

11 Traffic & Transport

11.1 Introduction

- 11.1.1 This Chapter considers the potential for significant traffic and movement environmental effects resulting from the Proposed Development. It considers environmental effects in accordance with Institute of Environmental Management and Assessment (IEMA)¹ Guidelines: Environmental Assessment of Traffic and Movement.
- 11.1.2 The traffic and movement assessment only considers the construction phase of the Proposed Development. The operational phase is unlikely to have a material impact on local roads, as only occasional operational and maintenance traffic is expected. Given the nature of the Proposed Development is such that it would form an integral part of the electricity transmission and distribution networks it would be operated and maintained until no longer required and it is therefore not proposed that the Proposed Development would be decommissioned, therefore decommissioning effects have been scoped out of assessment..
- 11.1.3 This Chapter is supported by the following Figures and Technical Appendix:
- Figure 11.1: Traffic Survey Locations
 - Figure 11.2: Study Area Roads
 - Figure 11.3: Injury Accident Locations
 - Technical Appendix 11.1: Traffic and Transport

11.2 Legislation and Policy

National Policy

National Transport Strategy NTS2 (2020)

- 11.2.1 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.
- 11.2.2 Four priorities support the vision.
- Reduce inequality.
 - Take climate action.
 - Help deliver inclusive economic growth.
 - Improve health and wellbeing.

Climate change: Scottish National Adaptation Plan 2024-2029

- 11.2.3 The Scottish National Adaption Plan 2024-2029 sets out the actions that the Scottish Government and partners will take to respond to the impacts of climate change over this period. It sets out actions to build Scotland's resilience to climate change through support for

¹ Now the Chartered Institute of Sustainability and Environmental Professionals (ISEP). Guidelines originally published under IEMA.

our communities, businesses, public services and nature to adapt to the changing climate in a way that is fair and inclusive.

- 11.2.4 The PS4 objective 'Transport system' within the Scottish National Adaptation Plan focuses on transport systems being prepared for current and future impacts of climate change and being safe for all users, reliable for everyday journeys and resilient to weather related disruption. The document sets out actions for different transport modes to become more adaptable to the impacts of climate change.

National Planning Framework 4

- 11.2.5 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.
- 11.2.6 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.
- 11.2.7 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. 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)

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

Regional Policy

- 11.2.9 The Transport (Scotland) Act 2005 placed a statutory duty on the seven Regional Transport Partnerships (RTPs) in Scotland to produce a Regional Transport Strategy (RTS) for their area. The Proposed Development straddles the Fife Council and Clackmannanshire Council boundary, with both these local authorities sitting within the South East of Scotland Transport Partnership region (SEStran).

SEStran Regional Transport Strategy 2035

11.2.10 SEStran Regional Transport Strategy (RTS) provides the framework and a direction for transport in the south-east of Scotland area of which Fife is one of eight partner local authorities. The RTS is designed to address the transport problems and issues being experienced in the SEStran area. The strategy sets out four objectives which are:

- Transitioning to a sustainable, post carbon transport system.
- Facilitating healthier travel options.
- Transforming public transport connectivity and access across the region.
- Supporting safe, sustainable and efficient movement of people and freight across the region.

Local Policy

FIFEplan (2017)

11.2.11 The current Local Development Plan (LDP) is the FIFEplan (2017).

11.2.12 Fife Council are currently preparing a new Local Development Plan which will replace the existing 2017 FIFEplan and will set out the planning policies and proposals for the use and development of land across Fife.

11.2.13 The role of the plan is to set out the policies and proposals for the development and use of land across Fife. The Plan is used to determine planning applications and give guidance to communities and investors on where development can and cannot take place.

11.2.14 With regards to transport, the FIFEplan Planning Obligations Guidance states that Transport Assessments should include:

11.2.15 'A no net detriment assessment of development traffic, which will look to mitigate the adverse effects of development traffic only (i.e. without a need to allow for underlying traffic growth). No net detriment is based on the relative percentage of development traffic versus background traffic at identified locations calculated against a base year and the projected year of opening.'

Fife Council Local Transport Strategy (2023-33)

11.2.16 Fife Council's Local Transport Strategy was development set out the proposed vision and action plan of the Council with regards to transport for the next ten years, until 2023. The priorities of the plan are:

- Fair access to daily activities
- Safe and secure travel for all
- Just transition to net zero
- Transport network resilience.

Clackmannanshire Local Development Plan (2015)

11.2.17 Clackmannanshire Council note that NPF4 is now part of the statutory Development Plan process and Scottish Planning Policy 2014 as mentioned in the Clackmannanshire Local Development Plan is now superseded. As a result, planning applications in Clackmannanshire are assessed against the Local Development Plan and NPF4.

11.2.18 Within the Clackmannanshire Local Development Plan, Policy SC11 aims to ensure the impacts of development on the wider transport network are considered and that opportunities

to enhance the network are identified. Policy SC12 aims to ensure sustainable transport infrastructure is integrated in the design of new transport proposals and sets out requirements for new development proposals.

11.3 Consultation

- 11.3.1 AECOM has scoped the parameters of the assessment with Fife Council, Clackmannanshire Council and Transport Scotland. A summary of the transport specific scoping correspondence is shown in Table 11.1. The transport specific scoping correspondence is shown in full in Technical Appendix 11.1: Traffic and Transport.

Table 11.1: Consultation Responses

Consultee / Type and Date	Summary of Consultation Response Relevant to Traffic & Transport	Response to Consultee
Fife Council	The council noted that consideration should be given to transport-related matters during construction and agreed that once operational the Proposed Development would not generate significant traffic.	This has been considered in the contents of this chapter.
Transport Scotland	Provided advice with respect to the use of the A876 and specific requirements with regard to access and movement of abnormal loads.	Ongoing consultation with Transport Scotland regarding slip road access from the A876.

11.4 Methods

Introduction

- 11.4.1 The assessment methodology follows the IEMA Guidelines 2023. Rule 1 and Rule 2 from the IEMA Guidelines are used to identify roads to be included in the environmental assessment:
- Rule 1. Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%).
 - Rule 2. Include any other specifically sensitive areas where traffic flows have increased by 10% or more.
- 11.4.2 The IEMA Guidelines 30% threshold is based on research and experience of the environmental effects of traffic, with less than a 30% increase in traffic generally resulting in imperceptible changes in environmental effects 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.

Sensitivity of Receptors

- 11.4.3 Receptors are locations or land-uses categorised by sensitivity or environmental value.
- 11.4.4 For the purposes of assessment, receptors are identified in accordance with IEMA Guidelines.
- 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)
- 11.4.5 Technical Appendix 11.1 provides an assessment of study area roads and the sensitivity of the IEMA Guidelines receptors that may be present on those roads. Extents of study area roads are shown in Figure 11.2: Study Area Roads. Table 11.2 summarises the sensitivity of study area roads as environmental receptors.

Table 11.2: Road Link Sensitivity of Receptors

Road Link	Description	Sensitivity	Reasoning
A977 north	A-class national speed limit road between Gartarry Roundabout and Forestmill.	Low	Limited frontages with no footways or cycle routes present.
A907 west	Section of A-class national speed limit road reducing to 40mph from the Gartarry Roundabout to Clackmannan Road Roundabout.	Medium	Some frontages nearby and footways present as road moves west towards Alloa.
A907 east	A-class national speed limit road between Gartarry Roundabout and Blairhall.	Low	Limited frontages with no footways or cycle routes present.
A977 Kilbagie Roundabout	Small section of A-class national speed limit road between Kilbagie Roundabout and Gartarry Roundabout.	Negligible	No frontages present on route. Shared use path offset from carriageway.

