to suggest the frequency or severity of accidents should increase as a result of the Proposed Development.
12.128 In terms of proposed junctions and road links to be constructed as part of the Proposed Development, these will accord with relevant highway design and safety standards and will also undergo appropriate road safety audits prior to and following the construction of these.

12.129 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent long-term effect on highways users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Hazardous and Abnormal Load Movement**

12.130 Given the nature of the Proposed Development it is considered to be unlikely that there will be a requirement for hazardous or abnormal load movements during the operational phase of the Proposed Development.

12.131 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent long-term effect on highway users including motorists, pedestrians and cyclists of negligible significance prior to the implementation of mitigation measures.

**Mitigation and Enhancement Measures**

**Site Preparation and Construction Phase**

12.132 A Construction Environmental Management Plan (CEMP) will be produced by the appointed contractor, and it is envisaged that it will be designed to minimise construction traffic effects. It is envisaged that such a requirement would be specified as a pre-commencement condition on any planning permission. Possible measures proposed are HGV movements operating outside peak traffic hours including consideration of HGV and construction traffic movements. The CEMP will scope out details of routes and times of day of movements. Additional measures to be considered in the CEMP should include, but are not limited to:

- Construction Travel Plan;
- Agreed vehicle route plan;
- Agreed hours of operation;
• Details of wheel washes;
• Details of dust limitation; and
• Details of road cleaning.

12.133 It is anticipated that the following principles will be adhered to in relation to construction traffic entering and exiting the Site and the movement of materials:

• HGV movements to and from the Site will endeavour to operate outside of the peak hours;
• The CEMP will be developed and approved prior to construction and will consider HGV and construction traffic movements, including details of routing and times of day of movements;
• HGV access is assumed where possible to avoid traffic sensitive roads, (e.g. those fronted by residential properties); and
• Movements along residential streets, congested roads or through unsuitable junctions will be prevented or minimised. It is assumed that the CEMP will be agreed and implemented in order to reduce the risk of likely environmental effects and the effect of HGV movements. These will be undertaken in accordance with best practice construction management processes. The CEMP will include details of acceptable practices with respect to vehicle movements.

12.134 Where materials containing potentially hazardous substances are identified then these will be segregated for appropriate characterisation in accordance with current guidelines on the characterisation of waste materials. The Site will be registered as a hazardous waste producer and all other appropriate notifications made prior to the removal of any hazardous waste from the Site.

12.135 The nature of the hazard will dictate the final transport procedures adopted for materials departing the Site which will be in accordance with the requirements of the Carriage of Dangerous Goods Act (Ref. 12.8) and associated guidance. Typical measures which may be required could include the use of specialist transport companies, sealed skips, sheeted/covered or sealed lorries, appropriate signage and labelling. All waste materials departing the Site will be controlled under appropriate duty of care and records kept as required.

12.136 The movement of abnormal indivisible loads is governed by rules contained in section 44 of the Road Traffic Act 1988 (Ref. 12.9) and The Road Vehicles (Authorisation of Special Types) General Order 2003 (STGO) (Ref. 12.10).
12.137 The responsibility for safe operational passage of abnormal loads rests with operators, however, there are requirements to give notice to the police and the Roads/Highway and Bridge authorities and the trunk road authority, if applicable, who will be consulted accordingly should the need arise.

12.138 In terms of the construction workforce accessing the Site, a Construction Travel Plan (CTP) will be developed minimising the effects of staff travel to the Site during construction. This CTP will be developed to include initiatives such as car sharing and the use of minibuses to transport staff to Site.

**Operational Phase**

12.139 The following mitigation measures will be implemented in order to reduce the effects of changes in traffic flow volume as a result of the Proposed Development. These measures fall into two broad categories; infrastructure to alleviate congestion as a result of the introduction of development traffic, and measures to promote the uptake of sustainable modes of transport thereby reducing traffic volumes overall.

