

## 16.0 Transportation

### Introduction

- 16.1 This chapter of the Environmental Impact Assessment (EIA) provides a comprehensive analysis of the potential effects on transport that could result from the proposed Stranraer Marina expansion. The assessment covers the various stages of the project—construction, operation, and decommissioning—and examines the associated impacts on access and transportation infrastructure.
- 16.2 This chapter is supported by Appendix 16.1 (**Volume 2**) Parking Study.
- 16.3 Key aspects considered within this chapter include:
- **Type and Volume of Traffic Generation:** The analysis evaluates the expected increase in traffic due to the Marina's expansion. It considers the types of vehicles likely to be used, such as construction vehicles, delivery trucks, and personal vehicles, and estimates the volume of traffic that will be generated during different phases of the project.
  - **Access Impact:** The assessment considers how the proposed development will affect access to the site, including any changes to existing road networks, potential upgrades required to accommodate increased traffic, and the impact on local traffic patterns.
  - **Transportation Impacts During Construction:** The construction phase is likely to generate significant short-term traffic due to the movement of materials, equipment, and workforce. The assessment analyses the potential impacts on local roads, including congestion, road safety, and wear and tear on infrastructure. Mitigation measures to minimise disruptions during construction are also considered.
  - **Operational Transportation Impacts:** Once the Marina is operational, there will be ongoing transportation impacts related to the increased number of visitors. The assessment predicts the long-term effects on road traffic, including potential increases in travel times.
  - **Parking Provision and Impact on Surrounding Car Parks:** The Marina's expansion is expected to increase demand for parking in the area. This section also considers the adequacy of existing car parks to accommodate the anticipated increase in vehicles and whether additional parking provisions will be required or if adjustments to existing parking management strategies should be considered to mitigate these impacts.
- 16.4 The findings of this chapter will inform the development of mitigation strategies to reduce any adverse transportation and parking impacts associated with the Stranraer Marina expansion. This ensures that the development can proceed with minimal disruption to the local transport infrastructure, parking availability, and community.
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### *Competency Statement*

- 16.5 This Chapter has been prepared by John Craft Higher National Diploma in Civil Engineering; Member of the Chartered Institute of Highways & Transportation. John has over 35 years of experience in assessing traffic and transportation including providing specialist input into Environmental Impact Assessments (EIAs) on a range of Major Projects and Nationally Significant Infrastructure Projects in the UK. John is an experienced practitioner carrying out the assessment of traffic and movement of people as part of environmental assessments.

### **Legislation, Guidance and Policy**

#### *Introduction*

- 16.6 In the context of an EIA, legislative guidance and policy play a crucial role. Legislative guidance ensures that transportation projects comply with national and international environmental laws.
- 16.7 Policies guide the assessment and mitigation of potential environmental impacts, ensuring that transportation projects do not harm ecosystems, biodiversity, or public health.
- 16.8 Clear legislative guidelines provide a consistent framework for conducting EIAs. This promotes transparency in the decision-making process and ensures that all stakeholders understand the criteria being used.
- 16.9 Policies are aligned with broader sustainability goals, such as reducing greenhouse gas emissions and promoting sustainable land use. Legislative guidance ensures that transportation projects contribute to these long-term objectives and help to identify, assess and manage risk associated with the project whilst minimising the potential negative impacts on the environment and society.

#### *Legislative and Policy Framework*

##### *Transportation*

- 16.10 The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017<sup>1</sup> identifies the processes Transport Scotland should apply to determining screening, the preparation of environmental report including scoping and consultation procedures and post-adoption procedures.
- 16.11 The following policy and guidance provide the necessary framework to ensure that transportation projects are environmentally sound, legally compliant, and socially responsible. They help balance development needs with environmental protection and public interests.

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<sup>1</sup> Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017

## *National Planning Policy Context*

### *National Planning Framework 4 (NPF4)*

16.12 Overarching planning policies for Scotland are contained within the NPF4<sup>2</sup>, which emphasises the importance of sustainable development, with a focus on economic growth, environmental protection, and social inclusion. Regarding transportation, NPF4 outlines several key considerations that must be addressed in the EIA for the Stranraer Marina Expansion:

- **Sustainable Transport Solutions:** NPF4 promotes the development of transport infrastructure that supports sustainable modes of travel, such as walking, cycling, and public transport. The EIA should assess how the Marina expansion aligns with these goals, particularly in reducing reliance on private cars and minimising the carbon footprint associated with transportation.
- **Integration with Land Use Planning:** The policy encourages the integration of transport and land use planning to ensure that new developments are accessible and contribute to sustainable communities. For the Stranraer Marina, this means evaluating how the proposed expansion will connect with existing transport networks and local amenities, and how it will impact or improve access for the local community.
- **Mitigation of Adverse Impacts:** NPF4 requires that developments consider and mitigate any adverse impacts on the environment and local communities. The transportation assessment within the EIA should identify potential issues such as increased traffic congestion, air pollution, and noise, and propose measures to mitigate these effects.
- **Local Parking Provision:** While NPF4 sets the strategic direction, it does leave room for local planning authorities to determine specific parking standards based on local contexts. However, these standards are expected to reflect the overarching goals of reducing car dependency and promoting sustainable transport.
- **Support for Economic Development:** While promoting sustainable transport, NPF4 also recognizes the importance of supporting economic growth. The EIA should evaluate how the Marina expansion could enhance local economic opportunities through improved transportation links, while balancing these benefits with environmental and social considerations.

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<sup>2</sup> Scottish Government: National Planning Framework 4: February 2023

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## *National and Regional Strategies*

### *SWestrans Regional Transport Strategy 2023-2042*

- 16.13 The SWestrans Regional Transport Strategy 2023-2042<sup>3</sup> aims to enhance transport in the Dumfries and Galloway region, focusing on sustainability, connectivity, and community needs.
- 16.14 The key priorities that have been outlined within the policy document include improving transport links in rural areas, reducing environmental impacts, and enhancing access to public transport. The strategy is aligned with national transport objectives, emphasising greener travel options such as active travel and electric vehicles, while also addressing economic and social factors like supporting tourism and reducing isolation in remote communities.
- 16.15 The plan outlines various policies relating to boosting internal and external connectivity and ensuring the transport system contributes to net-zero targets. However, the strategy acknowledges that significant funding and collaboration will be required to achieve these ambitious goals, and it will be updated periodically to reflect changing needs over the 20-year span.

## *Local Policy and Guidance*

### *Dumfries and Galloway Council Local Development Plan 2 (LDP2)*

- 16.16 The relevant policies with the Dumfries & Galloway LDP2<sup>4</sup> provide the framework for planning and development, including transport infrastructure, sustainable travel, and connectivity, all of which are crucial for the successful development and operation of the proposed Marina expansion.
- 16.17 Policy T3 promotes the use of sustainable transport options and aims to reduce dependency on private cars. The proposed Marina expansion should incorporate features that encourage the use of sustainable transport, such as EV charging stations, secure cycle storage, and support connections to public transport.
- 16.18 The development should also consider how to minimise its environmental impact by promoting walking, cycling, and public transport as the primary means of access for visitors and residents.

## *National Roads Development Guide*

- 16.19 The National Roads Development Guide<sup>5</sup> was produced by the Society for Chief Officers of Transport in Scotland, supported by Transport Scotland and Scottish Government Planning and Architecture Division.

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<sup>3</sup> Dumfries & Galloway Council: SWestrans Regional Transport Strategy 2023-2042: November 2023

<sup>4</sup> Dumfries & Galloway Council: Local Development Plan 2: October 2019

<sup>5</sup> Society for Chief Officers of Transport in Scotland (SCOTS) National Roads Development Guide: June 2017

- 16.20 NRDG supports Designing Streets and expands on its principles to clarify the circumstances in which it can be used.

### *Standard Guidance*

#### *Design Manual for Roads & Bridges*

- 16.21 The Design Manual for Roads and Bridges (DMRB) is published jointly by the Overseeing Organisations of England, Northern Ireland, Scotland and Wales and contains information about current design standards relating to the design, assessment and operation of motorway and all-purpose trunk roads in the United Kingdom.

#### *Environmental Impact Assessment*

- 16.22 This Guidance Note<sup>6</sup> provides Transport Scotland's advice on the key statutory requirements for environmental impact assessment (EIA) for road projects. This is not intended to be a complete guide to EIA, but provides the principal stages where Transport Scotland has statutory obligations. It also provides some advice on non-statutory environmental assessments.
- 16.23 This Guidance Note provides advice on all types of road intervention type projects and replaces any previous guidance.

#### *Environmental Assessment of Traffic and Movement*

- 16.24 These guidelines, published by the Institute of Environmental Management and Assessment (IEMA)<sup>7</sup>, are intended to complement professional judgement and the experience of trained and competent assessors. As the environmental impact of traffic and movement will vary on a case-by-case basis, the experience and expertise of the assessor will remain of primary importance, along with adequate consultation.
- 16.25 The intended audience for these Guidelines is EIA practitioners, determining authorities and other stakeholders concerned with the assessment of traffic and movement impacts within the environmental assessment process. These Guidelines should be used by EIA practitioners working on projects in England, Wales, Scotland and Northern Ireland.
- 16.26 Two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment are included within the guidance, as follows:

*“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 highway links of high sensitivity where traffic flows have increased by 10% or more”*

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<sup>6</sup> Transport Scotland: Environmental Impact Assessment Guidance: 2022

<sup>7</sup> Institute of Environmental Management and Assessment: Environmental Assessment of Traffic and Movement: July 2023

## Planning for Transport (PAN75)

16.27 PAN75<sup>8</sup> provides specific guidance on how transportation issues should be addressed in the planning process. Key considerations from PAN75 that apply to the Stranraer Marina Expansion include:

- **Assessment of Transport Impacts:** PAN75 requires a thorough assessment of the potential transport impacts of new developments. For the Marina expansion, this includes analysing the expected increase in traffic, the capacity of existing road networks, and the potential need for new or improved transport infrastructure. The EIA should quantify the impact on traffic volumes, travel times, and the overall efficiency of the transport network.
- **Provision of Adequate Parking:** PAN75 emphasises the importance of ensuring sufficient parking facilities to accommodate the needs of the development without causing undue pressure on surrounding areas. The EIA should evaluate the impact of the Marina expansion on existing parking provisions, considering both the demand generated by the new development and the availability of nearby parking spaces. This includes an analysis of whether additional parking facilities will be required and how these can be integrated sustainably.
- **Encouragement of Modal Shift:** The policy encourages developments to facilitate a shift towards more sustainable modes of transport. The EIA should assess opportunities to enhance public transport access, improve pedestrian and cycling routes, and reduce dependency on private cars. This might include recommendations for new bus routes, cycling paths, or pedestrian walkways that connect the Marina to the wider area.

## Transport Assessment Guidance (TAG)

16.28 TAG<sup>9</sup> Section 5.73 states that “*The environmental impacts of a development proposal are generally outside the remit of the TA process, as they should be picked up through an Environmental Impact Assessment (EIA).*” This includes considering the direct and indirect effects of increased traffic, changes in travel behaviour, and the infrastructure requirements on local and regional environmental quality.

16.29 Section 5.73 also states that “For some types of development an EIA is always required; for others it is required if the planning authority considers that the development is likely to have significant effects on the environment.”

