

Balliemeanoch Pumped Storage Hydro

Environmental Impact Assessment
Report

Volume 2: Main Report
Chapter 14: Access, Traffic and
Transport

ILI (Borders PSH) Ltd

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Quality information

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14. Access, Traffic and Transport

14.1 Introduction

This chapter considers the potential for likely significant effects resulting from potential impacts associated with the Development. It considers the potential for environmental effects of transport and movement resulting from the pre-construction and construction phase of the Development.

This chapter uses a traffic baseline obtained from 2023 traffic surveys. Traffic surveys were undertaken in June 2023 on the A85, A83, A819, B840 and A815 roads, in the vicinity of the Development Site. The significance of environmental effects for the Development are identified against a 2027 baseline derived from this 2023 traffic data, with a growth factor applied to assess the peak year of construction traffic.

Assessment of the environmental impacts of the Development has been undertaken following the Institute of Environmental Management and Assessment (IEMA) Guidelines, 2023 (the “IEMA Guidelines”).ⁱ

The Development has been assessed by forecasting the level of construction traffic likely to be generated by the Development and comparing the predicted increases against the baseline. A cumulative assessment considering other relevant development has been undertaken and the residual effects of cumulative development considered once mitigation has been implemented.

Mitigation measures for the Development encompass the construction of bypass routes to ensure there will be no construction traffic required to route through the town of Inveraray and a Construction Traffic Management Plan.

Comprehensive traffic management measures will be provided on the A82 and A819 where construction vehicles leave and join the public road network. Where the construction traffic bypass route crosses the River Aray, in the environs of the distillery area, there may be a requirement to provide a temporary bridge across the river as the existing bridge may be weight limited. Further assessment of the existing bridge would be required before any decision is taken on the provision of a temporary bridge and any planning permission that may require.

This chapter is supported by the Figures and Technical Appendix listed in *Table 14.1 Supporting Technical Appendices and Figures* which are referenced throughout the chapter.

Table 14.1. Supporting Technical Appendices and Figures

Document Title	Document Description
Figure 14.1	Study Area Roads
Figure 14.2	Inveraray Study Area Roads
Figure 14.3	Traffic Survey Locations
Figure 14.4	Construction Traffic Schedule
Technical Appendix 14.1	Transport Assessment Report

14.2 Legislation and Policy

For traffic, transport and access the following National, Regional and Local policy and guidance documents have been considered.

14.2.1 National Policy and Guidance

[National Transport Strategy NTS2 \(2020\)](#)

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.

Four priorities support the vision.

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

[Climate Change Plan Update \(2020\)](#)

The Scottish Government's Climate Change Plan, originally published in 2018, sets out a path to Carbon Neutrality and securing the wider benefits of a greener, fairer, and healthier Scotland. The Plan covers the period of 2018 to 2032.

The Climate Change Plan was updated in 2020 to reflect the impacts of the COVID-19 pandemic and the Government's commitment to a 'green recovery' which captures opportunities of the transition to net zero. The Plan sets new ambitious targets to reduce Scotland's contribution to climate change by 2045.

[National Planning Framework 4](#)

The National Planning Framework 4 (NPF4) was adopted by the Scottish Ministers on 13 February 2023, following approval by the Scottish Parliament in January. This replaces National Planning Framework 3 (NPF3) 2014, Scottish Planning Policy (SPP) 2014 and Regional Plans and is now part of the statutory development plan for Argyll and Bute, along with the Local Development Plan.

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

- Sustainable Places.
- Liveable Places.
- Productive Places.

NPF4 published in 2023 identifies '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 have to demonstrate how the following impacts are mitigated and addressed:

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

[Transport Assessment Guidance \(2012\)](#)

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.

[Planning Advice Note \(PAN\) 75 – Planning for Transport \(2005\)](#)

Scottish Planning Advice Note (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.

In terms of Transport Assessments/Statements, it states in Paragraph 41 that "all planning applications that involve the generation of person trips should provide information which covers the transport implications of the development." It identifies that for smaller developments, "the information on transport implications will enable local authorities to monitor potential cumulative impact."

14.2.2 Regional Policies

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 Development within Argyll and Bute is within the Highland Transport Partnership region (HITrans).

[HITrans Regional Transport Strategy Refresh \(2018\)](#)

HITRANS produced a Draft Updated Regional Transport Strategy in May 2017. This remains subject to approval by Scottish Ministers and therefore the RTS produced in 2008 is the currently adopted RTS for the region.

HITRANS' RTS 2008 provides a regional policy context for the Development. It sets out a vision to “enhance the region’s viability.” To deliver the vision, the strategy notes that the critical issue of connectivity needs to be addressed and thus “improving interconnectivity of the whole region to strategic services and destinations” is included as a delivery objective. The planning objectives for the strategy are to:

- Enable the region to compete and to support growth;
- Enable the people of the region to participate in everyday life;
- Improve the safety and security of travel;
- Manage the impacts of travel on the region’s environmental assets; and
- Improve the health of the region’s people.

14.2.3 Local Policies

[Argyll and Bute Local Development Plan 2](#)

Argyll and Bute Council (ABC) adopted their Local Development Plan (LDP2) in January 2023. The key policies of relevance to this chapter include:

- Policy 30 – The Sustainable Growth of Renewables,
- Policy 35 – Design of New and Existing, Public Roads and Private Access Regimes,
- Policy 37 – Development Utilising an Existing Private Access or Existing Private Road,
- Policy 38 – Construction Standards for Public Roads, and
- Policy 39 – Construction Standards for Private Access.

14.2.4 Guidance

[Guidelines for the Environmental Assessment of Traffic and Movement \(2023\)](#)

Guidelines for the Environmental Assessment of Road Traffic were originally published in 1993 by the Institute of Environmental Assessment and were updated in 2023 by the Institute of Environmental Management & Assessment (IEMA), now named the Environmental Assessment of Traffic and Movement. The scope of the guidelines covers the environmental impact of road traffic associated with development and provide a basis for the systematic and consistent appraisal of the environmental impacts of road traffic and provide the basis for this assessment.

14.3 Consultation

Table 14.2 Summary of Consultation summarises Development consultation undertaken for this EIA, relevant to Traffic and Movement.

Table 14.2 Summary of Consultation

Consultee	Key Issue	Summary of Response	Action Taken
Argyll and Bute Council	Cumulative Impacts	Proposals which would impact the roads network should take account of the cumulative impacts on the network having regards to the fact that a large number of energy related	An assessment of the cumulative impacts of nearby development has been undertaken.

Consultee	Key Issue	Summary of Response	Action Taken
		infrastructure projects are proposed in the area.	
	Excess Rock / Waste Material	A “duty to cooperate” utilising best endeavours between the two S36 hydro proposal developers should be required to ensure waste from Cruachan which could be utilised at Balliemanoach is not transport away from the local area.	Council position noted.
Transport Scotland	Traffic Data Collection	Transport Scotland required that base traffic in the vicinity of the A85(T)/ A819 junction should be used.	ATC traffic surveys have been undertaken on the A85 both immediately east and west of the A85 / A819 junction and have been included within the assessment.
	Proposed Marine Facility with jetty on the A83	Transport Scotland required that any proposed changes to the trunk road network must be discussed and approved (via technical approval process (by the appropriate area manager. They required that 1:500 scale plans of any new or modified access from the trunk road should be submitted along with visibility splay plans.	Plans of access and traffic management for A83 at jetty produced.
		An abnormal Loads Assessment and swept path analysis is required.	Swept path analysis for abnormal loads from the proposed jetty on the A83 undertaken. Abnormal load route bypasses Inveraray via Upper Avenue to reach A819.