Road Link	Description	Sensitivity	Reasoning
A977 Kilbagie	National speed limit trunk road from Kilbagie Roundabout, reducing to 40mph near the junction with the Substation Access road.	Medium	Some residential frontage present, with golf course and other amenities nearby. Footway present on one side of the carriageway.
A977 Feregait	Section of trunk road from the junction with the Substation Access road to the junction with Toll Road in Kincardine. Speed limit reduces from 40mph to 30mph upon entering Kincardine.	High	Considerable residential frontage present with footways directly adjacent to carriageway on both sides of the road.
Substation Access Road	Narrow two-way single carriageway road from the junction with the A977 to the junction with Hawkhill Road.	Negligible	No frontages on route, footway is present on one side of the carriageway.
C68 Hawkhill Road	Single track road from the junction with the Substation Access road northwards.	Low	Limited frontages however route is cycle/pedestrian friendly with no separated footway or cycle route.
A876	National speed limit trunk road between the Clackmannanshire Bridge and Kilbagie Roundabout	Negligible	Limited frontages present on route. Small section of footway present near the Clackmannanshire Bridge.
Clackmannanshire Bridge	National speed limit trunk road crossing over the River Forth.	Negligible	No frontages present on route. Footway is directly adjacent to carriageway with no buffer.
A876 S Approach Road	70mph speed limit trunk road from the roundabout with the Clackmannanshire / Kincardine Bridges to the junction at Bowtrees.	Negligible	No frontages, footways or cycle routes present.
Kincardine Bridge	Trunk road crossing over the River Forth to Kincardine, with a	Low	No frontages present on route. Footways present on both sides but are

Road Link	Description	Sensitivity	Reasoning
	reduced speed limit of 30mph.		separated from the carriageway via a buffer.
A985 west	National speed limit trunk road from the Kincardine Bridge to the roundabout with Toll Road.	Negligible	Limited frontages present on route with no footway or cycle route directly adjacent to the carriageway.
A985 east	National speed limit trunk road between the roundabout with Toll Road and the junction with the B9037.	Low	Limited frontages present on route with only a small section of footway present adjacent to carriageway.

Magnitude of Change

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

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

Severance of Communities

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

Table 11.3: Magnitude of Change – Severance of Communities

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.

- 11.4.8 IEMA Guidelines note that caution needs to be observed when applying these thresholds where very low baseline traffic conditions exist, as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in vehicle traffic conditions.

Fear and Intimidation

- 11.4.9 The IEMA Guidelines state that the extent of fear and intimidation is dependent on:
- The total volume of traffic;
 - The heavy vehicle composition;
 - The speed of vehicles; and
 - The proximity of traffic to people.
- 11.4.10 IEMA Guidelines provide a degree of hazard methodology for assessing Fear and Intimidation. Degree of hazard is established by scoring traffic on Study Area roads for baseline and Proposed Development traffic conditions. Table 11.4 shows the IEMA Guidelines scoring system applied to all Study Area roads.

Table 11.4. Fear and Intimidation Degree of Hazard

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

18hr Traffic Flow Average Two-Way Traffic (Vehicles / Hour) (a)	18hr Traffic Flow Total HGV Movements (b)	Average Vehicle Speed MPH (c)	Degree of Hazard Score
<600	<1,000	<20	0

- 11.4.11 For each Study Area road, the total degree of hazard score (a) + (b) + (c) for baseline and Proposed Development traffic conditions is summed to provide a 'level' of fear and intimidation in accordance with Table 11.5.

Table 11.5. Levels of Fear and Intimidation

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

- 11.4.12 Magnitude of change is determined with reference to changes in fear and intimidation levels between baseline and Proposed Development traffic flows in accordance with Table 11.6.

Table 11.6. Fear and Intimidation Magnitude of Change

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

Road User and Pedestrian Safety

- 11.4.13 IEMA Guidelines consider the calculation of accident rates a relevant approach for approximating the potential for road safety impacts to materialise as a result of a development. Knowing the expected increase in vehicle kilometres driven on Study Area roads as a result of Proposed Development traffic, it is possible to make an arithmetic assessment of the likely

increase or decrease in the number of accidents resulting from changes in traffic flows or composition.

- 11.4.14 Accidents by severity for the 2020-2024 period are combined with traffic flows to produce accident rates by severity per million vehicle kilometres for all Study Area roads. A forecast of vehicle kilometres driven on Study Area roads by Proposed Development traffic for the duration of the construction programme has been calculated. The accident rates per million vehicle kilometres are applied to Proposed Development traffic to produce a forecast of accidents by severity over the duration of the construction stage. Magnitude of change for road user and pedestrian safety is assessed according to Table 11.7.

Table 11.7. Road User and Pedestrian Safety Magnitude of Change

Magnitude of Change	Forecast Increase in Accident by Severity		
	Slight	Severe	Fatal
High	5+	1+	1+
Medium	3-4	0	0
Low	1-2	0	0
Negligible	0	0	0

Non-motorised User Amenity and Delay

- 11.4.15 These effects are closely related to severance as a change in the volume, composition or speed of traffic may affect the relative pleasantness (amenity) or progress (delay) made by non-motorised users. In general, increases in traffic levels are likely to lead to reductions in amenity and increases in delay for non-motorised users. Absolute levels of change to non-motorised amenity and delay will depend on the general level of pedestrian and active travel activity on Study Area roads. The magnitude of change thresholds set out in Table 11.3 for severance are adopted for non-motorised environmental effects.

Road Vehicle Driver and Passenger Delay

- 11.4.16 Where Study Area roads are assessed by link flow, the Congestion Reference Flow (CRF) of the Study Area road will be used to forecast magnitude of change. The CRF of a Study Area road is an estimate of the daily traffic flow at which the road is likely to be 'congested' in peak periods on an average day. CRF is calculated in accordance with CD100 DMRB Extract Volume 5 Section 1 (TA 46/97) which remains applicable to trunk roads in Scotland. To calculate CRF, 'congestion' is defined as the situation when the traffic demand exceeds the maximum sustainable throughput of the road. At this point the effect on traffic is likely to include flow breakdown with speeds varying considerably, and queues are likely to form. Table 11.8 summarises the CRF magnitude of change thresholds adopted in this assessment for Road Vehicle Driver and Passenger Delay. CRF magnitude of change adopts 30%, 60% and 90% traffic 'levels' to represent thresholds for changes in vehicle delay, with the stipulation that for Low, Medium and High magnitudes of change there must also be at least one change in traffic level as a result of Proposed Development Traffic.

Table 11.8. Road Vehicle Driver and Passenger Delay Magnitude of Change

Magnitude of Change	Study Area Road Congestion Reference Flow
High	1 or More Level Change plus CRF >90% CRF
Medium	1 or More Level Change plus CRF 60% - 90%
Low	1 Level Change plus CRF 30% - 60%
Negligible	No Level Change

Hazardous / Large Loads

- 11.4.17 Fuel is potentially the most hazardous load to be transported to site by road for construction plant and equipment. This is a Class 3 Flammable Liquid. Fuel transport by road is an everyday activity in the UK. Fuel will be transported to site by appropriate means in full accordance with regulations governing the carriage of dangerous goods. Other potential hazardous loads could include admixtures for concrete, bitumen, machinery lubricants, batteries. Welding gases, oxy-acetylene, solvents, paints, adhesives and sealants. Any such materials will also be transported to site in full accordance with regulations governing the carriage of dangerous goods.
- 11.4.18 No oversized abnormal load vehicles with regards to length (over 18.3m) or width (over 2.9m), are anticipated to need access to the development site, with the largest vehicles anticipated to require access being road legal standard articulated lorries, including low loaders importing construction equipment. Note that construction equipment such as excavators will be chosen to remain within the road legal width where possible.
- 11.4.19 Abnormal loads with regards to vehicle weight (over 44 tonnes) are required to access the development. These vehicles include low loaders when loaded with construction equipment and tractor and trailers used to transport the plant and associated equipment to work locations.
- 11.4.20 For large loads, negligible magnitude of change corresponds to zero AIL per day, low is any Category 1 AIL per day, medium is any Category 2 AIL per day, and high is any Category 3 or above movements per day. For Hazardous Loads, the number of vehicles delivering fuel are included within the construction traffic forecasts and given their relatively small number no specific consideration beyond this is given (as transporting fuel on public roads is an everyday occurrence).

