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Glen Earrach Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 2: Main Report
Chapter 13: Access, Traffic & Transport

Glen Earrach Energy Ltd

Glen Earrach AECOM

Quality information

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13. Access, Traffic & Transport

13.1 Introduction

13.1.1 This Chapter assesses the environmental effects of traffic and movement associated with the Proposed Development. In accordance with **Chapter 4: Approach to EIA (Volume 2: Main Report)**, this chapter assesses the Pre-Construction and Enabling Phase and Construction Phase of the Proposed Development, and considers them separately in line with **Chapter 2: Project and Site Description (Volume 2: Main Report)**. The Operational Phase and Decommissioning Phase are scoped out in accordance with the scoping response received by THC as set out in **Chapter 4: Approach to EIA (Volume 2: Main Report).** Environmental effects of traffic and movement are assessed in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023 (the "IEMA Guidelines")[1].

13.1.2 This Chapter establishes the significance of environmental effects resulting from vehicular road traffic generated by the Proposed Development. The assessment considers the sensitivity of Study Area roads, road users and their surroundings against changes in traffic forecast to result from the Proposed Development. Environmental topics assessed include severance, fear and intimidation, road safety, non-motorised traffic, delays to vehicular traffic and large or hazardous loads. **Chapter 17: Climate Change (Volume 2: Main Report)** considers the environmental effect of emissions during construction of the Proposed Development, including potential effects caused by transport and movement.

13.1.3 The geographical extent of the traffic and movement assessment has been informed by IEMA Guidelines. Criteria within the guidelines are used to establish an appropriate Study Area. The Study Area is based on public roads that provide sub-regional and local access to the Proposed Development Site, and on which the impact of development traffic may need to be considered. Principal Study Area roads are the A82, A831 and A833. Summer and winter traffic surveys were carried out on these roads during 2024 to provide baseline traffic for this chapter.

13.1.4 Construction material volumes for the Proposed Development are used to establish a construction vehicle forecast. This vehicle forecast considers materials which can be sourced and or retained within the Proposed Development Site, and what materials would require to be imported by road. The construction traffic forecast also considers materials that would be transported by water via the Caledonian Canal and Loch Ness.

13.1.5 Environmental effects of traffic and movement are reported in this Chapter as being either Not Significant or Significant. Mitigation for Significant effects is presented, and post-mitigation environmental effects (residual effects) are assessed and reported. Inter and Intra-Cumulative effects based on the cumulative schemes identified in **Chapter 4: Approach to EIA (Volume 2: Main Report)** are assessed and reported.

13.1.6 Operational effects resulting from traffic and transport have been scoped out of the transport assessment. **Appendix 4.1 Scoping Opinion (Volume 5: Appendices)** states that it is expected that there will be up to 20 permanent on-site jobs as a result of the operation of the facility. This number of permanent jobs is likely to generate a very limited number of vehicle movements during a typical operational day, once factors such as car sharing or shift working are taken into consideration. During periods of maintenance there may be additional heavy goods vehicle (HGV) and abnormal indivisible loads (AIL) movements, but these are considered likely to be rare. Although operational effects resulting from traffic and transport are not assessed, details of the proposed route to site during operation and traffic management are provided in **Proposed Development Site Access paragraphs 13.4.10 – 13.4.12.**

13.1.7 As described within **Chapter 2 Project and Site Description** and summarised within **Chapter 3 Evolution of Design and Alternatives (Volume 2: Main Report)**, the Proposed Development presents two options, Option A and Option B. The differences between these options involve the location of the below ground works and the associated positioning of the Upper Control Works within the Headpond footprint. This assessment has considered both Options A and B; regardless of which option is taken forward, the conclusions of the Access, Traffic and Transport assessment remain the same for both.

[1] Institute of Environmental management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023.

13.2 Legislation and Policy

13.2.1 Environmental effects are assessed in accordance with the IEMA Guidelines that provide practitioners with good practice advice on how to carry out the assessment of traffic and movement as part of a statutory EIA.

13.2.2 Legislation and policy relevant to access, traffic and transport is summarised below. For further detail on planning policy please refer to **Chapter 5: Policy and Legislation (Volume 2: Main Report)** and the standalone **Planning Statement** submitted with the Application.

Legislation

Road Vehicles (Construction and Use) Regulations 1986 and the Special Types General Order (STGO) (2003)

13.2.3 In the UK, the dimensions and weights of vehicles used on roads are regulated by the Road Vehicles (Construction and Use) Regulations 1986. Vehicles which do not meet Construction and Use Regulations can be used on roads under the Road Vehicles (Authorisation of Special Types) (General) Order 2003. This Order, commonly referred to as STGO, ensures that oversized or overweight Abnormal Indivisible Loads (AIL) are moved safely and with minimal disruption to other road users.

13.2.4 Vehicles transporting AIL are categorised under four main STGO classes, each with specific conditions:

- **Category 1:** Vehicles carrying loads up to 50,000 kg, requiring a minimum of 6 axles and specific notifications to authorities;
- **Category 2:** Vehicles carrying loads up to 80,000 kg, which must adhere to more stringent axle and speed restrictions;
- **Category 3:** Vehicles carrying loads up to 150,000 kg, where detailed planning and notification are critical; and
- **Special Order Movements:** Vehicles must have a special order if they are more than 150,000kg or 16,500kg in weight per axle, 6.1 m wide or 30 m long in rigid length when loaded. These vehicles are required to give 5 working days' notice to highway and bridge authorities and 2 working days' notice to police.

13.2.5 Each category mandates the use of STGO plates, indicating the vehicle's classification and ensuring compliance with weight and speed regulations.

Policy

National Policy

National Transport Strategy 2 (NTS2) (2020)

13.2.6 NTS2 sets out an ambitious and compelling vision for Scotland's transport system for the next 20 years. The vision is to have a sustainable, inclusive, safe, and accessible transport system, helping to deliver a healthier, fairer, and more prosperous Scotland for communities, businesses, and visitors.

13.2.7 Four priorities which support the vision are as follows:

- Reduce inequality;
- Take climate action;
- Help deliver inclusive economic growth; and
- Improve health and wellbeing.

Climate change: Scottish National Adaptation Plan 2024-2029

13.2.8 The Scottish National Adaptation Plan 2024-2029 sets out the actions that the Scottish Government and partners will take to respond to the impacts of climate change over this period. It sets out actions to build Scotland's resilience to climate change through support for our communities, businesses, public services and nature to adapt to the changing climate in a way that is fair and inclusive.

13.2.9 The Public Service 4 (PS4) objective within the National Adaptation Plan focuses on transport systems being prepared for current and future impacts of climate change and being safe for all users, reliable for everyday journeys and resilient to weather related disruption. The document sets out actions for different transport modes to become more adaptable to the impacts of climate change. This includes the trunk road network where actions to improve adaptation to climate change comprise the following:

- A Truck Roads Adaption Plan;
- Collaboration with supply chain partners and stakeholders;
- A Biodiversity Strategy for Transport Scotland;
- Management of disruption risks; and
- High wind, flood and landslide management.

National Planning Framework 4 (NPF4) (2023)

13.2.10 NPF4 was adopted by the Scottish Ministers in February 2023 and forms the upper tier of the statutory development plan. NPF4 sets out how the Scottish Government's approach to planning and development will help to achieve a net zero, sustainable Scotland by 2045.

13.2.11 NPF4 sets out the following overarching spatial principles to support the planning and delivery of the three key National Planning Policy areas:

- Sustainable Places;
- Liveable Places; and
- Productive Places.

13.2.12 NPF4 identifies a 'National Spatial Strategy' and states that development proposals of all forms of renewable, low carbon and zero emissions technologies will be supported including pumped storage hydro. Under Policy 11 (Energy), development proposals for renewable energy projects must demonstrate how the following impacts are mitigated and addressed:

- Impacts on public access, including long distance walking and cycling routes and scenic routes; and
- Impacts on road traffic and on adjacent trunk roads, including during construction, and cumulative impacts.

Planning Advice Note 75 – Planning for Transport (PAN 75) (2025)

13.2.13 Scottish PAN 75 – Planning for Transport is a planning circular produced by the Scottish Government which provides good practice on planning and transport. This includes guidance on integrating transport, transport modelling, policy development, development management, planning agreements and environmental assessment.

Design Manual for Roads and Bridges (DMRB)

13.2.14 The Design Manual for Roads and Bridges (DMRB) is a suite of documents which sets out standards for trunk roads, but these are also applicable in certain cases to non-trunk roads. Generally, where standards are given in The Highland Council's (THC) Roads and Transport Guidelines for New Developments they should be used on local roads in preference to the DMRB. However, for some works, for example highway structures and when undertaking work on heavily trafficked roads, the DMRB standards are applicable, except where agreed otherwise with THC.

Transport Assessment Guidance (TAG) (2012)

13.2.15 Transport Assessment Guidance (TAG) produced by Transport Scotland in 2012 provides guidance and information for the content, methodology and approach of producing Transport Assessments, Transport Statements and Travel Plans in support of Proposed Development sites. It details the importance of establishing the existing transport infrastructure and travel characteristics, as well as the development proposal itself and the measures which will be included to improve infrastructure and services to encourage sustainable travel to the site.

Regional Policy

13.2.16 The Transport (Scotland) Act 2005 placed a statutory duty on the seven Regional Transport Partnerships (RTPs) in Scotland to produce a Regional Transport Strategy (RTS) for their area. The Proposed Development, located within the Scottish Highlands, which is within the Highlands and Islands Transport Partnership region (HITRANS).

HITRANS Regional Transport Strategy Draft (2024)

13.2.17 The HITRANS RTS covers five council areas including THC and the Draft RTS was approved by the HITRANS partnership board in November 2024, Subject to Ministerial approval, it is expected to be formally adopted in 2025. The Draft RTS sets out the transport needs of the region, identifies means of addressing these needs and sets out how transport will be provided, developed, maintained, improved and operated.

13.2.18 Policy ST1e recognises the impact of AIL movements across the region and call for appropriate planning and mitigation to be in place as part of the planning process. AIL movements associated with the Proposed Development will follow all necessary procedures to minimise their impact.

13.2.19 Policy ST1l recognises the centrality of environmental considerations within the planning and decision-making process. The Proposed Development is one of a number of PSH projects in the Highlands region seeking to support sustainably energy generation and storage.

Local Policy

Highland-wide Local Development Plan (HwLDP) (2012)

13.2.20 THC adopted their Local Development Plan in 2012, which covers the entire council area (except that covered by the Cairngorms National Park), and sets out how land can be used by developers for the next 20 years. The vision is to create sustainable communities by balancing population growth, economic development and safeguarding of the environment. The policies relevant to this chapter include:

- Policy 28 – Sustainable Design;
- Policy 30 – Physical Constraints;
- Policy 56 – Travel; and
- Policy 67 – Renewable Energy Developments.

THC Roads and Transport Guidelines for New Developments (2013)

13.2.21 Roads and Transport Guidelines for New Developments produced by THC sets out the detailed requirements for transport for new developments together with requirements for new road construction. These guidelines aim to ensure new roads and development accesses are safe and also apply to developers who propose alterations to an existing public road.

Designing for Sustainability in the Highlands (2006)

13.2.22 Designing for Sustainability in the Highlands sets out THC's guidance on what designing for sustainability means in a local context and highlights opportunities for developers to add value to their projects by taking account of the way that the economic, environmental and social impacts of development interact over the short and long term.

13.3 Consultation

13.3.1 **Table 13-1 Summary of Consultation** summarises consultation undertaken for this Environmental Impact Assessment (EIA), relevant to Traffic and Access. Scoping correspondence is provided in full in **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**.

Table 13-1 Summary of Consultation

Consultee	Key Issue	Summary of Response	Action Taken
THC provided response to Scoping Report 8th July 2024	Traffic Data Collection	Requested that 12-hour traffic flows be used instead of 24-hour as construction work likely to be concentrated in this period.	EIA assessment conducted using 12-hour traffic survey data as requested (0700hrs-1900hrs)
	Scope of Study Area	THC have noted that the scope of the Study Area from a traffic and transport perspective will need to be informed by the proposed port of entry for abnormal loads (AILs) and their routing strategy to the Proposed Development Site.	The scope of the Study Area has considered origins of construction materials in its developments and specifically all public roads expected to carry AILs have been assessed.
	Single-Track Public Road Usage	Expected that any section of single-track public road with passing places to be deemed as high sensitivity under IEMA Guidelines 2023	No single-track public roads are included with the Study Area of the Proposed Development.
	Transport Assessment	Identify and set out nature of all public roads affected by the Proposed Development.	All public roads impacted by the Proposed Development have been reviewed as part of baseline conditions assessment.
	Transport Assessment	Identify anticipated impacts from the Proposed Development including any cumulative impacts.	Potential impacts from Proposed Development identified including any Cumulative Developments that will occur during Proposed Development Construction Phases.
	Transport Assessment	Set out mitigation measures to tackle anticipated impacts on the public road network.	Mitigation measures set out in EIA, including a Framework Construction Traffic Management Plan provided in **Appendix 13.2 (Volume 5: Appendices).** Expectation that any planning consent will contain a Condition requiring a detailed CTMP.
	Transport Assessment	THC could only agree to scoping out of Operational Phase if the Proposed Development would not be including a new visitor centre.	No visitor centre to be provided. Operational Phase scoped out.
Network Rail provided response to Scoping Report 29th May 2024	Transport Assessment	Network Rail requires a Traffic Assessment to be conducted to assess the impacts of construction traffic on the public road network, with construction traffic routes indicated to allow Network Rail to assess if traffic crosses its infrastructure.	Transport Assessment completed with construction traffic routes and impacts of construction traffic numbers highlighted.
Transport Scotland provided response to Scoping Report 6th June 2024	Traffic management measures on the A82	Transport Scotland require two-way traffic to be maintained on the A82 at all times with only very short closures or one-way working periods considered. Use of temporary traffic lights should be avoided. Typically speed reduction measures can be implemented for up to 18-months.	Discussions to be undertaken with Transport Scotland regarding A82 at Lower Control Works once details of construction are fully known.
	Growth Factor for Construction Traffic Peak	Transport Scotland request that National Road Traffic Forecast (NRTF) Low Growth assumptions be used to provide a common future year baseline to coincide with the expected construction traffic peak.	Trip End Model Presentation Program (TEMPro) version 8.1 has been used to obtain growth factors for both the peak Pre-Construction and Enabling Phase year and peak Construction Phase year.
	Abnormal Load Assessment	The Abnormal Loads Assessment report should identify key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes	Abnormal Load swept path analysis has been undertaken with potential pinch points identified.

		to street furniture or structures along the route.	
Scottish Canals provided response to Scoping Report 17th June 2024	Water Based Freight Movements	A Canal Management Plan should be produced if water is used for freight transportation to ensure this operation does not adversely impact existing leisure and commercial canal traffic.	All materials transported by water will be subject to a Canal Management Plan. Expectation that any planning consent will contain condition requiring Canal Management Plan.
	Canal Investment	Investment in canal infrastructure and associated facilities required for water borne freight transport.	Discussion to be undertaken with Scottish Canals regarding canal infrastructure once details of construction are fully known.
Glen Urquhart Community Council provided response to Scoping Report 25th July 2024	Construction Traffic Management Plan	A Construction Traffic Management Plan is required to include impacts of the Proposed Development on road users and adjacent communities.	Mitigation measures set out in EIA, including a Framework Construction Traffic Management Plan provided in **Appendix 13.2 (Volume 5: Appendices).** Expectation that any planning consent will contain a condition requiring a detailed CTMP.
	Access Routes to Site	Indication given of what sections of access track are to be made from existing tracks and what will be newly constructed.	Response considered and information on access track included in this EIA.