14.4 Study Area

The Development is located at central national grid reference NN 03615 17578 approximately 4.4 km to the south of the village of Portsonachan and 9 km northwest of Inveraray in Argyll and Bute with the red line boundary shown on *Figure 1.1 (Volume 3: Figures)*. The Development Site is generally characterised by upland moorland plateau grazing land. The Headpond location at Lochan Airigh sits at approximately 360 m above ordnance datum (AOD) and 3 km to the east of Balliemanoach Farm Steading. The temporary construction jetty is located south of Inveraray off the A83. The A819 is approximately 4.8 km to the east of the Development Site, connecting the A83 and the A85. The A83 lies to the south of the Site (joining the A819 at Inveraray), aligned east to west. The A85 connects to the site at Dalmally and routes east to west between Tyndrum and Oban. There are also a number of roads / tracks which lead to the Site.

Study area roads are identified in *Figure 14.1 (Volume 3: Figures)*:

- A819 between Inveraray and Dalmally. It is a single carriageway which is largely rural in character.
- A83 between Rest and Be Thankful and the proposed jetty location. This is a single-carriageway section of trunk road carrying two-way traffic. It is primarily rural in character and passes through the settlement of Inveraray.
- A85 between Taynuilt and east of the A95 / A819 junction. This is a single-carriageway section of trunk road carrying two-way traffic. It is primarily rural in character.
- B840 is a single-track road with passing places between the A819 and Ford, routing adjacent to the banks of Loch Awe.

In addition to the public roads listed above, two dedicated construction traffic routes are proposed in the vicinity of Inveraray. *Figure 14.2 (Volume 3: Figures)* shows these routes. East of Inveraray a dedicated route for construction traffic is proposed between the A83 and A819. This route runs north of Inveraray Castle and avoids the town of Inveraray. This route will be used by construction traffic in both directions. West of Inveraray a new jetty facility is proposed on Loch Fyne. This jetty will be used to deliver abnormal indivisible loads (AIL) into the study area. AIL

will leave the jetty and cross directly over the A83 before continuing on a dedicated construction traffic route that links in to Upper Avenue and connects to the A819 north of Inveraray.

Construction traffic will leave the public road from the A819 at Craig nan Sassanach where an existing track access to Old Military Road will route traffic towards the Development site. Upgrades will be required to the network of forest tracks that are proposed to accommodate construction traffic.

The B840 runs along the shore of Loch Awe, west of the Development site. However, HGV construction traffic is not proposed to route via the B840 as it will use the A819 Craig nan Sassanach access. The Tailpond inlet / outlet structure at Loch Awe will require the existing alignment of the B840 to be revised and routed inland over a short distance to bypass the Tailpond inlet / outlet structure.

14.5 Assessment Methodology

14.5.1.1. Environmental Assessment of Traffic and Movement

The methodology for the assessment of significant environmental effects relating to traffic and movement has been informed by the 2021 Scoping Report. The assessment follows the IEMA Guidelines. This approach was endorsed by Transport Scotland in its 2022 scoping response.

Rule 1 and Rule 2 from the IEMA Guidelines are used to identify roads to be included in the assessment:

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

The IEMA Guidelines are based upon knowledge and experience of environmental effects of traffic and acknowledge that traffic forecasting is not an exact science. The 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 Guidelines consider that forecast changes in traffic of less than 10% in specifically sensitive areas creates no discernible environmental effect, hence the second threshold set out in Rule 2.

Although construction stage and decommissioning stage traffic movements will only be temporary, an increase in traffic during those periods could have an environmental effect on the users of public roads within the study area, and the land-uses that front them, including associated occupiers. As such, the receptors included in this assessment are the public roads and proposed construction haul routes within the study area that will be used by construction stage and decommissioning stage Development traffic. Abnormal Indivisible Loads (AIL) are included in the construction traffic forecast used for the assessment of environmental effects relating to road traffic.

For magnitude of change, the IEMA Guidelines describes that changes in traffic of 30%, 60% and 90% should be considered as 'slight', 'moderate' and 'substantial' respectively. *Table 14.3 Magnitude of Change* reflects the IEMA Guidelines to quantify the magnitude of change for Development traffic.

Table 14.3 Magnitude of Change

Magnitude of Change	Change in Traffic (AAWT)	Description
High	90%+	Alteration to baseline conditions such that post development character or composition of baseline condition fundamentally changed.
Medium	60-90%	Alteration to baseline conditions such that post 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	0-30%	Very little change from baseline conditions. Change is barely distinguishable approximating to no-change situation.

Receptors are locations or land-uses categorised by sensitivity or environmental value. *Table 14.4 Sensitivity of Receptors* describes the receptor sensitivity adopted for the assessment of Development traffic. Study area roads in terms of their sensitivity of receptors is described in *Appendix 14.1 (Volume 5: Appendices)*.

Table 14.4 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.

For the purposes of this assessment, the IEMA Guidelines identify receptors which are considered to be:

- 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
- Junctions and highway links at (or over capacity)

For traffic generated by the Development the significance of effects is derived from a combination of the magnitude of change and the sensitivity of the receiving environment (receptor). *Table 14.5 Significance of Environmental Effects* summarises the approach to deriving the significance of effects. Note. Table shading indicates likely significant effect subject to assessor’s professional judgment.

Table 14.5 Significance of Environmental Effects

Magnitude of Change	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

Determining the significance of environmental effects of road traffic combines professional judgment (as per the IEMA Guidelines) with consideration of a number of other factors, including:

- Temporary – where the effect occurs for a limited period of time and the change at a defined receptor can be reversed.
- Permanent – where the effect represents a long-lasting change at a defined receptor which is not reversible.
- Short Term / Medium Term / Long Term.
- Beneficial – an effect beneficial to one or more environmental receptors.
- Adverse – a detrimental, or negative, effect on one or more environmental receptors.

14.5.1.2. Potential Environmental Effects

The potential environmental effects of traffic, transport and access considered in this assessment of the Development are:

- Severance of communities – the perceived division that can occur when it becomes separated by a major traffic route (existing or proposed).
- Fear and Intimidation on and by road users – the effect on the perceived vulnerability of pedestrian traffic relating to changes in traffic flows and or speed.
- Road user and pedestrian safety – the potential for effects on rate and severity of accidents relating to changes in traffic flows.
- Non-motorised Amenity – broadly defined as the relative pleasantness of a pedestrian or cycle journey. The potential for effects relates to changes in traffic flows.
- Non-motorised User Delay – the effect on travel time. The potential for effects relates to changes in traffic flow.
- Road vehicle driver and passenger delay - the effect on travel time. The potential for effects relates to changes in traffic flow, noting that road and junction vehicle capacity assessments are not part of this assessment.
- Hazardous / large loads – scoped out of assessment in accordance with the 2021 Scoping Report.

14.5.2 Assessment Scope

The assessment considers the potential environmental effect of road traffic during the three phases of the Development lifespan as identified in *Section 2.16 – 2.19 of Chapter 2: Project and Site Description (Volume 2: Main Report)*. The phases include pre-construction, construction and operation. Operational and decommissioning stages have been scoped out of this assessment. Project related traffic has been considered across all three phases to determine the period where the Development will have the biggest effect from a traffic and transport perspective (peak period) which will provide a robust scenario on which to base this assessment.

The environmental assessment of traffic and movement identifies the appropriate worst case traffic generation from the below construction phases:

The Pre-Construction Phase including site clearance; utility diversions; borrow pits; Construction Compound set up; permanent and temporary Access Tracks; public road crossings; sustainable drainage systems; and public paths.