Significance of Effect

- 11.4.21 The potential environmental effects of traffic, transport and access considered in this assessment of the Proposed Varied 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.

Limitations and Assumptions

- 11.4.22 Limitations and assumptions on the adopted methodology include the forecasting of construction traffic. Construction traffic information has been provided by the applicant for Kincardine North Substation and the OHL works. The construction traffic forecast for the Scottish Power Distribution works has been estimated using forecasts from similar underground cable projects in Scotland.
- 11.4.23 Baseline traffic data has been informed by June 2024 traffic surveys as well as DfT Traffic Count Sites. This data has been reviewed and is considered robust. Data from past years has had a growth factor applied using the software package TEMPro. TEMPro uses NTEM data to forecast traffic growth to a future year scenario. This ensures that the assessment is undertaken under expected traffic conditions during the year of peak construction traffic generation.
- 11.4.24 Accident data from the Police Scotland database was reviewed for the five-year period between 2021 and 2024 inclusive. Accidents occurring since the start 2026 have not informed this analysis as 2025 is the latest full calendar year of data available.
- 11.4.25 It is also assumed construction traffic generated by the Proposed Development travels on all study area roads, with the exception of the A977 Feregait through the centre of Kincardine. This assumption is very unlikely to occur in reality as the eventual distribution of construction traffic will rule out a real-world requirement for every construction vehicle to use every study area road. However, this assumption provides for a robust assessment of Proposed Development traffic on study area roads for the purposes of Rule 1 and Rule 2 assessment.

11.5 Baseline

Baseline Traffic Data

- 11.5.1 Current traffic conditions on study area roads were established by surveys undertaken in June 2024 and from DfT traffic count data. The location, type and results from the of the traffic surveys are provided in Technical Appendix 11.1: Traffic and Transport as well as being shown in Figure 11.1.
- 11.5.2 The 2024 traffic survey and DfT traffic count data is used to inform the baseline traffic position for the environmental assessment of traffic and movement. The 2024 data has had a growth factor applied to arrive at a true baseline position for the peak construction month of August 2027. This provides a robust assessment in terms of applying IEMA Guidelines Rule 1 and Rule 2 to determine which roads should be included in the environmental assessment.
- 11.5.3 Road traffic accident data has been sourced via Police Scotland data which uses DfT system CRaSH for the 4-year period of 2021-2024. On study area roads this data shows that 13 'slight'

and 10 ‘serious accidents took place in the 4-year period. No ‘fatal’ accidents were recorded on study area roads during this time period. The location of accidents on study area roads are shown in full in Figure 11.3: Injury Accident Locations.

- 11.5.4 Vehicle traffic generated by the construction of the Proposed Development may potentially affect other public road traffic as follows; non-motorised traffic including pedestrians, cyclists and core path users. And other vehicular traffic including freight, public transport and emergency service vehicles.
- 11.5.5 Table 11.9 shows the 2024 surveyed traffic data collected for study area roads, growthed to a forecast assessment year of 2027.

Table 11.9. Baseline Traffic Conditions

Road Link	2024 Surveyed Daily Weekday Traffic (Two-Way)			2027 Baseline Daily Weekday Traffic (Two-Way)		
	Car & LGV	HGV	Total	Car & LGV	HGV	Total
A977 north	6,614	695	7,309	6,779	712	7,492
A907 west	14,373	717	15,090	14,732	735	15,467
A907 east	2,208	194	2,402	2,263	199	2,462
A977 Kilbagie Roundabout	21,122	1,976	23,098	21,650	2,025	23,675
A977 Kilbagie	4,400	81	4,481	4,510	83	4,593
A977 Feregait	4,509	90	4,599	4,622	92	4,714
Substation Access Road	330	7	337	338	7	345
C68 Hawkhill Road	258	5	263	264	5	270
A876	18,402	1,315	19,717	18,862	1,348	20,210
Clackmannanshire Bridge	18,477	1,320	19,797	18,939	1,353	20,292
A876 S Approach Road	30,106	1,784	31,890	30,859	1,829	32,687
Kincardine Bridge	10,859	785	11,644	11,130	805	11,935
A985 west	8,714	558	9,272	8,932	572	9,504

Road Link	2024 Surveyed Daily Weekday Traffic (Two-Way)			2027 Baseline Daily Weekday Traffic (Two-Way)		
	Car & LGV	HGV	Total	Car & LGV	HGV	Total
A985 east	10,445	801	11,246	10,706	821	11,527

Proposed Development Traffic

Kincardine North Substation

- 11.5.6 Forecast construction traffic for the Kincardine North Substation was obtained from information provided by the applicant. The estimated construction traffic volumes are included within Technical Appendix 11.1: Traffic and Transport. The peak month of construction of the substation is forecast to take place in Month 8 (August 2027) of the programme.
- 11.5.7 It is forecast that the Substation will generate 378 daily HGV movements during Month 8 (189 arrivals and 189 departures) with 70 daily Car / LGV movements (35 arrivals and 35 departures) also during this month.
- 11.5.8 Vehicle access to the Substation will be via the existing public road network. Study area roads will include the A876 (T), A977 (T), A907, A985 (T) and local roads in the immediate environs of the Proposed Development.
- 11.5.9 Construction traffic would use the C68 Hawkhill Road and the Substation Access Road for site access. Construction traffic is expected to arrive and leave via the A977 to the north, therefore avoiding the town of Kincardine.
- 11.5.10 AIL deliveries will arrive at the site via a DMRB compliant diverge taper from the A876, north of the Clackmannanshire Bridge.

Overhead Line Works (XL/ZCN/ZCS Upgrading and Turn-ins)

- 11.5.11 Forecast construction traffic for the OHL works was obtained from information provided by the applicant. The estimated construction traffic volumes are included within Technical Appendix 11.1: Traffic and Transport. The peak month of construction of the OHL works is forecast to take place in Month 15 (September 2028) of the programme.
- 11.5.12 It is forecast that the OHL works will generate 4 daily HGV movements during Month 8 (2 arrivals and 2 departures) with 54 daily Car / LGV movements (27 arrivals and 27 departures) also during this month.
- 11.5.13 Vehicle access to the OHL works will be via the substation access road and Hawkhill Road.

11.6 Embedded Mitigation

- 11.6.1 Mitigation relating to traffic movements associated with the Proposed 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.
- 11.6.2 Embedded mitigation relating to traffic movements associated with the Proposed Development would be provided by a Construction Traffic Management Plan (CTMP).

11.6.3 The CTMP would operate throughout the construction programme. Technical Appendix 11.1 contains a Framework CTMP. A detailed CTMP including the following is expected to be Conditioned and provided once a Principal Contractor is appointed:

- Site and the entry/exit arrangements from public roads;
- Traffic routing plans – defining the routes to be taken by HGVs to the Site avoiding sensitive locations, and routes to be taken by Car / LGV construction personnel traffic;
- Construction traffic hours and delivery times;
- 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;
- Measures to protect the public highway (e.g. wheel wash facilities);
- Measures for the monitoring of the CTMP to ensure compliance from construction drivers and appropriate actions in the event of non-compliance; and
- Mechanism for responding to traffic management issues arising during the works (including concerns raised from the public) including a joint consultation approach with relevant road authorities.