13.4 Study Area

13.4.1 The Proposed Development Site is located to the west of Loch Ness, between Drumnadrochit and Invermoriston. The traffic and movement Study Area is cognisant of the Proposed Development Site location and the public road network serving this area. IEMA Guidelines state that professional judgement is inevitably required to define the geographical boundaries of environmental assessment. Construction traffic will use the A82, A831, and A833 in the vicinity of the Proposed Development Site. Professional judgement is used to establish the assessment boundaries for these roads. The geographical boundary of environmental assessment is broadly set to exclude roads where existing traffic conditions mean that Proposed Development traffic would be unlikely to have any discernible environmental effect.

13.4.2 Construction traffic originating in, or routing via, Inverness has a choice of city roads from which to join the A82. City roads are busy in terms of daily traffic. DfT traffic data shows the A82 carries some 24,000 vehicles per day in the city centre, and over 10,000 vehicles per day just outside the city centre. Proposed Development traffic is unlikely to change daily traffic sufficiently to have any discernible environmental effect on these types of city road, so the Study Area boundary is curtailed to the A82 south of the city.

13.4.3 The A833 will be used by construction traffic bringing materials such as aggregate and sand from quarries in the environs of Wester Balblair. There is no reason for construction traffic to travel beyond the environs of Wester Balblair. DfT traffic data shows the A833 in the environs of Wester Balblair carries 1,700 vehicles per day. Beyond the A833 the A862 in the environs of Wester Balblair carries 5,200 vehicles per day. Proposed Development traffic is unlikely to change daily A862 traffic sufficiently to have any discernible environmental effect on this road, so the Study Area boundary is curtailed to the A833.

13.4.4 A82 construction traffic to and from the south would route via Fort William and Fort Augustus. North of Fort William and before the A87 turn-off (Kyle of Lochalsh and Skye) at Invergarry DfT traffic data shows the A82 carrying 4,300 vehicles per day. North of the A87 turn-off daily A82 traffic drops to 2,500 vehicles. Proposed Development traffic is unlikely to change daily A82 traffic south of Invergarry sufficiently to have any discernible environmental effect on this road, so the Study Area boundary is curtailed to the A82 at Fort Augustus. The A887 is included as a Study Area road as materials could conceivably arrive from the environs of Kyle of Lochalsh.

13.4.5 No HGV development traffic will use the A831 west of the Balnain Main Access, so the Study Area boundary is curtailed to the A831 Balnain Main Access. Study Area roads are therefore limited to the area shown in **Figure 13.1 Traffic and Movement Study Area (Volume 3: Figures)**.

13.4.6 **Figure 2.5, Figure 2.6 and Figure 2.7 (Volume 3: Figures)** show the location of the Proposed Development Site vehicle accesses through the Pre-Construction and Enabling Phase, Construction Phase and Operational Phase of the Proposed Development respectively. An existing junction on the A831, near Balnain west of Drumnadrochit, will be the main site access for construction traffic. The Balnain Main Access will also provide operational access

to the Proposed Development. A secondary operational access will be located on the A82 at Alltsigh for maintenance of the valve house, referred to as the Alltsigh Track within this EIA. On an annual basis, operational traffic is only likely to require access via the Alltsigh Track occasionally. The number of vehicle movements associated with occasional Alltsigh Track access demands will depend on the maintenance activity involved but is not expected to generate significant traffic movements. An assessment of operational traffic is scoped out of this assessment.

Study Area Roads

13.4.7 **Figure 13.1 Traffic and Movement Study Area (Volume 3: Figures)** shows the public roads included in the traffic and movement assessment Study Area. They are:

- **A82**. The A82 routes north / south on the western side of Loch Ness. The A82 is part of the trunk road network for which Transport Scotland are the roads authority. In the environs of the Proposed Development Site the A82 connects Inverness in the north with Drumnadrochit, Invermoriston and Fort Augustus. Further south, the A82 connects to Fort William and Glasgow. The A82 is a single carriageway two-lane road. The A82 is identified as a Study Area road for assessment as the trunk road route providing access to the Proposed Development Site from the north and south.
- **A831**. The A831 routes east / west to the north of the Proposed Development Site. THC are the roads authority for the A831. In the environs of the Proposed Development Site the A831 connects the A82 at Drumnadrochit to the village of Cannich. The A831 is a single carriageway two-lane road. The A831 will provide vehicle access the Proposed Development Site at Balnain via the existing Forestry and Land Scotland (FLS) access junction. The A831 is identified as a Study Area road for assessment given it is an A-class road providing access to the Proposed Development Site from the trunk road network (i.e. the A82 at Drumnadrochit).
- **A833**. The A833 routes north / south between the village of Beauly in the north and the A831 at Milton in the south. THC are the roads authority for the A833, and it is a single carriageway two-lane road in the vicinity of the site. The A833 is identified as a Study Area road given it is an A-class road providing access to the Proposed Development Site from the environs of Beauly / Wester Balblair. This is considered a potential origin from where construction materials such as imported aggregate and sand may originate.
- **A887**. The A887 routes east / west between the A87 and the A82. THC are the roads authority for the A887. In the environs of the Proposed Development Site the A887 connects to the A82 at Invermoriston. It is a single carriageway two-lane road. The A887 is identified as a Study Area road given it is an A-class road in close proximity to the Proposed Development Site, that conceivably could carry construction traffic were materials to originate from Kyle of Lochalsh.

13.4.8 IEMA Guidelines state that professional judgement is an inevitable part of defining geographical boundaries for the environmental assessment. The guidelines further state that such judgements will tend to be based on a combination of experience and assumptions that should be made explicit in the EIA report.

13.4.9 No other roads beyond those listed in this section require any consideration as Study Area roads for assessment. Professional judgement has been applied and considers that Proposed Development traffic will be unlikely to change daily traffic sufficiently to have any discernible environmental effect on other roads, so the Study Area boundary is curtailed to the roads described above.

Proposed Development Site Access

13.4.10 The existing Balnain Forestry and Land Scotland (FLS) access junction on the A831 will be widened as part of the Pre-Construction and Enabling Phase to accommodate HGV and abnormal indivisible load movements during the construction of the Proposed Development. An enhanced bridge crossing of the River Enrick is also proposed as part of the A831 Balnain Main Access works. The bridge will separately accommodate public traffic accessing the Balnain FLS Car Park and Proposed Development Construction and Operational traffic.

13.4.11 A secondary operational access to the Proposed Development will be provided from the A82 at Alltsigh via the Alltsigh Track. On an annual basis, operational traffic is only likely to require access via the Alltsigh Track occasionally. It will also function as an emergency access and it will not be used by Proposed Development construction traffic.

13.4.12 The Lower Control Works (LCW) will be a marine construction project and where possible all construction plant and materials will be transported by water via Loch Ness, generating minimal road traffic. A LCW access junction for operational traffic will be provided on the A82. This will be a simple priority-controlled access junction that will be constructed from the Loch Ness side and only be tied into the A82 at completion of the LCW Construction Phase.

13.5 Methodology

13.5.1 Comprehensive traffic data on Study Area roads has been obtained to inform this environmental assessment. This encompasses vehicle flows by time of day and vehicle type, and vehicle speeds by time of day for all Study Area roads. This data was obtained by traffic surveys on Study Area roads during 2024. Injury accident data for Study Area roads is also required for environmental assessment. The most recently available injury accident information for Study Area roads was obtained from the Police Scotland road traffic collision database.[2]

13.5.2 The IEMA Guidelines include two rules that define the scale and extent of the environmental assessment of traffic and movement. Rule 1 and Rule 2 are summarised below and are used to define the spatial extents of this environmental assessment:

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

13.5.3 The Rule 1 30% threshold is based on research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic apart from within specifically sensitive areas. The IEMA Guidance considers that forecast changes in traffic of less than 10% in specifically sensitive areas creates no discernible environmental effect, hence the traffic increase threshold set out in Rule 2.

13.5.4 The assessment of Traffic and Movement under IEMA Guidelines is primarily based on daily traffic flows. The temporal extent of this environmental assessment is daily traffic generated during the busiest construction activity periods. Forecast daily construction traffic for the Proposed Development is calculated from first principles. Quantities of construction materials to be transported to site, and the load carrying capacity of the vehicles transporting them, are used to produce an arithmetic forecast of vehicle numbers. The vehicle forecast encompasses the entire construction programme and the temporal distribution of construction activities during that time. Peak months of construction vehicle activity are identified for the construction programme. For peak months, daily construction vehicle forecasts are calculated and are assessed against baseline traffic flows to determine if significant effects could occur.

13.5.5 Study Area roads are assessed according to their sensitivity as a receptor which considers characteristics including the traffic, people, infrastructure and land-uses currently associated with the road. Study Area roads are quantified according to their baseline traffic characteristics including vehicle flows, accident rates, and levels of congestion. Forecast Proposed Development traffic is assessed against baseline conditions on Study Area roads to produce a magnitude of change. The results of the sensitivity of receptor and magnitude of change analyses are used to establish a significance of environmental effect on Study Area roads for the following traffic and movement categories, taken from Section 3 of the IEMA Guidelines 2023:

Severance of Communities

13.5.6 This is the perceived division that can occur within a community when it becomes separated by a major transport infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure.

Fear and Intimidation on and by Road Users

13.5.7 This is the proximity of traffic to people and / or the feeling of an inherent lack of protection created by factors that prevent people from distancing themselves from moving vehicles. It assesses the perceived vulnerability of road

[2] Police Scotland (2025). *Road traffic collision data.* Available at: https://www.scotland.police.uk/about-us/how-we-do-it/road-traffic-collision-data/ . [Accessed 10th January 2025.]

users in terms of changes in traffic flows and or speeds, the amount of heavy goods vehicle traffic on a road, and the speed that vehicles are travelling at.

Road User and Pedestrian Safety

13.5.8 This is the potential for changes in traffic flows on a road to increase the number of injury accidents on that road. This aspect of the environmental assessment considers the entire construction period and is not limited to a peak month or corresponding daily traffic forecast.

Non-Motorised User Amenity

13.5.9 This is broadly defined as the relative pleasantness of a pedestrian, cycle, wheeled or equestrian journey along or beside a road. The potential for effects related to changes in traffic flows and or speeds, the amount of heavy goods vehicle traffic on a road, and the speed that vehicles are travelling at.

Non-Motorised User Delay

13.5.10 This effect is closely related to severance. Changes in the volume, composition or speed of traffic may affect the ability of non-motorised road users to travel on or to crossroads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity on Study Area roads.

Road Vehicle Driver and Passenger Delay

13.5.11 This effect relates to delays or increases in travel time for non-development vehicular traffic. Increases in traffic along roads, at junctions, or at development site entrances can adversely affect overall journey times and delays. IEMA Guidelines acknowledge that delays are only likely to be significant when the traffic on the network surrounding a development is already at, or close to, the capacity of the system.

Hazardous Loads / Large Loads

13.5.12 The effect relates to developments that involve the transportation of dangerous or hazardous loads, and or the transport of Abnormal Indivisible Loads to or from a development site. The assessment must clearly outline the number and composition of such loads. Where the number is considered to be significant an appropriate routing and risk strategy must be identified.

13.6 Guidance and Standards

13.6.1 The IEMA Guidelines provide topic specific guidance followed by this traffic and movement assessment. The IEMA Guidelines were published in July 2023. They are fully endorsed by The Chartered Institution of Highways and Transportation (CIHT) and supported by The Institute of Air Quality Management (IAQM).

13.6.2 DMRB contains relevant requirements and advice for works on all-purpose trunk roads for which Transport Scotland as the Overseeing Organisation is the roads authority. DMRB CD 123 Geometric Design of At-Grade Priority and Signal Controlled Junctions is the relevant core document for road design on all-purpose trunk roads in the vicinity of the Proposed Development Site.

13.6.3 THC Roads and Transport Guidelines for New Developments, May 2013 identifies design standards appropriate for works undertaken to the local road network. THC confirm that where standards are given in this document, they should be used on local roads in preference to DMRB. The document does, however, make reference to the use of DMRB for some works e.g. when undertaking work on heavily trafficked roads.

13.7 Assessment Scope

13.7.1 The assessment considers the potential environmental effects of traffic and movement during Construction Phases (including Pre-Construction and Enabling) of the Proposed Development as identified in **Chapter 2: Project and Site Description (Volume 2: Main Report)**. Construction traffic has been forecast for the Pre-Construction and Enabling Phase, and the Construction Phase, to determine the peak traffic periods for assessment within each of these phases respectively.

13.7.2 The environmental assessment of traffic and movement estimates the traffic generation associated with the below phases:

- The Pre-Construction and Enabling Phase including site access, delivery of plant, site clearance; utility diversions; borrow pits; construction compound set up; Main Access Tunnel works; permanent and temporary access tracks, and public paths; and
- The Construction Phase, including delivery of plant and equipment; construction materials; construction workforce movements; Headpond construction; LCW construction; power cavern construction; tunnel construction, AIL deliveries to site, and de-mobilisation at the conclusion of the Construction Phase.

13.7.3 The construction traffic forecast throughout the construction programme is detailed in **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**. Month 7 is forecast to be the busiest Pre-Construction and Enabling Phase traffic period for the Proposed Development. Month 32 is forecast to be the busiest Construction Phase traffic period for the Proposed Development. These months have been adopted for the purposes of deriving worst case daily traffic movements for the environmental assessment of traffic and movement. **Appendix 13.1 also** contains the derivation of forecast construction traffic used in this assessment.

13.8 Baseline Data Collection

Desk Study

13.8.1 Traffic data published by the Department for Transport (DfT) was reviewed to ascertain if it could be used to inform this assessment. DfT traffic data was available for Study Area roads, but it did not provide the up-to-date information or detail necessary for this assessment.

13.8.2 Injury accident data published by Police Scotland was reviewed and has been used for this assessment. The accident data adopted for Study Area roads is the most recent 4-year period for which whole year accident data is available, that being the years 2020 to 2023 inclusive. **Appendix 13.1** (**Volume 5: Appendices**) contains the accident data used in this assessment.

13.8.3 Potential origins for construction materials, such as aggregate required in the early part of the Pre-Construction and Enabling Phase or sand required for on-site concrete production, were reviewed as part of the desk study. This process identified quarries in the sub-regional vicinity of the Proposed Development site that could be considered by this assessment to represent viable and logical origins for those bulk construction materials.

Field Study

13.8.4 Site visits were carried out in April 2024. These site visits involved driving Study Area roads including the A82, the A831 and the A833. A site visit was also undertaken to the existing A831 Balnain FLS location that is proposed to be the site access for construction and operational traffic (Balnain Main Access).

13.8.5 Comprehensive traffic surveys were carried out on Study Area roads during 2024. Summer surveys were carried out during August 2024 on all Study Area roads. These surveys were repeated for winter traffic during November and December 2024. **Appendix 13.1** (**Volume 5: Appendices**) contains the 2024 traffic survey data used in this assessment.