The Construction Phase including delivery of plant and equipment; materials management; construction workforce movements; Headpond construction; Tailpond construction; Waterways construction; Power Cavern Complex construction; Access Tunnel construction; Access Track maintenance; battery housing; and Inveraray temporary Marine Facility with jetty construction.

Figure 14.4 (Volume 3: Figures) summarises the forecast construction traffic across the development programme. It can be seen that month 11 of 2027 (November) is the busiest forecast for Development traffic. This time period has been adopted for the purposes of the environmental assessment of traffic and movement. *Appendix 14.1 (Volume 5: Appendices)* contains the detailed calculation of forecast development traffic.

14.5.3 Baseline Traffic Data

Average Weekday Traffic ("AWT") for public roads within the study area was recorded by ATC survey during June 2023. *Figure 14.3 (Volume 3: Figures)* shows the location of the 2023 traffic surveys and *Appendix 14.1 (Volume 5: Appendices)* contains the results of the survey. The 2023 survey data is used to establish a baseline traffic position. *Table 14.6: 2027 Baseline Vehicle Traffic* summarises the baseline traffic data adopted for this assessment. Traffic growth for 2023 to 2027 of 3.26% is applied to ATC survey data, derived from TEMPro.ⁱⁱ Traffic growth calculations are included within *Appendix 14.1 (Volume 5: Appendices)*. This TEMPro factor is effectively a 'low growth' scenario.

The location and extents of the road links listed below are identified in *Appendix 14.1 (Volume 5: Appendices)*.

Table 14.6. 2027 Baseline Vehicle Traffic

Road Link	Vehicular Traffic (AWT)					
	2023 Survey			2027 Baseline		
	Car	HGV	Total	Car	HGV	Total
A85 Taynuilt	4,761	183	4,944	4,916	189	5,105
A85 West	4,121	181	4,302	4,255	187	4,442
A85 East	3,590	179	3,769	3,707	185	3,892
B840 Cladich	345	6	351	356	6	362
A819 Dalmally	1,524	89	1,613	1,574	92	1,666
Site Access Track	0	0	0	0	0	0
A819 Site Access	1,589	91	1,680	1,641	94	1,735
A819 Inveraray	1,602	84	1,686	1,654	87	1,741
A819 Inveraray Town	1,771	85	1,856	1,829	88	1,917
Inveraray Bypass	0	0	0	0	0	0
A83 Aray Bridge	3,934	227	4,161	4,062	234	4,297
A83 Garron Bridge	3,854	210	4,064	3,980	217	4,196
A83 Rest and Be Thankful	4,216	312	4,528	4,353	322	4,676
A815 Strachur	2,278	124	2,402	2,352	128	2,480
A83 Inveraray	3,926	222	4,148	4,054	229	4,283
Upper Avenue AIL Route	0	0	0	0	0	0
A83 Lochgilphead	3,232	219	3,451	3,337	226	3,564
B840 Ford	179	2	181	185	2	187

14.5.3.1. Baseline Accident Data

Department for Transport (DfT) accident data obtained from the Crashmap database for the 5-year period has been reviewed (2018-2022). Detail on accident data is shown in *Appendix 14.1 (Volume 5: Appendices)*.

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

14.5.4 Limitations And Assumptions

Baseline traffic data collected in 2023 has been reviewed and appears robust in that no equipment failures or significant anomalies appear present in the returned data.

DfT accident data obtained from the Crashmap database has been reviewed for the 5-year period reviewed (2018-2022). Accidents recorded in 2022 to the present have not informed this analysis.

For assessment purposes, it is assumed construction traffic generated by the Development appears on all study area roads. This assumption provides a robust assessment of Development traffic on study area roads. However, this will not be the case in reality and there is a number of exceptions to this general assumption contained within this assessment. These are:

- Construction traffic route from A83 jetty to A819 via Upper Avenue carries abnormal load traffic only.
- HGV construction traffic does not route through the town of Inveraray which encompasses the A819 Inveraray Town, A83 Aray Bridge and A83 Inveraray road links.
- HGV construction traffic does not route along the B840 which encompasses the B840 Cladich and B840 Ford Road links.

14.6 Baseline Environment

In line with IEMA Guidelines 2023 study area roads are assessed for the sensitivity of the receptors on each link. The results of this assessment are shown in *Table 14.7 Road Link Sensitivity of Receptors*. The full assessment of each link can be found in *Appendix 14.1 (Volume 5: Appendices)*.

Table 14.7. Road Link Sensitivity of Receptors

Road Link	Description	Sensitivity	Reasoning
A85 Taynuilt	Single carriageway with national speed limit of 60mph, largely following the route of the River Awe	Low	Some residential and recreational areas but largely through rural areas with limited activity.
A85 West	Single carriageway with national speed limit of 60mph, includes Kilchurn Bridge.	Negligible	Short stretch of largely rural road with one tourist attractions (Kilchurn Castle) which is set back considerably from the carriageway.
A85 East	Single carriageway with national speed limit of 60mph. Mostly rural section of road.	Negligible	Mostly rural section of road with limited access to residential areas and employment areas.
B840 Cladich	Single track road connecting the A819 to Balliemanoch. National speed limit of 60mph, largely rural road.	Medium	Rural road with residential properties, unlikely familiar with high volumes of HGV traffic. Recreational areas and tourist attractions on the route including accommodations. Single track road so vulnerable to capacity issues.
A819 Dalmally	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route.	Negligible	Very few properties or other land uses on the route, largely rural route.
Site Access Track	Track currently used for local land use access.	Negligible	Access track which interacts with few properties or other land uses.
A819 Site Access	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route.	Negligible	Very few properties or other land uses on the route, largely rural route.
A819 Inveraray	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route.	Negligible	Very few properties or other land uses on the route, largely rural route.
A819 Inveraray Town	Single carriageway with national speed limit of 60mph, reducing to 30mph within Inveraray. Partially rural and partially urban route	Very High	Large potential to interact with residential and visitors to the area. Retail and recreational areas with tourist attractions and potential for vulnerable users.
Inveraray Bypass	Track currently used for local land use access and other construction traffic.	Negligible	Minimal likelihood for interaction with residents or visitors.
A83 Aray Bridge	Single carriageway which includes the historic Aray Bridge. Has a national speed limit of 60mph, reducing to 40mph east of Aray Bridge.	Low	Some potential interaction with tourists as a tourist route to Inveraray and the historic Aray Bridge on the route. Aray Bridge also provides a potential capacity constraint on the route.

Road Link	Description	Sensitivity	Reasoning
A83 Garron Bridge	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route.	Negligible	Very few properties or other land uses on the route, largely rural route.
A83 Rest and Be Thankful	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route. Some employment and tourist attractions on the route.	Low	Some employment and tourist attractions on the route. Potential capacity issues given the route being prone to landslips.
A815 Strachur	Single carriageway with national speed limit of 60mph, reducing the 30mph in urban areas. Largely rural road.	Low	Some interaction with residential properties who may be unfamiliar with high volumes of HGV traffic. Route has a notable accident history with two fatal accidents occurring in the 5 year period 2018-2022.
A83 Inveraray	Single carriageway through urban environment of Inveraray. Speed limit of 30mph.	Very High	High level of interaction with residents and visitors. Employment and retail areas with tourist and recreational areas also present. Likely to be high concentration of vulnerable users.
Upper Avenue AIL Route	Track currently used for local land use access.	Negligible	Minimal likelihood for interaction with residents or visitors.
A83 Lochgilphead	Single carriageway with national speed limit of 60mph, largely rural road with very few properties on the route.	Negligible	Very few properties or other land uses on the route, largely rural route.
B840 Ford	Single track road following the route of Loch Awe. National speed limit of 60mph and largely rural in nature.	Negligible	Very few properties or other land uses on the route, largely rural route. Potential capacity issues with large amount of traffic given it is single track.