11.7 Assessment of Effects

Kincardine North Substation

- 11.7.1 For a robust assessment it is assumed all construction materials will be transported to site by road. For assessment purposes no materials are assumed to originate from within the site. This assumption is made for assessment purposes and is consistent with the principles of the Rochdale Envelope and the assessment of a realistic worst case.
- 11.7.2 It is also assumed construction traffic generated by the Proposed Development travels on all study area roads, with the exception of the A977 Feregait through the centre of Kincardine. This assumption is very unlikely to occur in reality as the eventual distribution of construction traffic will rule out a real-world requirement for every construction vehicle to use every study area road. However, this assumption provides for a robust assessment of Proposed Development traffic on study area roads for the purposes of Rule 1 and Rule 2 assessment. The A876 will carry northbound development traffic before turning at Kilbagie Roundabout to access the Tapper Diverge to enter the Proposed Development. The A977 Kilbagie road link would also be an exception to this assumption, as construction traffic would only travel northbound upon exiting the Proposed Development, with no construction traffic entering the Proposed Development via this road link.
- 11.7.3 Table 11.10 compares forecast Proposed Development construction traffic against the 2027 baseline traffic to determine which roads must be included in the environmental assessment in accordance with IEMA Guidelines Rule 1 or Rule 2. Roads to be included in the environmental assessment are marked Yes or No. Traffic growth calculations for the 2027 baseline figures are included in full in Technical Appendix 11.1.

Table 11.10. Rule 1 and Rule 2 Assessment for Kincardine North Substation

Road Link	2027 Baseline		Proposed Development		% Increase		Environmental Assessment
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	
A977 north	720	7,434	378	434	53%	6%	Yes
A907 west	743	15,334	378	434	51%	3%	Yes
A907 east	201	2,440	378	434	190%	18%	Yes
A977 Kilbagie Roundabout	1,982	22,958	378	434	19%	2%	No
A977 Kilbagie	83	4,608	378	434	455%	9%	Yes
A977 Feregait	93	4,730	0	0	0%	0%	No
Substation Access Road	7	347	378	434	5268%	126%	Yes
C68 Hawkhill Road	5	270	378	434	7376%	161%	Yes
A876	1,324	19,737	378	434	28%	2%	No
Clackmannanshire Bridge	1,329	19,836	378	434	28%	2%	No
A876 S Approach Road	1,819	32,306	378	434	21%	1%	No
Kincardine Bridge	803	11,841	378	434	47%	4%	Yes
A985 west	571	9,447	378	434	66%	5%	Yes
A985 east	1,521	11,336	378	434	46%	4%	Yes

11.7.4 Table 11.10 shows that 9 study areas roads meet the Rule 1 / Rule 2 threshold for assessment of environmental effects as a result of Kincardine North Substation construction traffic.

Severance of Communities

- 11.7.5 Table 11.11 presents the forecast significance of effects for Severance of Communities as a result of Kincardine North Substation construction traffic. The significance of effects has been determined using an assessment in accordance with the IEMA Guidelines.

Table 11.11. Severance of Communities Assessment – Kincardine North Substation

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	6%	Negligible	Negligible
A907 west	Medium	3%	Negligible	Negligible
A907 east	Low	18%	Negligible	Negligible
A977 Kilbagie	Medium	9%	Negligible	Negligible
Substation Access Road	Negligible	126%	High	Minor
C68 Hawkhill Road	Low	161%	High	Moderate
Kincardine Bridge	Low	4%	Negligible	Negligible
A985 west	Low	5%	Negligible	Negligible
A985 east	Low	4%	Negligible	Negligible

- 11.7.6 The only likely significant Severance of Communities effect, prior to additional mitigation, is a direct, temporary, **Moderate (Significant) effect** on those communities using the C68 Hawkhill Road.

Fear and Intimidation on and by Road Users

- 11.7.7 Table 11.12 presents the forecast significance of effects on Fear and Intimidation as a result of Kincardine North Substation construction traffic. The assessment follows the methodology for Fear and Intimidation set out in the IEMA Guidelines.

Table 11.12. Fear and Intimidation Assessment – Kincardine North Substation

Road Link	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effects
A977 north	Low	No Step Change	Negligible	Negligible
A907 west	Medium	No Step Change	Negligible	Negligible

Road Link	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effects
A907 east	Low	No Step Change	Negligible	Negligible
A977 Kilbagie	Medium	No Step Change	Negligible	Negligible
Substation Access Road	Negligible	No Step Change	Negligible	Negligible
C68 Hawkhill Road	Low	No Step Change	Negligible	Negligible
Kincardine Bridge	Low	No Step Change	Negligible	Negligible
A985 west	Low	No Step Change	Negligible	Negligible
A985 east	Low	No Step Change	Negligible	Negligible

- 11.7.8 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Fear and Intimidation is a **Negligible (Not Significant) effect**.

Road User and Pedestrian Safety

- 11.7.9 Table 11.13 presents the forecast significance of effects on Road User and Pedestrian Safety as a result of Kincardine North Substation construction traffic. This assessment covers the duration of construction of the substation.

Table 11.13. Road User and Pedestrian Safety Assessment – Kincardine North Substation

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A977 north	Low	0.0	0.0	0.0	Negligible	Negligible
A907 west	Medium	0.0	0.0	0.0	Negligible	Negligible
A907 east	Low	0.0	0.0	0.0	Negligible	Negligible
A977 Kilbagie	Medium	0.0	0.0	0.0	Negligible	Negligible
Substation Access Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
C68 Hawkhill Road	Low	0.0	0.0	0.0	Negligible	Negligible
Kincardine Bridge	Low	0.0	0.0	0.0	Negligible	Negligible

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A985 west	Low	0.0	0.0	0.0	Negligible	Negligible
A985 east	Low	0.0	0.0	0.0	Negligible	Negligible

- 11.7.10 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road User and Pedestrian Safety is a **Negligible (Not Significant) effect**.

Non-Motorised User Amenity

- 11.7.11 Table 11.14 presents the forecast significance of effects on Non-Motorised User Amenity and Delay as a result of Kincardine North Substation construction traffic.

Table 11.14. Non-Motorised Amenity and User Delay Assessment – Kincardine North Substation

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	6%	Negligible	Negligible
A907 west	Medium	3%	Negligible	Negligible
A907 east	Low	18%	Negligible	Negligible
A977 Kilbagie	Medium	9%	Negligible	Negligible
Substation Access Road	Negligible	126%	High	Minor
C68 Hawkhill Road	Low	161%	High	Moderate
Kincardine Bridge	Low	4%	Negligible	Negligible
A985 west	Low	5%	Negligible	Negligible
A985 east	Low	4%	Negligible	Negligible

- 11.7.12 The only likely significant Non-Motorised User Amenity and Delay effect, prior to additional mitigation, is a direct, temporary, **Moderate (Significant) effect** on those using the C68 Hawkhill Road.

Road Vehicle Driver and Passenger Delay

- 11.7.13 Table 11.15 presents the forecast the forecast significance of effects on Road Vehicle Drive and Passenger Delay as a result of Kincardine North Substation construction traffic. Full outputs of the congestion reference flow analysis are included within Technical Appendix 11.1.

Table 11.15. Road Vehicle Driver and Passenger Delay Assessment – Kincardine North Substation

Road Link	Sensitivity of Receptor	Congestion Reference Flow	Magnitude of Change	Significance of Effect
A977 north	Low	39% (No Level Change)	Negligible	Negligible
A907 west	Medium	55% (No Level Change)	Negligible	Negligible
A907 east	Low	16% (No Level Change)	Negligible	Negligible
A977 Kilbagie	Medium	20% (No Level Change)	Negligible	Negligible
Substation Access Road	Negligible	4% (No Level Change)	Negligible	Negligible
C68 Hawkhill Road	Low	7% (No Level Change)	Negligible	Negligible
Kincardine Bridge	Low	45% (No Level Change)	Negligible	Negligible
A985 west	Low	15% (No Level Change)	Negligible	Negligible
A985 east	Low	48% (No Level Change)	Negligible	Negligible

- 11.7.14 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a **Negligible (Not Significant) effect**.