13.9 Assessment Methodology

13.9.1 The assessment follows the IEMA Guidelines. This approach was endorsed by Transport Scotland in its 2024 scoping response **(Appendix 4.1: Scoping Opinion) (Volume 5: Appendices).**

13.9.2 The IEMA Guidelines set out a methodology to determine potential significant effects on Study Area roads by considering the sensitivity of receptors, and magnitude of change forecast to result from Proposed Development traffic.

Sensitivity of Receptors

13.9.3 Receptors are locations or land-uses along Study Area roads categorised by sensitivity or environmental value. **Table 13-2 Sensitivity of Receptors** describes the receptor sensitivity adopted for the environmental assessment of Proposed Development traffic. All Study Area roads are assessed in terms of their sensitivity as receptors.

Table 13-2 Sensitivity of Receptors

Receptor Sensitivity	Description
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of international importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value or is of regional importance.
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance.
Negligible	The receptor is resistant to change and is of little environmental value.

13.9.4 Although construction traffic will only be temporary, an increase in traffic could have environmental effects on roads within the Study Area. As such, the receptors included in this assessment are the public roads that will be used by Proposed Development construction traffic, and the land-uses and people that front those roads.

13.9.5 In accordance with IEMA Guidelines the following list is used to identify land-use and environmental interests on Study Area roads that should be considered when assessing the sensitivity of Study Area roads as receptors:

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

13.9.6 For every Study Area road each of the above land-use and environmental interests was assessed on a scale of 1 to 5. In accordance with **Table 4-5 Sensitivity or Value Criteria, Chapter 4: Approach to EIA**) (**Volume 2 Main Report)** sensitivity of receptor, 1 to 5 ratings were assigned as follows.

Table 13-3 Sensitivity Scoring

Sensitivity	Points
Negligible	1
Low	2
Medium	3
High	4
Very High	5

13.9.7 For each Study Area road, an average sensitivity of receptor rating is calculated from the individual land-use and environmental interest scores. However, any Study Area road, which has one or more rating of High Sensitivity (4), or Very High Sensitivity (5) is defaulted to that rating.

13.9.8 A summary of the Study Area road sensitivity of receptor assessment is provided in **Table 13-10 Sensitivity of Receptors.** The detail underpinning the sensitivity rating for each Study Area road can be found in **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**).

Magnitude of Change

13.9.9 Magnitude of Change evaluates likely changes in traffic conditions on Study Area roads as a result of the Proposed Development. Magnitude of Change is calculated for all Study Area roads included in the assessment following the application of IEMA Guidelines Rule 1 and Rule 2. Magnitude of Change is determined on Study Area roads for the following traffic and movement categories:

- Severance of Communities
- Fear and Intimidation
- Road User and Pedestrian Safety
- Non-motorised User Amenity
- Non-motorised User Delay
- Road Vehicle Driver and Passenger Delay
- Hazardous / Large Loads

Severance of Communities

13.9.10 The DfT historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ changes in severance respectively. Although these thresholds no longer appear in DfT guidance, they have not been superseded by any subsequent guidance and are established through planning case law. They have therefore been used for the purpose of this assessment.

13.9.11 **Table 13-4 Magnitude of Change for Severance of Communities** shows the thresholds adopted for this environmental assessment.

Table 13-4 Magnitude of Change for Severance of Communities

Magnitude of Change	Change in Vehicle Traffic (12 Hour Flow)	Description
High	<90%	Alteration to baseline conditions such that with development character or composition of baseline condition fundamentally changed.
Medium	60-90%	Alteration to baseline conditions such that with development character or composition of baseline condition materially changed.
Low	30-60%	Minor shift from baseline conditions such that post development character or composition of baseline condition remains similar to baseline and not materially changed.
Negligible	<30%	Very little change from baseline conditions. Change is barely distinguishable approximating to no-change situation.

13.9.12 IEMA Guidelines note that caution needs to be observed when applying **Table 13-4 Magnitude of Change for Severance of Communities** thresholds where very low baseline traffic conditions exist, as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in vehicle traffic conditions. The winter 2024 traffic surveys have been used to form the baseline position for the severance assessment due to traffic flows being lower. Lower baseline flows will allow the assessment to consider the worst-case percentage increase in total traffic on Study Area roads.

Fear and Intimidation

13.9.13 The IEMA Guidelines state that the extent of fear and intimidation is dependent on:

- The total volume of traffic;
- The heavy vehicle composition;
- The speed of vehicles; and
- The proximity of traffic to people.

13.9.14 IEMA Guidelines provide a degree of hazard methodology for assessing Fear and Intimidation. Degree of hazard is established by scoring traffic on Study Area roads for baseline and Proposed Development traffic conditions. It should be noted that the Fear and Intimidation assessment uses the summer 2024 traffic data to form the baseline position as the higher traffic flows allow for a worst-case assessment to be undertaken. **Table 13-5 Fear and Intimidation Degree of Hazard** shows the IEMA Guidelines scoring system applied to all Study Area roads.

Table 13-5 Fear and Intimidation Degree of Hazard

18hr Traffic Flow Average Two-Way Traffic (Vehicles / Hour) (a)	18hr Traffic Flow Total HGV Movements (b)	Average Vehicle Speed MPH (c)	Degree of Hazard Score
+1,800	+3,000	>40	30
1,200 – 1,800	2,000 – 3,000	30 - 40	20
600 – 1,200	1,000 – 2,000	20 - 30	10
<600	<1,000	<20	0

13.9.15 For each Study Area road, the total degree of hazard score (a) + (b) + (c) for baseline and Proposed Development traffic conditions is summed to provide a 'level' of fear and intimidation in accordance with **Table 13-6 Levels of Fear and Intimidation.**

Table 13-6 Levels of Fear and Intimidation

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

13.9.16 Magnitude of change is determined with reference to changes in fear and intimidation levels between baseline and Proposed Development traffic flows in accordance with **Table 13-7 Fear and Intimidation Magnitude of Change.**

Table 13-7 Fear and Intimidation Magnitude of Change

Change in Level / Change in Daily Traffic	Magnitude of Change
2 Level Changes	High
1 Level Change plus >400 increase in average hourly vehicle flow and / or >500 increase in total 18hr HGV flow	Medium
1 Level Change plus <400 increase in average hourly vehicle flow and / or <500 increase in total 18hr HGV flow	Low
No Level Change	Negligible

Road User and Pedestrian Safety

13.9.17 IEMA Guidelines consider the calculation of accident rates a relevant approach for approximating the potential for road safety impacts to materialise as a result of a development. Knowing the expected increase in vehicle kilometres driven on Study Area roads as a result of Proposed Development traffic, it is possible to make an arithmetic assessment of the likely increase or decrease in the number of accidents resulting from changes in traffic flows or composition.

13.9.18 Accidents by severity for the 2020-2023 period are combined with traffic flows to produce accident rates by severity per million vehicle kilometres for all Study Area roads. A forecast of vehicle kilometres driven on Study Area roads by Proposed Development traffic for the duration of the construction programme has been calculated. The accident rates per million vehicle kilometres are applied to Proposed Development traffic to produce a forecast of accidents by severity over the duration of the construction stage. Magnitude of change for road user and pedestrian safety is assessed according to **Table 13-8 Road User and Pedestrian Safety Magnitude of Change.**

Table 13-8 Road User and Pedestrian Safety Magnitude of Change

Magnitude of Change	Forecast Increase in Accidents by Severity		
	Slight Accidents	Serious Accidents	Fatal Accidents
High	≥ 5	≥1	≥1
Medium	3 - 4	0	0
Low	1 - 2	0	0
Negligible	0	0	0

13.9.19 The summer 2024 traffic surveys have been used to form the baseline position for the road user and pedestrian safety assessment. Higher baseline flows associated with the summer in the Highlands region result in a higher potential for injury accidents to occur when an accident rate is applied. Using summer traffic flows for the road accident assessment therefore results in worst case scenario being assessed.

Non-motorised User Amenity and Delay

13.9.20 These effects are closely related to severance as a change in the volume, composition or speed of traffic may affect the relative pleasantness (amenity) or progress (delay) made by non-motorised users. In general, increases in traffic levels are likely to lead to reductions in amenity and increases in delay for non-motorised users. Absolute levels of change to non-motorised amenity and delay will depend on the general level of pedestrian and active travel activity on Study Area roads. The magnitude of change thresholds set out in **Table 13-4 Magnitude of Change for Severance of Communities for** severance are adopted for non-motorised environmental effects. The winter 2024 traffic surveys have been used to form the baseline position for the non-motorised user amenity and delay assessment, as lower baseline flows associated with winter periods in the Highlands will allow the assessment to consider the worst-case percentage increase in total traffic on Study Area roads.

Road Vehicle Driver and Passenger Delay

13.9.21 Where junction capacity testing has been undertaken on Study Area roads, changes to the Level of Service (LoS) provided by each arm of the junction are used to forecast magnitude of change. **Table 13-9 Road Vehicle Driver and Passenger Delay Magnitude of Change** summarises the LoS magnitude of change thresholds adopted in this assessment for Road Vehicle Driver and Passenger Delay.

13.9.22 Where Study Area roads are assessed by link flow, the Congestion Reference Flow (CRF) of the Study Area road will be used to forecast magnitude of change. The CRF of a Study Area road is an estimate of the daily traffic flow at which the road is likely to be 'congested' in peak periods on an average day. CRF is calculated in accordance with CD100 DMRB Extract Volume 5 Section 1 (TA 46/97) which remains applicable to trunk roads in Scotland. To calculate CRF, 'congestion' is defined as the situation when the traffic demand exceeds the maximum sustainable throughput of the road. At this point the effect on traffic is likely to include flow breakdown with speeds varying considerably, and queues are likely to form**. Table 13-9 Road Vehicle Driver and Passenger Delay Magnitude of Change** summarises the CRF magnitude of change thresholds adopted in this assessment for Road Vehicle Driver and Passenger Delay. CRF magnitude of change adopts 30%, 60% and 90% traffic 'levels' to represent thresholds for changes in vehicle delay, with the stipulation that for Low, Medium and High magnitudes of change there must also be at least one change in traffic level as a result of Proposed Development Traffic.

Table 13-9 Road Vehicle Driver and Passenger Delay Magnitude of Change

Magnitude of Change	Junction Capacity Testing LoS on Junction Arms	Study Area Road Congestion Reference Flow
High	A, B or C to E or F	1 or More Level Change plus CRF >90% CRF
Medium	A, B or C to D	1 or More Level Change plus CRF 60% - 90%
Low	A or B to C	1 Level Change plus CRF 30% - 60%
Negligible	No Change in LoS	No Level Change

Hazardous / Large Loads

13.9.23 The primary method for the construction of tunnels will be drill and blast. This will require explosives to be transported to site. Explosives commonly used in mining, construction and quarrying activities are Class 1 hazardous loads. More specifically they are Class 1.5 Blasting Agents which are designed to be less susceptible to detonation, and require a substantial amount of energy to initiate an explosion. Whilst less volatile than other explosives, it is essential to transport Class 1.5 blasting agents with utmost caution and adhere to proper transport procedures. Fuel is the next most significant hazardous load to be transported to the Proposed Development Site by road. Fuel will be required for construction plant and equipment. This is a Class 3 Flammable Liquid. This will be transported to site via HGV tanker (projected to be 1 no. 20,000 litre tanker per working day) which are commonplace on UK roads. Other potential hazardous loads could include admixtures for concrete, bitumen, machinery lubricants, batteries. Welding gases, oxy-acetylene, solvents, paints, adhesives and sealants.

13.9.24 Abnormal Indivisible Loads will travel to the Proposed Development Site by road. They are expected to travel from the Port of Inverness via the A82 and A831 to the Balnain Main Access. **Appendix 13.1 Transport Assessment (Volume 5: Appendices)** contains a Preliminary Route Appraisal for the transport of AIL from Inverness to site. Transport Scotland in their scoping response state they will require to be satisfied that AIL can negotiate the selected route and that their transportation will not have a detrimental effect on structures on the trunk road route to site.

13.9.25 A detailed AIL assessment will be required to support the Special Types General Order (STGO) processes (see Legislation review in **Section 13.2 Legislation and Policy**) required for the transport of AIL, especially as AIL are likely to encompass Category 1, 2 or 3 vehicles. Certain AIL will also likely require Special Order Movements as the vehicles may be over 150,000 kgs or 16,500 kgs per axle. It is expected that a detailed AIL assessment will be a Condition of any future planning approval. Forecast axle loads and block loading for Proposed Development AIL are provided in the Preliminary Route Appraisal as damage to trunk road structures by AIL could have significant implications for environmental effects in terms of Road Vehicle Driver and Passenger Delay. Where possible AIL will travel on the A82 and A831 out with daytime traffic peak periods in order to limit obvious issues regarding delays to other traffic using these roads.

13.9.26 For AIL, negligible magnitude of change corresponds to zero AIL per day, low is any Category 1 AIL per day, medium is any category 2 AIL per day, and high is any Category 3 or above movements per day. For Hazardous Loads the number of vehicles travelling to site are included within the construction traffic forecasts, and given their relatively low number no specific consideration beyond this is given (as transporting fuel on public roads is an everyday occurrence).

Significance of Effects

13.9.27 For traffic generated by the Proposed Development the significance of environmental effects is derived from a combination of the sensitivity of the receiving environment (receptor) and the magnitude of change. **Table 4-7 Approach to the Assessment of Significance, Chapter 4: Approach to EIA (Volume 2: Main Report)** summarises the approach to identifying the significance of environmental effects.

13.10 Limitations and Assumptions

13.10.1 Limitations and assumptions on the adopted methodology include the forecasting of construction traffic. At the time of writing, there is insufficient detail within the construction programme for bespoke monthly profiles of construction vehicle movements to be forecast. The methodology adopted by this assessment calculates the average number of monthly construction vehicle movements for the constituent parts of the Proposed Development (e.g. Headpond, Tunnels, Power Cavern Complex etc). Traffic for these constituent parts is summed

by month to identify the overall peak months to be used for the environmental assessment. Having identified peak months for assessment, daily construction traffic flows are forecast by averaging the monthly traffic flow across 22 working days.

13.10.2 Limitations and assumptions on the adopted methodology also include the origin of construction traffic travelling to the Proposed Development Site. Standard procurement practice means that a Construction Contractor and supply-chain for construction materials may not be selected prior to the development being confirmed. Given that source locations for construction materials are not fixed at this time, professional judgement has been used to select the most likely and least impactful routes to site. It is assumed that all road-going construction traffic will use the Balnain Main Access, having arrived in the Study Area either via the A82 or for certain limited amounts of construction materials the A833. No construction traffic will use the A831 west of the Balnain Main Access.

13.10.3 Limitations and assumptions on the forecast for construction workers and other light goods vehicle (LGV) travelling to and from the Proposed Development Site on a daily basis. Assumptions based on 20% of the resident workforce being bused to and from site on any given day. Three LGVs up to 3.5T are assumed to access the site per working day in connection with workforce victuals. One 20,000L fuel tanker is assumed to resupply the site per working day.

13.10.4 The primary method for construction of the Tunnels will be drill and blast, as set out within **Chapter 2: Project and Site Description (Volume 2: Main Report),** however a Tunnel Boring Machine (TBM) has been included within this assessment to allow for flexibility at detailed design stage and for the appointed Construction Contractor. If required, the TBM would be split into transportable components and transported to site via AIL of appropriate size for each component, likely Category 3 AIL. This has the potential to contribute a further 12 AIL arrivals to site during the Construction Phase, and these vehicles are included in the construction traffic forecast.

