# 9 Traffic and Transport

## 9.1 Introduction

This chapter of the EIA provides an assessment of the likely significant effects from the Proposed Development on Traffic and Transport. The assessment is based on the characteristics of the Site and surrounding area, and the key parameters of the Proposed Development detailed in **Chapter 2 – Site and Surrounding Area** and **Chapter 3 – The Proposed Development** respectively.

This chapter has been prepared by Tetra Tech in line with best practice. A statement outlining the relevant expertise and qualifications of competent experts appointed to prepare this EIA is provided in **Appendix 1.1**.

This chapter examines the Traffic and Transport issues associated with the Proposed Development and is supported by Technical Appendix 9.1 'Transport Assessment' (TA).

This chapter considers the effects during the construction phase of the Proposed Development, when volumes of traffic generation are anticipated to be at their greatest due to the delivery of equipment and construction materials. In line with Institute of Environmental Management (IEMA) guidelines, severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation as well as accidents and safety, have been evaluated in isolation for the Proposed Development. Additionally, these receptors were evaluated cumulatively considering other committed and in-planning developments in the general area, to produce a worst-case scenario.

The Proposed Development is the upgrading of a public road to provide an access route to facilitate the development of the Corie Glas Hydro Pumped Storage scheme. Once the construction of the Pumped Hydro Storage scheme is completed, the Proposed Development will remain in place permanently but will be downgraded to a single carriageway road with passing places. This is referred to as the Operational Stage 2 phase of the project. The development will remain in place permanently, and so it will not be decommissioned. Therefore, this chapter does not assess Operational Stage 2 of the development, but rather, as explained at 10.1.4, assesses the stages of construction of Kilfinnan Road, when traffic volumes are anticipated to be their greatest.

This chapter is supported by the following figures and technical reports provided in **Appendix 9.10**:

- **Appendix 9.10 – Figures** includes:
  - 10-1 – Site Location;
  - 10-2 – Study Area Road Network; and,
  - 10-3 – Footpath & Cycle Network.
- **Appendix 9.10 - Baseline** includes:
  - Table TN10-1: Existing (2023) Traffic Flows (Daily Average Two-Way Flows);
  - Table TN10-2: Future Year (2026) Baseline Traffic Flows (Daily Average Two-Way Flows); and,
  - Table TN10-3: Accident Data Summary 2018 -2022 (Trunk Roads).
- **Appendix 9.10 - Assessment** includes:
  - Table TN10-4: Construction Materials for the Kilfinnan Road Upgrade Works;
  - Table TN10-5: Construction Traffic Distribution Assumptions;
  - Table TN10-6: Peak Construction Traffic Flows (Daily Average Two-Way Flows);

- Table TN10-7: Future Year Baseline Plus Peak Construction Traffic Flows (Daily Average Two-Way Flows);
- Table TN10-8: Percentage Increase: Total vs Future Year Baseline (Based on Daily Average Two-Way Flows);
- Table TN10-9: Cumulative Development Peak Construction Traffic Flows (Daily Average Two-Way Flows);
- Table TN10-10: Total Cumulative Traffic Flows (Daily Average Two-Way Flows); and,
- Table TN10-11: Percentage Increase: Cumulative vs Future Year Baseline (Based on Daily Average Two-Way Flows).

## 9.2 Policy Context, Legislation, Guidance and Standards

**Legislation**

The overarching legislative framework applicable to this EIA for the Proposed Development is outlined in **Chapter 5 – Legislative and Policy Context**. Over and above this there are no statutory provisions of specific relevance to this assessment.

**Policy**

The planning policy framework applicable to this EIA for the Proposed Development is outlined in **Chapter 5 – Legislative and Policy Context**. In addition to National Planning Framework 4 (NPF4), the statutory Development Plan applicable to the Site presently comprises:

- Highland-wide Local Development Plan (adopted April 2012) and its adopted supplementary guidance; and,
- West Highlands and Islands Local Development Plan (adopted September 2019).

Planning policy considerations from the Highland-wide Local Development Plan of specific relevance to this assessment are identified below:

- Policy 56: Travel.