Hazardous / Large Loads

- 11.7.15 Kincardine North Substation hazardous and large loads will be transported to the Proposed Development Site by road. The legislation detailing the movement of Hazardous / Large Loads is the Road Vehicles (Construction and Use) Regulations (1986) and Special Types General Order (STGO) (2003) detailed earlier in this Chapter.
- 11.7.16 The movement of large loads is regulated and will be subject to agreement with the relevant roads authorities and Police Scotland. Appropriate routes have been considered for the

movement of large loads and mitigation strategies to secure their safe passage. The only large loads forecast for the Proposed Development are transformers.

- 11.7.17 Large Loads will access the Proposed Development Site via a temporary access from the A876. This temporary access will be used by Abnormal Load construction traffic only, with standard HGV and LGV traffic accessing the Proposed Development Site via the C68 Hawkhill Road. Initially, transformers will be stored and put into temporary operation at the site of Kincardine Substation, located to the south of the development site. They will be transported to this location via a temporary access road from the A876 access point east to the KINN substation platform. When needed on the KINN site, the transformers will then be transported to the A876 access via the Kincardine Substation access road and the A977.
- 11.7.18 There is no law requiring vehicles moving under STGO to be accompanied by an escort vehicle, although the police can stipulate an escort vehicle is used where they consider necessary. Large loads traveling to the Proposed Development Site will be escorted where necessary. On Study Area roads that are high sensitivity receptors large loads will obey all lawful directions from escort vehicles or Police Scotland.
- 11.7.19 The number of large loads for the Proposed Development is considered to be sufficiently low that they would have no discernible impact on the magnitudes of change already established in this assessment for severance, fear and intimidation, road safety, non-motorised user amenity and delay and non-motorised user delay on Study Area roads. This will result in no change to environmental effects already established on Study Area roads.
- 11.7.20 The National Speed Limit (NSL) on single carriageway roads in Scotland for goods vehicles above 7.5 tonnes maximum laden weight is 40 mph. On NSL roads STGO Category 1 vehicles are also permitted to travel at 40 mph, i.e. no different to other HGV in that regard. STGO Category 2 and 3 vehicles are restricted to 30 mph on NSL roads.
- 11.7.21 On Study Area roads general HGVs following a Category 2 or Category 3 large load for the entire route would experience an increase in journey time. This is due to the 10 mph speed limit difference between those vehicle types on NSL roads. General HGVs would likely have to follow rather than overtake large loads. Cars and LGV should be able to overtake Category 1-3 large loads on Study Area NSL roads when permissible and safe to do so.
- 11.7.22 It is therefore considered large loads would have no additional impact on the magnitude of change already established in this assessment for driver delay on Study Area roads. This will result in no change to the environmental effects already identified in this assessment for driver delay on Study Area roads.

Overhead Line Works (XL/ZCN/ZCS Upgrading and Turn-ins)

- 11.7.23 Table 11.16 compares forecast OHL construction traffic against the 2027 baseline traffic to determine which roads must be included in the environmental assessment in accordance with IEMA Guidelines Rule 1 or Rule 2. Roads to be included in the environmental assessment are marked Yes or No. Traffic growth calculations for the 2027 baseline figures are included in full in Technical Appendix 11.1: Traffic and Transport.

Table 11.16. Rule 1 and Rule 2 Assessment of OHL Works

Road Link	2027 Baseline		Proposed Development		% Increase		Environmental Assessment
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	
A977 north	720	7,434	4	58	1%	1%	No
A907 west	743	15,334	4	58	1%	0%	No
A907 east	201	2,440	4	58	2%	2%	No
A977 Kilbagie Roundabout	1,982	22,958	4	58	0%	0%	No
A977 Kilbagie	83	4,608	4	58	5%	1%	No
A977 Feregait	93	4,730	0	0	0%	0%	No
Substation Access Road	7	347	4	58	56%	17%	Yes
C68 Hawkhill Road	5	270	4	58	78%	21%	Yes
A876	1,324	19,737	4	58	0%	0%	No
Clackmannanshire Bridge	1,329	19,836	4	58	0%	0%	No
A876 S Approach Road	1,819	32,306	4	58	0%	0%	No
Kincardine Bridge	803	11,841	4	58	0%	0%	No
A985 west	571	9,447	4	58	1%	1%	No
A985 east	1,521	11,336	4	58	0%	1%	No

11.7.24 Table 11.16 shows that 2 study areas roads meet the Rule 1 / Rule 2 threshold for assessment of environmental effects as a result of OHL works construction traffic.

Severance of Communities

- 11.7.25 Table 11.17 presents the forecast significance of effects for Severance of Communities as a result of Kincardine North Substation construction traffic. The significance of effects has been determined using an assessment in accordance with the IEMA Guidelines.

Table 11.17. Severance of Communities Assessment - OHL

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
Substation Access Road	Negligible	17%	Negligible	Negligible
Hawkhill Road	Low	21%	Negligible	Negligible

- 11.7.26 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Severance of Communities is a **Negligible (Not Significant) effect**.

Fear and Intimidation on and by Road Users

- 11.7.27 Table 11.18 presents the forecast significance of effects on Fear and Intimidation as a result of OHL construction traffic. The assessment follows the methodology for Fear and Intimidation set out in the IEMA Guidelines.

Table 11.18. Fear and Intimidation Assessment - OHL

Road Link	Sensitivity	Step Change	Magnitude of Change	Significance of Effects
Substation Access Road	Negligible	No Step Change	Negligible	Negligible
Hawkhill Road	Low	No Step Change	Negligible	Negligible

- 11.7.28 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Fear and Intimidation is a **Negligible (Not Significant) effect**.

Road User and Pedestrian Safety

- 11.7.29 Table 11.19 presents the forecast significance of effects on Road User and Pedestrian Safety as a result of OHL construction traffic. This assessment covers the duration of construction of the substation.

Table 11.19. Road User and Pedestrian Safety Assessment - OHL

Road Link	Sensitivity	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
Substation Access Road	Negligible	0.0	0.0	0.0	Negligible	Negligible

Road Link	Sensitivity	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
Hawkhill Road	Low	0.0	0.0	0.0	Negligible	Negligible

- 11.7.30 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road User and Pedestrian Safety is a **Negligible (Not Significant) effect**.

Non-Motorised User Amenity and Delay

- 11.7.31 Table 11.20 presents the forecast significance of effects on Non-Motorised User Amenity and Delay as a result of OHL construction traffic.

Table 11.20. Non-Motorised User Amenity and Delay Assessment - OHL

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
Substation Access Road	Negligible	17%	Negligible	Negligible
Hawkhill Road	Low	21%	Negligible	Negligible

- 11.7.32 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Non-Motorised User Amenity and Delay is a **Negligible (Not Significant) effect**.

Road Vehicle Driver and Passenger Delay

- 11.7.33 Table 11.21 presents the forecast the forecast significance of effects on Road Vehicle Drive and Passenger Delay as a result of OHL construction traffic. Full outputs of the congestion reference flow analysis are included within Technical Appendix 11.1.

Table 11.21. Road Vehicle Driver and Passenger Delay Assessment - OHL

Road Link	Sensitivity of Receptor	Congestion Reference Flow	Magnitude of Change	Significance of Effect
Substation Access Road	Low	2.02% (No level change)	Negligible	Negligible
Hawkhill Road	Medium	3.04% (No level change)	Negligible	Negligible

- 11.7.34 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a **Negligible (Not Significant) effect**.