13.10.5 Baseline traffic data has been informed from 2024 traffic surveys. This data has been reviewed and is considered robust. One equipment failure occurred during the winter 2024 surveys resulting in only 3 days' data being collected. This particular survey was repeated, and 7 consecutive days' data was subsequently collected.

13.10.6 Accident data from the Police Scotland database was reviewed for the five-year period between 2019 and 2023. Accidents occurring since 2023 have not informed this analysis as 2023 is the latest full calendar year of data available.

13.11 Baseline Environment

Existing Traffic and Movement Networks

13.11.1 The general character of Study Area roads is rural single carriageway two-way Trunk and A-class roads. Out with villages and settlements there is no comprehensive non-vehicular transport network infrastructure on Study Area roads.

13.11.2 On Study Area roads there is no cohesive network of pedestrian infrastructure outside of villages and settlements. The A82 in the environs of Drumnadrochit, Lewiston and Invermoriston has local footway provision adjacent to the vehicle carriageway. On the A831 from Drumnadrochit to Milton local footway provision exists until the commencement of national speed limits on the road immediately west of Milton. West of the Balnain Main Access on the A831 there is only very localised footway provision on the A831 in the environs of Balnain Primary School, noting that construction traffic leave the A831 before reaching the settlement of Balnain.

13.11.3 There are core paths in the environs of the Balnain Main Access, including the Affric Kintail Way long distance path. The Great Glen Way long distance path routes along high ground on the western side of Loch Ness, but is not on any on-site route that will be used by construction traffic. The Great Glen Way passes through Drumnadrochit where pedestrian footways are present. Baseline surveys of pedestrian traffic on core paths has not been undertaken. In Drumnadrochit peak period vehicle traffic survey videos also captured pedestrian activity at the A82/B831 junction. The Loch Ness 360 is a trail that connects the Great Glen Way with the South Loch Ness Trail. In the vicinity of the Proposed Development the Loch Ness 360 trail follows the Great Glen Way to and through Drumnadrochit.

13.11.4 There are no national cycle routes or cohesive network of cycle infrastructure on Study Area roads. Footways within the villages and settlements are for pedestrian traffic only. They are generally not of sufficient width to function safely or efficiently as shared pedestrian and cycle routes.

13.11.5 Public transport bus routes on the A82 and A831 Study Area roads. On the A82, local services include the 17 and the 312. The 17 service operates between Inverness and Tomich approximately 5 times daily from Monday through to Saturday. The 312 service operates twice daily on weekdays between Drumnadrochit and Invermoriston. On the A831, the 17 service operates between Inverness and Tomich approximately 5 times daily from Monday through to Saturday. Community consultation has indicated that school children are collected by bus at a number of informal locations on the A831 between the A82 and the Balnain Main Access junction. This is understood to include school buses serving Balnain Primary School and Glen Urquhart High School. The specifics of these locations are unknown but are likely to encompass local access junctions and private dwelling access located along the A831 where no formal pedestrian infrastructure currently exists.

13.11.6 **Figure 13.1 Traffic and Movement Study Area (Volume 3: Figures)** shows Study Area roads to be considered in this assessment. **Table 13-10 Character of Study Area Roads** provides a high-level summary of the roads' general character along with an estimate of each section's theoretical link capacity (Congestion Reference Flow - CRF). Further detail on determination of CRF is included within **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**.

Table 13-10 Character of Study Area Roads

Road	Type	Speed Limit (mph)	Congestion Reference Flow (Daily Traffic)
A82 Inverness	Rural – Good Single 7.3 m	National Speed Limit	27555
A82 North Drumnadrochit	Urban – Single 6 m	30	22580
A82 Drumnadrochit	Urban – Single 6 m	30	21937
A82 Lewiston	Urban - Single 7.3m	National Speed Limit	27629
A82 Urquhart Castle	Rural – Good Single 7.3 m	National Speed Limit	26316
A82 Grotaig	Rural – Good Single 7.3 m	National Speed Limit	24374
A82 Alltsigh	Rural – Typical Single 6 m	National Speed Limit	20574
A82 Invermoriston	Urban - Single 6 m	40	19786
A82 Fort Augustus	Rural – Typical Single 6 m	National Speed Limit	22150
A887 Invermoriston	Rural – Typical Single 6 m	National Speed Limit	20440
A831 Milton	Urban – Single 6 m	50	19112
A831 Strathnacro	Rural – Typical Single 6 m	National Speed Limit	19388
A831 Balnain	Rural – Typical Single 6 m	National Speed Limit	20037
A833	Rural – Good Single 7.3 m	National Speed Limit	23750

Sensitivity of Receptors

13.11.7 A summary of the Study Area road sensitivity of receptor assessment is provided in **Table 13-11 Sensitivity of Receptors**. The detail underpinning the sensitivity rating for each Study Area road can be found in **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**.

Table 13-11 Sensitivity of Receptors

Road	Description	Sensitivity of Receptor	Commentary
A82 Inverness	Single carriageway rural road with national speed limit.	High	Injury Accident Record. Tourist traffic.
A82 North Drumnadrochit	Single carriageway road north of Drumnadrochit.	High	Tourist traffic.
A82 Drumnadrochit	Single carriageway road through village of Drumnadrochit.	High	Tourist traffic. People at home. People at work.
A82 Lewiston	Single carriageway road through village of Lewiston.	High	Tourist traffic. People at home. People at work.
A82 Urquhart Castle	Single carriageway rural road with national speed limit. Passes Urquhart Castle.	High	Tourist traffic.

A82 Grotaig	Single carriageway rural road with national speed limit.	Low	Rural road with limited frontage, settlement or population present.
A82 Alltsigh	Single carriageway rural road with national speed limit.	Low	Rural road with limited frontage, settlement or population present.
A82 Invermoriston	Single carriageway road through village of Invermoriston.	High	Tourist traffic.
A82 Fort Augustus	Single carriageway rural road with national speed limit.	High	Tourist traffic.
A887 Invermoriston	Single carriageway rural road with national speed limit. 40mph within Invermoriston and 50mph between Dundreggan and Torgyle.	Medium	Tourist traffic. People at home. People at work.
A831 Milton	Single carriageway road between the A82 Drumnadrochit and A833.	High	Tourist traffic. People at home. People at work.
A831 Strathnacro	Single carriageway road between A833 and Balnain Main Access.	Low	Rural road with limited frontage, settlement or population present.
A831 Balnain	Single carriageway road between Balnain Main Access and Cannich.	Medium	Rural road with limited frontage. Some settlement or population present. Primary School.
A833	Single carriageway road between A831 Milton and Beauly.	Low	Rural road with limited frontage, settlement or population present.

Baseline Traffic Data

13.11.8 Baseline traffic data for Study Area roads is taken from 2024 traffic surveys. **Figure 13.2 Traffic Survey Locations 2024** (**Volume 3: Figures**) shows the location of the 2024 traffic surveys. **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**) contains the data from the traffic surveys.

13.11.9 **Table 13-12 Traffic Survey Data – November / December 2024** summarises traffic data collected in November / December 2024 while **Table 13-13 Traffic Survey Data – August 2024** summarises traffic data collected in August 2024. The data used to inform the Rule 1 / Rule 2 assessment is winter traffic. This presents a robust baseline for assessment as winter traffic flows on Study Area roads are typically lower than summer traffic flows due to tourist activities. Lower baseline traffic results in higher percentage increases on Study Area roads from development traffic, which provides a greater likelihood of more Study Area roads triggering Rule 1 / Rule 2 thresholds. THC requested that 12-hour weekday traffic data (0700-1900) be used in this assessment. For completeness 12-hour and 24-hour (0000-0000) traffic data from the winter 2024 traffic surveys is included in **Table 13-12 Traffic Survey Data – November / December 2024**and **Table 13-13 Traffic Survey Data – August 2024**.

Table 13-12 Traffic Survey Data – November / December 2024

Study Area Road	12-Hour (0700-1900) Weekday Traffic			24-Hour (0000-0000) Weekday Traffic		
	Car / LGV	HGV	Total	Car / LGV	HGV	Total
A82 Inverness	3,708	160	3,868	4,235	202	4,437
A82 North Drumnadrochit	3,708	160	3,868	4,235	202	4,437
A82 Drumnadrochit	4,462	231	4,693	5,076	278	5,354
A82 Lewiston	3,778	196	3,974	4,291	228	4,519
A82 Urquhart Castle	2,379	302	2,681	2,683	366	3,049
A82 Grotaig	2,184	141	2,325	2,487	180	2,667
A82 Alltsigh	2,199	140	2,339	2,498	177	2,675
A82 Invermoriston	2,256	148	2,404	2,555	186	2,741
A82 Fort Augustus	1,747	117	1,864	1,973	136	2,109
A887 Invermoriston	961	64	1,025	1,077	82	1,159

Study Area Road	12-Hour (0700-1900) Weekday Traffic			24-Hour (0000-0000) Weekday Traffic		
	Car / LGV	HGV	Total	Car / LGV	HGV	Total
A831 Milton	1,994	51	2,045	2,264	57	2,321
A831 Strathnacro	1,303	26	1,329	1,456	27	1,483
A831 Balnain	945	21	966	1,078	21	1,099
A833	833	24	857	931	28	959

Table 13-13 Traffic Survey Data – August 2024

Study Area Road	12-Hour (0700-1900) Weekday Traffic			24-Hour (0000-0000) Weekday Traffic		
	Car / LGV	HGV	Total	Car / LGV	HGV	Total
A82 Inverness	6,505	180	6,685	7,467	225	7,692
A82 North Drumnadrochit	6,505	180	6,685	7,467	225	7,692
A82 Drumnadrochit	8,007	202	8,210	9,185	248	9,433
A82 Lewiston	6,865	160	7,025	7,858	201	8,059
A82 Urquhart Castle	6,056	157	6,213	6,834	195	7,029
A82 Grotaig	4,609	153	4,762	5,274	194	5,468
A82 Alltsigh	4,614	149	4,763	5,291	185	5,476
A82 Invermoriston	4,560	166	4,726	5,196	208	5,404
A82 Fort Augustus	3,623	125	3,748	4,110	147	4,257
A887 Invermoriston	1,908	74	1,982	2,232	94	2,326
A831 Milton	3,034	168	3,203	3,515	201	3,716
A831 Strathnacro	1,636	34	1,670	1,926	37	1,963
A831 Balnain	1,430	20	1,450	1,686	24	1,710
A833	1,437	35	1,472	1,612	40	1,652

13.11.10 It should be noted that the A82 North Drumnadrochit Study Area road utilises the same traffic survey count point as the A82 Inverness Study Area road. They are located on the same section of road on the A82 with very few sink / sources between them. They were separated to account for the different character and sensitivity of receptors of the road as it enters Drumnadrochit however the level of traffic should remain very similar.

13.11.11 The evolution of baseline traffic flows has been considered in this assessment. Growth factors have been applied to 2024 traffic data to arrive at projected future year flows against which Proposed Development traffic is assessed.

Injury Accident Data

13.11.12 Injury accident data obtained from the Police Scotland database for the 4-year period has been reviewed (2020-2023). **Figure 13.3 Injury Accident Locations 2020-2023** (**Volume 3: Figures**) shows accidents on Study Area roads by location and severity. Details of the accident data is included in **Appendix 13.1 Transport Assessment (Volume 5: Appendices).**

13.11.13 A review of Study Area accident data does not support evidence of accident clusters or causations that would require specific investigation in this environmental assessment.

13.12 Embedded Mitigation

13.12.1 Traffic and movement embedded mitigation for the Proposed Development includes:

- Borrow Pits - Borrow pits will provide aggregate for track building and concrete production ;

- Batching concrete on-site - Batching (producing) concrete will greatly reduce any requirement for ready-mixed concrete to be delivered by concrete mixer lorries. Batching concrete within the Proposed Development Site also allows diversification of transport routes for different constituent parts of the concrete production process (cement, sand, additives) reducing traffic demands on potentially sensitive locations by not focussing traffic on single routes to site. Sand for concrete production could come from quarries near Wester Balblair via the A833, removing the requirement for that traffic to pass through Drumnadrochit.
- LCW marine construction project - The LCW will be a marine construction project and will not generate any significant road going construction traffic.
- Temporary Workers Accommodation - The provision of Temporary Workers Accommodation within the Proposed Development Site will greatly reduce car and LGV traffic using Study Area roads.
- Segregation of Affric Kintail Way Long Distance Path - The Affric Kintail Long Distance Path in the environs of the Proposed Development Site will be segregated from any access track that will be used by construction traffic. At Balnain this will see the walking path segregated from the vehicle track.
- Construction Traffic Management Plan (CTMP) – A Framework CTMP is included in **Appendix 13.2 Framework Construction Traffic Management Plan (Volume 5: Appendices)**. A detailed CTMP would be expected to be conditioned as part of any consent granted and would be prepared by the Construction Contractor.
- Workforce Traffic Management Plan (WTMP) - A WTMP will be prepared in advance of construction works commencing by the Construction Contractor to control the travel patterns of construction personnel, and they will be bused to and from the Temporary Workers Accommodation. The WTMP will contain measures designed to minimise the impact of staff journeys on the public road network and could include measures to reduce traffic by mandating means of travel for staff focussed on public transport and pick-up locations focused on public transport nodes (rail and bus stations) in and around Inverness.

13.13 Assessment of Effects – Pre-Construction and Enabling Phase

Proposed Development Traffic

13.13.1 Proposed Development traffic is forecast from first principles. Quantities of construction materials to be transported to site, and the load carrying capacity of the vehicles transporting them, are used to produce an arithmetic forecast of vehicle numbers. The vehicle forecast encompasses the entire construction programme and the temporal distribution of construction activities during that time. **Appendix 13.1 Transport Assessment (Volume 5: Appendices)** shows forecast construction traffic flows distributed across the construction programme which covers a period of up to 8 years. Peak months of construction vehicle activity are identified for the construction programme. Peak month traffic flows are converted to daily traffic flows based on 22 working days per month.

13.13.2 For a robust assessment it is assumed all construction materials imported to site will be transported to site by road. The exception to this is the LCW which will be a marine construction project and minimal LCW construction materials will be transported by road. Certain materials are anticipated to be largely won on site including aggregates, and this has been factored in the vehicle forecast calculations. Details of assumptions of material quantities to be won on site are contained within **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**.

13.13.3 A distribution for Proposed Development traffic has been assumed for the likely origins of construction materials being transported by road. **Table 13-14 Construction Traffic Distribution** shows how construction material vehicle trips have been distributed on Study Area roads. This is largely Inverness focussed given the port and associated industries in and around the city.