The Scottish NPF4 is a long-term plan looking to 2045 that guides spatial development, sets out planning policies, designates national developments and highlights spatial priorities. It is a long-term plan for Scotland that sets out where development and infrastructure is needed. Scotland's fourth NPF was laid in the Scottish Parliament on February 13th, 2023.

**Guidance and Relevant Technical Standards**

The following guidance and technical standards have informed this assessment and have been expanded upon within Appendix A.10:

- Scottish Planning Policy (2014);
- Planning Advice Note (PAN) 75;
- Transport Assessment Guidance (2012);
- Guidance for the Environmental Assessment of Road Traffic, IEMA (1993);
- Design Manual for Roads and Bridges (DMRB): LA 104 – Environmental Assessment and Monitoring; and,
- The Highland Council (THC) Local Transport Strategy (LTS), 2010.

## 9.3 Methodology

**Overview**

The methodology adopted in this assessment has involved the following key stages:

- Determine baseline conditions;
- Review the Proposed Development to identify potential effects including any cumulative effects;
- Evaluate significance;
- Identify mitigation; and
- Assess residual effects.

**Assessment Process**

## Criteria for Assessing the Sensitivity of Receptors

In terms of Traffic and Transport effects, the receptors are the users of the roads within the study area and the locations through which these roads pass.

Table 3.2N of LA 104 of the DMRB describes the sensitivity of receptors that shall be applied. This receptor sensitivity classification is summarised in Table 9.1.

Table 9.1: Classification of Receptor Sensitivity (Source LA 104 Table 3.2N)

| Value (Sensitivity) of Receptor / Resource | Typical Description |
|---|---|
| Very High | Very high importance and rarity, international scale and very limited potential for substitution. |
| High | High importance and rarity, national scale, and limited potential for substitution |
| Medium | Medium or high importance and rarity, regional scale, limited potential for substitution |
| Low | Low or medium importance and rarity, local scale |
| Negligible | Very low importance and rarity, local scale |

## Criteria for Assessing the Magnitude of Change

The following rules, taken from the IEMA Guidelines, were used to determine which links within the study area should be considered:

- Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and,
- Rule 2 – include any other specifically sensitive areas (such as schools, hospitals, congested junctions etc) where traffic flows are predicted to increase by 10% or more.

The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development. The effects and levels of magnitude are discussed below:

- Severance – the IEMA Guidance states that, “severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.” Further, “Changes in traffic of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ [or minor, moderate and major] changes in severance respectively”. However, the Guidelines acknowledge that “the measurement and prediction of severance is extremely difficult” (Para 4.28);
- Driver delay – the IEMA Guidelines note that these delays are only likely to be “significant [or major] when the traffic on the network surrounding the development is already at, or close to, the capacity of the system” (Para 4.32);

- Pedestrian Delay – the delay to pedestrians, as with driver delay, is likely only to be major when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road and would be considered 'major';
- Pedestrian Amenity – the IEMA Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity is where the traffic flow (or its lorry component) is halved or doubled (Para 4.39). It is therefore considered that a change in the traffic flow of -50% or +100% would produce a 'major' change in pedestrian amenity;
- Fear and Intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing 'minor', 'moderate' and 'major' changes in fear and intimidation respectively; and,
- Accidents and Safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents.

## Criteria for Assessing the Magnitude of Change

Table 3.4N of LA 104 of the DMRB describes the magnitude of impact that shall be applied. This magnitude of impact classification is summarised in Table 9.2

Table 9.2: Magnitude of Impact (Source LA 104 Table 3.4N)

| Magnitude of Impact (change) | | Typical Description |
|---|---|---|
| Major | Adverse | Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements. |
| | Beneficial | Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality. |
| Moderate | Adverse | Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements. |
| | Beneficial | Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. |
| Minor | Adverse | Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. |
| | Beneficial | Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring. |
| Negligible | Adverse | Very minor loss or detrimental alteration to one or more characteristics, features or elements. |
| | Beneficial | Very minor benefit to or positive addition of one or more characteristics, features or elements. |
| No Change | | No loss or alteration of characteristics, features or elements; no observable impact in either direction. |

## Criteria for Assessing the Significance of Effect

To determine the overall significance of the effects, the results from the receptor sensitivity and magnitude assessment are correlated and classified using a scale set out in Table 3.8.1 of LA 104 of the DMRB and summarised in Table 9.3.