Hazardous / Large Loads

- 11.7.35 Information provided by the applicant indicates that there will be no requirement for hazardous / large loads for the OHL works. The only hazardous / large loads associated with the Proposed Development are the transformers for Kincardine North Substation which are assessed in paragraph 11.7.15. There will therefore be no significant environmental effects from Hazardous / Large loads due to OHL works construction traffic.

Scottish Power Distribution Works

- 11.7.36 The Scottish Power Distribution Works are scheduled to be undertaken towards the end of the construction programme. These taken the form of underground cable works which are expected to generate small numbers of HGV and LGV movements.
- 11.7.37 A forecast of HGV movements has been undertaken using knowledge of prior underground cable route projects. HGV movements are primarily concerned with the removal and backfill of material as well as the import of cable drums. Daily HGV trip generation is determined by the rate of construction of the cables and the cable length. It has been forecast that the SPD works will generate 12 HGV movements per day during construction (6 arrivals , 6 departures).
- 11.7.38 A forecast of LGV movements has been provided by the applicant. These are included within the forecast for Kincardine North Substation and are provided in more detail in Technical Appendix 11.1. It is forecast that the SPD works will generate 42 LGV movements per day during construction (21 arrivals, 21 departures).
- 11.7.39 The forecast construction traffic generation of the SPD works is below what has been assessed for the Kincardine North Substation and the OHL works. They are also scheduled to occur towards the end of the programme, after the peak months of construction traffic generation for the substation and OHL have occurred. It is therefore concluded that a separate environmental assessment of the SPD works will not result in significant environmental effects.

11.8 Additional Mitigation and Monitoring

- 11.8.1 Additional mitigation is proposed on Hawkhill Road which is currently a single track road with passing places and is signed as a walking and cycling friendly road and forms part of the National Cycle Network (Route 76). Hawkhill Road is proposed to form part of the access route for construction traffic associated with the Proposed Development. During the peak period of construction of Kincardine North Substation, there are significant environmental effects forecast on the route.
- 11.8.2 As mitigation, it is proposed to upgrade the passing places on Hawkhill Road. At present, passing places are informal and infrequent and the road is too narrow for two HGVs to pass one another at many of the existing passing places. Drawings of the proposed upgrades to the passing places on Hawkhill Road are contained within Technical Appendix 11.1. The upgraded passing places will allow safe and efficient two-way HGV movement on Hawkhill Road.
- 11.8.3 It is also proposed to provide a segregated walking and cycling route running parallel to Hawkhill Road to the north. This will allow the route to remain a safe walking and cycling friendly road with pedestrians and cyclists separated from Proposed Development traffic. Drawings of the proposed route are contained within Technical Appendix 11.1. It is considered that the provision of a segregated walking and cycling route reduces the sensitivity of Hawkhill Road from Medium to Low.

11.9 Residual Effects

- 11.9.1 The environmental assessment for Traffic and Movement undertaken for the Proposed Development shows that, following mitigation, no significant environmental effects are forecast. Effects across all categories as assessed in line with IEMA Guidelines 2023 are summarised below.

Table 11.22. Residual Effects

Category	Kincardine North Substation	OHL Works	SPD Works
Severance of Communities	Minor (Not significant)	Negligible (Not Significant)	Negligible (Not Significant)
Fear and Intimidation of and by Road Users	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
Road User and Pedestrian Safety	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
Non-motorised User Delay and Amenity	Minor (Not significant)	Negligible (Not Significant)	Negligible (Not Significant)
Road Vehicle Driver and Passenger Delay	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

11.10 Combined Effects

- 11.10.1 A combined assessment has been undertaken considering the joint works of all Proposed Development components. Combining the construction traffic forecasts from the applicant of Kincardine North Substation, OHL works and SPD works, August 2027 has been determined to be the peak month of construction activity. During this period, the Proposed Development is forecast to generate 378 daily HGV movements (189 arrivals, 189 departures) and 64 daily LGV movements (32 arrivals, 32 departures).
- 11.10.2 Table 11.23 compares forecast combined Proposed Development construction traffic against the 2027 baseline traffic to determine which roads must be included in the environmental assessment in accordance with IEMA Guidelines Rule 1 or Rule 2. Roads to be included in the environmental assessment are marked Yes or No.

Table 11.23. Rule 1 and Rule 2 Assessment for Combined Works

Road Link	2027 Baseline		Proposed Development		% Increase		Environmental Assessment
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	
A977 north	720	7,434	378	442	53%	6%	Yes
A907 west	743	15,334	378	442	51%	3%	Yes
A907 east	201	2,440	378	442	190%	18%	Yes
A977 Kilbagie Roundabout	1,982	22,958	378	442	19%	2%	No
A977 Kilbagie	83	4,608	378	442	455%	10%	Yes
A977 Feregait	93	4,730	0	0	0%	0%	No
Substation Access Road	7	347	378	442	5268%	128%	Yes
C68 Hawkhill Road	5	270	378	442	7376%	164%	Yes
A876	1,324	19,737	378	442	28%	2%	No
Clackmannanshire Bridge	1,329	19,836	378	442	28%	2%	No
A876 S Approach Road	1,819	32,306	378	442	21%	1%	No
Kincardine Bridge	803	11,841	378	442	47%	4%	Yes
A985 west	571	9,447	378	442	66%	5%	Yes
A985 east	1,521	11,336	378	442	46%	4%	Yes

11.10.3 Table 11.23 shows that 9 study areas roads meet the Rule 1 / Rule 2 threshold for assessment of environmental effects as a result of Kincardine North Substation construction traffic.

Severance of Communities

- 11.10.4 Table 11.24 presents the forecast significance of effects for Severance of Communities as a result of combined Proposed Development construction traffic. The significance of effects has been determined using an assessment in accordance with the IEMA Guidelines.

Table 11.24. Severance of Communities Assessment – Combined Works

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	6%	Negligible	Negligible
A907 west	Medium	3%	Negligible	Negligible
A907 east	Low	18%	Negligible	Negligible
A977 Kilbagie	Medium	10%	Negligible	Negligible
Substation Access Road	Negligible	128%	High	Minor
C68 Hawkhill Road	Negligible	164%	High	Minor
Kincardine Bridge	Low	4%	Negligible	Negligible
A985 west	Low	5%	Negligible	Negligible
A985 east	Low	4%	Negligible	Negligible

- 11.10.5 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Severance of Communities is a direct, temporary, **Minor (Not Significant) effect**.

Fear and Intimidation on and by Road Users

- 11.10.6 Table 11.25 presents the forecast significance of effects on Fear and Intimidation as a result of combined Proposed Development construction traffic. The assessment follows the methodology for Fear and Intimidation set out in the IEMA Guidelines.

Table 11.25. Fear and Intimidation Assessment – Combined Works

Road Link	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effects
A977 north	Low	No Step Change	Negligible	Negligible
A907 west	Medium	No Step Change	Negligible	Negligible

Road Link	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effects
A907 east	Low	No Step Change	Negligible	Negligible
A977 Kilbagie	Medium	No Step Change	Negligible	Negligible
Substation Access Road	Negligible	No Step Change	Negligible	Negligible
C68 Hawkhill Road	Negligible	No Step Change	Negligible	Negligible
Kincardine Bridge	Low	No Step Change	Negligible	Negligible
A985 west	Low	No Step Change	Negligible	Negligible
A985 east	Low	No Step Change	Negligible	Negligible

11.10.7 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Fear and Intimidation is a **Negligible (Not Significant) effect**.

Road User and Pedestrian Safety

11.10.8 Table 11.26 presents the forecast significance of effects on Road User and Pedestrian Safety as a result of combined Proposed Development construction traffic. This assessment covers the duration of construction of the substation.