16.30 Section 5.74 states that “In some cases, the local authority may think it is appropriate that the TA report covers one or more specific environmental issues:

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<sup>8</sup> Scottish Government: Planning Advice Note 75: August 2005

<sup>9</sup> Transport Scotland: Transport Assessment Guidance: 2012

- **Noise levels:** If the development is likely to generate significant levels of additional traffic, an estimation of the impact upon local noise levels may be necessary
- **Local air quality:** For developments generating significant levels of additional transport, the local authority may consider that an estimation of the impact upon local air quality should be incorporated within the TA.
- **Landscape, townscape and heritage:** Impacts caused by transport would normally be part of the planning application as a whole. However, the local authority might consider it necessary for the TA to provide a particular focus on certain of these issues, to avoid the need for separate studies.”

16.31 In summary, the proposed Stranraer Marina Expansion should align with the principles and requirements outlined within the national policies. This involves promoting sustainable transport options, integrating with existing land use and transport networks, assessing and mitigating adverse impacts, and ensuring that the development supports local economic growth while minimizing environmental and social disruptions.

16.32 The EIA should provide a detailed analysis of these aspects, certifying that the Marina expansion contributes positively to the community and the broader region.

## Methodology Used for Assessment

### *Introduction*

16.33 The completed development is considered minor in terms of road infrastructure, relying substantially on existing links, and seeking to improve features to enhance connectivity while achieving the development objectives. This section outlines the methodology used to assess the potential effects of the Proposed Development on transport.

### *Consultation*

16.34 Chapter 5.0 of this EIA Report includes a summary of public consultation undertaken to date.

16.35 Relating to traffic and movement, Transport Scotland consultation comments requested the following:

- A Transport Assessment (TA) will be prepared to evaluate the potential traffic impacts associated with the development.
  - The TA will include a qualitative description of the existing travel characteristics, details of committed transport improvements, a description of the existing highway network, and a review of the accident/collision history in the vicinity.
  - Baseline traffic surveys will be conducted to determine existing traffic volumes at the site accesses and surrounding road network.
  - The impact on the A77, A75, and A751 trunk road links and junctions will be quantified.
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- A threshold assessment will be carried out using the Institute of Environmental Management and Assessment (IEMA) Guidelines to screen for potential trunk road-related environmental impacts.
- Potential impacts such as driver delay, pedestrian amenity, severance, and safety will be assessed where appropriate.
- The TA will factor in base traffic data to the construction year using National Road Traffic Forecasts (NRTF) Low Growth.
- The TA should demonstrate that the proposed development is accessible by sustainable travel modes, in line with local and national planning policies.
- The TA will assess both the construction and operational impacts of the proposed development.

16.36 Additional consultation was sought from Transport Scotland (response dated 18/06/2024), which confirmed that a Transport Assessment was not required, in recognition that an EIA Traffic chapter was being provided. Further clarification regarding proposed development trip generation and the scope of the study was also accepted.

16.37 Dumfries & Galloway Council were consulted regarding trip generation and the scope of the study. In their response (dated 11/07/2024), they provided information from the Active Travel Links (ATL) project. The ATL parking survey results will be used to validate the proposed development's study parking surveys.

### *Geographic Extent (Study Area)*

16.38 The transportation study area for the proposed development was defined based on key locations and transport infrastructure surrounding the marina that are likely to influence or be affected. The boundaries of the study area were determined by identifying points of interest and their connectivity, both for pedestrians and vehicles, as well as their relevance to the marina's development and usage. The study area includes:

- **Eastern Boundary: Port Rodie Car Park.** The study area extends to the east, including the Port Rodie Car Park. This location was chosen as it serves as a key access point for vehicles and visitors approaching from the eastern side of Stranraer. It will also serve as the access route to the proposed car park upon the reclaimed land.
  - **Western Boundary: Marine Lake Car Park.** This area is critical for vehicles and pedestrians accessing the marina from the west. It provides access to the existing and proposed Stranraer Water Sports facilities and the boat yard.
  - **Central Location: Breastworks Car Park.** Located to the south of the marina, it serves marina visitors and acts as the main car park for the marina and the pedestrian access point to the pontoons.
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- **Southern Boundary: Market Street.** This main vehicular route through Stranraer Town Centre facilitates traffic flow to and from Stranraer Marina.

16.39 By encompassing these areas, the transportation study area captures the key points of access and flow that will influence traffic, parking, and movement around the marina. Including car parks, streets, and access routes provides a comprehensive view of the development's impact on the surrounding transport infrastructure.

16.40 The receptors for the study of traffic and people movements in this area are listed as follows:

- Market Street;
- Harbour access road;
- Core paths STRA/544/1 & 2; and
- Marine Lake Car Park Shared Use Path.

### *Years of Assessment*

16.41 The baseline will be 2024, to match surveys undertaken.

16.42 The baseline traffic condition estimation relevant to this assessment has been determined through qualitative and quantitative research, by means of Automatic Traffic Counts (ATC), at the following locations:

- Site 1 - Market Street between Princes Street & Queen Street; and
- Site 2 - Marina Access Road, North of Market Street.

16.43 The 24-hour ATC surveys were commenced on Tuesday 9<sup>th</sup> July 2024 for the duration of 14 days. A summary of the baseline traffic flows is contained in **Table 16-1**.

**Table 16-1: Surveyed Traffic Flows (All Vehicles)**

Site No.	Location	Week	Direction	24-hour	Two-way	
					24-hour	18-hour*
1	Market St between Princes St & Queen St	1	East	2,424	5,616	n/a
			West	3,192		
		2	East	2,602	5,876	5,987
			West	3,274		
2	Marina Access Rd, North of Market St	1	North	21	45	n/a
			South	24		
		2	North	25	52	56

Site No.	Location	Week	Direction	24-hour	Two-way	
					24-hour	18-hour*
			South	27		

\* 0600-2400

16.44 The surveys identified that the second week had the larger volume of traffic movements i.e. approximately 5,876 two-way vehicles per day on the A717 compared to the first week (circa 5,616 two-way vehicles per day), therefore to represent a robust impact assessment the second week has been selected to represent the baseline traffic.

16.45 The corresponding heavy goods vehicle proportions are shown in **Table 16-2**.

**Table 16-2: Surveyed Traffic Flows (HGVs)**

Site No.	Location	Dir	24-hour HGV Flow	% HGV	18-hour* HGV Flow	% HGV
1	Market St between Princes St & Queen St	Two-way	414	7.05%	386	6.45%
2	Marina Access Rd, North of Market St	Two-way	1	1.92%	2	3.57%

\* 0600-2400

16.46 The 85<sup>th</sup> percentile is a statistical measure that indicates the value below which 85% of the data points in a dataset fall. The traffic survey identified that the 85<sup>th</sup> percentile speed (two-way) on the A717 Market Street was 25.5mph, whilst on the harbour access road, it was 10.1mph.

16.47 Based on the current pre-construction programme (Contract No/TP/01 Rev 6), the consented development is anticipated to be undertaken 2025 Q1 to 2026 Q1, coming into use shortly afterward. The marina extension works are anticipated to be undertaken between 2025 Q2 and 2027 Q3, with full opening 2028 Q1. Therefore, construction is anticipated to commence in 2026, which will be known as the interim future baseline.

16.48 Finally, the opening year for the proposed development is 2028 that will be referred to as the future baseline.

**Forecast Flows**

16.49 The assumed scenario timescales are shown in Table 16-3:

**Table 16-3: Scenario Timescales**

Stage	Year
First year of Construction	2026
Final Year of Construction	2028
Proposed Development Opening Year	2028

16.50 The Trip End Model Presentation Program (TEMPro) is a modelling tool designed to allow users to look at the growth in trip ends, using actual and forecast data (the National Trip End Model regional datasets) supplied by the Department for Transport. TEMPro includes growth forecast for Dumfries & Galloway. **Table 16-4** shows the appropriate growth factors between the requested study years.

**Table 16-4: Growth Factors**

Year	Year
2024 - 2026	1.0119
2024 - 2028	1.0161

16.51 Table 16-5 shows the baseline traffic flows for the study years.

**Table 16-5: Future Year Traffic Flows (All Vehicles)**

Two-way Flows	24-hour				18-hour			
	2026		2028		2026		2028	
Location	Total Vehicles	HGVs						
Market St	5,946	419	5,971	421	6,058	403	6,083	409
Harbour Access Rd	53	1	53	1	57	2	57	2

**Baseline conditions**

16.52 The baseline traffic condition estimation relevant to this assessment will be determined through qualitative and quantitative research. Baseline traffic will be collected by means of Automatic Traffic Counts (ATC). The results will be used as a proxy for Annual Average Daily Traffic (AADT), which by definition is a year's worth of counts divided by the number of days in a year. The use of proxy figures is considered appropriate as specific data is not available. A list of committed and reasonably foreseeable projects (both planning and marine) were reviewed in the preparation of the transport assessment. A review of the likely additional traffic on the local road network will be conducted upon the opening of the proposed development as part of the cumulative effects assessment.

16.53 Where appropriate, the TRICS database will be used to estimate the traffic generation of planning application developments in the absence of associated transport studies.

### *Impact Assessment Methodology*

16.54 IEMA Environmental Assessment of Traffic and Movement Guidelines outline two 'Rules' against which the impacts of the proposed development must be considered. These rules are as follows:

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

16.55 Where these thresholds are exceeded, the impacts of the proposed development should be considered. IEMA outlines several different criteria against which the impacts of the proposals should be considered:

- Severance – Severance in traffic and movement assessments refers to the division within a community caused by major transport infrastructure, making it difficult for people to cross heavily trafficked roads or physical barriers. Measuring severance is complex, with no clear correlation between severance and road barriers, and no simple predictive formulas. Factors such as road width, traffic flow, speeds, crossing facilities, and the number of crossings must be considered. Vulnerable groups, like the elderly and children, are more affected by severance. An assessment should estimate current severance and predict how additional traffic might worsen it, considering local conditions and using historical thresholds and resources like the Department for Transport's guidance;
  - Driver Delay – Traffic delays to non-development traffic can occur at several points around a development site, including site entrances, highways passing the site, key intersections, and side roads. These delays are significant when the surrounding network operates near capacity. Delay values can be determined using software like ARCADY, PICADY, OSCADY, and LinSig. For larger areas, micro-simulation or network assignment models may be needed. Driver delay assessments, based on Transport Assessment reports, focus on peak periods and ensure that conditions with the development are not worse than without it, clearly presenting the effects with and without mitigation. For this study there is no requirement to undertake junction assessments, therefore, it is assumed that current driver delay is low;
  - Pedestrian Delay – IEMA notes that changes in traffic volume, composition, or speed can affect the ability of people to cross roads, with increased traffic levels generally leading to greater delays. Factors such as pedestrian activity, visibility, and physical conditions of the development site also influence delays. Predictive methods, like
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those in the Transport and Road Research Laboratory Supplementary Report 356, can approximate pedestrian delay levels. Given the variability of local conditions, definitive thresholds are not recommended; expert judgment is crucial. Resources like the Department for Transport TAG Unit A4-1 and DMRB LA 112 provide guidance on assessing pedestrian delay. In densely populated areas, sample counts may be necessary to quantify pedestrian impacts, with surveys agreed upon with relevant highway authorities. Whilst no absolute thresholds have been defined with respect to pedestrian delay, suggestions have been provided over the years which include the lower threshold of 10 seconds and the upper threshold of 40 seconds delay for a link with no crossing facilities, equates to a lower threshold of a two-way flow of about 1,400 vehicles per hour. Refer to **Table 16.6** for the assessment criteria related to these criteria;