Table 9.3: Significance Matrix (Source LA 104 Table 3.8.1)

| | Magnitude of Impact (Degree of Change) | | | | | |
|---|---|---|---|---|---|---|
| | | No Change | Negligible | Minor | Moderate | Major |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Environmental Value (Sensitivity)** | Very High | Neutral | Slight | **Moderate or large** | **Large or very large** | **Very large** |
| | High | Neutral | Slight | **Slight or moderate** | **Moderate or large** | **Large or very large** |
| | Medium | Neutral | Neutral or slight | Slight | **Moderate** | **Moderate or large** |
| | Low | Neutral | Neutral or slight | Neutral or slight | Slight | **Slight or moderate** |
| | Negligible | Neutral | Neutral | Neutral or slight | Neutral or slight | Slight |

Note 3 of LA104 states that effects are considered significant where they are assessed to be moderate, large or very large (shown as bold in Table 10-3).

The description for significance is set out in Table 3.7 of LA 104 of the DMRB and summarised in Table 9.4.

Table 9.4: Significance Categories (Source LA 104 Table 3.7)

| Value (Sensitivity) of Receptor / Resource | Typical Description |
|---|---|
| Very large | Effects at this level are material in the decision-making process |
| Large | Effects at this level are likely to be material in the decision-making process |
| Moderate | Effects at this level can be considered to be material decision-making factors |
| Slight | Effects at this level are not material in the decision-making process |
| Neutral | No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error |

## Assessment Scope

From a review of all receptors within the study area, Table 9.5 provides a summary of the receptors identified as being sensitive to the Proposed Development and which have been 'Scoped-In' to the assessment, together with a justification for their inclusion.

Table 9.5: Classification of Receptor Sensitivity

| Receptor (Users of Road(S) Or Location(S)) | Sensitivity | Justification (Description from Table 10.1) |
|---|---|---|
| A82 | High | High importance and rarity, national scale, and limited potential for substitution |
| A82 as it passes through Invergarry | Low | Low or medium importance and rarity, local scale. |
| Dwellings on Kilfinnan Road | Low | Low or medium importance and rarity, local scale. |

The A82 has been categorised as a receptor of high sensitivity due to its national importance, given it forms a key link of the Scottish trunk road network.

Invergarry and the dwellings on Kilfinnan Road are categorised as low due to the small number of properties affected.

## Consultation

Table 9.6 provides details of consultations undertaken with relevant regulatory bodies, together with actions undertaken by the Applicant in response to consultation feedback.

Table 9.6: Scoping and Consultation Responses relevant to Traffic and Transport

| Consultee | Consultation Responses | Comment / Action Taken |
|---|---|---|
| Transport Scotland | Confirmed their acceptance of the proposed location and dates for the traffic survey exercise on the A82. | Traffic surveys undertaken as agreed. |
| The Highland Council | Provided details of the proposed developments that should be included in the cumulative assessment. | Details of the proposed development were sourced and included in the cumulative assessment. |
| The Highland Council | The Traffic and Transport response confirmed they were content with the proposed scope of the assessment. | The study was undertaken in line with the methodology set out in the scoping document. |

## EIA Screening and Scoping

An EIA Screening request was submitted in June 2022 and a response was issued in July 2022 (reference: 22/02648/SCRE).

An EIA Scoping Request for the Proposed Development was submitted in November 2022 and the planning authority's scoping opinion was issued on 18 January 2023 (reference: 22/05277/SCOP).

Within Section 10 of the Scoping Report, it was proposed that to address potential Traffic and Transport effects that are found to be significant, with no mitigation in place, an evaluation will be undertaken to consider the residual effects after the implementation of the proposed mitigation.

It was also proposed that in the event that the predicted Traffic and Transport effects have the potential to be considered significant, in the context of the EIA Regulations, this assessment will be included as a dedicated chapter within the EIA Report.