Table 13-14 Construction Traffic Distribution

Material	A82 Inverness	A82 Fort Augustus	A833 Beauly
Aggregate	-	-	100%
Construction Plant	50%	50%	-
Galvanised Steel	100%	-	-
Concrete	-	40% (Cement and Additives)	60% (Sand)
Concrete Rebar	100%	-	-
Prefabricated Steel	100%	-	-
Bottomless Culvert Pre-cast Concrete	100%	-	-
Temporary Workers Accommodation	50%	50%	-
Geotextiles / Geogrid	100%	-	-
Diffuser Screens (Headpond)	100%	-	-
Fuel	100%	-	-
Workforce Victuals	100%	-	-
Car / LGV Workforce Traffic	100%	-	-

13.13.4 **Table 13-15 Proposed Development Daily Traffic** summarises the daily construction traffic used in this assessment for the Pre-Construction and Enabling Phase and the Construction Phase. **Appendix 13.1 Transport Assessment (Volume 5: Appendices)** includes network flow diagrams that illustrate the forecast number of construction vehicle trips assigned to Study Area roads.

Table 13-15 Proposed Development Daily Traffic

Study Area Road	Proposed Development Daily Traffic					
	Pre-Construction and Enabling Phase			Construction Phase		
	Car / LGV	HGV	Total	Car / LGV	HGV	Total
A82 Inverness	12	6	18	34	76	110
A82 North Drumnadrochit	12	6	18	34	76	110
A82 Drumnadrochit	0	2	2	0	4	4
A82 Lewiston	0	2	2	0	4	4
A82 Urquhart Castle	0	2	2	0	4	4
A82 Grotaig	0	2	2	0	4	4
A82 Alltsigh	0	2	2	0	4	4
A82 Invermoriston	0	2	2	0	4	4
A82 Fort Augustus	0	2	2	0	4	4
A887 Invermoriston	0	0	0	0	0	0
A831 Milton	12	8	20	34	80	114
A831 Strathnacro	12	12	24	34	178	212
A831 Balnain	0	0	0	0	0	0
A833	0	4	4	0	98	98

Assessment of Effects - Pre-Construction and Enabling Phase

13.13.5 Pre-Construction and Enabling Phase peak traffic is forecast at the end of Year 1 Quarter 2 of the construction programme (**Appendix 13.1 Transport Assessment (Volume 5: Appendices)**). For assessment purposes 2024 traffic has been factored to April 2026 as a proxy for the earliest Year 1 Quarter 2 could occur. Should the Pre-Construction and Enabling peak traffic occur later, the applied traffic growth remains robust for environmental assessment, as baseline traffic will not be inflated by excessive growth for IEMA Guidelines Rule 1 and Rule 2 assessment. The forecast daily construction traffic for this month is 12 HGV (6 arrivals + 6 departures) and 12 Car/LGV (6 arrivals + 6 departures).

13.13.6 A growth factor has been obtained from the software package TEMPro which uses Department for Transport National Trip End Model (NTEM) data to provide its forecasted growth factor. A growth factor of 1.0195 is applied to traffic survey data to produce a 2026 Pre-Construction and Enabling Phase baseline from the 2024 traffic survey data. Details of the traffic growth calculations are included within **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**).

13.13.7 IEMA Guidelines Rule 1 and Rule 2 are applied to Study Area roads to identify which roads are to be assessed for environmental effects during the Pre-Construction and Enabling Phase of the Proposed Development. **Table 13-16 Study Area Roads to be Assessed for Environmental Effects (Pre-Construction and Enabling Phase)** summarises the Rule 1 and Rule 2 findings and identifies Study Area roads to be assessed for environmental effects (Yes) and the roads to be excluded (No).

Table 13-16 Study Area Roads to be Assessed for Environmental Effects (Pre-Construction and Enabling Phase)

Study Area Road	2026 Baseline (12-Hour Traffic)		Daily Pre-Construction and Enabling Traffic		% Increase in Traffic		Include in Assessment
	HGV	All Veh	HGV	All Veh	HGV	All Veh	(Yes / No)
A82 Inverness	163	3,943	6	18	4%	0%	No
A82 North Drumnadrochit	163	3,943	6	18	4%	0%	No
A82 Drumnadrochit	236	4,785	2	2	1%	0%	No
A82 Lewiston	200	4,052	2	2	1%	0%	No
A82 Urquhart Castle	308	2,733	2	2	1%	0%	No
A82 Grotaig	144	2,371	2	2	1%	0%	No
A82 Alltsigh	143	2,384	2	2	1%	0%	No
A82 Invermoriston	151	2,451	2	2	1%	0%	No
A82 Fort Augustus	120	1,901	2	2	2%	0%	No
A887 Invermoriston	65	1,044	0	0	0%	0%	No
A831 Milton	52	2,085	8	20	15%	1%	**Yes**
A831 Strathnacro	26	1,355	12	24	46%	2%	**Yes**
A831 Balnain	21	985	0	0	0%	0%	No
A833	25	874	4	4	16%	0%	No

13.13.8 **Table 13-16 Study Area Roads to be Assessed for Environmental Effects (Pre-Construction and Enabling Phase)** shows that two Study Area roads require to be assessed for environmental effects during the Pre-Construction and Enabling Phase. The twelve roads that do not meet Rule 1 and Rule 2 thresholds are not considered any further in terms of traffic and movement environmental effects resulting from the Pre-Construction and Enabling Phase.

Pre-Construction and Enabling Phase - Severance

13.13.9 **Table 13-17 Pre-Construction and Enabling Phase Severance of Communities** presents significance of effects for Pre-Construction and Enabling Phase development traffic. Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as traffic increases are under 30%, which results in negligible to minor significance of effects for severance.

Table 13-17 Pre-Construction and Enabling Phase Severance of Communities

Study Area Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A831 Milton	High	1%	Negligible	Minor
A831 Strathnacro	Low	2%	Negligible	Negligible

13.13.10 Classifying the significance of effects: prior to additional mitigation, the environmental effect of Pre-Construction and Enabling traffic on severance is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Fear and Intimidation

13.13.11 **Table 13-18 Pre-Construction and Enabling Phase Fear and Intimidation on and by Road Users** presents the significance of effects on the fear and intimidation on and by road users forecast during the Pre-Construction and Enabling Phase of the Proposed Development.

13.13.12 The Fear and Intimidation assessment has been conducted using the 'degree of hazard' methodology as set out in IEMA Guidelines. The derivation of the fear and intimidation calculations are included in full within **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**). Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as there are no step changes in degree of hazard, which results in negligible to minor significance of effects for fear and intimidation.

Table 13-18 Pre-Construction and Enabling Phase Fear and Intimidation on and by Road Users

Road	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effect
A831 Milton	High	0	Negligible	Minor
A831 Strathnacro	Low	0	Negligible	Negligible

13.13.13 Classifying the significance of effects: prior to additional mitigation, the likely effect of Pre-Construction and Enabling traffic on Fear and Intimidation is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Road Safety

13.13.14 Road user and pedestrian safety assesses environmental effects based on rate and severity of accidents relating to changes in traffic flows. Recorded injury accidents for the four-year period 2020-2023 were used to calculate an accident rate by severity (slight, serious, fatal) per million vehicle kilometres travelled on Study Area roads. Proposed Development vehicle kilometres by Study Area road are applied to the accident rates to produce a forecast of accidents by severity. **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**) details the forecast of accidents by severity calculation.

13.13.15 Road user and pedestrian safety significance of effects for Study Area roads during the Pre-Construction and Enabling Phase is shown in **Table 13-19 Pre-Construction and Enabling Phase Road User and Pedestrian Safety.** Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as there are no material increase in accident numbers of severity forecast, which results in negligible to minor significance of effects for road user and pedestrian safety.

Table 13-19 Pre-Construction and Enabling Phase Road User and Pedestrian Safety

Road	Sensitivity of Receptor	Forecast Injury Accidents Increase			Magnitude of Change	Significance of Effect
		Slight	Severe	Fatal		
A831 Milton	High	0.0	0.0	0.0	Negligible	Minor
A831 Strathnacro	Low	0.0	0.0	0.0	Negligible	Negligible

13.13.16 Classifying the significance of effects: prior to additional mitigation, the likely effect of Pre-Construction and Enabling traffic on Road User and Pedestrian Safety is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Non-Motorised Amenity

13.13.17 **Table 13-20 Pre-Construction and Enabling Phase Non-motorised User Amenity** presents the forecast effects in terms of non-motorised user amenity during the Pre-Construction and Enabling Phase. The 1993 IEMA Guidelines suggest that a threshold for judging the significance of changes in pedestrian amenity would be where traffic flow has halved or doubled. It also states that these thresholds are expressed as a starting point for any assessment and therefore, to establish a significance of effect, the same 30%, 60%, 90% magnitude of change thresholds as applied in the 'severance of communities' assessment have been used. Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as traffic increases are under 30%, which results in negligible to minor significance of effects for non-motorised user amenity.

Table 13-20 Pre-Construction and Enabling Phase Non-motorised User Amenity

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A831 Milton	High	1%	Negligible	Minor
A831 Strathnacro	Low	2%	Negligible	Negligible

13.13.18 Classifying the significance of effects: prior to additional mitigation, the likely effect of Pre-Construction and Enabling Phase traffic on Non-motorised User Amenity is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Non-Motorised Delay

13.13.19 **Table 13-21 Pre-Construction and Enabling Phase Assessment of Non-motorised User Delay** presents the forecast effects on non-motorised user delay during the Pre-Construction and Enabling Phase. The IEMA Guidelines state that pedestrian delay and severance are closely related effects and can be grouped together and that changes in the volume of general traffic may affect the ability of pedestrians to crossroads. The non-motorised user assessment has therefore been undertaken using the same magnitude of change thresholds as the severance assessment.

13.13.20 The IEMA Guidelines state that "The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively.' These thresholds are used to determine the magnitude of change for the assessment of non-motorised user delay.

13.13.21 The junction turning counts from the 2024 traffic surveys show that very few cyclists travel on Study Area roads. During the summer surveys, 5 cyclists were recorded travelling through the A82 / A831 junction during the 3-hour AM peak period (0700-1000hrs). 5 cyclists were also recorded travelling through the A82 / A831 junction during the 3-hour PM peak period (1600-1900hrs). These low baseline levels of cycling have been considered as part of this assessment.

13.13.22 Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as traffic increases are under 30%, which results in negligible to minor significance of effects for non-motorised user delay.

Table 13-21 Pre-Construction and Enabling Phase Assessment of Non-motorised User Delay

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A831 Milton	High	1%	Negligible	Minor
A831 Strathnacro	Low	2%	Negligible	Negligible

13.13.23 Classifying the significance of effects: prior to additional mitigation, the likely effect of Pre-Construction and Enabling traffic on Non-motorised User Delay is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Road Vehicle Driver and Passenger Delay

13.13.24 **Table 13-22 Pre-Construction and Enabling Road Vehicle Driver and Passenger Delay** presents the assessment of driver delay during the Pre-Construction and Enabling Phase. The IEMA Guidelines state that traffic delays can occur at site entrance junctions and on roads passing development sites where there is likely to be additional traffic. It is noted that delays are only likely to be significant when traffic on the network surrounding the Proposed Development Site is already at, or close to capacity. While no such capacity issues have been surveyed or observed on public roads in the vicinity of the Proposed Development Site, in line with the thresholds presented in **Table 13-9 Road Vehicle Driver and Passenger Delay Magnitude of Change,** driver delay is assessed in terms of potential congestion resulting from Proposed Development Pre-Construction and Enabling traffic. Study Area roads encompass low and high sensitivity receptors, negligible magnitudes of change as there is no step change in congestion reference flow, which results in negligible to minor significance of effects for driver delay.

Table 13-22 Pre-Construction and Enabling Road Vehicle Driver and Passenger Delay

Road	Sensitivity of Receptor	Congestion Reference Flow	Magnitude of Change	Significance of Effect
A831 Milton	High	No Step Change	Negligible	Minor
A831 Strathnacro	Low	No Step Change	Negligible	Negligible

13.13.25 Classifying the significance of effects: prior to additional mitigation, the likely effect of Pre-Construction and Enabling traffic on Road Vehicle Driver and Passenger Delay is a direct, temporary, **Minor Adverse (Not Significant)** effect.

Pre-Construction and Enabling Phase - Hazardous / Large Loads

13.13.26 Pre-Construction and Enabling Phase hazardous and large loads will be transported to the Proposed Development Site by road. The legislation detailing the movement of Hazardous / Large Loads is the Road Vehicles (Construction and Use) Regulations (1986) and Special Types General Order (STGO) (2003) detailed in **Section 13.2 Legislation and Policy**. Large loads will mainly be heavy construction plant being transported to site. Typically, these vehicles are Special Types General Order Category 1 (up to 50,000 kg) Category 2 (up to 80,000 kg) or Category 3 (up to 150,000 kg). The Pre-Construction and Enabling Phase is not expected to generate any Special Order Movements for vehicles over 150,000 kg.

13.13.27 The movement of large loads is regulated and will be subject to agreement with the relevant roads authorities and Police Scotland. Appropriate routes must be considered for the movement of large loads and mitigation strategies must secure their safe passage. If frequent large load movements are anticipated consideration must be given to whether other traffic impacts could be induced e.g. severance, fear and intimidation, driver delay, etc.

13.13.28 197 heavy construction plant are forecast to be delivered to site for the Pre-Construction and Enabling Phase. These will route via the A82 and A831. These are principal routes designed with road geometry and structures that should be sufficient to accommodate STGO Category 1-3 vehicles, assuming hauliers comply with the regulated number of axles and axle loadings on their vehicles.

13.13.29 There is no law requiring vehicles moving under STGO to be accompanied by an escort vehicle, although the police can stipulate an escort vehicle is used where they consider necessary. Large loads traveling to the Proposed Development Site will be escorted where necessary. On Study Area roads that are high sensitivity receptors large loads will obey all speed limits and traffic directions (including lawful directions from escort vehicles or Police Scotland).

13.13.30 The delivery of heavy construction plant is included within the Pre-Construction and Enabling Phase average daily traffic forecast adopted for this environmental assessment. However, a sensitivity test that assumes the 197 plant are delivered within the first month of the Pre-Construction and Enabling Phase programme has been considered for assessing the environmental effects of large loads. For this sensitivity test an average, or scheduled, arrival rate would be 1 large load per hour. This is based 197 vehicles arriving over 22-working days in the first month, with 9-hours per day available for large load deliveries.

13.13.31 The sensitivity test only adds 1 large load arrival per hour to the average daily construction traffic forecast for the first month of the Pre-Construction and Enabling Phase, with escort vehicles only used where necessary. This number of large loads is considered to be sufficiently low that they would have no discernible impact on the minor magnitudes of change already established in this assessment for severance, fear and intimidation, road safety, non-motorised user amenity, and non-motorised user delay on Study Area roads. This will result in no change to the direct, temporary, negligible (Not Significant) and minor adverse (Not Significant) environmental effects already identified in this assessment for Study Area roads.

13.13.32 The National Speed Limit (NSL) on single carriageway roads in Scotland for goods vehicles above 7.5 tonnes maximum laden weight is 40 mph. On NSL roads STGO Category 1 vehicles are also permitted to travel at 40 mph, i.e. no different to other HGV in that regard. STGO Category 2 and 3 vehicles are restricted to 30 mph on NSL roads.

13.13.33 On Study Area roads general HGVs following a Category 2 or Category 3 large load for the entire route would experience an increase in journey time. This is due to the 10 mph speed limit difference between those vehicle types on NSL roads. General HGVs would likely have to follow rather than overtake large loads. Cars and LGV should be able to overtake Category 1-3 large loads on Study Area NSL roads when permissible and safe to do so.