- Non-motorised user Amenity – IEMA defines pedestrian amenity as the pleasantness of a journey, influenced by traffic flow, composition, and pavement width/separation from traffic. It encompasses pedestrian fear and intimidation, exposure to noise and air pollution, and the overall relationship between pedestrians and traffic. Transport for London's 'Guide to the Healthy Streets Indicators' provides details on factors affecting non-motorised users' travel choices. The 1993 Guidelines suggest significant changes in pedestrian amenity occur when traffic flow or HGV components are halved or doubled, though these thresholds should be used cautiously and consider local conditions. Some authorities, like Essex County Council, have developed similar guidance, but often rely on standards from nationally recognized bodies such as Transport for London's Pedestrian Comfort Guidance and Sustrans' walking and cycling infrastructure design guidance. Details of the method used for this study is contained below;
- Fear and Intimidation - Fear and intimidation from moving objects, including motorcycles, cars, lorries, buses, horses, cycles, mobility scooters, e-scooters, and e-cycles, are significant environmental impacts in traffic assessments. These impacts depend on traffic volume, heavy vehicle composition, speed, and proximity to pedestrians, especially where narrow pavements or barriers exist. Although there are no universally agreed thresholds for estimating fear and intimidation, previous studies provide useful guidelines. Assessments require judgment, particularly in high-speed areas, turning points, and tourist spots. A weighting system helps assessors estimate pedestrian fear and intimidation, with scores reflecting local conditions. IEMA guidelines report contains such a scoring method and these have been used in this study;
- Road Safety – The 1993 Guidelines recommended calculating road accident rates (collision rates) to assess potential road safety impacts based on expected changes in vehicle-kilometres. While this method is still relevant, stakeholders often prefer a

detailed 'collision cluster' assessment, which reviews baseline characteristics to identify areas sensitive to road safety issues. The Safe System approach, endorsed by the World Health Organization and OECD, is considered best practice. It involves identifying study areas using crash data, modelling baseline road safety levels, and assessing the impact of additional traffic, including changes to the road network. The final impact assessment should present changes in road safety and estimated reductions in fatal or serious injuries, using tools like iRAP Star Ratings. Engaging with relevant authorities is recommended to determine the best approach for assessing road safety effects.

- Hazardous loads/large loads - Traffic and movement assessments must recognize the transportation of hazardous loads, including those involved in construction, decommissioning, and operation phases. Regulations for transporting dangerous goods are outlined in The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009. Assessments should detail the number and composition of such loads and include risk or catastrophe analyses, especially for high-risk materials like nuclear products. The IEMA publication provides guidance on hazard assessment. The movement of large loads is regulated by National Highways and requires agreements with highway authorities and police via the ESDAL system. Experts must consider routes and mitigation strategies for safe passage and potential traffic impacts like fear and intimidation or driver delay.

**Table 16-6: Pedestrian Delay Assessment Criteria**

Effect	Negligible	Minor	Moderate	Major
<b>Pedestrian Delay – Increase in pedestrian crossing delay</b>	< 5 seconds	> 5 seconds < 20 seconds	> 20 seconds < 40 seconds	> 40 seconds

- 16.56 The International Road Assessment Programme (iRAP) is a Registered Charity with UN ECOSOC Consultative Status. This organisation has developed Star Ratings<sup>10</sup> representing an objective measure of the level of safety which is 'built-in' to the road through more than 50 road attributes that influence risk for vehicle occupants, motorcyclists, bicyclists, and pedestrians.
- 16.57 Star Ratings reflect the risk as it relates to an individual road user. 1-Star roads have the highest risk and 5-Star roads the lowest risk. Star Ratings can be produced without reference to detailed crash data.
- 16.58 The Star Rating has been used to consider the NMU amenity.
- 16.59 IEMA guidelines suggest that particular population groups may be sensitive to changes in traffic conditions. The following user groups should be considered:

- Non-motorised users;

<sup>10</sup> International Road Assessment Programme Star Ratings - <https://demonstrator.vida.irap.org/>

- Public right of way users;
- Motorists and freight vehicles;
- Public transport; and
- Emergency services.

16.60 The following list identifies special interests that will be considered when defining sensitive receptor geographic locations. The sensitive locations will inform the assessment of effect significance when the development traffic is assigned to the network.

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

16.61 The affected parties that will be considered are listed in **Table 16.7**.

**Table 16-7: Affected Parties**

Affected Parties	Type	Sub-type	Location	Sensitivity	Map Ref	
User Groups	Non-motorised users (NMUs)	Pedestrians	Market Street	LOW	A	
		On-road cyclists				
		Core Path Users	STRA/544/1 Burns House to Harbour Access Road		LOW	B
			STRA/544/2 Harbour Access Road to Agnew Park (N)			C
	Public Right of Way Users	-	None			
	Motorists and freight vehicles	-	Market Street	LOW	A	
Harbour access road			D			

Affected Parties	Type	Sub-type	Location	Sensitivity	Map Ref
	Public Transport Users	-	Market Street	LOW	A
	Emergency Services	Stranraer Police Station	Market Street	LOW	A
			Harbour access road		D
<b>Special Interests</b>	Retail	Tesco Superstore	Car Park access onto A717, refer to Motorists and Freight user group for indication of assessment. NMUs unaffected, as access is from Charlotte Street.	-	1
	Church	St. John's Episcopal Church	Assume users park in North Strand Street or Fisher Street, therefore unaffected. NMUs largely unaffected, see NMU User Group for assessment.	-	2
	Library	Stranraer Library	Assume users park in Fisher Street, therefore unaffected. NMUs largely unaffected, see NMU user group for assessment.	-	3
	Public Park	Garden of Friendship	Assume users use Royal Crescent to park, refer to Motorists and Freight user group for assessment. NMUs are unaffected, as distant from site.	-	4
		Agnew Park	Assume users use Marine Lake Car Park, refer to Motorists and Freight user group for assessment for those that access from the east. NMUs unaffected, as site to east.	-	5
	Hotel	Craignelder Hotel	Car Park access onto A717, refer to Motorists and Freight user group for indication of impact. NMUs largely unaffected, see NMU User Group for indication of impact.	-	6
		North West Castle Hotel	Car Park access onto Royal Crescent via A717, refer to Motorists and Freight user group for indication of impact.	-	7

Affected Parties	Type	Sub-type	Location	Sensitivity	Map Ref
			NMUs largely unaffected, see NMU User Group for indication of impact.		
	Office	Burns House	Users have left-in, left-out access to car park at Harbour Road, refer to Motorists and Freight user group for assessment. NMUs largely unaffected, see NMU User Group for indication of impact.	-	8
	Guest House	Hampton Court	Assume users use Market Street on-street parking. Refer to Motorists and Freight user group for assessment. Refer to NMU User Group for NMU assessment.	-	9
		Harbour Lights Guest House			10
		Sky Cottage Stranraer			11
		Lakeview Guest House			12
		Dunhaven Guest House			13
	Neptune Rest	14			
Restaurant	Driftwood Restaurant	Unaffected by traffic. No further consideration.	-	15	

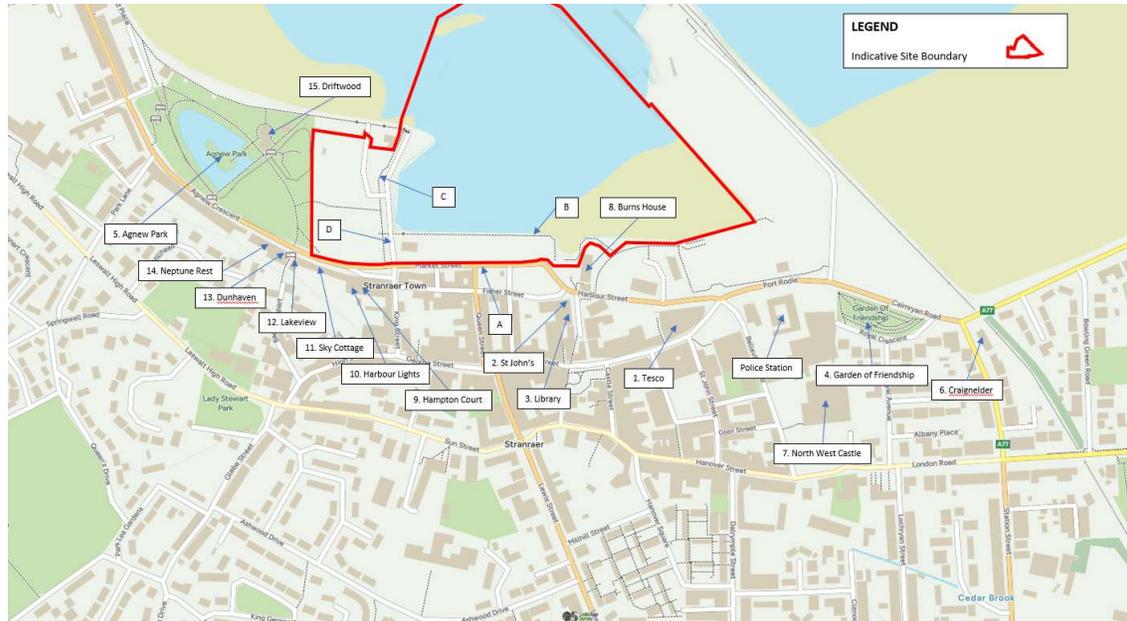


Figure 16-1: Location of Affected Parties (courtesy of Ordnance Survey)

16.62 The scale attributed to each effect has been determined based on the sensitivity of the affected party at the receptor and the magnitude of impact arising as a result of the proposed development. Professional judgement and experience have been drawn upon to assess the scale and significance.

#### Construction Phase (Temporary)

16.63 The construction phase is currently estimated to be undertaken over a two-year period. Some of the works are likely to be delivered concurrently, but some will be in sequence, taking consideration of seasonal requirements, in cognisance of other restrictions on access during specific times. It has been noted that the festival season (e.g. previous season was 9<sup>th</sup> September until 6<sup>th</sup> October 2023), may restrict access to the full marina frontage and car parks. Also access to existing uses, i.e. harbour master, HM Coastguard, marina, water sports and the coastal path will require mitigation during construction. Any access restriction will require to be discussed and agreed between the contractor, SWSA, harbour master and planning authority to confirm the sequence of works. The study assumes that agreement can be made and reasonable access will be in place during the interim study year for construction.

16.64 It is currently planned that the SWSA / Boat yard construction phase occurs prior to the proposed development construction phase. The SWSA / Boat yard contractor will take possession of a portion of the Marine Lake car park for site accommodation, using the future Boat yard site and SWSA for temporary material storage. Traffic access for standard loads is planned to be via the Marine Lake car park, whilst large loads will use the harbour access road.

- Access to the existing slipway and access road from Marine Lake car park will be retained throughout.
- 16.65 It is anticipated that the proposed development contractor will also take possession of the Marine Lake car park, however, as the Boat yard will be occupied, additional space will be required.
- 16.66 The buildings in the harbourmaster area and workshops, and the marina are anticipated to be undertaken from the harbour access road.
- 16.67 The rock armour extension; if armour stone has to be delivered by road, access would progress incrementally along the frontage. It is possible that stone could be delivered by barge.
- 16.68 The reclamation works is anticipated to be undertaken from barges, however, access will also likely be needed via the Port Rodie car park area.
- 16.69 The details of construction and therefore the materials are not completely understood at present, therefore this assessment will present estimated flows and compare these to thresholds for significance based on surveyed conditions within the above rules to demonstrate effects. Wider access for construction traffic is considered to be via the trunk road network i.e. A77 and A75.
- 16.70 It is also unknown how many personnel would be on-site at any one time, or the arrangements a contractor may put in place for workers transport. This is anticipated to be managed through a Construction Traffic Management Plan (CTMP) to be prepared prior to commencement.
- 16.71 In cognisance of the Rochdale envelope, construction traffic impact will be assessed based on worst case estimates for construction traffic generation and expected associated travel patterns.
- 16.72 It is appreciated that the Stranraer Water Sports Association (SWSA) building and the boat yard enhancements may be complete and occupied when the proposed development starts construction, however, for this study it is assumed that construction activities will occur together and the SWSA / Boat yard will be considered in the cumulative assessment. Furthermore, for this study it is assumed that public perception will associate that all three projects are combined, therefore the proposed development has been assigned 80% of the estimated construction traffic.