## Study Area

The Traffic and Transport study area is defined as the lengths of road that will be used to access the Proposed Development and be most impacted during the construction phase. The study area has been identified through a review of the likely routes between suppliers of equipment and materials and the site, and is summarised below:

- Kilfinnan Road, at its northern end, towards its junction with the A82, and at its southern end, the forestry gate of Clunes Forest; and,
- The A82, at its northern end, to the north of Invergarry, and at its southern end, to the north of Stronaba.

Kilfinnan Road is a single-track road subject to the national speed limit, used for local access and forestry / farming haulage. Kilfinnan Road also forms part of the Great Glen Way, a national long-distance route used by walkers, cyclists, and horse riders. A section of Kilfinnan Road, southeast of Laggan Locks, also serves as the Caledonia Way or National Cycle Network (NCN) 78 Oban to Inverness route.

The A82 is a two-way rural single carriageway trunk road subject to the national speed limit along most of its length.

## Information Sources

Information has been sourced from:

- Transport Scotland;

- SUSTRANS; and,
- Ramblers Scotland.

**Desk Top Study**

The baseline review focuses on the nature of the surrounding road infrastructure and the level of traffic that uses it. It has been informed by the following:

- Review of responses to the Scoping Report;
- Collection of traffic flow data;
- Review of roads hierarchy;
- Identification of areas of road safety concerns;
- Identification of other traffic sensitive receptors in the area (routes, communities, buildings etc.);
- Review of online mapping to derive the study area; and,
- Consideration of potential supply locations for construction materials to inform the extent of the road network to be considered in the assessment.

A review of relevant applications in the general vicinity of the study area was also undertaken as part of the desk top study.

**Fieldwork**

A site visit was undertaken in September 2022 which included a video survey of the study area, a general assessment of Kilfinnan Road and a review of active travel infrastructure.

## 9.4 Baseline Conditions

**Existing Traffic Conditions**

To determine the existing road usage, 2022 Annual Average Daily Traffic Flow (AADT) data from two sites were extracted from the online Transport Scotland (TS) databases of count sites:

i. A82 north of Invergarry village (TS Count Point 0000ATC01037); and,
ii. A82 north of Stronaba (TS Count Point 0000ATC01036).

As well as the information available from the databases, one Automatic Traffic Count (ATC) was deployed at the northern end of Kilfinnan Road (17th – 23rd of April 2023), where no data was previously available.

The National Road Traffic Forecast (NRTF) high growth factor for 2022 to 2023 is 1.0121 and this factor was applied to the 2022 TS count data (0000ATC01036 and 0000ATC01037).

Table 9.7 summarises the 24-hour average daily traffic data collected at the count and ATC sites.

Table 9.7: Existing (2023) Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 240 | 23 | 263 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 2,026 | 545 | 2,571 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 3,187 | 777 | 3,964 |

## Future Baseline

Construction of the Proposed Development is likely to take 18 months with construction traffic expected to peak in early-2026, depending on when permission for the Proposed Development is granted.

Future year baseline traffic flows were determined by applying a NRTF 2026 high growth factor (the year when construction traffic is expected to peak) to the existing traffic flows within the study area. Traffic flows associated with any nearby operational wind farms were captured within the existing traffic flows.

The NRTF high growth factor for 2023 to 2026 is 1.0367 and this factor was applied to ATC and TS count data.

Table 9.8 summarises the resulting future year baseline traffic flows.

Table 9.8: Future Year (2026) Baseline Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 249 | 24 | 273 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 2,100 | 565 | 2,665 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 3,304 | 806 | 4,110 |

## Accident Data

Road traffic personal injury accident (PIA) data was obtained from TS for the A82 trunk road, covering the five-year period from 2018 to 2022.

The data indicates that over the network reviewed, which is approximately 48km in length, a total of 33 PIAs were recorded of which 58% are classified as “slight”, 15% as “less serious”, 6.% as “moderately serious”, 6.% as “very serious”, 12% as “serious” and 3% as “fatal” by the Police reporting and recording the incidents.

Table 9.9 summarises the trunk road accident data.