Table 14.7 Road Link Sensitivity of Receptors shows that the majority of the road links have sensitivities of negligible to low. The road links around Inveraray (A819 Inveraray Town and A83 Inveraray) have Very High sensitivity in terms of receptors. However, as HGV construction traffic will not be routed through the town of Inveraray. Similarly, the medium sensitivity of receptor identified for the B840 Cladich will not carry HGV construction traffic.

14.7 Assessment of Environmental Effects

14.7.1 The Development – Forecast Traffic Generation

The construction period for the Development is programmed to last between 2027 and 2034. For the purposes of assessing the environmental effects of road traffic, a magnitude of change for study area roads has been established based on forecast Development traffic.

An approximate construction programme has been prepared for the purpose of forecasting traffic flows. Figure 14.4 (Volume 3: Figures) shows forecast construction traffic flows distributed across the 7 year programme for each element of the construction process.

Daily traffic flows are based on 22 working days per month. Forecast average daily traffic flows (arrivals and departures) for the busiest construction traffic month are 490 two-way HGV movements (245 arrivals and 245 departures) and 154 two-way Car/LGV movements (77 arrivals and 77 departures). Detailed calculations of forecast construction traffic are included in Appendix 14.1 (Volume 5: Appendices).

For a robust assessment it is assumed all construction materials will be transported to site by road. For assessment purposes no materials, such as aggregate from borrow pits or concrete, are assumed to originate from within the

Site. This assumption is made for assessment purposes, in reality materials are likely to be recovered or generated from within the site.

For a robust assessment it is also assumed that the vast majority of forecast construction traffic will use all Study Area roads. This assumption is very unlikely to occur in reality as the eventual distribution of construction traffic will rule out any real-world requirement for every construction vehicle to use every study area road.

Appendix 14.1 (Volume 5: Appendices) shows network flow diagrams that illustrate the forecast number of Development construction vehicle trips assigned to study area roads. Table 14.8 Development Construction Traffic compares forecast construction traffic against baseline traffic to determine the study area roads to be assessed due to either IEMA Guidelines 2023 Rule 1 or Rule 2 conditions being met. Roads to be included in the environmental assessment are marked Y (Yes) or N (No).

Table 14.8. Development Construction Traffic

Road Link	Vehicular Traffic (AWT)							
	2027 Baseline		The Development		The Development % Impact		Environmental Assessment Required	
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs
A85 Taynuilt	189	5,105	490	644	259%	12.6%	Y	Y
A85 West	187	4,442	490	644	262%	14.5%	Y	Y
A85 East	185	3,892	490	644	265%	16.5%	Y	Y
B840 Cladich	6	362	0	154	0%	42.49%	N	Y
A819 Dalmally	92	1,666	490	644	533%	38.6%	Y	Y
Site Access Track	0	0	490	644	-	-	N	N
A819 Site Access	94	1,735	490	644	521%	37.1%	Y	Y
A819 Inveraray	87	1,741	490	644	564%	36.9%	Y	Y
A819 Inveraray Town Centre	88	1,917	0	154	0%	8.04%	N	N
Inveraray Bypass	0	0	490	490	-	-	N	N
A83 Aray Bridge	234	4,297	0	154	0%	3.58%	N	N
A83 Garron Bridge	217	4,196	490	644	225%	15.3%	Y	Y
A83 Rest and Be Thankful	322	4,676	490	644	152%	13.7%	Y	Y
A815 Strachur	128	2,480	490	644	382%	25.9%	Y	Y
A83 Inveraray Town Centre	229	4,283	0	154	0%	3.6%	N	N
Upper Avenue AIL Route	0	0	0	0	-	-	N	N
A83 Lochgilphead	226	3,564	490	644	216%	18%	Y	Y
B840 Ford	2	187	0	154	0%	82.4%	N	Y

Table 14.8 shows that all public road links on study area roads must be included in the assessment, apart from the A819 Inveraray Town Centre, A83 Aray Bridge and the A83 Inveraray Town Centre. These public roads do not meet the threshold required by IEMA Guidelines 2023 for environmental assessment of traffic and movement, principally as they will not carry HGV construction traffic for the Development.

14.7.2 Assessment of Environmental Effects

14.7.2.1. Severance of Communities

Table 14.9 Assessment of Severance of Communities below presents the significance of effects on the severance of communities as a result of the Development. The significance of effects for severance are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023. 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’ chances in severance respectively.”

Table 14.9. Assessment of Severance of Communities

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	12.6%	<u>Negligible</u>	<u>Negligible</u>
A85 West	Negligible	14.5%	<u>Negligible</u>	<u>Negligible</u>
A85 East	Negligible	16.5%	<u>Negligible</u>	<u>Negligible</u>
B840 Cladich	Medium	42.49%	<u>Low</u>	<u>Minor</u>
A819 Dalmally	Negligible	38.6%	<u>Low</u>	<u>Negligible</u>
A819 Site Access	Negligible	37.1%	<u>Low</u>	<u>Negligible</u>
A819 Inveraray	Negligible	36.9%	<u>Low</u>	<u>Negligible</u>
A83 Garron Bridge	Negligible	15.3%	<u>Negligible</u>	<u>Negligible</u>
A83 Rest and Be Thankful	Low	13.7%	<u>Negligible</u>	<u>Negligible</u>
A815 Strachur	Low	25.9%	<u>Negligible</u>	<u>Negligible</u>
A83 Lochgilphead	Negligible	18%	<u>Negligible</u>	<u>Negligible</u>
B840 Ford	Negligible	82.4%	<u>Medium</u>	<u>Negligible</u>

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.

In terms of severance, the significance of effects for most road links would be negligible. One public road link is forecast to have minor significance of effects: B840 Cladich – this will not carry HGV construction traffic.

14.7.2.2. Fear and Intimidation on and by Road Users

Table 14.10 Assessment of Fear and Intimidation below presents the significance of effects on the fear and intimidation on and by road users as a result of the Development. 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
- The proximity of traffic to people

The fear and intimidation assessment has been conducted using the ‘degree of hazard’ methodology as set out in IEMA Guidelines 2023. The derivation of the fear and intimidation calculations are included in full within *Appendix 14.1 (Volume 5: Appendices)*.

Table 14.10 Assessment of Fear and Intimidation

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Level of Fear and Intimidation</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	Negligible	Negligible	Negligible
A85 West	Negligible	Low	Negligible	Negligible
A85 East	Negligible	Low	Negligible	Negligible
B840 Cladich	Medium	Negligible	Negligible	Negligible
A819 Dalmally	Negligible	Low	Negligible	Negligible
A819 Site Access	Negligible	Low	Negligible	Negligible
A819 Inveraray	Negligible	Low	Negligible	Negligible
A83 Garron Bridge	Negligible	Low	Negligible	Negligible
A83 Rest and Be Thankful	Low	Low	Negligible	Negligible
A815 Strachur	Low	Negligible	Negligible	Negligible
A83 Lochgilphead	Negligible	Low	Negligible	Negligible
B840 Ford	Negligible	Negligible	Negligible	Negligible

Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on fear and intimidation is a direct, temporary, **Negligible (Not Significant)** effect.