Table 11.26. Road User and Pedestrian Safety Assessment – Combined Works

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A977 north	Low	0.0	0.0	0.0	Negligible	Negligible
A907 west	Medium	0.0	0.0	0.0	Negligible	Negligible
A907 east	Low	0.0	0.0	0.0	Negligible	Negligible
A977 Kilbagie	Medium	0.0	0.0	0.0	Negligible	Negligible
Substation Access Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
C68 Hawkhill Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
Kincardine Bridge	Low	0.0	0.0	0.0	Negligible	Negligible

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A985 west	Low	0.0	0.0	0.0	Negligible	Negligible
A985 east	Low	0.0	0.0	0.0	Negligible	Negligible

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

Non-Motorised User Amenity

11.10.10 Table 11.27 presents the forecast significance of effects on Non-Motorised User Amenity and Delay as a result of combined Proposed Development construction traffic.

Table 11.27. Non-Motorised User Amenity and Delay Assessment – Combined Works

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	6%	Negligible	Negligible
A907 west	Medium	3%	Negligible	Negligible
A907 east	Low	18%	Negligible	Negligible
A977 Kilbagie	Medium	10%	Negligible	Negligible
Substation Access Road	Negligible	128%	High	Minor
C68 Hawkhill Road	Negligible	164%	High	Minor
Kincardine Bridge	Low	4%	Negligible	Negligible
A985 west	Low	5%	Negligible	Negligible
A985 east	Low	4%	Negligible	Negligible

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

Road Vehicle Driver and Passenger Delay

11.10.12 Table 11.28 presents the forecast the forecast significance of effects on Road Vehicle Drive and Passenger Delay as a result of combined Proposed Development construction traffic. Full outputs of the congestion reference flow analysis are included within Technical Appendix 11.1.

Table 11.28. Road Vehicle Driver and Passenger Delay Assessment – Combined Works

Road Link	Sensitivity of Receptor	Congestion Reference Flow	Magnitude of Change	Significance of Effect
A977 north	Low	39% (No Level Change)	Negligible	Negligible
A907 west	Medium	55% (No Level Change)	Negligible	Negligible
A907 east	Low	16% (No Level Change)	Negligible	Negligible
A977 Kilbagie	Medium	20% (No Level Change)	Negligible	Negligible
Substation Access Road	Negligible	4% (No Level Change)	Negligible	Negligible
C68 Hawkhill Road	Negligible	7% (No Level Change)	Negligible	Negligible
Kincardine Bridge	Low	45% (No Level Change)	Negligible	Negligible
A985 west	Low	15% (No Level Change)	Negligible	Negligible
A985 east	Low	48% (No Level Change)	Negligible	Negligible

11.10.13 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a **Negligible (Not Significant) effect**.

11.11 Cumulative Assessment

11.11.1 Table 11.29 compares forecast Cumulative Development construction traffic against the 2027 baseline traffic to determine which roads must be included in the environmental assessment in accordance with IEMA Guidelines Rule 1 or Rule 2. Roads to be included in the environmental assessment are marked Yes or No.

Table 11.29. Rule 1 and Rule 2 Assessment for Cumulative Development

Road Link	2027 Baseline		Proposed Development		% Increase		Environmental Assessment
	HGV	All Vehs	HGV	All Vehs	HGV	All Vehs	
A977 north	720	7,434	505	795	71%	11%	Yes
A907 west	743	15,334	505	795	69%	5%	Yes
A907 east	201	2,440	505	795	254%	32%	Yes
A977 Kilbagie Roundabout	1,982	22,958	505	795	25%	3%	No
A977 Kilbagie	83	4,608	697	1,131	840%	25%	Yes
A977 Feregait	93	4,730	51	123	55%	3%	Yes
Substation Access Road	7	347	677	1,087	9436%	315%	Yes
C68 Hawkhill Road	5	270	561	947	10946%	351%	Yes
A876	1,324	19,737	717	1,175	53%	6%	Yes
Clackmannanshire Bridge	1,329	19,836	717	1,175	53%	6%	Yes
A876 S Approach Road	1,819	32,306	717	1,175	39%	4%	Yes
Kincardine Bridge	803	11,841	485	751	60%	6%	Yes
A985 west	571	9,447	485	751	85%	8%	Yes
A985 east	1,521	11,336	485	751	59%	7%	Yes

11.11.2 Table 11.29 shows that 13 study areas roads meet the Rule 1 / Rule 2 threshold for assessment of environmental effects as a result of Kincardine North Substation construction traffic.

Severance of Communities

11.11.3 Table 11.30 presents the forecast significance of effects for Severance of Communities as a result of Cumulative construction traffic. The significance of effects has been determined using an assessment in accordance with the IEMA Guidelines.

Table 11.30. Severance of Communities Assessment – Cumulative Development

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	11%	Negligible	Negligible
A907 west	Medium	5%	Negligible	Negligible
A907 east	Low	32%	Low	Negligible
A977 Kilbagie	Medium	25%	Negligible	Negligible
A977 Feregait	High	3%	Negligible	Minor
Substation Access Road	Negligible	315%	High	Minor
C68 Hawkhill Road	Negligible	351%	High	Minor
A876	Negligible	6%	Negligible	Negligible
Clackmannanshire Bridge	Negligible	6%	Negligible	Negligible
A876 S Approach Road	Negligible	4%	Negligible	Negligible
Kincardine Bridge	Low	6%	Negligible	Negligible
A985 west	Negligible	8%	Negligible	Negligible
A985 east	Low	7%	Negligible	Negligible

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

Fear and Intimidation on and by Road Users

11.11.5 Table 11.31 presents the forecast significance of effects on Fear and Intimidation as a result of Cumulative Development construction traffic. The assessment follows the methodology for Fear and Intimidation set out in the IEMA Guidelines.

Table 11.31. Fear and Intimidation Assessment – Cumulative Development

Road Link	Sensitivity of Receptor	Step Change	Magnitude of Change	Significance of Effects
A977 north	Low	No Step Change	Negligible	Negligible
A907 west	Medium	No Step Change	Negligible	Negligible
A907 east	Low	No Step Change	Negligible	Negligible
A977 Kilbagie	Medium	No Step Change	Negligible	Negligible
A977 Feregait	High	No Step Change	Negligible	Negligible
Substation Access Road	Negligible	No Step Change	Negligible	Negligible
C68 Hawkhill Road	Negligible	No Step Change	Negligible	Negligible
A876	Negligible	No Step Change	Negligible	Negligible
Clackmannanshire Bridge	Negligible	No Step Change	Negligible	Negligible
A876 S Approach Road	Negligible	No Step Change	Negligible	Negligible
Kincardine Bridge	Low	No Step Change	Negligible	Negligible
A985 west	Low	No Step Change	Negligible	Negligible
A985 east	Low	No Step Change	Negligible	Negligible

- 11.11.6 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Fear and Intimidation is a **Negligible (Not Significant) effect**.

Road User and Pedestrian Safety

- 11.11.7 Table 11.32 presents the forecast significance of effects on Road User and Pedestrian Safety as a result of Cumulative Development construction traffic. This assessment covers the duration of construction of the substation.

Table 11.32. Road User and Pedestrian Safety Assessment – Cumulative Development

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A977 north	Low	0.0	0.0	0.0	Negligible	Negligible

Road Link	Sensitivity of Receptor	Forecast Injury Accidents			Magnitude of Change	Significance of Effect
		Slight	Serious	Fatal		
A977 north	Low	0.0	0.0	0.0	Negligible	Negligible
A907 west	Medium	0.0	0.0	0.0	Negligible	Negligible
A907 east	Low	0.0	0.0	0.0	Negligible	Negligible
A977 Kilbagie	Medium	0.0	0.0	0.0	Negligible	Negligible
A977 Feregait	High	0.0	0.0	0.0	Negligible	Negligible
Substation Access Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
C68 Hawkhill Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
A876	Negligible	0.0	0.0	0.0	Negligible	Negligible
Clackmannanshire Bridge	Negligible	0.0	0.0	0.0	Negligible	Negligible
A876 S Approach Road	Negligible	0.0	0.0	0.0	Negligible	Negligible
Kincardine Bridge	Low	0.0	0.0	0.0	Negligible	Negligible
A985 west	Low	0.1	0.0	0.0	Negligible	Negligible
A985 east	Low	0.0	0.0	0.0	Negligible	Negligible

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

Non-Motorised User Amenities

11.11.9 Table 11.33 presents the forecast significance of effects on Non-Motorised User Amenities and Delay as a result of Cumulative Development construction traffic.