Table 9.9: Accident Data Summary 2018 -2022 (Trunk Roads)

| Route | Fatal | Serious | Very Serious | Moderately Serious | Less Serious | Slight | Total Accidents |
|---|---|---|---|---|---|---|---|
| A82 - Spean Bridge to Invermoriston | 1 | 4 | 2 | 2 | 5 | 19 | 33 |

It should be noted that the PIA information obtained from TS was for a longer section of the A82 than is identified in the study area.

No common cause (e.g. weather, seasonal effects etc.) has been identified in the analysis that would suggest a specific road safety issue.

Within the study area only one common accident location has been identified, in the vicinity of the secondary access to The Whispering Pine Lodges. This is located on the southwestern shore of Loch Lochy, where five PIAs have been recorded. The speed limit on this section of the A82 is 50mph. A review of Streetview images show this reduced speed limit was introduced sometime between June 2017 and May 2021, presumably in response to the identified accident cluster. Of the five PIAs, three occurred prior to May 2021, with the remaining two occurring after May 2021. One other common accident location was identified from the TS data, however, this location is out with the study area.

The online source Crashmap.co.uk reveals that no PIAs were recorded along Kilfinnan Road between 2017-2021, the years with the most recent data available.

**Footway and Cycleway Network**

Kilfinnan Road forms part of the Great Glen Way, a national long-distance route used by walkers, cyclists and horse riders. A section of Kilfinnan Road, southeast of Laggan Locks, also serves as the Caledonia Way or National Cycle Network (NCN) 78, Oban to Inverness route.

Ramblers Scotland online Scottish Paths Map identifies a path to Loch Lochy Munros which branches off from the Great Glen Way.

The Great Glen Way / NCN78 will be temporarily diverted during the upgrade works, to ensure access and the existing right of way is maintained at all times. It will also segregate its users from construction traffic. The path to Loch Lochy Munros will be unaffected.

## 9.5 Embedded Mitigation

**Construction Phase**

During the construction period, the established community liaison group will be used to disseminate information and take feedback, and a project website will be set up and regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site. The structure and content of the website will be agreed with THC.

All construction deliveries will be undertaken at appropriate times.

The following measures will be implemented during the construction phase, through the Construction Traffic Management Plan (CTMP), which will be a conditioned requirement attached to the planning permission:

- All material delivery lorries (dry materials) will be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures will be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- A wheel wash facility will be established in the vicinity of the Site entrance, if required;
- Working hours will be limited to between 0700 – 1900 Monday to Friday, and 0800 – 1400 on Saturday and Sunday. There shall be no HGV construction traffic movements to or from the Proposed Development out with these hours. In the event of work being required out with these hours (e.g., commissioning works, or emergency mitigation works), the Planning Authority will be notified prior to them taking place;
- Appropriate traffic management measures will be put in place at the Site entrance, off the A82, to avoid conflict with general traffic, subject to agreement with THC;
- Typical measures will include speed limit, HGV turning and crossing signage and / or marshals at the Site entrance; and,
- Provision of construction updates on the project website and through the community liaison group.

All drivers involved in the works will be required to attend an induction to include:

- A safety briefing;
- The need for appropriate care and speed control;
- A briefing on driver speed reduction agreements (to slow Proposed Development traffic at sensitive locations);
- Identification of specific sensitive areas;
- Identification of the specified access route; and,
- The requirement not to deviate from the specified route.

There will be regular road inspection on the A82, in the vicinity of the Site entrance. Debris and mud will be removed from the carriageway, using an onsite road sweeper, if required.

**Operational Phase**

No embedded mitigation has been considered a requirement for the operational phase of the Proposed Development as it will function as a public road.

## 9.6 Assessment of Likely Effects

**Construction Phase**

The assessment is based upon information provided by the Applicant and developed from experience of other construction projects of a similar scale.

To enable comparison of the estimated future year baseline traffic movements with total volumes, including predicted construction traffic, average daily two-way movements for each month assuming a 30-day working month for deliveries was determined. Traffic movements were also split by vehicle type in line with the baseline data and the peak period for construction traffic determined. The final daily construction profile by activity is set out in Annex C of Appendix A.10 and summarised in Table 9.10 and 9.11 (note: tables contain rounding errors).