#### Operational Phase (Permanent)

- 16.73 The identification of likely significant impacts associated to the proposed development relevant to this assessment will be determined through the use of the TRICS database to estimate the traffic generation of the proposed development.
- 16.74 The marina extension is anticipated to require limited access via the harbour access road, for servicing etc. However, for the purposes of this report, the marina berths are assumed to access via the Breastworks car park.
-

- 16.75 The buildings in the harbourmaster area and workshops are principally accessed from the harbour access road, but the Breastworks car park is proposed to support those trips.
- 16.76 The new HM Coastguard / research facility building will be accessed via the Marine Lake Car Park, with the exception of 1No. disabled space and 1No. drop-off space that will use the barrier-controlled harbour access road.

**Proposed Traffic Movement**

**Construction Phase (Temporary)**

- 16.77 It has been determined that the design detail required to provide a framework to estimate construction traffic does not exist at this stage of the project, therefore, the construction traffic has been estimated and compared to thresholds for significance based on the survey information. **Table 16-8** indicates the assessment construction traffic for this phase of the development.

**Table 16-8: Construction Phase Traffic That Would Result in 30% Increase to Significance Threshold**

Site No.	Location	Two-way		Construction Flow for 30% increase	
		Vehicles	HGV	Vehicles	HGV
1	Market St between Princes St & Queen St	5,946	419	1,784	126
2	Marina Access Rd, North of Market St	52	1	16	0

- 16.78 It is considered that the predicted construction traffic flows shown for A717 Market Street would also be used to assess impact on the harbour access road. The assumption is that all proposed development construction traffic would access via the harbour access road as the worst case in terms of effects on receptors. However, in practice this is unlikely to be the case for a site with an extensive length with alternative means of access being used. The construction traffic considered to be associated with the proposed development will be 100 two-way daily HGV movements, with 24 two-way daily HGV movements associated with the SWSA / Boat yard project and considered within the cumulative assessment.

- 16.79 The CTMP will be developed to demonstrate that the assumed flows are representative of the construction method, and that the significance thresholds described in this assessment are not exceeded which would otherwise require an assessment of a wider geographical extent.
- 16.80 The construction activities are also like to require smaller vehicles (less than 7.5T in weight), for the purposes of this study, it has been estimated that 50% of construction traffic would be of this class of vehicle. The total construction traffic would be 200 two-way all vehicles for the Masterplan, representing an increase of 3.40% from the surveyed traffic. This is below the threshold (30% all vehicles) for consideration of wider links in the road network.

#### Operational Phase (Permanent)

- 16.81 The TRICS online database has been interrogated to establish comparable trip rate estimates for Marinas. The following surveys were selected:
- St. Ives Marina – Saturday 23rd June 2018
  - Maidstone Marina – Saturday 12th May 2018
- 16.82 For the purpose of this assessment the established trip rates have been assumed to represent peak activity at the Marinas. The trip rates have been subsequently used to generate the proposed development traffic flows on Friday and Saturday, which is robust.
- 16.83 The operational traffic flows associated with the proposed development are shown in **Table 16-9**. It is assumed that traffic outwith the surveyed hours is negligible and therefore the trip rates shown reflect the daily forecast traffic for the proposed development.

**Table 16-9: Proposed Marina Extension Development Predicted Traffic Flows**

	Daily Traffic	
	Arrivals	Departures
Vehicle Trip Rates (per berth)	0.676	0.694
Vehicle Trips (185 berths)	125	128
Two-way Vehicle Trips	253	

- 16.84 The proposed traffic that is to be generated by the proposed Stranraer Marina expansion will channel the majority of vehicles into the surrounding car parks, which have ample spare capacity based on the parking study which has been carried out (Appendix 16.1 **Volume 2**).
- 16.85 A new building, circa 494m<sup>2</sup> GFA, that is likely to host the HM Coastguard and a research organisation; Solway Coast Marine Pilot Project (SCAMPP) is proposed to be located to the south of the Harbour Master's building. For the purposes of this study, the space has been

considered as an office to provide a robust traffic generation. The operational traffic flows are shown in **Table 16-10**.

**Table 16-10: Proposed HM Coastguard / SCAMPP Development Predicted Traffic Flows**

	Daily Traffic	
	Arrivals	Departures
Vehicle Trip Rates (per sqm)	8.388	8.448
Vehicle Trips (494m <sup>2</sup> )	41	42
Two-way Vehicle Trips	83	

16.86 The proposed HM Coastguard / SCAMPP building can be accessed from the Marine Lake car park, that would be used for operational vehicles. It is assumed that the majority of users would walk to the building from the Marine Lake and Breastworks car parks. The Harbour Access Road is not intended to support this facility on a regular basis, with the exception of one disabled parking and one drop-off parking space.

16.87 A limited number of vehicles, primarily staff, those requiring access to the new water sports facilities and repair and maintenance vehicles, would require access through the harbour's gated entrance.

16.88 The community space, located on the reclaimed land and to the north of Port Rodie Car Park, is understood to host occasional events, in addition to those currently hosted at the Marina (e.g. the Oyster Festival). For the purposes of this study the occasional nature of events is considered to generate negligible traffic in an annual sense and, therefore, no further consideration has been made.

16.89 The total forecast traffic flows are shown in **Table 16-11**.

**Table 16-11: Impact Assessment Forecast Traffic Flows (All Vehicles)**

Scenario	Location	Base	Proposed	Total Forecast
2026 (Interim Future Baseline)	Market Street	5,946	200	6,146
	Harbour Access Road	53	200	253
2028 (Future Baseline)	Market Street	5,971	336	6,307
	Harbour Access Road	53	0	53

### Sensitivity of Receptor

16.90 The sensitivity of each receptor was evaluated as being high, medium, low or very low based on a review of the baseline position of each receptor and its performance against benchmark areas. The receptors and the definition of sensitivity of a receptor (high, medium, low or very low).

### Magnitude of Impact

16.91 The magnitude of impact to a receptor has been determined by considering the estimated deviation from baseline conditions both before, and, if required, after mitigation. The scale used for determining the magnitude of an impact has been based on **Table 16-12**.

**Table 16-12: Magnitude of Impact Description**

Impact Magnitude	Description (Change in Traffic Flow)
High	Change in total traffic or HGV flows over 90%
Medium	Change in total traffic or HGV flows of 60 - 90%
Low	Change in total traffic or HGV flows of 30 – 60%
Very Low	Change in total traffic or HGV flows of less than 30%

### Significance of Effect

16.92 The overall significance of effect is detailed in **Table 16-13** and was determined by considering sensitivity and magnitude, as set out above.

**Table 16-13: EIA Matrix - Assigning significance of Effect**

Sensitivity	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Substantial	Moderate/ Substantial	Slight/ Moderate	Slight
Medium	Moderate/ Substantial	Moderate	Slight	Negligible/ Slight
Low	Moderate	Slight/ Moderate	Negligible/ Slight	Negligible

- 16.93 Effects classified as major or moderate are considered 'significant'. Effects classified as minor or negligible in scale are considered 'not significant'.

### *Limitations to Assessment*

- 16.94 Using one week's data to estimate annual average daily traffic (AADT) is common practice, especially when resources for extensive data collection are limited. However, this method has its drawbacks, as it may not capture the full variability of traffic patterns throughout the year. A comparison of annual traffic flow on the A75, A77, and A751 suggests that July and August are busier periods of the year around Stranraer. This has been used to justify the use of surveys undertaken in July.
- 16.95 The traffic surveys undertaken record vehicle volumes over a two-week period. The first week included road works on Market Street, which involved temporary traffic signals at the King Street/Harbour access road junction. The first week of data has been used for reference.
- 16.96 It has been determined that the design detail required to provide a framework to estimate construction traffic does not exist at this stage of the project. However, an estimate based on traffic survey information has been considered. Management of these flows would be the responsibility of the contractor.
- 16.97 Predicted development traffic uses an industry-standard database (TRICS); however, the number of sites within the category of 'marina' is two. Using TRICS with only two sites in the study category has several limitations, including limited representativeness and reduced statistical reliability. The small sample size may not capture the diversity of conditions and variables affecting trip rates, leading to biased results. Differences in site characteristics and seasonal or temporal variations can further impact the accuracy of the data. Additionally, anomalies or outliers can disproportionately affect the findings. Collection of sufficient survey data particular to this development is noted as being too extensive and geographically wide, compared to using the available data.
- 16.98 In addition, the relatively bespoke nature of the proposed HM Coastguard/Solway Coast Marine Pilot Project building and the Stranraer Water Sports Association expansion in terms of land use result in these developments not being included within the TRICS database. The use of office and leisure centre land use trip rates is likely to overestimate the traffic generated by each facility.

### **Baseline Conditions**

#### *Existing Site*

- 16.99 The proposed development is located adjacent to the existing Marina. Stranraer Marina is a key feature of the town, which is located in the southwestern part of Scotland, on the shores of
-

Loch Ryan. Stranraer Marina serves as a hub for maritime activities and a focal point for tourism and leisure in the region.

16.100 The Marina is close to Stranraer's town centre, which offers a range of amenities, including shops, restaurants, and accommodation. The marina provides essential services for boat owners, including water and electricity hook-ups, and normal refuse collection. There is also a nearby boat yard, that provides storage facilities for visiting and resident vessels.

### Walking & Cycling

16.101 Stranraer offers several walking and cycling routes that allow residents and visitors to explore the town and its surrounding landscapes. These routes cater to various fitness levels and interests, from leisurely strolls along the waterfront to more challenging cycling paths through the countryside.

16.102 The Loch Ryan Coastal Path is one of the most popular walking routes in Stranraer. It runs along the shores of Loch Ryan, offering stunning views of the loch, the town, and the surrounding hills. Starting from the Stranraer Marina, the path follows the coastline northward towards Cairnryan, passing by picturesque beaches, historical sites, and areas of natural beauty. The path is mostly flat and well-maintained, making it suitable for all ages and fitness levels.

16.103 The Stranraer Town Trail is a self-guided walking route that takes visitors through the town's historical and cultural landmarks. The trail covers key sites such as Stranraer Museum, the Old Town Hall, Castle of St John, and various historical buildings. It's a leisurely walk that provides insight into the town's rich history and heritage.

16.104 Core paths are routes designated by local authorities under the terms of the Land Reform (Scotland) Act 2003 with the purpose of providing a reasonable access network. D&GC's core path plan<sup>11</sup> shows that two designated section of paths (STRA/544/1 and 2), named as Stranraer Waterfront, route through the marina expansion site. Path section 1 extends from the rear of Burns House, around the slipway and along the harbour wall crossing the Harbour Access Road in the vicinity of the barriers. Path section 2 then continues from that point inside the Marine Lake car park, crossing the slipway access road toward the West Pier turning west at the Harbour Master's building to continuing along the coast past the proposed SWSA site to McCulloch's Point. A representation of the Core Path routes in the vicinity of the site is included in Figure 16-2.