14.7.2.3. Road User and Pedestrian Safety

Recorded injury accidents for the most recent 5-year period (2018-2022) were assessed against surveyed 2023 traffic flows on study area roads. This established an historic accident rate by severity per vehicle kilometre travelled on study area roads. A forecast of construction traffic annual vehicle kilometres travelled on study area roads was applied to the historic accident rates. This produced a forecast of annual accidents by severity for Development construction traffic. *Table 14.11 Forecast Annual Injury Accidents on Study Area Roads* summarises the forecast annual injury accidents potentially resulting from the presence of Development construction traffic on Study Area roads.

Table 14.2. Forecast Annual Injury Accidents on Study Area Roads

<u>Road Link</u>	<u>Forecast Annual Injury Accidents by Severity</u>					
	<u>Recorded 2018-2022</u>			<u>the Development (Annual)</u>		
	<u>Slight</u>	<u>Serious</u>	<u>Fatal</u>	<u>Slight</u>	<u>Serious</u>	<u>Fatal</u>
A85 Taynuilt	7	8	1	0.1	0.1	0.0
A85 West	0	0	0	0.0	0.0	0.0
A85 East	0	0	0	0.0	0.0	0.0
B840 Cladich	0	0	0	0.0	0.0	0.0
A819 Dalmally	1	5	0	0.0	0.1	0.0
A819 Site Access	0	3	0	0.0	0.1	0.0
A819 Inveraray	1	1	0	0.0	0.0	0.0
A83 Garron Bridge	3	3	0	0.0	0.0	0.0
A83 Rest and Be Thankful	4	7	0	0.0	0.1	0.0

Road Link	Forecast Annual Injury Accidents by Severity					
	Recorded 2018-2022			the Development (Annual)		
	Slight	Serious	Fatal	Slight	Serious	Fatal
A815 Strachur	3	3	2	0.1	0.1	0.0
A83 Lochgilhead	0	0	0	0.0	0.0	0.0
B840 Ford	0	0	0	0.0	0.0	0.0

Classifying the significance of effects: prior to mitigation, the likely effect of construction traffic on road user and pedestrian safety is a direct, temporary, **Minor Adverse (Not Significant)** effect.

In terms of road user and pedestrian safety, the magnitude of change for most road links is considered to be low as accidents for Development traffic are forecast to be substantially less than 1 'slight' injury accident and substantially less than 1 'serious' injury accident per annum on study area roads. Study Area roads that are proposed to carry HGV construction traffic are low or negligible in terms of sensitivity of receptors, therefore the corresponding significance of effect is considered minor adverse.

14.7.2.4. Non-motorised User Amenity

Table 14.12 Assessment of Non-motorised User Amenity below presents the anticipated effects in terms of non-motorised user amenity. 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, in order 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.

The significance of effects for non-motorised user amenity are based on an assessment of all traffic in accordance with the IEMA Guidelines 2023.

Table 14.3. Assessment of Non-motorised User Amenity

Road Link	Receptor Sensitivity	Traffic Increase	Magnitude of Change	Significance of Effect
A85 Taynuilt	Low	12.6%	Negligible	Negligible
A85 West	Negligible	14.5%	Negligible	Negligible
A85 East	Negligible	16.5%	Negligible	Negligible
B840 Cladich	Medium	42.49%	Low	Minor
A819 Dalmally	Negligible	38.6%	Low	Negligible
A819 Site Access	Negligible	37.1%	Low	Negligible
A819 Inveraray	Negligible	36.9%	Low	Negligible
A83 Garron Bridge	Negligible	15.3%	Negligible	Negligible
A83 Rest and Be Thankful	Low	13.7%	Negligible	Negligible
A815 Strachur	Low	25.9%	Negligible	Negligible
A83 Lochgilhead	Negligible	18%	Negligible	Negligible
B840 Ford	Negligible	82.4%	Medium	Negligible

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.

In terms of non-motorised amenity, the significance of effects for most road links would be negligible. One public road link is forecast to have minor significance of effects: B840 Cladich – this will not carry HGV construction traffic.

14.7.2.5. Non-motorised User Delay

Table 14.13 Assessment of Non-motorised User Delay below presents the forecast effects on non-motorised user delay of the Development. 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 cross roads. The non-motorised user assessment has therefore been undertaken using the same magnitude of change thresholds as the severance assessment.

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.

The number of two-wheeled movements on Study Area roads from the 2023 traffic survey data is reported in Technical Appendix 14.1 (Volume 5: Appendices). However, it should be noted that roads around the study area are popular among motorcyclists and ATC surveys do not distinguish between motorcycles and pedal cycles. Therefore, the number of cyclists on study area roads is thought to be low as the majority of two-wheeled movements surveys are likely to be motorcycles.

Table 14.4. Assessment of Non-motorised User Delay

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	12.6%	Negligible	Negligible
A85 West	Negligible	14.5%	Negligible	Negligible
A85 East	Negligible	16.5%	Negligible	Negligible
B840 Cladich	Medium	42.49%	Low	Minor
A819 Dalmally	Negligible	38.6%	Low	Negligible
A819 Site Access	Negligible	37.1%	Low	Negligible
A819 Inveraray	Negligible	36.9%	Low	Negligible
A83 Garron Bridge	Negligible	15.3%	Negligible	Negligible
A83 Rest and Be Thankful	Low	13.7%	Negligible	Negligible
A815 Strachur	Low	25.9%	Negligible	Negligible
A83 Lochgilphead	Negligible	18%	Negligible	Negligible
B840 Ford	Negligible	82.4%	Medium	Negligible

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.

In terms of non-motorised user delay, the significance of effects for most road links would be negligible. One public road link is forecast to have minor significance of effects: B840 Cladich – this will not carry HGV construction traffic.

14.7.2.6. Driver Delay

Table 14.14 Assessment of Driver Delay below presents the assessment of Driver Delay during the peak construction period of the Development. The IEMA Guidelines state that traffic delays can occur at site entrances and on the highways passing the development site where there is likely to be additional traffic. It is noted that delays are only likely to be significant when the traffic on the network surrounding the development site is already at, or close to capacity. While there are no such capacity issues at on the surrounding public roads of the development site, in line with the thresholds used to determine the significance of effects on severance, total traffic increase has been used to anticipate likely effects as a result of the Development's construction.

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’ chances in severance respectively.”* These thresholds are used to determine the magnitude of change for the assessment of driver delay.

Table 14.5. Assessment of Driver Delay

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	12.6%	Negligible	Negligible
A85 West	Negligible	14.5%	Negligible	Negligible
A85 East	Negligible	16.5%	Negligible	Negligible
B840 Cladich	Medium	42.49%	Low	Minor
A819 Dalmally	Negligible	38.6%	Low	Negligible
A819 Site Access	Negligible	37.1%	Low	Negligible
A819 Inveraray	Negligible	36.9%	Low	Negligible
A83 Garron Bridge	Negligible	15.3%	Negligible	Negligible
A83 Rest and Be Thankful	Low	13.7%	Negligible	Negligible
A815 Strachur	Low	25.9%	Negligible	Negligible
A83 Lochgilphead	Negligible	18%	Negligible	Negligible
B840 Ford	Negligible	82.4%	Medium	Negligible

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

In terms of driver delay, the significance of effects for most road links would be negligible. One public road link is forecast to have minor significance of effects: B840 Cladich – this will not carry HGV construction traffic.