Table 9.10: Daily Construction Traffic Movements Months 1 – 9 (Daily Average Two-Way Flows)

| | Months | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Total Estimated Movements | 1,008 | 1,139 | 1,590 | 1,229 | 1,385 | 1,390 | 1,566 | 2,727 | 2,917 |
| Working Days | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Cars & LGVs | 12 | 17 | 23 | 23 | 29 | 29 | 34 | 40 | 46 |
| HGV | 22 | 21 | 30 | 18 | 18 | 18 | 19 | 51 | 52 |
| Total | 34 | 38 | 53 | 41 | 47 | 47 | 53 | 91 | 98 |

Table 9.11: Daily Construction Traffic Movements Months 10 - 18(Daily Average Two-Way Flows)

| | Months | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| Total Estimated Movements | 3,065 | 2,687 | 2,365 | 2,187 | 2,186 | 2,187 | 2,187 | 2,567 | 2,405 |
| Working Days | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Cars & LGVs | 51 | 46 | 34 | 34 | 34 | 34 | 34 | 29 | 23 |
| HGV | 52 | 44 | 45 | 39 | 39 | 39 | 39 | 57 | 58 |
| Total | 103 | 90 | 79 | 73 | 73 | 73 | 73 | 86 | 81 |

The maximum traffic movements associated with the construction of the Proposed Development are predicted to occur during month 10 of the programme. During this month, a total of 3,065 two-way vehicle movements are estimated (see Table 10-10B), the highest for the 18-month construction period. This equates to an average of 52 HGV two-way movements per day along with 51 car / LGV two-way movements per day, to transport construction workers to and from the Proposed Development.

The greatest number of vehicle movements are associated with the delivery of imported aggregate to the site, the removal of surplus spoil from the site and the transport of staff to / from the site.

## Development Traffic Routing / Distribution

The origin of vehicle traffic will depend on the location of the source of aggregates being imported, the destination of the spoil being exported and staff accommodation.

It is assumed that all road capping, sub-base, services and drainage bedding aggregate materials will be delivered from off-site quarries. It is assumed that general fill materials will primarily be sourced on-site. There are several potential sources of quarried materials (aggregate / sand), including quarries situated north and south of the Site entrance.

This assessment assumes that approximately 90% of spoil materials will be removed and disposed of off-site. However, this is a worst-case scenario, and it is believed that a higher percentage will be retained for use.

The assumptions outlined in 10.6.6 and 10.6.7 is based on information available from an assessment of available ground investigation information from the Site, combined with experience from other construction projects of a similar scale. More accurate quantities will only be available after a detailed design is finished, however, at this stage of the development, both represent a worst-case scenario.

It is likely that staff will be accommodated across a wide area.

Full details of the assumed distribution are set out in Section 6 of Appendix A.10.

General construction HGV traffic will be required to use the A82 and exit onto Kilfinnan Road.

## Predicted Effect

To estimate the total trips on the road network within the study area during the construction phase, daily construction traffic flows were combined with the future year baseline traffic conditions. The resulting figures were compared with the daily future year baseline traffic.

Table 9.11 summarises the daily peak construction traffic (month 10) at the key locations within the study area and Table 91.2 summarises the future year baseline plus peak construction traffic (total) flows. Table 9.13 shows the resulting percentage increase.

Table 9.12: Peak Construction Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 51 | 52 | 103 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 25 | 8 | 33 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 25 | 44 | 69 |

Table 9.13: Future Year Baseline Plus Peak Construction Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 299 | 75 | 374 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 2,125 | 573 | 2,698 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 3,330 | 849 | 4,179 |

Table 9.14: Percentage Increase: Total vs Future Year Baseline (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 20.3% | 216.1% | 37.5% |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 1.2% | 1.4% | 1.2% |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 0.8% | 5.4% | 1.7% |

Users of the A82 and inhabitants of Invergarry (located on the A82) are considered receptors of high and low sensitivity, respectively. With reference to rule 1 of the IEMA Guidelines, no further assessment of these receptors is required based on the results of Table 10-13, as the 5.4% increase in HGVs does not exceed the 30% threshold.