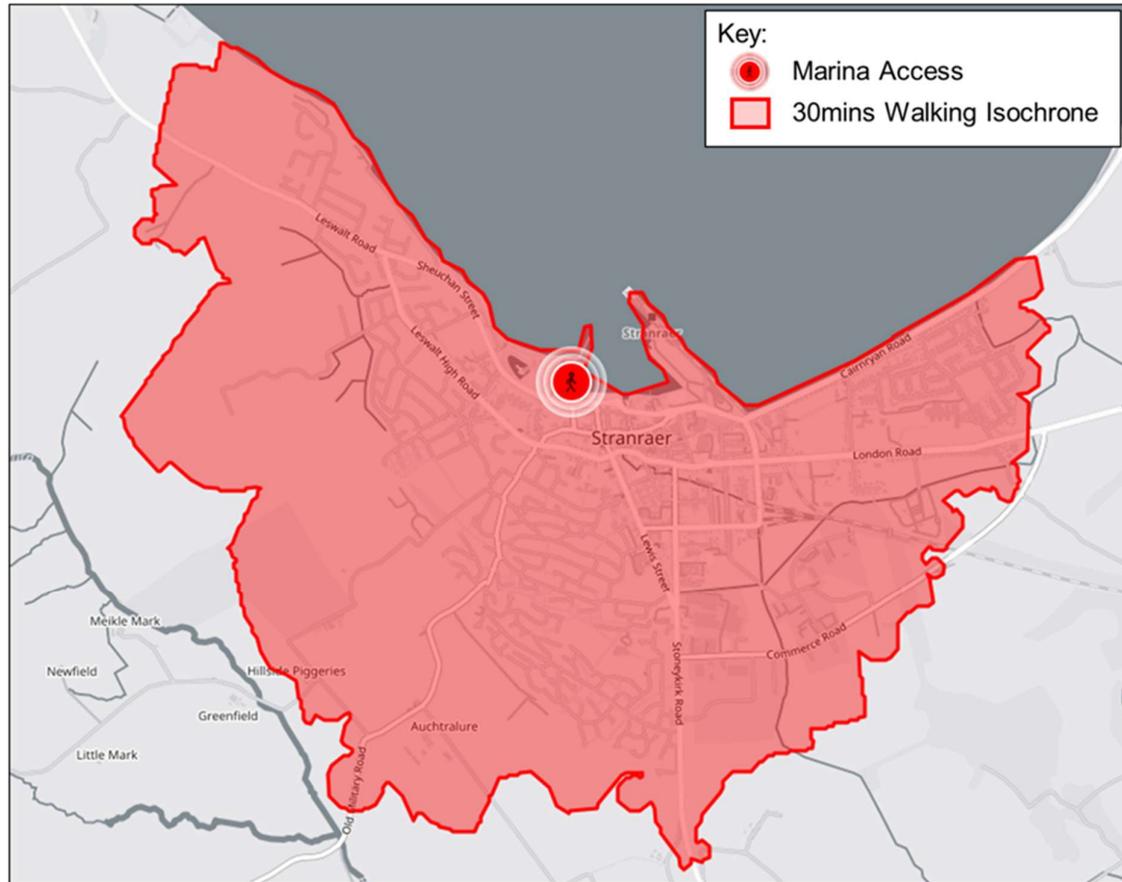
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<sup>11</sup> D&GC Core Paths - [Core paths | Dumfries and Galloway Council](#)



Figure 16-2: Core Paths (courtesy of Ordnance Survey)

- 16.105 Along the site frontage the A717 Market Street and A718 Agnew Crescent have 2m wide footways. The harbour access road has one 2m wide footway on the east side, which terminates at the core path / harbour vehicle control barriers. There is one circa 1m wide footway on the west side, however, there is an alternative marked pedestrian route through the Marine Lake car park which is separated from the harbour access road by a wall. This wall has a gap for connection with the core path along the Breastworks.
- 16.106 There is an uncontrolled pedestrian crossing point on the A717 Market Street at the Breastworks car park roundabout, that includes dropped kerbs and tactile paving. There are further dropped kerbs, opposite Princes Street and Queen Street, both leading to footpath links into the Breastworks car park.
- 16.107 The A718 Agnew Crescent has an uncontrolled pedestrian crossing, including a refuge island in the vicinity of the harbour access road.
- 16.108 There is an uncontrolled crossing point for pedestrians on the harbour access road, in the vicinity of the A718 junction.
- 16.109 A walking catchment of up to 1,600 metres (20 minutes) is recognised in PAN 75 as being appropriate. TAG identifies that journey times of up to 30 minutes (2,400 metres) are appropriate for walking. **Figure 16-3** illustrates the walking isochrone of up 30 minutes from Stranraer Marina.



*Figure 16-3: 30-minute Walking Isochrone (courtesy of TravelTime.com)*

16.110 National Cycle Network Route 73 (NCN Route 73) passes through Stranraer, linking the town with other parts of Dumfries and Galloway and beyond. From Stranraer, NCN Route 73 heads south towards Portpatrick and north towards Cairnryan, offering cyclists scenic rides along quiet country roads and coastal paths. The route is well-signposted and suitable for cyclists of various skill levels and is shown in **Figure 16-4**.

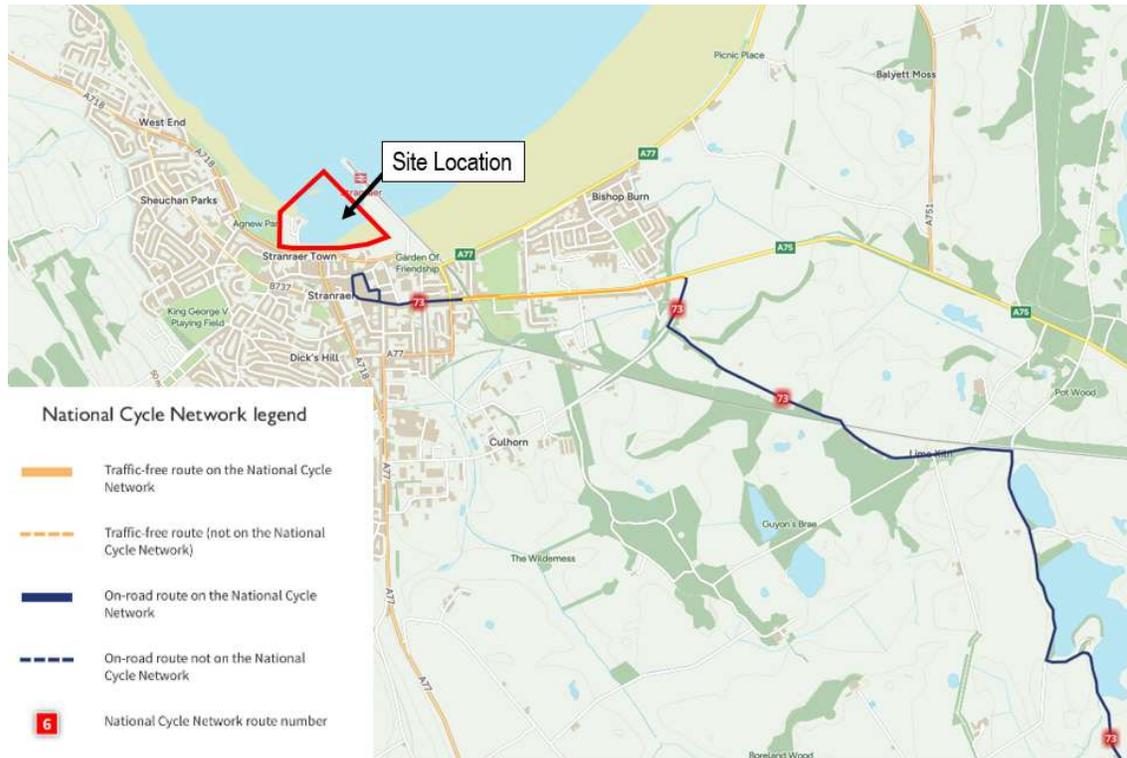


Figure 16-4: National Cycle Routes in Stranraer (Sustrans)

16.111 The Kirkpatrick C2C, South of Scotland's Coast to Coast cycling route is a largely on-road route that offers 250 miles of uninterrupted joy for experienced cyclists from Stranraer on the west coast to Eyemouth on the east coast. The proposed site hosts an off-road section of the C2C and the Portpatrick Spur in addition to the Kirkpatrick MacMillan velocipede statue, which is located on the West Pier. The route, in the local area, is shown in Figure 16-5.

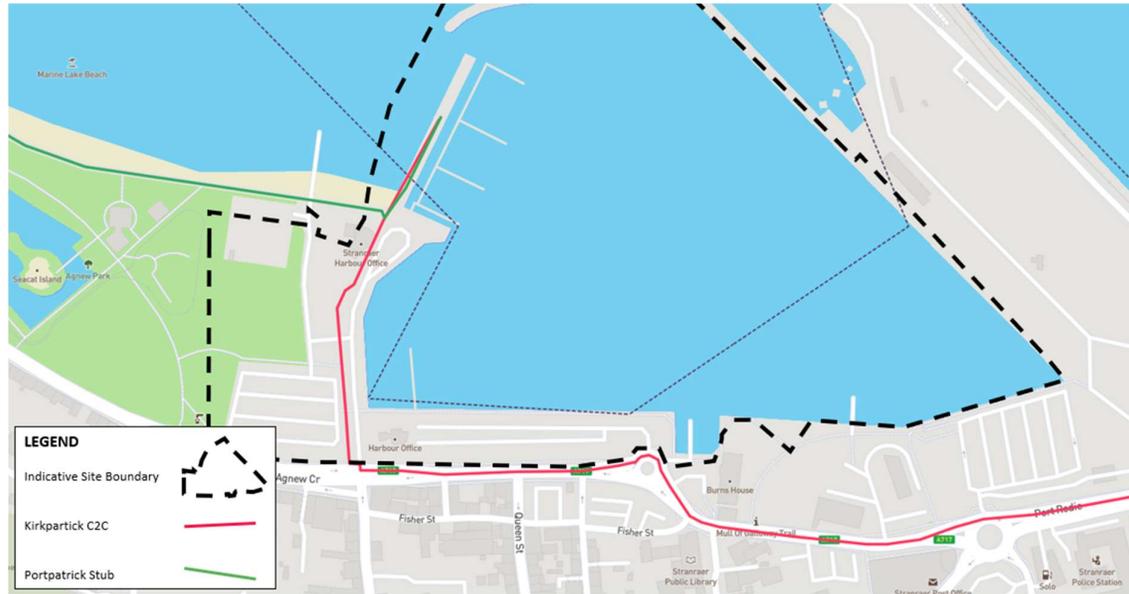


Figure 16-5: South Scotland Coast to Coast Route in vicinity of the Proposed Site<sup>12</sup>

### Public Transport

16.112 PAN 75 also states that the quality of walking and cycling networks within 800 metres of a development can influence accessibility on foot. **Figure 16-6** illustrates that several local bus stops are within the 800m walking distance, on Harbour Street, Market Street and Port Rodie. These stops offer access to all bus services operating within Stranraer. Further details regarding local bus services are included later within this section.