13.13.34 Category 2 or Category 3 large loads going to site during the Pre-Construction and Enabling Phase can only travel at 30 mph on national speed limit roads. They will be relatively few in number with potentially just one arrival to site per hour. During the course of a trip along Study Area roads other HGV travelling at NSL (40 mph) would gradually catch and then have to follow slower moving large load traffic. As large load vehicles will be few in number, instances of other HGV having to follow slower moving large loads for protracted distances on Study Area roads should be limited.

13.13.35 It is therefore considered that Pre-Construction and Enabling Phase large loads would have no additional impact on the minor magnitude of change already established in this assessment for driver delay on Study Area roads. This will result in no change to the direct, temporary, minor adverse (Not Significant) environmental effects already identified in this assessment for driver delay on Study Area roads.

13.13.36 Pre-Construction and Enabling Phase hazardous loads include blasting agents which are Class 1.5 explosives. These will be transported to site in accordance with the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2017). Accordingly, blasting agents will be transported to site by an experienced ADR carrier to ensure the transport method and all personnel involved meet the regulatory requirements for moving explosives by road. Transport routes will require prior approval with a focus on avoiding populated areas where possible, adhering to a pre-prepared route, and avoiding parking or stopping near tunnels, bridges or crowded areas. Providing ADR regulations are adhered to there should be no significant environmental effects associated with transporting blasting agents to site.

13.13.37 Pre-Construction and Enabling Phase hazardous loads will also include fuel to be transported to site for construction plant. It is assumed one 20,000L fuel tanker per day will arrive at the Proposed Development Site. Such tankers are commonplace on UK roads and there will therefore be no significant environmental effects on Study Area roads from hazardous loads. The movement of fuel on-site within the Proposed Development will need appropriate risk assessment outside of this environmental assessment. Traffic and movement sensitive receptors on-site will be limited to pedestrian or cycle traffic using core paths including the Affric Kintail Way. The Affric Kintail Way will be segregated from construction vehicle access tracks as part of the embedded mitigation.

13.14 Assessment of Effects – Construction Phase

13.14.1 Construction Phase peak traffic is forecast during Year 3 Quarter 3 of the construction programme. For assessment purposes 2024 traffic has been factored to June 2028 as a proxy for the earliest Year 3 Quarter 3 could occur. Should the Construction Phase peak traffic occur later, the applied traffic growth remains robust for environmental assessment, as baseline traffic will not be inflated by excessive growth for IEMA Guidelines Rule 1 and Rule 2 assessment. The forecast daily construction traffic for this month is 178 HGV (89 arrivals + 89 departures) and 34 Car/LGV (17 arrivals + 17 departures).

13.14.2 A growth factor has been obtained from the software package TEMPro which uses Department for Transport National Trip End Model (NTEM) data to provide its forecasted growth factor. A growth factor of 1.0296 is applied to traffic survey data to produce a 2028 Construction Phase baseline from the 2024 traffic survey data. Details of the traffic growth calculations are included within **Appendix 13.1 Transport Assessment** (**Volume 5: Appendices**).

13.14.3 IEMA Guidelines Rule 1 and Rule 2 are applied to Study Area roads to identify which roads are to be assessed for environmental effects during the Construction Phase of the Proposed Development. **Table 13-23 Study Area Roads to be Assessed for Environmental Effects (Construction Phase)** summarises the Rule 1 and Rule 2 findings and identifies Study Area roads to be assessed for environmental effects (Yes) and the roads to be excluded (No).

Table 13-23 Study Area Roads to be Assessed for Environmental Effects (Construction Phase)

Study Area Road	2028 Baseline (12-hour Traffic)		Proposed Development Daily Traffic		% Increase		Include in Assessment
	HGV	All Veh	HGV	All Veh	HGV	All Veh	(Yes / No)
A82 Inverness	165	3,982	76	110	46%	3%	**Yes**
A82 North Drumnadrochit	165	3,982	76	110	46%	3%	**Yes**
A82 Drumnadrochit	238	4,832	4	4	2%	0%	No
A82 Lewiston	202	4,092	4	4	2%	0%	No
A82 Urquhart Castle	311	2,760	4	4	1%	0%	No
A82 Grotaig	145	2,394	4	4	3%	0%	No
A82 Alltsigh	144	2,408	4	4	3%	0%	No
A82 Invermoriston	153	2,476	4	4	3%	0%	No
A82 Fort Augustus	121	1,920	4	4	3%	0%	No
A887 Invermoriston	66	1,055	0	0	0%	0%	No
A831 Milton	53	2,106	80	114	152%	5%	**Yes**
A831 Strathnacro	27	1,368	178	212	670%	15%	**Yes**
A831 Balnain	22	995	0	0	0%	0%	No
A833	25	882	98	98	393%	11%	**Yes**

13.14.4 **Table 13-23 Study Area Roads to be Assessed for Environmental Effects (Construction Phase)** shows that five Study Area roads require to be assessed for environmental effects. The nine roads that do not meet Rule 1 and Rule 2 thresholds are not considered any further in terms of traffic and movement environmental effects resulting from the Proposed Development Construction Phase.

Construction Phase - Severance

13.14.5 **Table 13-24 Construction Phase Severance of Communities** presents the significance of effects on the severance of communities as a result of Construction development traffic. The significance of effects for severance are based on an assessment of all traffic in accordance with the IEMA Guidelines.

Table 13-24 Construction Phase Severance of Communities

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	3%	Negligible	Minor
A82 North Drumnadrochit	High	3%	Negligible	Minor
A831 Milton	High	5%	Negligible	Minor
A831 Strathnacro	Low	15%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.14.6 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on severance is a direct, temporary, **Minor Adverse (Not Significant) effect.**

13.14.7 In terms of severance, the significance of effects on two of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit and A831 Milton road links are forecast to have Minor significance of effects.

Construction Phase - Fear and Intimidation

13.14.8 **Table 13-25 Construction Phase Fear and Intimidation on and by Road Users** presents the forecast significance of effect on fear and intimidation as a result of the Construction Phase. This assessment follows the methodology for assessment of Fear and Intimidation as set out in IEMA Guidelines 2023.

Table 13-25 Construction Phase Fear and Intimidation on and by Road Users

Road	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effect
A82 Inverness	High	0	Negligible	Minor
A82 North Drumnadrochit	High	0	Negligible	Minor
A831 Milton	High	0	Negligible	Minor
A831 Strathnacro	Low	0	Negligible	Negligible
A833	Low	0	Negligible	Negligible

13.14.9 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Fear and Intimidation is a direct, temporary, **Minor Adverse (Not Significant) effect.**

13.14.10 In terms of Fear and Intimidation, the significance of effects on two of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit and A831 Milton road links are forecast to have Minor significance of effects.

Construction Phase - Road Safety

13.14.11 **Table 13-26 Construction Phase Road User and Pedestrian Safety** presents road user and pedestrian safety significance of effects on Study Area roads for the duration of the Construction Phase of the Proposed Development.

Table 13-26 Construction Phase Road User and Pedestrian Safety

Road	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Severe	Fatal		
A82 Inverness	High	0.0	0.0	0.0	Negligible	Minor
A82 North Drumnadrochit	High	0.0	0.0	0.0	Negligible	Minor
A831 Milton	High	0.0	0.0	0.0	Negligible	Minor
A831 Strathnacro	Low	0.0	0.0	0.0	Negligible	Negligible
A833	Low	0.1	0.2	0.0	Negligible	Negligible

13.14.12 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road User and Pedestrian Safety is a direct, temporary, **Minor Adverse (Not Significant) effect.**

13.14.13 In terms of Road User and Pedestrian Safety, the significance of effects on two of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit and A831 Milton road links are forecast to have Minor significance of effects.

Construction Phase - Non-Motorised User Amenity

13.14.14 **Table 13-27 Construction Phase Non-motorised User Amenity** presents the forecast significance of effects on non-motorised user amenity during the Construction Phase of the Proposed Development.

Table 13-27 Construction Phase Non-motorised User Amenity

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	3%	Negligible	Minor
A82 North Drumnadrochit	High	3%	Negligible	Minor
A831 Milton	High	5%	Negligible	Minor
A831 Strathnacro	Low	15%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.14.15 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Non-motorised User Amenity is a direct, temporary, **Minor Adverse (Not Significant) effect.**

13.14.16 In terms of Non-motorised User Amenity, the significance of effects on two of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit and A831 Milton road links are forecast to have Minor significance of effects.

Construction Phase - Non-Motorised Delay

13.14.17 The forecast effects on non-motorised user delay during the Construction Phase of the Proposed Development are shown in **Table 13-28 Construction Phase Non-motorised User Delay.**

Table 13-28 Construction Phase Non-motorised User Delay

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	3%	Negligible	Minor
A82 North Drumnadrochit	High	3%	Negligible	Minor
A831 Milton	High	5%	Negligible	Minor
A831 Strathnacro	Low	15%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.14.18 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Non-motorised User Delay is a direct, temporary, **Minor Adverse (Not Significant) effect.**

13.14.19 In terms of Non-motorised User Delay, the significance of effects on two of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit and A831 Milton road links are forecast to have Minor significance of effects.

Construction Phase – Road Vehicle Driver and Passenger Delay

13.14.20 The forecast significance of effects on driver and passenger delay during the Construction Phase of the Proposed Development are shown in **Table 13-29 Construction Phase Assessment of Road Vehicle Driver and Passenger Delay.** Full outputs of the impact analysis are included within **Appendix 13.1 Transport Assessment (Volume 5: Appendices)**.

Table 13-29 Construction Phase Assessment of Road Vehicle Driver and Passenger Delay

Road	Sensitivity of Receptor	Change in Junction Level of Service	Congestion Reference Flow %	Magnitude of Change	Significance of Effect
A82 Inverness	High	-	No Step Change	Negligible	Minor
A82 North Drumnadrochit	High	No Change	No Step Change	Negligible	Minor
A831 Milton	High	B to C	No Step Change	Low	Moderate
A831 Strathnacro	Low	No Change	No Step Change	Negligible	Negligible
A833	Low	No Change	No Step Change	Negligible	Negligible

13.14.21 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a direct, temporary, **Moderate Adverse (Significant) effect** on the A831 Milton. The likely effect on all other Study Area roads is either a direct, temporary, **Minor Adverse (Not Significant)** effect or direct, temporary, **Negligible (Not Significant)** effect.

13.14.22 In terms of Road Vehicle Driver and Passenger Delay, the A831 Milton is forecast to experience a moderate significant environmental effect. This is due to the level of service on the A831 approach to the junction with the A82 at Drumnadrochit. Junction capacity testing indicates that flow conditions would decrease from level of service B (reasonably free flow) to level of service C (stable flow). This change is forecast to occur during the PM peak traffic hour which occurs weekday between 16:45 and 17:45.

13.14.23 This change in level of service is caused by the increase in HGV construction traffic passing through the junction in the PM peak hour. A slight increase in delay for vehicles exiting the A831 onto the A82 moves the level of service for the A831 arm of the junction from B into C. It would not be expected that drivers would experience material changes in their journey times, as the change in level of service only corresponds to very small increase in the number of seconds delay experienced per vehicle travelling through the junction. There would be no perceptible increase in queueing or delay at the junction, and the junction would continue to operate with practical reserve capacity during peak hours.

Construction Phase - Hazardous / Large Loads

13.14.24 Construction Phase hazardous and large loads will be transported to the Proposed Development Site by road. Large loads will consist of mechanical and electrical (M&E) equipment associated with the pumped storage hydro facility. It is expected that large plant and equipment associated with construction will have been transported to site during the earlier Pre-Construction and Enabling Phase. M&E equipment is expected to be transported to site by vehicles aligning with STGO Category 1 (up to 50,000 kg) Category 2 (up to 80,000 kg) or Category 3 (up to 150,000 kg). The Construction Phase is also expected to generate Special Order Movements of vehicles over 150,000 kg for some of the larger pieces of equipment. A list of the M&E equipment, their dimensions and approximate weight is shown in **Table 13-30 Construction Phase AIL**.

Table 13-30 Construction Phase AIL

Component	No. of Items	Estimated Dimensions			Approximate Weight (T)
		Length (m)	Width (m)	Height (m)	
Generator – Stator (Fixed Speed)	8	3.7	3.7	8.8	160
Generator – Rotor (Fixed Speed)	4	6.1	6.1	5.1	150
Generator Cover (Fixed Speed)	4	5.4	5.4	2.7	50
Generator – Stator (Variable Speed)	8	3.7	3.7	10	170
Generator – Rotor (Variable Speed)	4	6.1	6.1	5.5	170
Generator Cover (Variable Speed)	4	5.1	5.1	3.7	60

Component	No. of Items	Estimated Dimensions			Approximate Weight (T)
		Length (m)	Width (m)	Height (m)	
Draft Tube	8	16	4.3	4.3	TBC
Spiral Casing	8	6.1	1.9	1.9	TBC
Gantry Crane	2	25.3	3	3	55
Auxiliary Crane	2	24.3	1	1	20
Transformer	8	11.3	3.3	4.6	190
Main Inlet Valve	8	3.6	4	4	100
Butterfly Valves	4	3.6	4	4	100
Total	**72**				

13.14.25 The movement of all AILs is regulated and will be subject to agreement with the relevant roads authorities and Police Scotland. Appropriate routes must be considered for the movement of large loads and mitigation strategies must secure their safe passage. If frequent large load movements are anticipated consideration must be given to whether other traffic impacts could be induced e.g. severance, fear and intimidation, driver delay, etc.

13.14.26 **Table 13-30 Construction Phase AIL** shows the forecast of AILs to be delivered to site during the Construction Phase. These will route via the A82 and A831. These are principal roads designed to road geometry and strength standards that will be sufficient to accommodate STGO Category 1-3 vehicles, and Special Order Movements assuming vehicle axle loads are managed through provision of appropriate AIL vehicles.

13.14.27 Given the dimensions and weights of loads required during construction, Police Scotland may stipulate an escort vehicle is used where they consider necessary. Large loads traveling to the Proposed Development Site will be escorted where necessary. On Study Area roads that are high sensitivity receptors, large loads will obey all speed limits and traffic directions (including lawful directions from escort vehicles or Police Scotland). Furthermore, large loads will be scheduled to be delivered to site outside of peak traffic hours in order to minimise disruption. An example of scheduling is that larger AIL movements can be transported at night, minimising the effects on delay on public roads.

13.14.28 All 72 AIL arrivals shown in **Table 13-30 Construction Phase AIL** have been included within the construction traffic programme. AIL arrivals are forecast to average two per month between Month 21 and Month 60. For environmental assessment a sensitivity test that assumes both monthly AIL arrivals occur on the same day has been undertaken. For environmental assessment of large loads, the specific effects of two AIL arrivals on one day have been considered in terms of the traffic and movement categories.

13.14.29 This number of daily large loads is considered to be sufficiently low that they would have no discernible impact on the minor magnitudes of change already established in the assessment for severance, fear and intimidation, road safety, non-motorised user amenity, and non-motorised user delay on Study Area roads. STGO Special Order Movements for vehicles over 150,000 kg are strictly controlled. Their passage through areas with sensitive receptors (urban areas, settlements and villages) will be managed and controlled by Police Scotland and AIL escorts. As such adverse environmental effects, including on fear and intimidation and non-motorised amenity, typically do not materialise. Local populations will typically come out to watch en-masse as large AIL pass through their communities. This will result in no change to the direct, temporary, negligible (Not Significant) and minor (Not Significant) environmental effects already identified in this assessment for Study Area roads.