Traffic management will be introduced on the A83 Lochgilphead road link at the proposed jetty. The jetty will be used for the delivery of abnormal indivisible loads (AIL) and as such the traffic management will only be used when deliveries are taking place, and full AIL escort protocols will also be in place to reinforce the proposed traffic management on this road link.

14.8 Mitigation

This section describes the measures that will be implemented to mitigate any adverse environmental effects identified by the assessment.

14.8.1 HGV Construction Traffic

Mitigation relating to traffic movements associated with the Development would be focused primarily on HGV construction traffic, as the additional Car / LGV trips will have a negligible environmental effect on future traffic flows.

In accordance with IEMA Guidelines, the most efficient and effective way to address environmental impacts is to remove them entirely through the application of a mitigation hierarchy. Within this hierarchy, a priority is to avoid environmental impacts in the first instance before seeking to reduce, mitigate or compensate any adverse impacts. To avoid environmental impacts, the following is proposed:

- An HGV construction traffic bypass route between the A83 east of Inveraray and the A819 to the north of Inveraray. This utilises a combination of existing construction Access Track and new Access Tracks to the north of Inveraray Castle.
- An AIL route, utilising Upper Avenue, between the A83 south of Inveraray and the A819 north of Inveraray to facilitate the movement of AIL deliveries from the proposed jetty facility.
- HGV construction traffic will avoid the B840. It is unlikely that this route would be required for construction traffic as a route will be available directly from Access Tracks from the A819 at Craig nan Sassanach to the Development Site.

The proposed HGV construction traffic routes would avoid Inveraray Town Centre as well as the historic Aray Bridge on the A83.

A Construction Traffic Management Plan (CTMP) would operate throughout the duration of the construction programme. *Appendix 14.1 (Volume 5: Appendices)* contains a draft CTMP including the following. A detailed CTMP is expected to be conditioned and would be provided once a principal contractor is appointed.

- Site access and the entry/exit arrangements from public roads. Specifically, the A83 east of Inveraray where construction traffic leaves the public road, and the A819 north of Inveraray where construction traffic joins the public road. Both these locations will have comprehensive traffic management schemes in accordance with DfT / Transport Scotland Traffic Signs Manual Chapter 8, Traffic Safety Measures and Signs for Road Works and Temporary Situations, 2009.
- Traffic routeing plans – defining the routes to be taken by HGVs to the Site. For example, prioritising the use of A and B-roads as far as possible and avoidance of sensitive locations;
- construction hours and delivery times;
- strategy for traffic management and measures for informing construction traffic of local access routes, road restrictions, timing restrictions and where access is prohibited;
- measures to protect the public highway (e.g. wheel wash facilities);
- measures for the monitoring of the CTMP to ensure compliance from drivers and appropriate actions in the event of non-compliance;
- mechanism for responding to traffic management issues arising during the works (including concerns raised from the public) including a joint consultation approach with relevant highways authorities;
- details of traffic management requirements; and
- strategy for traffic management and measures for informing construction traffic of local access routes, road restrictions (statutory limits: width, height, axle loading and gross weight), timing restrictions (if applicable) and where access is prohibited.

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.
- Driver Delay – ALL construction traffic will be escorted and may be scheduled to travel when Study Area roads are less busy. ALL 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.

14.9 Residual Effects

Following the implementation of mitigation as described in *Section 14.8 Mitigation*, residual environmental effects are forecast as follows:

14.9.1.1. Severance of Communities

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on severance following mitigation will remain a direct temporary **Minor Adverse (Not Significant)** effect.

14.9.1.2. Fear and Intimidation on and by Road Users

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on fear and intimidation following mitigation will remain a direct temporary **Negligible (Not Significant)** effect.

14.9.1.3. Road User and Pedestrian Safety

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on road user and pedestrian safety following mitigation will remain a direct temporary **Minor Adverse (Not Significant)** effect.

14.9.1.4. Non-motorised User Amenity

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on non-motorised user amenity following mitigation will remain a direct temporary **Minor Adverse (Not Significant)** effect.

14.9.1.5. Non-motorised User Delay

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on non-motorised user delay following mitigation will remain a direct temporary **Minor Adverse (Not Significant)** effect.

14.9.1.6. Driver Delay

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation will reinforce the previously reported magnitude of change. Therefore, the effect on driver delay following mitigation will remain a direct temporary **Minor Adverse (Not Significant)** effect.

14.10 Cumulative Assessment

Chapter 4: Approach to EIA (Volume 2: Main Report) Table 4.8 Cumulative Developments lists the cumulative development sites to be considered for assessment.

Appendix 14.1 (Volume 5: Appendices) contains construction traffic forecasts for the cumulative development sites affecting Study Area roads.

Table 14.15 Cumulative Development Construction Traffic 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 14.6. Cumulative Development Construction Traffic

Road Link	Vehicular Traffic (AWT)							
	2027 Baseline		Cumulative Development		Cumulative Development % Impact		Environmental Assessment Required	
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs
A85 Taynuilt	189	5,105	1,322	6,540	599%	28%	Y	Y
A85 West	187	4,442	1,420	6,021	659%	35%	Y	Y
A85 East	185	3,892	1,464	5,773	791%	148%	Y	Y
B840 Cladich	6	362	6	516	0%	42%	N	Y
A819 Dalmally	92	1,666	1,283	3,439	1395%	206%	Y	Y
Site Access Track	0	0	490	644	High	High	N	N
A819 Site Access	94	1,735	1,503	3,853	1599%	222%	Y	Y
A819 Inveraray	87	1,741	1,496	3,859	1720%	222%	Y	Y
A819 Inveraray Town Centre	88	1,917	1007	3,545	1144%	185%	Y	Y
Inveraray Bypass	0	0	490	490	High	High	N	N
A83 Aray Bridge	234	4,297	608	5,223	260%	122%	Y	Y
A83 Garron Bridge	217	4,196	1081	5,612	498%	134%	Y	Y
A83 Rest and Be Thankful	322	4,676	866	5,374	168%	14%	Y	Y
A815 Strachur	128	2,480	618	3,124	382%	25%	Y	Y
Upper Avenue ALL Route	0	0	100	100	High	High	N	N
A83 Inveraray Town Centre	229	4,283	550	4,886	140%	14%	Y	Y
A83 Lochgilphead	226	3,564	1,329	5,116	588%	144%	Y	Y
B840 Ford	2	187	2	341	0%	82%	N	Y

Table 14.15 shows that all public road links on Study Area roads must be included in the assessment.

Severance of Communities

Table 14.16 Severance Impacts of the Development plus Cumulative Development below presents the severance of communities assessment for the relevant road links which may experience effects as a result of Cumulative Development.

Table 14-7. Severance Impacts of the Development plus Cumulative Development

Road Link	Receptor Sensitivity	Traffic Increase	Magnitude of Change	Significance of Effect
A85 Taynuilt	Low	28%	Negligible	Negligible
A85 West	Negligible	35%	Low	Negligible
A85 East	Negligible	148%	High	Minor
B840 Cladich	Medium	42%	Low	Minor

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A819 Dalmally	Negligible	206%	High	Minor
A819 Site Access	Negligible	222%	High	Minor
A819 Inveraray	Negligible	222%	High	Minor
A819 Inveraray Town Centre	Very high	185%	High	Major
A83 Aray Bridge	Low	122%	High	Moderate
A83 Garron Bridge	Negligible	134%	High	Minor
A83 Rest and Be Thankful	Low	14%	Negligible	Negligible
A815 Strachur	Low	25%	Negligible	Negligible
A83 Inveraray Town Centre	Very High	14%	Negligible	Minor
A83 Lochgilphead	Negligible	144%	High	Minor
B840 Ford	Negligible	82%	Medium	Negligible

Classifying the significance of effects in terms of severance of communities: prior to mitigation, the A819 Inveraray Town Centre is forecast to experience a direct, temporary, **Major Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A819 Inveraray Town Centre.