<sup>12</sup> South of Scotland Destination Alliance (SSDA) <https://scotlandstartshere.com/kirkpatrickc2c/>

**FAIRHURST**

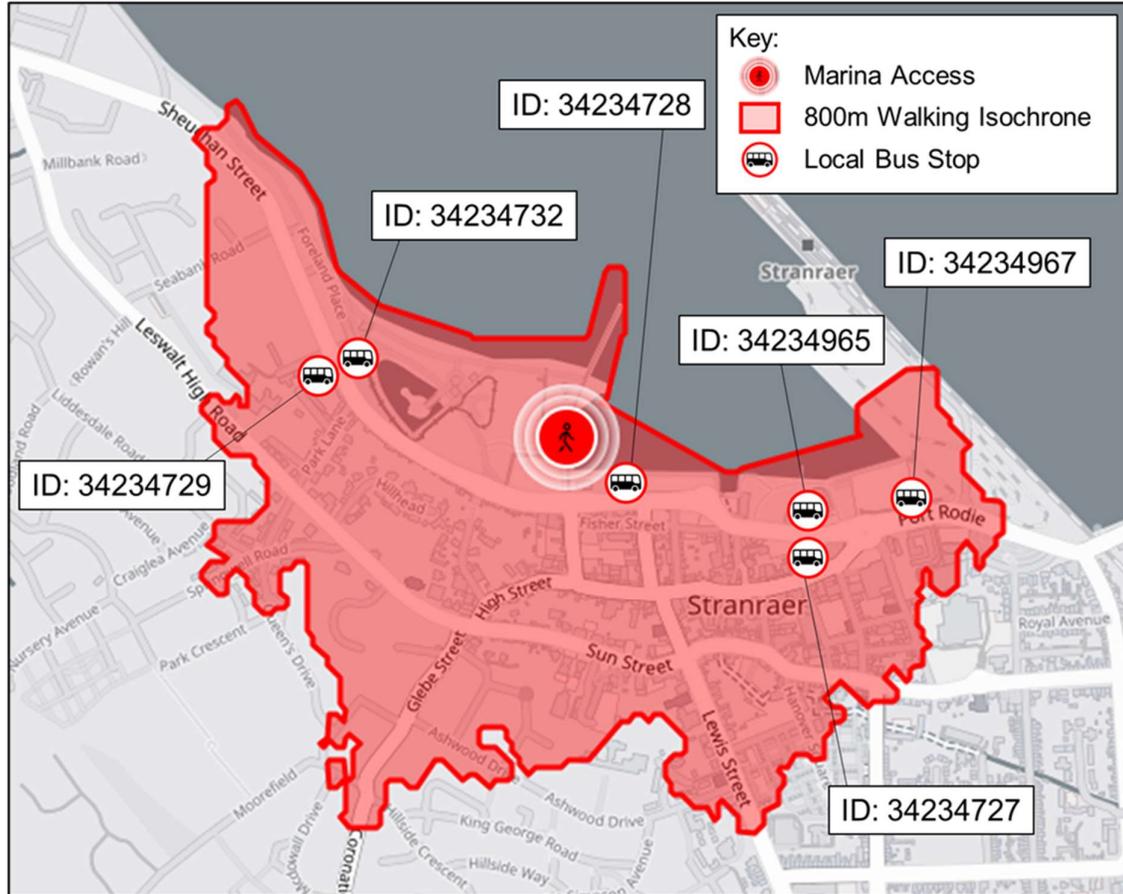


Figure 16-6: 800 metre Walking Isochrone (courtesy of TravelTime.com)

16.113 Stranraer Town Centre has several bus routes that connect the town to surrounding areas. The services vary in frequency depending on the route and the day of the week. **Table 16-14** presents a summary of the key routes and their frequencies.

Table 16-14: Stranraer Bus Timetable Summary

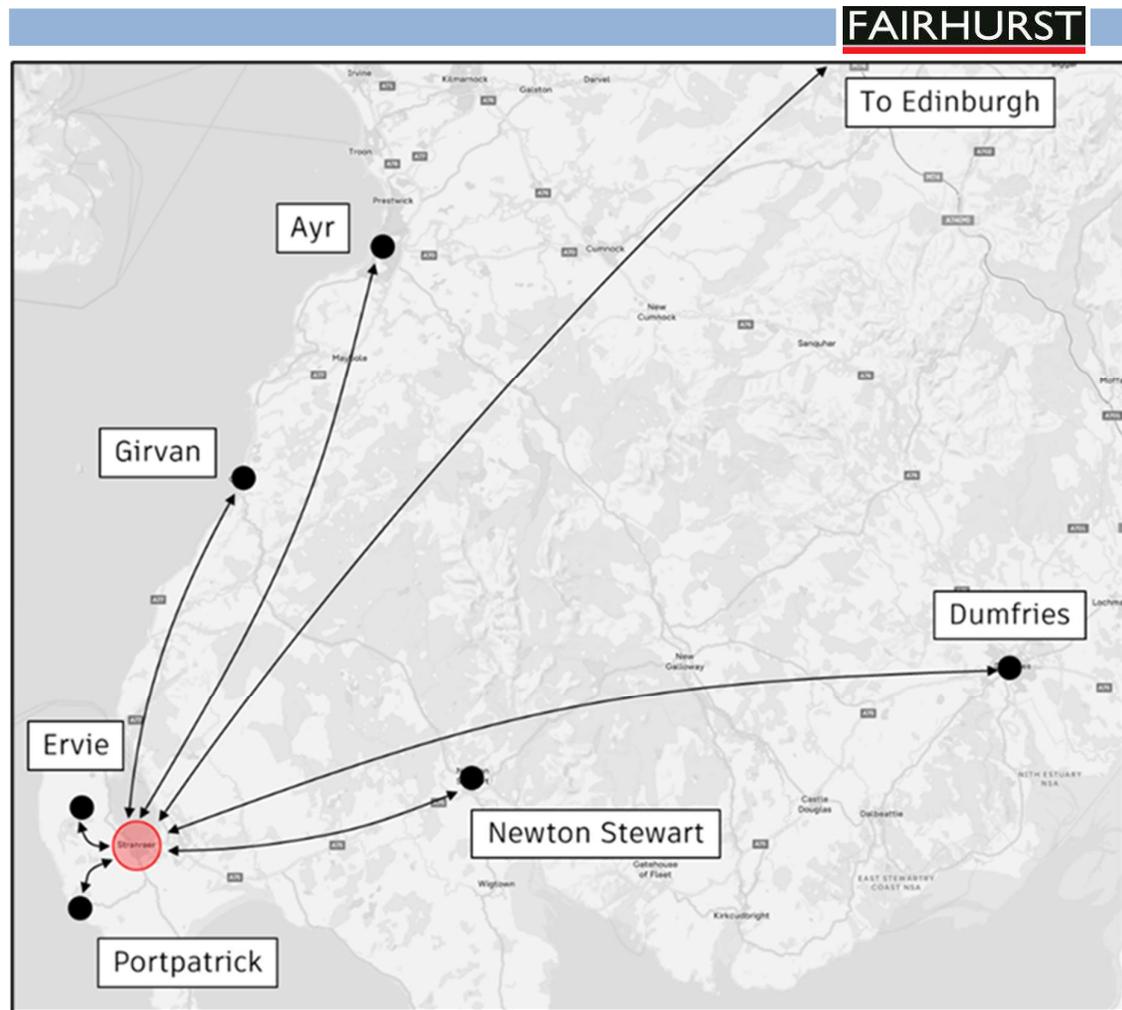
Service No.	Operator	Bus Route	Nearest Bus Stop	General Frequencies		
				Mon - Fri	Sat	Sun
358	Stagecoach	Ayr - Stranraer	Harbour St, Port Rodie	1 per day	2 per day	2 per day
360	Stagecoach	Ayr - Stranraer	Harbour St, Port Rodie	4 per day	5 per day	2 per day
365	Stagecoach	Stranraer Circular	Harbour St, Port Rodie	11 per day	11 per day	No Services

Service No.	Operator	Bus Route	Nearest Bus Stop	General Frequencies		
				Mon - Fri	Sat	Sun
408	Stagecoach	Stranraer - Kirkcolm	Port Rodie	4 per day	3 per day	No Services
412	Wigtonshire Community Transport	Stranraer - Ervie	Harbour St	2 per day	2 per day	No Services
416	Stagecoach	Stranraer - Newton Stewart	Harbour St, Port Rodie	3 per day	3 per day	No Services
500	Stagecoach	Dumfries - Stranraer	Harbour St, Port Rodie	7 per day	7 per day	4 per day
923	Scottish Citylink	Glasgow (Buchanan Bus Station) - Stranraer	Harbour St	4 per day	4 per day	4 per day

16.114 The most frequent bus service is the Stagecoach 365, which is a local bus that routes through the town on an hourly basis from Monday to Saturday. The bus can be accessed from Harbour Street and Port Rodie and connects to the east, west and south sides of the Stranraer. The service does not operate on a Sunday.

16.115 Further Stagecoach services 358 and 360 each operate bi-hourly buses to / from Ayr via the A77 from Monday to Saturday. There is a more limited service available on Sunday, with up to two daily services available. The Harbour Street and Port Rodie bus stops are the closest available to users of the Stranraer Marina.

16.116 Additional bus services are accessible from Harbour Street and Port Rodie which offer travel to locations such as Kirkcolm, Ervie, Newton Stewart and Edinburgh. Each route offers at least 2 daily services on Monday to Saturday. There are also Sunday services available to Edinburgh. **Figure 16-7** shows the range of destinations which are accessible from Stranraer.



**Figure 16-7: Bus Service Route Network**

16.117 Stranraer Railway Station is accessible within 1.2km walking distance from the marina and provides rail services using the Glasgow South Western Line. The station primarily offers connections to Glasgow Central, which is the terminus station on this line.

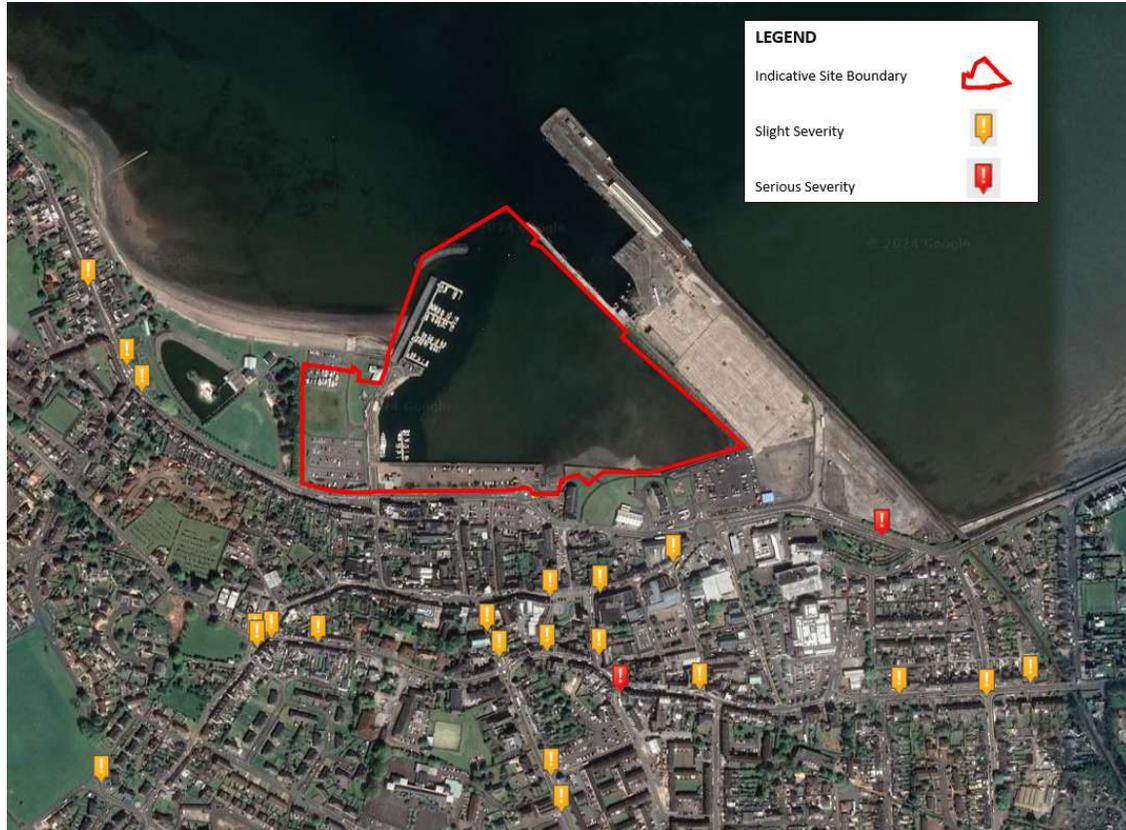
16.118 The service frequency is relatively low, with only a few trains per day, typically operating at intervals of around three to four hours. The journey between Stranraer and Glasgow Central takes approximately 2.5 to 3 hours. There are no direct services to other major cities, and passengers often need to change at Glasgow Central station, where further connections are available from Glasgow Queen Street station.