13.14.30 In terms of Driver Delay, the following are material considerations. The National Speed Limit on single carriageway roads in Scotland for goods vehicles above 7.5 tonnes maximum laden weight is 40 mph. On NSL roads STGO Category 1 vehicles are also permitted to travel at 40 mph, i.e. no different to other HGV in that regard. STGO Category 2 and 3 vehicles are restricted to 30 mph on NSL roads.

13.14.31 On Study Area roads general HGVs following a Category 2 or Category 3 large load for the entire route would experience an increase in journey time. This is due to the 10 mph speed limit difference between those vehicle types on national speed limit roads. General HGVs would likely have to follow rather than overtake large loads. Cars and Light Goods Vehicles should be able to overtake Category 1-3 large loads on Study Area national speed limit roads when permissible and safe to do so.

13.14.32 STGO Special Order Movements AIL (in excess of 150,000kg) can be scheduled to be delivered to site outside of peak traffic hours in order to minimise disruption. As such, the environmental effects on driver delay are

expected to result in no worsening to the direct, temporary, moderate (Significant) environmental effect already identified in this assessment for driver delay Study Area roads.

13.14.33 Blasting agents will be transported to site in accordance with ADR 2017. This means blasting agents will be transported to site by an experienced ADR carrier ensuring all regulatory requirements for moving explosives by road are met. Providing ADR regulations are adhered to there should be no significant environmental effects associated with transporting blasting agents to site.

13.14.34 The Construction Phase will also require fuel to be transported to site for construction plant. It is assumed one 20,000L fuel tanker per day will arrive on site. Fuel tankers are commonplace on UK roads and there should not be any significant environmental effects on Study Area roads. Traffic and movement sensitive receptors on-site will be limited to pedestrian or cycle traffic using core paths. Core path traffic will be segregated from construction vehicles as part of the embedded mitigation. Nevertheless, on-site ADR vehicles transporting blasting agents and tankers transporting fuel may be travelling on track surfaces and gradients that increase the probability of an incident that could lead to a significant environment effect should an incident occur. On-site explosive and fuel movements will be subject to bespoke risk assessments by the qualified haulage contractors transporting these materials to site.

13.15 Additional Mitigation

Additional Mitigation

13.15.1 Community consultation has indicated that school children are collected by bus at a number of informal locations on the A831 between the A82 and the Balnain Main Access junction. This is understood to include school buses serving Balnain Primary School and Glen Urquhart High School. The specifics of these locations are unknown but are likely to encompass local access junctions and private dwelling accesses located along the A831 where no formal pedestrian infrastructure currently exists.

13.15.2 To address this community consultation feedback, additional mitigation will be provided to warn drivers on the A831 of the presence of pedestrian traffic associated with school bus services.It is proposed that warning signs are installed at appropriate locations along the A831 in line with DfT Traffic Signs Manual Chapter 4, Warning Signs, 2018. **Appendix 13.2 Framework Construction Traffic Management Plan (Volume 5: Appendices)** shows the warning sign which can be combined with ‘Pedestrians Crossing’ and sets out the distances and parameters at which the sign should be set from each location. Consideration will also be given to providing surfaced areas within the public road verge at pick-up points for school children to board and alight from school buses along the A831.

13.15.3 Additional mitigation in combination with embedded mitigation provided by the CTMP will address the following potential environmental effects:

- **Severance of communities** – construction traffic will give particular attention to locations and environments where pedestrian traffic and road crossing points are present to ensure severance effects are minimised.
- **Fear and Intimidation on and by Road Users** – construction traffic will be mindful of vehicle speeds and manoeuvring in proximity to vulnerable road users (pedestrian and cycle traffic) in all locations and environments to ensure fear and intimidation effects are minimised.
- **Road User and Pedestrian Safety** – construction traffic will be mindful of vehicle speeds and manoeuvring in proximity to vulnerable road users (pedestrian and cycle traffic) in all locations and environments. Best practice for construction traffic operators will be promoted to ensure accident and road safety effects are minimised.
- **Non-motorised User Amenity** – construction traffic will give particular attention to locations and environments where pedestrian and cycle traffic are present to ensure effects on pedestrian and cycle amenity are minimised.
- **Non-motorised User Delay** – construction traffic will give particular attention to locations and environments where pedestrian and cycle traffic are present to ensure effects on pedestrian and cycle delay are minimised.
- **Road Vehicle Driver and Passenger Delay** – AIL construction traffic will be escorted and may be scheduled to travel when Study Area roads are less busy. AIL escorts can enact rolling traffic

management control to address any localised queuing and delay resulting from the presence of potentially slow-moving construction traffic. These mitigation measures are proposed to ensure effects on driver delay are minimised.

Monitoring

13.15.4 Monitoring is primarily associated with the CTMP. The detailed CTMP and compliance with it would likely be secured as a planning condition. It would be prepared in consultation with THC and Transport Scotland primarily by the Construction Contractor.

13.15.5 The Applicant would continue liaising with roads authorities and the Community Liaison Group throughout the construction of the Proposed Development. Regular contact would help to inform the levels of CTMP monitoring, review and improvement as necessary.

13.16 Residual Effects

13.16.1 The forecast residual effects during the Pre-Construction and Enabling Phase of development are shown below. There are no significant effects forecast on Study Area roads post mitigation. Where Minor (Not Significant) effects remain on Study Area roads, they are identified.

- **Severance of communities**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on severance of communities during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Fear and Intimidation of and by Road Users**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Fear and Intimidation during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Road User and Pedestrian Safety**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Road User and Pedestrian Safety during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Non-motorised user amenity**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Non-Motorised User Amenity during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Non-motorised user delay**. Mitigation will seek to reduce any high magnitude of change to medium in the vicinity of sensitive receptors. The post mitigation effects on Non-motorised User Delay during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Road vehicle driver and passenger delay**. Mitigation will seek to reinforce the reported magnitudes of change in the vicinity of sensitive receptors. The post mitigation effects on Road Vehicle Driver and Passenger Delay during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Hazardous / large loads**. Mitigation will seek to reinforce the reported magnitudes of change in the vicinity of sensitive receptors. The post mitigation effects of Hazardous / Large Loads during the Pre-Construction and Enabling Phase of the Proposed Development will be temporary, short term, Negligible (Not Significant) on Study Area roads.

13.16.2 The forecast residual effects during the Construction Phase of Proposed Development are shown below:

- **Severance of communities**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Severance of Communities during the Construction Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Fear and Intimidation of and by Road Users**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Fear and Intimidation

during the Construction Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.

- **Road User and Pedestrian Safety**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Road User and Pedestrian Safety during the Construction Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Non-motorised user amenity**. Mitigation will seek to reduce any significant effects to not significant in the vicinity of sensitive receptors. The post mitigation effects on Non-Motorised User Amenity during the Construction Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Non-motorised user delay**. Mitigation will seek to reduce any high magnitude of change to medium in the vicinity of sensitive receptors. The post mitigation effects on Non-motorised User Delay during the Construction Phase of the Proposed Development will be temporary, Negligible (Not Significant) on Study Area roads.
- **Road vehicle driver and passenger delay**. CTMP mitigation will manage HGV construction traffic activity in the vicinity of sensitive receptors such as the A82 / A831 junction at Drumnadrochit during peak hours. The post mitigation effects on Road Vehicle Driver and Passenger Delay during the Construction Phase of the development will be a temporary, Minor (Not Significant) on the A831 Milton and temporary, Negligible (Not Significant) on all other Study Area roads.
- **Hazardous / Large loads**. Mitigation will seek to reduce any high magnitude of change to medium in the vicinity of sensitive receptors. The post mitigation effects on Hazardous / Large Loads during the Construction Phase of the development will be temporary, short term, Minor (Not Significant) on Study Area roads.

13.16.3 **Table 13-31 Residual Environmental Effects** summarises the post mitigation residual environmental effects from Pre-Construction and Enabling and Construction Phase Development traffic.

Table 13-31 Residual Environmental Effects

Road	Pre-Construction and Enabling Phase		Construction Phase	
	Prior to Mitigation	Post Mitigation	Prior to Mitigation	Post Mitigation
A82 Inverness	Negligible	Negligible	Minor	Negligible
A82 North Drumnadrochit	Negligible	Negligible	Minor	Negligible
A82 Drumnadrochit	Negligible	Negligible	Negligible	Negligible
A82 Lewiston	Negligible	Negligible	Negligible	Negligible
A82 Urquhart Castle	Negligible	Negligible	Negligible	Negligible
A82 Grotaig	Negligible	Negligible	Negligible	Negligible
A82 Alltsigh	Negligible	Negligible	Negligible	Negligible
A82 Invermoriston	Negligible	Negligible	Negligible	Negligible
A82 Fort Augustus	Negligible	Negligible	Negligible	Negligible
A887 Invermoriston	Negligible	Negligible	Negligible	Negligible
A831 Milton	Minor	Negligible	Moderate	Minor
A831 Strathnacro	Negligible	Negligible	Negligible	Negligible
A831 Balnain	Negligible	Negligible	Negligible	Negligible
A833	Negligible	Negligible	Minor	Negligible

13.17 Cumulative Effects

Inter-Cumulative Effects

13.17.1 **Chapter 4: Approach to EIA (Volume 2: Main Report) Table 4-8 Cumulative Developments** lists the cumulative development sites to be considered for assessment.

13.17.2 **Appendix 13.1 Transport Assessment (Volume 5: Appendices)** contains construction traffic forecasts for the cumulative development sites affecting Study Area roads.

13.17.3 **Table 13-32 Study Area Roads to be Assessed for Environmental Effects (Cumulative Development)** compares cumulative development traffic against baseline traffic to determine the Study Area roads to be assessed due either to Rule 1 or Rule 2 conditions being met.

Table 13-32 Study Area Roads to be Assessed for Environmental Effects (Cumulative Development)

Road	2028 Baseline		Inter- Cumulative		Cumulative Development % Impact		Include in Assessment
	HGV	Total	HGV	Total	HGV	Total	(Yes / No)
A82 Inverness	165	3,982	170	242	103%	6%	**Yes**
A82 North Drumnadrochit	165	3,982	170	242	103%	6%	**Yes**
A82 Drumnadrochit	238	4,832	81	112	34%	2%	**Yes**
A82 Lewiston	202	4,092	81	112	40%	3%	**Yes**
A82 Urquhart Castle	311	2,760	81	112	26%	4%	**Yes**
A82 Grotaig	145	2,394	81	112	56%	5%	**Yes**
A82 Alltsigh	144	2,408	81	112	56%	5%	**Yes**
A82 Invermoriston	153	2,476	81	112	53%	5%	**Yes**
A82 Fort Augustus	121	1,920	174	320	144%	17%	**Yes**
A887 Invermoriston	66	1,055	78	120	119%	11%	**Yes**
A831 Milton	53	2,106	97	138	185%	7%	**Yes**
A831 Strathnacro	27	1,368	195	236	734%	17%	**Yes**
A831 Balnain	22	995	17	24	79%	2%	**Yes**
A833	25	882	98	98	393%	11%	**Yes**

13.17.4 **Table 13-32 Study Area Roads to be Assessed for Environmental Effects (Cumulative Development)** shows that all Study Area road links must be included in the assessment. This includes the A82 Urquhart Castle road given the forecast increase in HGV traffic is 26% in the environs of a tourist attraction.

Inter-Cumulative - Severance

13.17.5 Forecast effects on Severance of Communities as a result of Cumulative Development are shown in **Table 13-33 Cumulative Development Severance of Communities**.

Table 13-33 Cumulative Development Severance of Communities

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	6%	Negligible	Minor
A82 North Drumnadrochit	High	6%	Negligible	Minor
A82 Drumnadrochit	High	2%	Negligible	Minor
A82 Lewiston	High	3%	Negligible	Minor
A82 Urquhart Castle	High	4%	Negligible	Minor
A82 Grotaig	Low	5%	Negligible	Negligible

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Alltsigh	Low	5%	Negligible	Negligible
A82 Invermoriston	High	5%	Negligible	Minor
A82 Fort Augustus	High	17%	Negligible	Minor
A887 Invermoriston	Medium	11%	Negligible	Negligible
A831 Milton	Medium	7%	Negligible	Negligible
A831 Strathnacro	Low	17%	Negligible	Negligible
A831 Balnain	Medium	2%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.17.6 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on severance is a direct, temporary, **Minor Adverse (Not Significant)** effect for all of the assessed road links.

13.17.7 In terms of Severance of Communities, the significance of effects on most of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit, A82 Drumnadrochit, A82 Lewiston, A82 Urquhart Castle, A82 Invermoriston and A831 Milton are however, forecast to have **Minor Adverse (Not Significant) effects.**

Inter-Cumulative - Fear and Intimidation

13.17.8 **Table 13-34 Cumulative Development Fear and Intimidation on and by Road Users** shows Fear and Intimidation significance of effects for Study Area roads from Cumulative Development traffic.

Table 13-34 Cumulative Development Fear and Intimidation on and by Road Users

Road	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effect
A82 Inverness	High	0	Negligible	Minor
A82 North Drumnadrochit	High	0	Negligible	Minor
A82 Drumnadrochit	High	0	Negligible	Minor
A82 Lewiston	High	0	Negligible	Minor
A82 Urquhart Castle	High	0	Negligible	Minor
A82 Grotaig	Low	0	Negligible	Negligible
A82 Alltsigh	Low	0	Negligible	Negligible
A82 Invermoriston	High	0	Negligible	Minor
A82 Fort Augustus	High	0	Negligible	Minor
A887 Invermoriston	Medium	0	Negligible	Negligible
A831 Milton	Medium	0	Negligible	Negligible
A831 Strathnacro	Low	0	Negligible	Negligible
A831 Balnain	Medium	0	Negligible	Negligible
A833	Low	0	Negligible	Negligible

13.17.9 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Fear and Intimidation is a direct, temporary, **Minor Adverse (Not Significant) effect** for all of the assessed road links.

13.17.10 In terms of Fear and Intimidation, the significance of effects on most of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit, A82 Drumnadrochit, A82 Lewiston, A82 Urquhart Castle, A82 Invermoriston and A831 Milton are however, forecast to have **Minor Adverse (Not Significant) effects.**

Inter-Cumulative - Road Safety

13.17.11 Road user and pedestrian safety significance of effects for Study Area roads is shown in **Table 13-35 Cumulative Development Road User and Pedestrian Safety.**

Table 13-35 Cumulative Development Road User and Pedestrian Safety

Road	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Severe	Fatal		
A82 Inverness	High	0.0	0.0	0.0	Negligible	Minor
A82 North Drumnadrochit	High	0.0	0.0	0.0	Negligible	Minor
A82 Drumnadrochit	High	0.0	0.0	0.0	Negligible	Minor
A82 Lewiston	High	0.0	0.0	0.0	Negligible	Minor
A82 Urquhart Castle	High	0.0	0.0	0.0	Negligible	Minor
A82 Grotaig	Low	0.0	0.0	0.0	Negligible	Negligible
A82 Alltsigh	Low	0.0	0.0	0.0	Negligible	Negligible
A82 Invermoriston	High	0.0	0.0	0.0	Negligible	Minor
A82 Fort Augustus	High	0.1	0.1	0.0	Negligible	Minor
A887 Invermoriston	Medium	0.0	0.0	0.0	Negligible	Negligible
A831 Milton	Medium	0.0	0.0	0.0	Negligible	Negligible
A831 Strathnacro	Low	0.0	0.0	0.0	Negligible	Negligible
A831 Balnain	Medium	0.0	0.0	0.0	Negligible	Negligible
A833	Low	0.1	0.2	0.0	Negligible	Negligible

13.17.12 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Road Safety is a direct, temporary, Minor Adverse (Not Significant) effect for all of the assessed road links.