Classifying the significance of effects in terms of severance of communities: prior to mitigation, the A83 Aray Bridge is forecast to experience a direct, temporary, **Moderate Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A83 Aray Bridge.

Classifying the significance of effects in terms of severance of communities: prior to mitigation, remaining road links are forecast to experience a **Negligible** or direct, temporary **Minor (Not Significant)** effect for cumulative development traffic.

Fear and Intimidation on and by Road Users

Table 14.17 *Fear and Intimidation Impacts of the Cumulative Development* below shows the anticipated effects on the relevant road links in terms of fear and intimidation on and by road users as result of Cumulative Development.

Table 14-8. Fear and Intimidation Impacts of the Development plus Cumulative Development

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Level of Fear and Intimidation</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	Moderate	Medium	Minor
A85 West	Negligible	Moderate	Negligible	Negligible
A85 East	Negligible	Moderate	Negligible	Negligible
B840 Cladich	Medium	Small	Negligible	Negligible
A819 Dalmally	Negligible	Moderate	Negligible	Negligible
A819 Site Access	Negligible	Small	Negligible	Negligible

A819 Inveraray	Negligible	Moderate	Negligible	Negligible
A819 Inveraray Town Centre	Very high	Moderate	Low	Moderate
A83 Aray Bridge	Low	Moderate	Negligible	Negligible
A83 Garron Bridge	Negligible	Small	Negligible	Negligible
A83 Rest and Be Thankful	Low	Small	Negligible	Negligible
A815 Strachur	Low	Moderate	Negligible	Negligible
A83 Inveraray Town Centre	Very High	Moderate	Negligible	Minor
A83 Lochgilphead	Negligible	Small	Negligible	Negligible
B840 Ford	Negligible	Small	Negligible	Negligible

Classifying the significance of effects in terms of fear and intimidation: prior to mitigation, the A819 Inveraray Town Centre is forecast to experience a direct, temporary, **Moderate Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A819 Inveraray Town Centre.

Classifying the significance of effects in terms of fear and intimidation: prior to mitigation, remaining road links are forecast to experience a **Negligible** or direct, temporary **Minor (Not Significant)** effect for cumulative development traffic.

[Road User and Pedestrian Safety](#)

Table 14.18 Forecast Annual Injury Accidents on Study Area Roads (Cumulative Development) shows the anticipated impact on road user and pedestrian safety as a result of Cumulative Development.

Table 14-9. Forecast Annual Injury Accidents on Study Area Roads (Cumulative Development)

Road Link	Forecast Annual Injury Accidents by Severity					
	Recorded 2018-2022			Cumulative Development (Annual)		
	Slight	Serious	Fatal	Slight	Serious	Fatal
A85 Taynuilt	7	8	1	0.2	0.3	0.0
A85 West	0	0	0	0.0	0.0	0.0
A85 East	0	0	0	0.0	0.0	0.0
B840 Cladich	0	0	0	0.0	0.0	0.0
A819 Dalmally	1	5	0	0.1	0.6	0.0
A819 Site Access	0	3	0	0.0	0.5	0.0
A819 Inveraray	1	1	0	0.1	0.1	0.0
A819 Inveraray Town Centre	0	0	0	0.0	0.0	0.0
A83 Aray Bridge	3	3	0	0.0	0.1	0.0
A83 Garron Bridge	3	3	0	0.1	0.1	0.0
A83 Rest and Be Thankful	4	7	0	0.0	0.1	0.0
A815 Strachur	3	3	2	0.1	0.1	0.0
A83 Inveraray Town Centre	0	0	0	0.0	0.0	0.0
A83 Lochgilphead	0	0	0	0.0	0.0	0.0
B840 Ford	0	0	0	0.0	0.0	0.0

Classifying the significance of effects: prior to mitigation, the likely effect of cumulative development on road user and pedestrian safety is a direct, temporary, **Minor Adverse (Not Significant)** effect.

In terms of road user and pedestrian safety, the magnitude of change for most road links is considered to be low as accidents for cumulative development are forecast to be substantially less than 1 'slight' injury accident and substantially less than 1 'serious' injury accident per annum on all Study Area roads.

The cumulative assessment forecasts the greatest increase in 'serious' injury accidents per annum on study area roads at the A819 Dalmally. This forecast remains significantly below 1 'serious' injury accident per annum resulting from cumulative development traffic.

Non-motorised User Amenity

Table 14.19 Non-Motorised User Amenity Effects of the Cumulative Development below shows the anticipated effects on Non-motorised User Amenity as a result of the Cumulative Development.

Table 14-10. Non-Motorised User Amenity Effects of the Cumulative Development

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	28%	<u>Negligible</u>	<u>Negligible</u>
A85 West	Negligible	35%	<u>Low</u>	<u>Negligible</u>
A85 East	Negligible	148%	<u>High</u>	<u>Minor</u>
B840 Cladich	Medium	42%	<u>Low</u>	<u>Minor</u>
A819 Dalmally	Negligible	206%	<u>High</u>	<u>Minor</u>
A819 Site Access	Negligible	222%	<u>High</u>	<u>Minor</u>
A819 Inveraray	Negligible	222%	<u>High</u>	<u>Minor</u>
A819 Inveraray Town Centre	Very high	185%	<u>High</u>	<u>Major</u>
A83 Aray Bridge	Low	122%	<u>High</u>	<u>Moderate</u>
A83 Garron Bridge	Negligible	134%	<u>High</u>	<u>Minor</u>
A83 Rest and Be Thankful	Low	14%	<u>Negligible</u>	<u>Negligible</u>
A815 Strachur	Low	25%	<u>Negligible</u>	<u>Negligible</u>
A83 Inveraray Town Centre	Very High	14%	<u>Negligible</u>	<u>Minor</u>
A83 Lochgilphead	Negligible	144%	<u>High</u>	<u>Minor</u>
B840 Ford	Negligible	82%	<u>Medium</u>	<u>Negligible</u>

Classifying the significance of effects in terms of non-motorised user amenity: prior to mitigation, the A819 Inveraray Town Centre is forecast to experience a direct, temporary, **Major Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A819 Inveraray Town Centre.

Classifying the significance of effects in terms of non-motorised user amenity: prior to mitigation, the A83 Aray Bridge is forecast to experience a direct, temporary, **Moderate Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A83 Aray Bridge.

Classifying the significance of effects in terms of non-motorised user amenity: prior to mitigation, remaining road links are forecast to experience a **Negligible** or direct, temporary **Minor (Not Significant)** effect for cumulative development traffic.

Non-motorised User Delay

Table 14.20 Non-motorised User Delay Effects of Cumulative Development below shows the anticipated effect on Non-motorised User Delay as a result of Cumulative Development.