16.119 The available services at Stranraer Railway Station are generally geared towards regional travel rather than extensive national coverage.

### Road Safety

16.120 A review of reported road traffic accidents has been made for the most recent five-year period (2018 – 2022) for which data is available via the Crashmap website. **Figure 16-8** shows the

locations of recorded road collisions over that time period within the immediate vicinity of the site. The data does not include contributory factors.



*Figure 16-8: Local Road Accidents (via Crashmap Website)*

16.121 There are no incidents within the immediate vicinity of the site on Market Street, Agnew Crescent and Port Rodie. The conclusion is that there is no cause for concern relating to road safety in the vicinity of the proposed site.

16.122 Considering incidents further afield, the George Street and Charlotte Street corridor within the town centre has three reported 'slight' injury incidents.

16.123 The first of these incidents involved a single vehicle, resulting in minor injuries to two people. There were no external parties involved in the collision. The other two incidents were more concerning, as they each involved a vehicle colliding with a pedestrian, leading to slight injuries for the pedestrians involved.

16.124 A further 'serious' injury incident occurred on Cairnryan Road, to the south of the Stranraer Marina site, which is the direction that the majority of traffic is expected to route to / from. This incident involved a motorcyclist who sustained a serious injury as a result. The motorcyclist was travelling east to west, overturned and left the carriageway coming to rest on the nearside

footway. It was during daylight hours, the weather was fine without high winds, and the road surface dry and the attending police officer noted no special conditions. Based on the above information it is reasonable to consider driver error as a potential contributory factor.

- 16.125 The Road Safety Foundation (RFS) crash mapping results (2024), suggests that the A717 Market Street route, eastwards from Queen Street to Stair Drive represents a medium-high risk road for the 2020 to 2022 period, due to the serious incident detailed above. The associated collision density is low to medium. This is a change from a low collision risk for the 2017 to 2019 period.
- 16.126 RSF crash mapping shows the A717 Market Street west of Queen Street and the A718 Agnew Crescent as a medium risk road for collisions, but with a low density for the 2020 to 2022 period. This is the same as the previous period.

#### Do-nothing Baseline Conditions

- 16.127 In the 'do nothing' baseline, interim future and future baseline scenarios, it is assumed that no major transport infrastructure is implemented in the masterplan area. Within the study's geographical extent, traffic flows are 5,9876 vehicles two-way per day (including 414 HGVs) on Market Street, which increases through traffic growth of 2.37% to, 6,058 (including 421 HGVs) in the future baseline year. The corresponding daily flows on the harbour access road are 52 vehicles two-way (baseline) including 1 HGV rising to 53 including 1 HGV (future baseline).
- 16.128 The scale of traffic growth also suggests that environmental assessment of the area would not be required in the 'do nothing' scenarios when compared with the IEMA Rule 1 and 2.

#### Severance

- 16.129 With regard to severance, it is considered that there is a negligible magnitude of impact.
- 16.130 The Core Path is also considered to remain unchanged, and with no associated traffic there therefore no severance issues for these receptors in the future baselines.

#### Driver Delay

- 16.131 Baseline driver delay is observed to be low, traffic growth (+1.61%) is unlikely to change this for the future baseline.

#### Pedestrian Delay

- 16.132 In terms of pedestrian delay, the existing traffic flow on the Market Street receptor is an average of 490 vehicles per hour, equivalent to one vehicle every 7 seconds, this suggests that pedestrians crossing Market Street have sufficient gaps and therefore experience minor delay. On the harbour access road, average flows are 4 per hour, equivalent to one vehicle every 15 minutes, representing many chances for pedestrians to cross.
- 16.133 There is no pedestrian delay in relation to the Core Path receptor.
-

### Non-motorised User Amenity

16.134 Non-motorised user amenity for the do-nothing scenarios have been considered by entering the road environment typical characteristics into the demonstrator tool. The Star Rating for the Market Street receptor for pedestrians is 3.8, the cyclist score is 5.2 for the interim and future baselines. For the harbour access road, the corresponding Star Ratings are pedestrian, 3.6 and cyclist, 3.8.

### Fear & Intimidation.

16.135 In terms of fear and intimidation and in reference to Table 3.1 of the IEMA guidance for hazard scores, the existing situation for the Market Street receptor would score a total of 40 points (30 points for average 18-hour flow, 0 points for 18-hour HGV flow and 10 points for average vehicle speed). The level of fear and intimidation in reference to Table 3.2 of the IEMA guidance on Market Street is 'moderate'. The magnitude of impact due to traffic growth is 'low' for 'all' and 'HGV' traffic.

16.136 For the harbour access road receptor, fear and intimidation scores zero points (0 points for average 18-hour flow, 0 points for 18-hour HGV flow and 0 points for average vehicle speed). The level of fear and intimidation in reference to Table 3.2 of the IEMA guidance on the access road is 'small'. The magnitude of impact due to traffic growth is 'low' for due to all traffic and 'negligible' for HGV traffic.

16.137 The Core Paths are not trafficked and therefore, there is a 'small' level of fear and intimidation.

### Road Safety

16.138 The collision data shows a low – medium density and a medium – high risk on the A717 Market Street. There are no incidents recorded on the harbour access road, representing a low risk.

### Hazardous loads/large loads

16.139 There is no known significant existing hazardous or large loads, using the roads within the study scope.

## Impact Assessment

### *Embedded Mitigation*

- 16.140 The existing Marine Lake car park slipway access road is intended to support continued access to the Harbour area for existing users.
- 16.141 The existing shared use path that extends from Agnew Crescent, following a route around the east and north boundaries of the Marine Lake car park, to Agnew Park, will remain open. Pedestrian and cyclist priority will also be retained over the slipway access road.

### *Construction Phase (Temporary) Traffic & Movement Assessment*

- 16.142 The construction phase is predicted to require the restriction of traffic and non-motorised users from the site, likely in a phased basis. Access to the marina, harbour and SWSA function will be maintained, which will be arranged between the harbour master and contractor.
- 16.143 It is likely that the Core Paths STRA/544/1 and 2, will have works at various points at the same time during construction requiring a sequence of temporary diversions to be established to avoid conflict between pedestrians / cyclists and construction activities, that the contractor would agree with the planning authority. Pedestrian access from the public footway network into the marina, harbour and SWSA function will be maintained, which will be arranged between the harbour master and contractor.
- 16.144 The project requires refurbishment of the Breastworks Car Park, it is anticipated that this will be closed for a period of time. The impact would likely transfer the parking demand to surrounding car parks, which is the subject of the accompanying parking study report.
- 16.145 For the Market Street receptor, the increases in traffic are less than 30% for both all vehicles and HGVs and therefore no further consideration is required for this receptor.
- 16.146 The harbour access road would experience a high level of additional vehicles and does merit further assessment.

### *Construction Phase*

#### *Construction Phase (Temporary) Severance*

- 16.147 The harbour access road will remain open, therefore, the magnitude of impact due to severance on all users is **negligible**. The sensitivity of the receptor is **low**, resulting in the significance being **negligible**.
- 16.148 The Core Paths and Kirkpatrick C2C route that pass through the site are assumed to be closed during phases of construction work, and therefore, the magnitude of impact due to severance on NMUs on these routes is **high**. Short term diversion routes onto alternative existing NMU routes will be identified in the CTMP. The sensitivity of both receptors is low, resulting in the significance being **moderate**.
-

### Construction Phase (Temporary) Driver Delay

16.149 The volume of traffic used in this study results in an average of 1 vehicle every 4 to 5 minutes (based on an eight-hour day). This increase in traffic onto the harbour access road, which is predicted to have an average of one vehicle every 15-minutes represents a significant increase in traffic. However, the frequency of this additional traffic is low and unlikely to increase delay by any noticeable amount, the magnitude of impact is therefore **negligible**, the sensitivity is **low**, resulting in a significance of **negligible**.

### Construction Phase (Temporary) Pedestrian Delay

16.150 For the harbour access road, the increase of 200 two-way movements represents a 384% increase in traffic. However, as above, the frequency of vehicles results in the magnitude of impact on pedestrian delay also considered to be **negligible**. The sensitivity of the receptor is **low**, therefore, the significance of the impact is **negligible**.

### Construction Phase (Temporary) Non-motorised User Amenity

16.151 Including the construction traffic, the harbour access road Star Ratings do not change, therefore, the magnitude of impact on NMU amenity is **negligible**. The sensitivity of the receptor is **low**, resulting in the significance of impact on NMU amenity being **negligible**. Whilst not affected by traffic, the Core Paths are expected to be closed during construction, affecting NMU amenity. The magnitude of impact is **high**, the sensitivity of the receptor is **low**, resulting in the significance being **moderate**.

### Construction Phase (Temporary) Fear and Intimidation

16.152 The change in traffic due to construction activities results in no change to the hazard scores (IEMA guidance Table 3.1) on the harbour access road receptor, therefore the levels (IEMA guidance Table 3.2) of fear and intimidation remain 'small'. The increase in traffic due to construction activities does represent a step change and the corresponding magnitude of impact (IEMA guidance Table 3.3) is **low**. The receptor sensitivity is **low**, resulting in a significance of effect being **negligible/ slight**.

### Construction Phase (Temporary) Road Safety

16.153 The collision data shows no incidents on the harbour access road, which is the assumed route for construction vehicles and therefore a low risk. It is considered that the volume of construction vehicles is unlikely to affect this rating and therefore the magnitude of impact is **low**. The sensitivity of the receptor is low; therefore, the significance of impact is **negligible/ slight**.

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### Construction Phase (Temporary) Road Safety Audits

16.154 The standard and prescribed Road Safety Audits (GG 119 – Road Safety Audit DMRB) should be used to review the road safety attributes of any proposed engineering changes in the adopted highway prior to submission.

### Construction Phase (Temporary) Hazardous / Large loads

16.155 It is currently unknown whether there will be hazardous or large loads. It is considered that a CTMP would be prepared by the contractor that would clearly outline the estimated number and composition of such loads. Where the number of movements is considered to be significant, the assessment should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event.