13.17.13 In terms of Road Safety, the significance of effects for most road links would be negligible. The A82 Inverness, A82 North Drumnadrochit, A82 Drumnadrochit, A82 Lewiston, A82 Urquhart Castle, A82 Invermoriston and A831 Milton are however, forecast to have **Minor Adverse (Not Significant) effects.**

Inter-Cumulative - Non-Motorised Amenity

13.17.14 Forecast effects on Non-motorised User Amenity as a result of Cumulative Development are shown in **Table 13-36 Cumulative Development Non-motorised User Amenity.**

Table 13-36 Cumulative Development Non-motorised User Amenity

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	6%	Negligible	Minor
A82 North Drumnadrochit	High	6%	Negligible	Minor
A82 Drumnadrochit	High	2%	Negligible	Minor
A82 Lewiston	High	3%	Negligible	Minor
A82 Urquhart Castle	High	4%	Negligible	Minor
A82 Grotaig	Low	5%	Negligible	Negligible
A82 Alltsigh	Low	5%	Negligible	Negligible
A82 Invermoriston	High	5%	Negligible	Minor
A82 Fort Augustus	High	17%	Negligible	Minor
A887 Invermoriston	Medium	11%	Negligible	Negligible
A831 Milton	Medium	7%	Negligible	Negligible
A831 Strathnacro	Low	17%	Negligible	Negligible

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A831 Balnain	Medium	2%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.17.15 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Non-motorised User Amenity is a direct, temporary, **Minor Adverse (Not Significant) effect** for all of the assessed road links.

13.17.16 In terms of Non-motorised User Amenity, the significance of effects on most of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit, A82 Drumnadrochit, A82 Lewiston, A82 Urquhart Castle, A82 Invermoriston and A831 Milton are however, forecast to have **Minor Adverse (Not Significant) effects.**

Inter-Cumulative - Non-Motorised Delay

13.17.17 Forecast effects on Non-Motorised User Delay as a result of Cumulative Development are shown in **Table 13-37 Cumulative Development Assessment of Non-motorised User Delay.**

Table 13-37 Cumulative Development Assessment of Non-motorised User Delay

Road	Sensitivity of Receptor	Traffic Increase (%)	Magnitude of Change	Significance of Effect
A82 Inverness	High	6%	Negligible	Minor
A82 North Drumnadrochit	High	6%	Negligible	Minor
A82 Drumnadrochit	High	2%	Negligible	Minor
A82 Lewiston	High	3%	Negligible	Minor
A82 Urquhart Castle	High	4%	Negligible	Minor
A82 Grotaig	Low	5%	Negligible	Negligible
A82 Alltsigh	Low	5%	Negligible	Negligible
A82 Invermoriston	High	5%	Negligible	Minor
A82 Fort Augustus	High	17%	Negligible	Minor
A887 Invermoriston	Medium	11%	Negligible	Negligible
A831 Milton	Medium	7%	Negligible	Negligible
A831 Strathnacro	Low	17%	Negligible	Negligible
A831 Balnain	Medium	2%	Negligible	Negligible
A833	Low	11%	Negligible	Negligible

13.17.18 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Non-motorised User Delay is a direct, temporary, **Minor Adverse (Not Significant)** effect for all of the assessed road links.

13.17.19 In terms of Non-motorised User Delay, the significance of effects on most of the assessed road links would be negligible. The A82 Inverness, A82 North Drumnadrochit, A82 Drumnadrochit, A82 Lewiston, A82 Urquhart Castle, A82 Invermoriston and A831 Milton are however, forecast to have **Minor Adverse (Not Significant) effects.**

Inter-Cumulative – Road Vehicle Driver and Passenger Delay

13.17.20 Forecast effects on Vehicle Driver and Passenger Delay as a result of Cumulative Development are shown in **Table 13-38 Cumulative Development Assessment of Road Vehicle Driver and Passenger Delay.**

Table 13-38 Cumulative Development Assessment of Road Vehicle Driver and Passenger Delay

Road	Sensitivity of Receptor	Change in Congestion Reference Flow	Magnitude of Change	Significance of Effect
A82 Inverness	High	No Step Change	Negligible	Minor

Road	Sensitivity of Receptor	Change in Congestion Reference Flow	Magnitude of Change	Significance of Effect
A82 North Drumnadrochit	High	No Step Change	Negligible	Minor
A82 Drumnadrochit	High	No Step Change	Negligible	Minor
A82 Lewiston	High	1 Level Change plus CRF 30%<>60%	Low	Moderate
A82 Urquhart Castle	High	No Step Change	Negligible	Minor
A82 Grotaig	Low	No Step Change	Negligible	Negligible
A82 Alltsigh	Low	No Step Change	Negligible	Negligible
A82 Invermoriston	High	No Step Change	Negligible	Minor
A82 Fort Augustus	High	No Step Change	Negligible	Minor
A887 Invermoriston	Medium	No Step Change	Negligible	Negligible
A831 Milton	Medium	No Step Change	Negligible	Negligible
A831 Strathnacro	Low	No Step Change	Negligible	Negligible
A831 Balnain	Medium	No Step Change	Negligible	Negligible
A833	Low	No Step Change	Negligible	Negligible

13.17.21 Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a direct, temporary, **Moderate Adverse (Significant) effect** on the A82 Lewiston. The likely effect on all other Study Area roads is either a direct, temporary, **Minor Adverse (Not Significant)** effect or direct, temporary, **Negligible (Not Significant)** effect**..**

13.17.22 In terms of Road Vehicle Driver and Passenger Delay, the significance of effects on most of the assessed road links would be Not Significant. The A82 Lewiston is however, forecast to experience a significant effect. This is attributed to an increase in the CRF forecast on this link as a result of cumulative traffic. It should be noted that the vast majority of the A82 Lewiston cumulative traffic is forecast to be generated by other developments.

Inter-Cumulative Hazardous / Large Loads

13.17.23 A review of published transport information for the cumulative development sites detailed in **Chapter 4: Approach to EIA (Volume 2: Main Report)** indicated the cumulative development sites at Fort Augustus, Loch Liath Windfarm and Chrathaich Windfarm will generate AIL traffic.

13.17.24 Proposed Development AIL for the Pre-Construction and Enabling Phase and the Construction Phase are forecast to be a total of 281 arrivals over the project programme. There will be a busier period of AIL deliveries during the Pre-Construction and Enabling Phase of development as construction plant is delivered to site. For the Construction Phase AIL deliveries will be relatively sparse and primarily relate to the arrival of large M&E equipment.

13.17.25 The coordination of AIL deliveries between cumulative developments should have considerable flexibility to ensure that the impacts of larger loads are minimised on public roads. The delivery of Construction Phase Category 3 and above AIL could potentially be scheduled outside of network peak hours and on different days from those associated with other cumulative development to ensure that the cumulative impact is minimal.

13.17.26 For the Pre-Construction and Enabling Phase and the Construction Phase of the Proposed Development, blasting agents and fuel will be the main hazardous loads being transported to site. Road transport of these hazardous loads are strictly regulated, with fuel deliveries being commonplace on UK roads. The nature of the cumulative developments would suggest that fuel is likely to be the only potential hazardous load delivery.

13.17.27 Inter-Cumulative impacts of Hazardous / Large Loads are not expected to differ materially from the Construction Phase of the Proposed Development. In terms of Hazardous / Large loads there will be no additional cumulative environmental effects beyond those already reported for the Construction Phase of the Proposed Development. The significance of effect prior to mitigation is forecast to be a direct, temporary, **Minor Adverse (Not Significant)** effect.

Inter-Cumulative Mitigation

13.17.28 The Inter-Cumulative environmental assessment forecasts only one moderate (significant) effect. This is the A82 Lewiston where road vehicle driver and passenger delay is forecast to increase. Inter-Cumulative assessment mitigation measures will encompass the CTMP described in **Embedded Mitigation** for the Proposed Development. In addition, it is expected that similar CTMPs will be in place for other inter-cumulative developments.

13.17.29 A key consideration for respective CTMP should be that cumulative development explores options for coordinating construction traffic on public roads.

Inter-Cumulative Residual Effects

13.17.30 Inter-Cumulative CTMP mitigation would be expected to reduce the magnitude of change (volume of development traffic) on Study Area roads. A particular focus should be the A82 Lewiston where the CTMP would seek to reduce the magnitude of change from low to negligible, consequently reducing the significance of environmental effect for road vehicle driver and passenger delay to minor (not significant).

Intra-Cumulative Effects

13.17.31 There are no public roads or public vehicular traffic present within the Proposed Development Site. As such, no intra-cumulative environmental effects will materialise that would synergistically worsen traffic and movement impacts on public roads. There will be some non-motorised public traffic within the Proposed Development Site due to the presence of core paths such as the Affric Kintail Way. The assessment of intra-cumulative effects subjectively considers these non-motorised users, as baseline information on this non-motorised traffic (i.e. the numerical and spatial flow of core path users along the Affric Kintail Way), is not easily established due to the transient and dispersed nature of core path traffic.

Intra-Cumulative - Severance of Communities

13.17.32 No other environmental effects are expected to combine with Proposed Development construction traffic to synergistically worsen the environmental effect of severance; defined as the perceived division that can occur within a community when it becomes separated by a major transport infrastructure. There are no resident communities present within the Proposed Development Site. Transient communities within the Proposed Development Site arguably include core path users. Within the Proposed Development Site, the Affric Kintail Way will be realigned in the environs of Balnain and Glen Coiltie to spatially separate core path users and construction traffic. This realignment is not expected to significantly affect severance as the proposed route of the path will not be more challenging in terms of distance, topography or terrain to users than the current route of the Affric Kintail Way.

Intra-Cumulative - Fear and Intimidation on and by Road Users

13.17.33 No other environmental effects are expected to combine with Proposed Development construction traffic to synergistically worsen the environmental effect of fear and intimidation; defined as the proximity of traffic to people and / or the feeling of an inherent lack of protection created by factors that prevent people from distancing themselves from moving vehicles. Within the Proposed Development Site, the Affric Kintail Way will be realigned in the environs of Balnain and Glen Coiltie to spatially separate core path users and construction traffic. This is not expected to significantly affect fear and intimidation as the proposed route of the core path will spatially separate users from development construction traffic.

Intra-Cumulative - Road User and Pedestrian Safety

13.17.34 No other environmental effects are expected to combine with Proposed Development construction traffic to synergistically worsen the environmental effect of road safety; defined as the potential for increases or changes in traffic on a road to increase the number of injury accidents on that road. There are no roads carrying public vehicular traffic within the Proposed Development Site. The Affric Kintail Way will be realigned in the environs of Balnain and Glen Coiltie to separate core path users and construction traffic. This is not expected to significantly affect road safety as the proposed route of the core path will spatially separate users from development construction traffic.

Intra-Cumulative - Non-motorised User Amenity and Delay

13.17.35 Noise generated by traffic from the construction of the Proposed Development Proposed Development may combine to synergistically worsen environmental effects for non-motorised user amenity; defined as the relative pleasantness of a pedestrian, cycle, wheeled or equestrian journey along or beside a road. There are no roads carrying public vehicular traffic within the Proposed Development Site, but non-motorised traffic may be present on core paths. The Affric Kintail Way will be realigned in the environs of Balnain and Glen Coiltie to spatially

separate core path users and construction traffic. Nevertheless, the amenity of non-motorised users on core paths may be affected by a combination of construction activity noise and construction traffic generated noise (see **Chapter 14: Noise and Vibration (Volume 2: Main Report)**.

Road Vehicle Driver and Passenger Delay

13.17.36 No other environmental effects are expected to combine with Proposed Development traffic to synergistically worsen the environmental effect of driver delay; defined as delays or increases in travel time for non-development vehicular traffic. There are no roads carrying public vehicular traffic within the Proposed Development Site, therefore non-development vehicular traffic is not present to be delayed.

13.18 Summary

13.18.1 This chapter assesses the environmental effects of traffic and movement associated with the Proposed Development. Environmental effects are assessed in accordance with IEMA Guidelines3.

13.18.2 A summary of relevant transport legislation, policy and consultation is included in this chapter. Consultation responses have been received from THC, Transport Scotland, Network Rail, Scottish Canals and Glen Urquhart Community Council and this chapter takes cognisance of those responses where appropriate.

13.18.3 The Study Area considers roads likely to be affected by Proposed Development construction traffic. The roads included in this assessment are the A82, A831 and A833.

13.18.4 The sensitivity of receptors on Study Area roads has been determined in accordance with IEMA Guidelines. The categories for assessment of sensitivity encompass people at home, people at work, vulnerable road users, tourism, accident records and current traffic conditions on Study Area roads.

13.18.5 Sensitivity of receptor and magnitude of change have been used to determine the significance of effects on roads within the Study Area across seven categories: severance of communities, fear and intimidation by road users, road user and pedestrian safety, non-motorised user amenity, non-motorised user delay, road vehicle driver and passenger delay and hazardous / large loads.

13.18.6 Study Area roads have been assessed during the Pre-Construction and Enabling Phase and the Construction Phase of the Proposed Development, and a cumulative assessment has been undertaken to assess the impact of the Proposed Development in combination with other potential developments in the area.

13.18.7 Mitigation is proposed in the form of a CTMP. The goal of the CTMP will be to minimise the likelihood of significant environmental effects occurring by managing traffic to and from the Proposed Development Site.

13.18.8 **Table 13-39 Summary of Environmental Effects** presents a summary of the environmental effects forecast in this assessment.

[3] Institute of Environmental management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023.

Table 13-39 Summary of Environmental Effects

Category	Proposed Development – Pre-Construction and Enabling Phase			Proposed Development - Construction Phase			Cumulative Development		
	Significance of Effects	Mitigation	Residual Effects	Significance of Effects	Mitigation	Residual Effects	Significance of Effects	Mitigation	Residual Effects
Severance of Communities	Minor	CTMP	Negligible	Minor	CTMP	Negligible	Minor	CTMP	Negligible
Fear and Intimidation on and by Road Users	Minor	CTMP	Negligible	Minor	CTMP	Negligible	Minor	CTMP	Negligible
Road User and Pedestrian Safety	Minor	CTMP	Negligible	Minor	CTMP	Negligible	Minor	CTMP	Negligible
Non-motorised User Amenity	Minor	CTMP	Negligible	Minor	CTMP	Negligible	Minor	CTMP	Negligible
Non-motorised User Delay	Minor	CTMP	Negligible	Minor	CTMP	Negligible	Minor	CTMP	Negligible
Road Vehicle Driver and Passenger Delay	Minor	CTMP	Negligible	Moderate	CTMP	Minor	Moderate	CTMP	Minor
Hazardous / Large Loads	Negligible	CTMP	Negligible	Moderate	CTMP	Minor	Moderate	CTMP	Minor

Glen Earrach AECOM