The results in Table 9.13 indicate that during the construction of the Proposed Development, only on Kilfinnan Road are total and HGV traffic flows predicted to increase by more than 30%.

Based on Table 9.12 and 9.13- the increased flow of HGVs (>200%) will have a slight or moderate effect on dwellings situated on Kilfinnan Road. Table 10-4 describes a slight impact as “Effects at this level are not material in the decision-making process" and a moderate impact as “Effects at this level can be considered to be material decision-making factors”. This slight or moderate impact can be mitigated through amendments to the CTMP associated with the Proposed Development.

**Operational Phase**

No assessment of effects has been carried out for the operational phase of the Proposed Development as it will function as a public road.

## 9.7 Further Mitigation and Enhancement

**Construction Phase**

No further mitigation has been considered as a requirement for the construction phase of the Proposed Development.

**Operational Phase**

No further mitigation has been considered as a requirement for the Operational Phase 2 of the Proposed Development as it will function as a public road.

As set out in 10.1.5, once the construction of the Hydro Pumped Storage scheme is completed, the Proposed Development will remain in place permanently but will be downgraded to a single carriageway road with passing places.

Prior to the downgrading works taking place, a traffic assessment would be undertaken in line with the best practice guidance and relevant legislation at the time, and appropriate traffic management procedures would be followed.

The downgrading works will result in fewer trips on the road network than the construction phase, as the principal elements of the Proposed Development, including its alignment, would remain unchanged.

As the downgrading works will result in fewer vehicle trips on the road network than the construction phase, the significance of any effects would not be greater than those identified for the construction phase. It can therefore be assumed that the assessment of the construction phase covers the worst-case scenario and so the potential effects of the downgrading works have not been considered for further assessment.

## 9.8 Residual Effects

The volume of additional traffic on the A82 is not considered to present a concern in relation to perceived severance, driver delay, pedestrian delay, pedestrian amenity or increase fear and intimidation, or decrease the level of safety on the section of the road within the study area.

## 9.9 Monitoring

It is considered that no monitoring is required.

## 9.10 Cumulative Effects

Consideration was given to the cumulative impact of the Proposed Development with other developments that are the subject of valid planning applications or approved, and which would

impact on the study area due to the potential for proposed construction activities to coincide with the construction period of the Proposed Development. THC advised that Dell and Cloiche Wind Farms, and Bhlaraidh Wind Farm extension, should be included in this assessment, along with the Coire Glas Connection and Syke Reinforcement Projects. Further details of these developments are provided in Section 7 of Appendix A.10.

Some of the enabling works for the main Corie Glas works will run concurrently (in the last six months of the upgrade works) with the upgrade works on Kilfinnan Road. The EIA previously submitted for the main Scheme works provided the peak volume of traffic for the busiest month. For the purposes of this assessment, it has been assumed that 20% of the peak month's volume of traffic for the main works coincides with the peak month of the Proposed Development; this is considered to present a robust estimate.

It is highly unlikely that the construction programmes for the Proposed Development and the five other projects, not directly related to the main Scheme works, would coincide, and it is not certain that all will be granted planning permission. However, for the purposes of this assessment it was assumed that all proposals will be granted permission, and the peak periods of the respective construction programmes would overlap. As such, the cumulative assessment has considered the worst-case scenario.

Peak period traffic flows for the six cumulative projects were extracted from planning documentation and added to the future year flows where they impacted on the study area. Table 9.14 illustrates the daily traffic flows associated with the six cumulative developments, Table 9.15 illustrates the total cumulative traffic flows (baseline traffic plus Proposed Development plus cumulative developments), and Table 9.16 illustrates the percentage increase in cumulative traffic over baseline traffic.