**Highway infrastructure**

12.140 Highway improvement schemes are proposed where necessary at junction locations to provide nil-detriment overall upon introduction of development traffic. Details of these mitigation schemes are included in the TA. *(Planning Reference TP/OPA/DOC/07A).*

**Sustainable Travel**

12.141 Measures to encourage the use of sustainable travel are proposed to reduce the usage of private vehicles. Details of these measures are included in the FTP *(Planning Reference TP/OPA/DOC/07B).*

**Residual Effects**

**Site Preparation and Construction Phase**

12.142 It should also be noted that the effects of the site preparation and construction phase are temporary with the busiest HGV traffic generation of 12 two-way trips per day forecast during 2019/2020. Site preparation and construction traffic is anticipated to be kept to standard working hours and approved routes. Once mitigation measures such as those detailed previously are implemented it is considered that the residual effect of construction traffic will be as follows:
Severance

12.143 The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including pedestrians and cyclists of negligible significance following implementation of mitigation measures.

Driver Stress and Delay

12.144 The sensitivity of the receptor (highway users including motorists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including motorists of negligible significance following implementation of mitigation measures.

Pedestrian Delay

12.145 The sensitivity of the receptor (highway users including pedestrians) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including pedestrians of negligible significance following implementation of mitigation measures.

Pedestrian and Cyclist Amenity

12.146 The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including pedestrians and cyclists of negligible significance following implementation of mitigation measures.

Fear and Intimidation

12.147 The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including pedestrians and cyclists of negligible significance following implementation of mitigation measures.
Accidents and Safety

12.148 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including motorists, pedestrians and cyclists of negligible significance following implementation of mitigation measures.

Hazardous and Abnormal Load Movement

12.149 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, temporary, medium-term residual effect on highway users including motorists, pedestrians and cyclists of negligible significance following implementation of mitigation measures.

Operational Phase

12.150 The development proposals include pedestrian and cycle friendly routes throughout the site which will improve permeability on foot and by bicycle between the proposed site, the Nottingham Business Park and the adjacent residential areas. Additionally, it is proposed to provide pedestrian and cycle crossing facilities at the potential site access junctions formed with the A6002 Woodhouse Way.

12.151 It is proposed to provide some local facilities within the development site. Pedestrian and cyclist facilities throughout the site will provide safe, direct and well overlooked routes from all areas of the site to the new amenities.

12.152 The following mitigation measures will be implemented in order to reduce the effects of changes in traffic flow volume as a result of the Proposed Development. These measures fall into two broad categories; infrastructure to alleviate congestion as a result of the introduction of development traffic and measures to promote the uptake of sustainable modes of transport thereby reducing traffic volumes overall:

Severance

12.153 The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent,
long-term residual effect on highway users of negligible significance following implementation of mitigation measures.

**Driver Stress and Delay**

12.154 The sensitivity of the receptor (highway users including motorists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent, long-term residual effect on highway users including motorists of negligible significance following implementation of mitigation measures.

**Pedestrian Delay**

12.155 The sensitivity of the receptor (highway users including pedestrians) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent, long-term residual effect on highway users including pedestrians of negligible significance following implementation of mitigation measures.

**Pedestrian and Cyclist Amenity**

12.156 The sensitivity of the receptor (highway users including pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent, long-term residual effect on highway users including pedestrians and cyclists of negligible significance following implementation of mitigation measures.

**Fear and Intimidation**

12.157 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent, long-term residual effect on highway users including motorists, pedestrians and cyclists of negligible significance following implementation of mitigation measures.

**Accidents and Safety**

12.158 The sensitivity of the receptor (highway users including motorists, pedestrians and cyclists) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent,
A long-term residual effect on highway users including motorists, pedestrians, and cyclists of negligible significance following implementation of mitigation measures.

Hazardous and Abnormal Load Movement

12.159 The sensitivity of the receptor (highway users) is high and the magnitude of change is predicted to be negligible following the implementation of mitigation. Therefore, there is likely to be a direct, permanent, long-term residual effect on highway users including motorists, pedestrians, and cyclists of negligible significance following implementation of mitigation measures.

Limitations

12.160 There are no specific limitations other than the common limitations associated with traffic and transportation forecasting and assessment. Industry standard practices have been used throughout the assessment to minimise the effect of these limitations. Where assumptions and estimations have been required, values that ensure a robust assessment have been used.

Summary and Statement of Significance

- The effects of changes in traffic flow volume and composition associated with construction activities have been determined to be temporary and negligible.
- The residual effects of changes in traffic flow volume and composition associated with the operational phase of the Proposed Development have been determined to be negligible following implementation of mitigation measures.
References