Table 14-11. Non-motorised User Delay Effects of Cumulative Development

<u>Road Link</u>	<u>Receptor Sensitivity</u>	<u>Traffic Increase</u>	<u>Magnitude of Change</u>	<u>Significance of Effect</u>
A85 Taynuilt	Low	28%	<u>Negligible</u>	<u>Negligible</u>
A85 West	Negligible	35%	<u>Low</u>	<u>Negligible</u>
A85 East	Negligible	148%	<u>High</u>	<u>Minor</u>
B840 Cladich	Medium	42%	<u>Low</u>	<u>Minor</u>
A819 Dalmally	Negligible	206%	<u>High</u>	<u>Minor</u>
A819 Site Access	Negligible	222%	<u>High</u>	<u>Minor</u>
A819 Inveraray	Negligible	222%	<u>High</u>	<u>Minor</u>
A819 Inveraray Town Centre	Very high	185%	<u>High</u>	<u>Major</u>
A83 Aray Bridge	Low	122%	<u>High</u>	<u>Moderate</u>
A83 Garron Bridge	Negligible	134%	<u>High</u>	<u>Minor</u>
A83 Rest and Be Thankful	Low	14%	<u>Negligible</u>	<u>Negligible</u>
A815 Strachur	Low	25%	<u>Negligible</u>	<u>Negligible</u>
A83 Inveraray Town Centre	Very High	14%	<u>Negligible</u>	<u>Minor</u>
A83 Lochgilphead	Negligible	144%	<u>High</u>	<u>Minor</u>
B840 Ford	Negligible	82%	<u>Medium</u>	<u>Negligible</u>

Classifying the significance of effects in terms of non-motorised user delay: prior to mitigation, the A819 Inveraray Town Centre is forecast to experience a direct, temporary, **Major Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A819 Inveraray Town Centre.

Classifying the significance of effects in terms of non-motorised user delay: prior to mitigation, the A83 Aray Bridge is forecast to experience a direct, temporary, **Moderate Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A83 Aray Bridge.

Classifying the significance of effects in terms of non-motorised user delay: prior to mitigation, remaining road links are forecast to experience a **Negligible** or direct, temporary **Minor (Not Significant)** effect for cumulative development traffic.

Driver Delay

Table 14.21 Driver Delay Effects of Cumulative Development below shows the anticipated effects on Driver Delay as a result of Cumulative Development.

Table 14-12. Driver Delay Effects of Cumulative Development

Road Link	Receptor Sensitivity	Total Increase	Traffic Magnitude Change	of Significance of Effect
A85 Taynult	Low	28%	Negligible	Negligible
A85 West	Negligible	35%	Low	Negligible
A85 East	Negligible	148%	High	Minor
B840 Cladich	Medium	42%	Low	Minor
A819 Dalmally	Negligible	206%	High	Minor
A819 Site Access	Negligible	222%	High	Minor
A819 Inveraray	Negligible	222%	High	Minor
A819 Inveraray Town Centre	Very high	185%	High	Major
A83 Aray Bridge	Low	122%	High	Moderate
A83 Garron Bridge	Negligible	134%	High	Minor
A83 Rest and Be Thankful	Low	14%	Negligible	Negligible
A815 Strachur	Low	25%	Negligible	Negligible
A83 Inveraray Town Centre	Very High	14%	Negligible	Minor
A83 Lochgilphead	Negligible	144%	High	Minor
B840 Ford	Negligible	82%	Medium	Negligible

Classifying the significance of effects in terms of driver delay: prior to mitigation, the A819 Inveraray Town Centre is forecast to experience a direct, temporary, **Major Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A819 Inveraray Town Centre.

Classifying the significance of effects in terms of driver delay: prior to mitigation, the A83 Aray Bridge is forecast to experience a direct, temporary, **Moderate Adverse (Significant)** effect as a result of cumulative development traffic. The Development does not route HGV construction traffic on the A83 Aray Bridge.

Classifying the significance of effects in terms of driver delay: prior to mitigation, remaining road links are forecast to experience a **Negligible** or direct, temporary **Minor (Not Significant)** effect for cumulative development traffic.

14.11 Cumulative Assessment Mitigation

Cumulative assessment mitigation measures will encompass the CTMP described in section 14.8 for the Development. In addition, it is expected that similar CTMP will be in place for other cumulative developments.

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

Consideration should be given in particular to the A819 Inveraray Town Centre which is the only road link in the cumulative assessment forecast to potentially experience direct, temporary **Major Adverse (Significant)** effects. Cumulative development mitigation could potentially examine the use of construction traffic routes associated with the Development that avoid Inveraray town centre, or scheduling of cumulative development to avoid peak construction traffic periods coinciding.

Consideration should also be given to the A83 Aray Bridge which the cumulative assessment forecasts to potentially experience direct, temporary **Moderate Adverse (Significant)** effects. Cumulative development mitigation could potentially examine the use of construction traffic routes associated with the Development that avoid Inveraray town centre, or scheduling of cumulative development to avoid peak construction traffic periods coinciding.

14.12 Cumulative Assessment Residual Effects

Following the implementation of mitigation as described in *Section 14.8 Mitigation*, the residual environmental effects of cumulative development are forecast as follows:

Severance of Communities

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on Study Area roads by managing cumulative development construction traffic, particularly on the A819 Inveraray Town Centre. The likely effect on severance following mitigation will be a reduction to a direct, temporary **Minor Adverse (Not Significant)** effect.

Fear and Intimidation on and by Road Users

The sensitivity of receptors on study area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on Study Area roads by managing cumulative development construction traffic, particularly on the A819 Inveraray Town Centre. The likely effect on fear and intimidation following mitigation will remain a direct, temporary **Minor Adverse (Not Significant)** effect.

Road User and Pedestrian Safety

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on Study Area roads by managing cumulative development construction traffic. Therefore, the likely effect on road user and pedestrian safety following mitigation will remain a direct, temporary **Minor Adverse (Not Significant)** effect.

Non-motorised User Amenity

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on study area roads by managing cumulative development construction traffic, particularly on the A819 Inveraray Town Centre. The likely effect on non-motorised user amenity following mitigation will be a reduction to a direct, temporary **Minor Adverse (Not Significant)** effect.

Non-motorised User Delay

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on Study Area roads by managing cumulative development construction traffic, particularly on the A819 Inveraray Town Centre. The likely effect on non-motorised user delay following mitigation will be a reduction to a direct, temporary **Minor Adverse (Not Significant)** effect.

Driver Delay

The sensitivity of receptors on Study Area roads will be unchanged. Mitigation for cumulative development will aim to reduce magnitude of change on Study Area roads by managing cumulative development construction traffic, particularly on the A819 Inveraray Town Centre. The likely effect on driver delay following mitigation will be a reduction to a direct, temporary **Minor Adverse (Not Significant)** effect.

14.13 Summary of Effects

Table 14.22 Summary of Effects presents a summary of the environmental effects forecast in this assessment.

Table 14-13. Summary of Effects

Category	the Development			Cumulative Development		
	Significance of Effects	Mitigation	Residual Effects	Significance of Effects	Mitigation	Residual Effects
Severance of Communities	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Major Adverse (Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)
Fear and Intimidation on and by Road Users	Direct, Temporary Negligible Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Negligible Adverse (Not Significant)	Direct, Temporary Moderate Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)
Road User and Pedestrian Safety	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)
Non-motorised User Amenity	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Major Adverse (Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)
Non-motorised User Delay	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Major Adverse (Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)
Driver Delay	Direct, Temporary Minor Adverse (Not Significant)	CTMP + Construction Traffic Haul Routes	Direct, Temporary Minor Adverse (Not Significant)	Direct, Temporary Major Adverse (Significant)	CTMP + Construction Traffic Haul Routes + Co-ordination between Cumulative Schemes	Direct, Temporary Minor Adverse (Not Significant)

ⁱ Institute of Environmental Assessment (1993) The Institute of Environmental Assessment Guidelines for the Environmental Assessment of Road Traffic.

ⁱⁱ Transport Scotland (2018) Transport Forecasts 2018 Results from Transport Scotland's Land-Use and Transport Models, The Scottish Government.

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