Table 9.15: Cumulative Development Peak Construction Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 32 | 81 | 113 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 226 | 167 | 393 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 842 | 344 | 1,186 |

Table 9.16: Total Cumulative Traffic Flows (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 331 | 156 | 487 |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 2,351 | 740 | 3,091 |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 4,172 | 1,193 | 5,365 |

Table 9.17: Percentage Increase: Cumulative vs Future Year Baseline (Daily Average Two-Way Flows)

| Survey Location | Cars & LGVs | HGVs | Total |
|---|---|---|---|
| Kilfinnan Road north (ATC North Site) | 33.2% | 555.8% | 78.9% |
| A82, north of Invergarry (TS Count Point 0000ATC01037) | 12.0% | 31.0% | 16.0% |
| A82, north of Stronaba (TS Count Point 0000ATC01036) | 26.2% | 48.1% | 30.5% |

In the cumulative development scenario that has been assessed, both HGV and total traffic movements would increase by over 30% on the A82 south of Kilfinnan Road. On the A82 to the north, only the percentage of HGVs would increase by over 30%, with the total increasing by 16%. The A82 is a receptor of high sensitivity based on its national importance, although it is designed to accommodate general traffic and HGV movements between primary destinations.

Invergarry is a receptor of low sensitivity, as it is a small rural settlement, where the majority of facilities are off the A82.

While it is considered highly unlikely that the peak months of construction would clash across all cumulative developments, considered in this assessment, it is acknowledged that there could be HGV traffic from a combination of all seven developments using the A82 during their construction programmes, should they coincide.

It should be noted that any cumulative effects would be temporary and relatively short lived during the construction phase. It should also be noted that the A82 is not close to capacity and pedestrian movements are not observed to be high, with limited pedestrian infrastructure.

It is clear that the impact set out in Table TN10-16 on Kilfinnan Road is of major significance to residents and visitors to the area and will be a key consideration in the development of the CTMP.

Traffic management measures would be implemented along Kilfinnan Road to mitigate the impact of traffic related to the Proposed Development and that of the main Corie Glas works.

Should cumulative construction phases occur concurrently, enhanced CTMP mitigation measures, associated with each individual development, should be considered and introduced as required. This would involve liaison with stakeholders including TS and THC roads officers, developer representatives and the emergency services, in order to manage the impact of increased HGV movements.

Therefore, on this basis, the significance of any cumulative effects is considered to be slight or moderate. Table 9.14 describes a slight impact as “Effects at this level are not material in the decision-making process" and a moderate impact as “Effects at this level can be considered to be material decision-making factors”. In both cases, the effects can be mitigated through amendments to the CTMP, associated with the Proposed Development.

## 9.11 Summary

The results indicate that during the construction of the Proposed Development, neither total nor HGV traffic flows are predicted to increase by more than 30% at any section of the A82 road within the study area. Therefore, no significant effects are anticipated. Any effects will be short lived during the construction phase, with the A82 not observed to be close to capacity.

The results indicate that during the construction of the Proposed Development, both total and HGV traffic flows are predicted to increase by more than 30% on Kilfinnan Road. However, based on the fact that Kilfinnan Road can be classified as a receptor of low significance and can be mitigated through amendments to the CTMP associated with the Proposed Development, no significant effects are anticipated.

No significant operational or decommissioning effects were considered, due to the nature of the Proposed Development, which will function as a public road, downgraded to single carriageway with passing places, after the completion of the Hydro Pumped Storage scheme.

Consideration was given to the cumulative impact of the Proposed Development with other developments that are the subject to valid planning applications or approved and which would impact on the study area. THC advised that Dell, Cloiche and Bhlaraidh Wind Farms, and the Coire Glas Connection and Syke Reinforcement Projects should be included in this assessment. A portion of the traffic volumes from the main Scheme were also included to cover enabling works that will run concurrently (in the last six months of the upgrade works) with the upgrade works.

It is highly unlikely that the construction programmes for the Proposed Development and the six projects would coincide, and it is not certain that all will be granted permission. However, for the purposes of this assessment it was assumed that all proposals will be granted permission and the peak periods of the respective construction programmes would overlap. As such, the cumulative assessment has considered the worst-case scenario.

## 9.12 References

Institute of Environmental Assessment, 1993, “Guidelines for the Environmental Assessment of Road Traffic”.

Design Manual for Roads and Bridges, 2020, “LA104 – Environmental assessment and monitoring”.