Table 11.33. Non-Motorised User Amenity and Delay Assessment – Cumulative Development

Road Link	Sensitivity of Receptor	Traffic Increase (All Vehicles)	Magnitude of Change	Significance of Effect
A977 north	Low	11%	Negligible	Negligible
A907 west	Medium	5%	Negligible	Negligible
A907 east	Low	32%	Low	Negligible
A977 Kilbagie	Medium	25%	Negligible	Negligible
A977 Feregait	High	3%	Negligible	Minor
Substation Access Road	Negligible	315%	High	Minor
C68 Hawkhill Road	Negligible	351%	High	Minor
A876	Negligible	6%	Negligible	Negligible
Clackmannanshire Bridge	Negligible	6%	Negligible	Negligible
A876 S Approach Road	Negligible	4%	Negligible	Negligible
Kincardine Bridge	Low	6%	Negligible	Negligible
A985 west	Low	8%	Negligible	Negligible
A985 east	Low	7%	Negligible	Negligible

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

Road Vehicle Driver and Passenger Delay

11.11.11 Table 11.34 presents the forecast the forecast significance of effects on Road Vehicle Drive and Passenger Delay as a result of Cumulative Development construction traffic. Full outputs of the congestion reference flow analysis are included within Technical Appendix 11.1.

Table 11.34. Road Vehicle Driver and Passenger Delay Assessment – Cumulative Development

Road Link	Sensitivity of Receptor	Congestion Reference Flow	Magnitude of Change	Significance of Effect
A977 north	Low	41% (No Level Change)	Negligible	Negligible
A907 west	Medium	57% (No Level Change)	Negligible	Negligible
A907 east	Low	18% (No Level Change)	Negligible	Negligible
A977 Kilbagie	Medium	22% (No Level Change)	Negligible	Negligible
A977 Feregait	High	14% (No Level Change)	Negligible	Negligible
Substation Access Road	Negligible	7% (No Level Change)	Negligible	Negligible
C68 Hawkhill Road	Negligible	11% (No Level Change)	Negligible	Negligible
A876	Negligible	36% (No Level Change)	Negligible	Negligible
Clackmannanshire Bridge	Negligible	54% (No Level Change)	Negligible	Negligible
A876 S Approach Road	Negligible	82% (No Level Change)	Negligible	Negligible
Kincardine Bridge	Low	46% (No Level Change)	Negligible	Negligible
A985 west	Low	16% (No Level Change)	Negligible	Negligible
A985 east	Low	50% (No Level Change)	Negligible	Negligible

11.11.12 Classifying the significance of effects: prior to additional mitigation, the likely effect of construction traffic on Road Vehicle Driver and Passenger Delay is a **Negligible (Not Significant) effect**.

11.12 Monitoring

- 11.12.1 Monitoring is primarily associated with the CTMP. The detailed CTMP and compliance with it would likely be secured as a planning condition. It would be prepared in consultation with Fife Council, Clackmannanshire Council and Transport Scotland primarily by the Construction Contractor.
- 11.12.2 Roads authorities would be liaised with throughout the construction of the Proposed Development. Regular contact would help to inform the levels of CTMP monitoring, review and improvement as necessary.

11.13 Summary and Conclusions

- 11.13.1 This chapter assesses the environmental effects of traffic and movement associated with the Proposed Development. Environmental effects are assessed in accordance with IEMA Guidelines.
- 11.13.2 A summary of relevant transport legislation, policy and consultation is included in this chapter. Consultation responses have been received from Fife Council, Clackmannanshire Council and Transport Scotland, and this chapter takes cognisance of those responses where appropriate.
- 11.13.3 The Study Area considers roads likely to be affected by Proposed Development construction traffic. Public Roads included in this assessment are the A876, A977, A907, A985, Kincardine Substation Access Road and Hawkhill Road.
- 11.13.4 The sensitivity of receptors on Study Area roads has been determined in accordance with IEMA Guidelines. The categories for assessment of sensitivity encompass people at home, people at work, vulnerable road users, tourism, accident records and current traffic conditions on Study Area roads.
- 11.13.5 Sensitivity of receptor and magnitude of change have been used to determine the significance of effects on roads within the Study Area across seven categories: severance of communities, fear and intimidation by road users, road user and pedestrian safety, non-motorised user amenity, non-motorised user delay, road vehicle driver and passenger delay and hazardous / large loads.
- 11.13.6 Study Area roads have been assessed during the Construction Phase of the Proposed Development. This considers the works at Kincardine North Substation; OHL works and Scottish Power Distribution Works. A combined assessment of all elements of the Proposed Development and a cumulative assessment have also been undertaken to assess the impact of the Proposed Development in combination with other potential developments in the area.
- 11.13.7 Mitigation is proposed in the form of a CTMP. The goal of the CTMP will be to minimise the likelihood of significant environmental effects occurring by managing traffic to and from the Proposed Development Site.
- 11.13.8 Additional mitigation is provided in the form of public road improvements on Hawkhill Road. These included upgraded passing places to facilitate two-way construction traffic and the provision of a segregated active travel facility to the north of Hawkhill Road.
- 11.13.9 A summary of the environmental effects is shown in Table 11.35.

Table 11.35. Summary of Environmental Effects

Category	Kincardine North Substation	OHL Works	SPD Works	Combined	Cumulative Development
Severance of Communities	Minor (Not significant)	Negligible (Not Significant)	Negligible (Not Significant)	Minor (Not significant)	Minor (Not significant)
Fear and Intimidation of and by Road Users	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
Road User and Pedestrian Safety	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
Non-motorised User Delay and Amenity	Minor (Not significant)	Negligible (Not Significant)	Negligible (Not Significant)	Minor (Not significant)	Minor (Not significant)
Road Vehicle Driver and Passenger Delay	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

11.14 References

Ref 11.1 Institute of Environmental Assessment (2023). The Institute of Environmental Assessment Guidelines for the Environmental Assessment of Road Traffic.

Ref 11.2 Police Scotland (2026). Road traffic collision data. Available at: <https://www.scotland.police.uk/about-us/how-we-do-it/road-traffic-collision-data/> . [Accessed June 2026].

Ref 11.3 Scottish Government. (2020). National Transport Strategy 2, Edinburgh: Scottish Government.

Ref 11.4 Scottish Government (2023). National Planning Framework 4, Edinburgh: Scottish Government.

Ref 11.5 Scottish Government (2024). Climate change: Scottish National Adaptation Plan 2024-2029, Edinburgh: Scottish Government.

Ref 11.6 South East of Scotland Transport Partnership (2023). SEStran 2035 Regional Transport Strategy.

Ref 11.7 Fife Council (2017). Fife Local Development Plan (FIFEplan).

Ref 11.8 Clackmannanshire Council (2025). *Local Development Plan (adopted August 2015) related documents*. Available from:

<https://www.clacks.gov.uk/site/documents/developmentplanning/localdevelopmentplanadoptedaugust2015relateddocuments/>. [Accessed: June 2026]

Ref 11.9 Department for Transport (Updated annually since 2000) Road Traffic Statistics.
Available from: <https://roadtraffic.dft.gov.uk/count-points> [Accessed June 2026]