### Summary of Construction Phase (Temporary) Effects

16.156 The significant effects of the construction phase of the development are summarised in **Table 16-15**.

**Table 16-15: Summary of Construction Phase (Temporary) Effects**

Effect	Receptor	Sensitivity	Significance	Nature	Duration
Severance	Core Paths	Low	Moderate	Adverse	Short Term
NMU Amenity	Core Paths	Low	Moderate	Adverse	Short Term
Fear & Intimidation	Harbour access road	Low	Negligible / Slight	Adverse	Short Term

### Operational Phase (Permanent) Traffic & Movement Assessment

16.157 The increase in traffic on the Market Street and harbour access road receptors is predicted to be 5.33% and 0.00%, respectively. In accordance with IEMA Rules 1 and 2, no further assessment is required.

16.158 The completed development will return the Core Paths STRA/544/1 and 2 to their original route and provide local improvements. This results in no further assessment being required.

16.159 It is therefore concluded that the operational phase has no significant traffic and movement effects. No mitigation is required.

## Mitigation, Monitoring and Residual Effects

### *Mitigation/ Monitoring*

#### Mitigation During Construction

- 16.160 The construction stage will be managed by the appointed Principal Contractor, who will through the development and implementation of a CTMP reduce construction traffic impacts. The CTMP will ensure movement of HGV construction traffic will not occur during the opening, closing and lunchtime periods associated with the stated 'high' sensitive receptor Primary Schools accessed via the A77 and A717.
- 16.161 The CTMP will be agreed with the D&GC prior to the commencement of construction and would consider subjects such as the following:
- Daily and weekly working hours;
  - Agreed haul routes for incoming materials;
  - Licensed hauliers to be used;
  - Disposal sites, if necessary;
  - Travel arrangements for construction personnel;
  - Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
  - Temporary construction entrances to be provided;
  - Wheel wash facilities if required;
  - Road cleaning and sweeping measures to be put in place if required;
  - Temporary construction signage to be put in place and maintained; and
  - Any proposed traffic management measures such as temporary traffic lights and signage on any public roads.
- 16.162 The Construction Programme in conjunction with the CTMP will specifically consider impacts associated with the occupation/closure of required sections of the Coastal Path facilitate construction activities within the site. Specific mitigation measures will be agreed with D&GC and may include:
- The ideal solution for the Core Paths would be to provide a protected route through the construction area, although this would require crossing points to allow for construction activities and vehicles. Physical space is unlikely to be available, particularly to accommodate shared pedestrian / cyclist use along the harbour wall; or,
  - The more likely mitigation approach would be for the Core Paths to be closed during the construction phase and an appropriate temporary diversion route with suitable signage be established through agreement with the planning authority and in discussion with Boat Yard, SWSA and harbour master.
-

- Measures are required to support the continued pedestrian access to the boat yard, SWSA and harbour master facility, likely fenced routes from the Marine Lake Car Park. The solutions should be detailed in the Construction Environmental Management Plan (CEMP) and CTMP.

16.163 If the Core Paths are closed, it is suggested that the temporary diversion route makes use of the Market Street footways for pedestrians, which are considered adequate provision to support the transfer trips. Transferred cyclists from the Core Paths would have to join the road traffic, which is not ideal when the level of construction traffic and larger vehicles are likely to increase. This may lead to a temporary reduction in the number of cyclists during the construction phase.

16.164 To the west of the site, pedestrians can either use the existing footways on Agnew Crescent, leading to Foreland Place to reconnect with the Core Path. Alternatively, access could be provided through Agnew Park.

### Mitigation During Operation

16.165 The majority of traffic flow increases can be minimised within Stranraer by encouraging trips by sustainable means such as walking, cycling and public transport.

16.166 Existing bus and rail services are accessible from Market Street / Harbour Street / Port Rodie and at Stranraer Railway Station, respectively. The local bus stops are located within 800 metre walking distance from the site, whilst rail services can be accessed within approximately 1.2km walking distance from the Marina Access.

16.167 A site-specific Employee Travel Plan will be implemented at the site which sets out a series of measures to facilitate and encourage a positive modal shift towards more sustainable modes of transport. These measures will be refined based on travel surveys conducted at the occupied development.

16.168 It is therefore concluded that despite increases in traffic flows, the proposals will have an overall beneficial effect on sustainable travel and the choice of travel options in Stranraer.

### Residual Effects

16.169 The construction phase will result in temporary closure of the Core Paths STRA/544/1 and 2, causing severance for non-motorised users (NMUs) who rely on these paths for access. To mitigate this impact, temporary diversion routes will be established. Pedestrians will be directed to use the existing footways on Market Street, which are adequate to support the increased foot traffic. Cyclists will be directed to join the road traffic on Market Street, although this is not ideal due to the increased construction traffic. It is noted that the Kirkpatrick C2C route uses Market Street. Assuming the diverted Core Path proposals are included, the route distance would be shorter than the existing Core Paths, so no additional delays would be expected.

16.170 The diversion routes are expected to be effective in maintaining access for NMUs. The footways on Market Street are wide enough to accommodate the additional pedestrian traffic, and the

road is capable of handling the increased number of cyclists. The NMU amenity of Market Street for both pedestrians and cyclists is adequate.

16.171 While the diversion routes will mitigate the impact, there may still be a temporary reduction in the number of cyclists due to the less ideal conditions. However, this residual impact is considered to be minor and short-term, as the primary access routes will be restored once construction is complete. With regard to fear and intimidation, the existing level is 'moderate' but this is not affected by the construction phase traffic. Therefore, the magnitude would be **low**, resulting in a significance for the Market Street receptor being **negligible / slight**.

16.172 Routing Boat Yard / SWSA / harbour master bound pedestrians and cyclists via the shared use path (part of the Kirkpatrick C2C route) in the Marine Lake Car Park would mitigate the fear and intimidation impact on the harbour access road receptor for NMUs. The sensitivity of the alternative access is **low**, the magnitude of impact would be **negligible**, resulting in the significance of effect being **negligible**.

**Table 16-16: Summary of Construction Phase (Temporary) Residual Effects**

Effect	Receptor	Sensitivity	Original Significance	Mitigation	Residual Significance
<b>Severance</b>	Core Paths	Low	Moderate	Alternative route to be established via Market for affected parties	Moderate
<b>NMU Amenity</b>	Core Paths	Low	Moderate		Moderate
<b>Fear &amp; Intimidation</b>	Harbour access road	Low	Negligible / Slight	Protected route from Marine Lake Car Park	Negligible
	Market Street	Low	Negligible / Slight	Transferred Core Path NMUs	Negligible / Slight

16.173 The residual effects arising from the construction phase of the proposed development are considered to be adverse **moderate, short term**.

**Cumulative Effects**

16.174 This section assesses the likely significant effects of the proposed development on the topic/key receptors when considered in the context of other reasonably foreseeable future projects within close proximity.

### *Planning Applications*

16.175 The local authority advised that the nearby consented developments and marine licence proposals to be taken into consideration, are as follows:

- Mid Moile Wind Farm – 22/0394/S36
- 4No. EV spaces Port Rodie Car Park (west) – 23/0739/CLP
- SWSA expansion – 23/0970/FUL
- Boat yard improvements – 23/0976/FUL
- Change of use to lorry park, Port Rodie – 24/1407/FUL
- Formation of Coastal Habitat for Seabirds, Corsewall Estate – 24/1534/FUL
- 10m high streetworks column and associated equipment - 25/0778/FUL
- Maintenance dredging between East and Ross Piers - 00008983
- Deposit of Oyster Shells Loch Ryan - 07059
- Capital Dredging and Sea Disposal - Loch Ryan Port - 00009930

16.176 Furthermore, those also awaiting determination, are as follows:

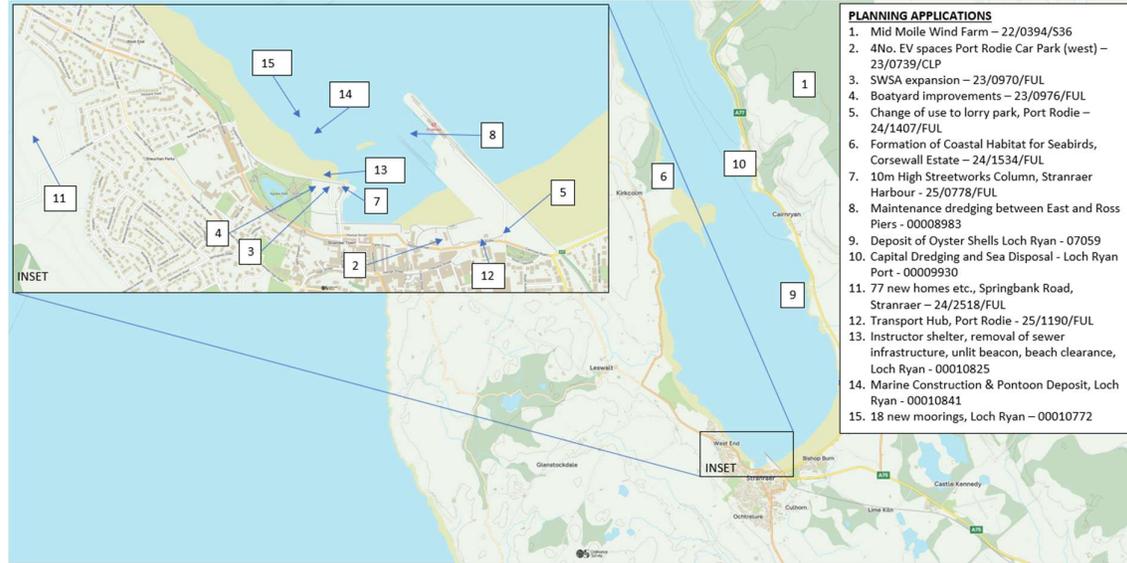
- 77 new homes etc., Springbank Road, Stranraer – 24/2518/FUL
- Transport Hub, Port Rodie - 25/1190/FUL
- Instructor shelter, removal of sewer infrastructure, unlit beacon, beach clearance, Loch Ryan - 00010825
- Marine Construction & Pontoon Deposit, Loch Ryan - 00010841
- 18 new moorings, Loch Ryan – 00010772

16.177 None of the planning applications include a construction traffic management plan on the authority's planning portal, some other associated consultation documents have some indication of the works and these have been used to inform the construction traffic estimates. Where no documentation exists, assumptions have been made.

16.178 Only the Springbank Road application includes a publicly available Transport Assessment, where a planning application development is considered to have an operational impact, TRICS has been used to estimate the generated traffic.

16.179 The approximate locations for each of the above proposals is shown in Figure 16-8.

**Figure 16-9 – Approximate Locations of Planning Applications Considered**



### Construction Phases

#### Mid Moile Wind Farm

16.180 The wind farm application contains D&GC Roads correspondence dated 25th Aug 2023 that notes 1,510 HGV movements (assumed two-way) peak in the fourth month of construction. This figure would represent between 9 and 10 two-way movements per hour, but the origin of these trips is unknown. However, the location of the wind farm suggest that the routing would be A75 / A751 / A77, therefore, it is considered that there is no impact in study scope.

#### EV Spaces Port Rodie Car Park

16.181 This site is located in a satellite section of the Port Rodie Car Park, at the bus garage, with access onto Port Rodie. The proposals are for 4No. electrical vehicle charging spaces. It is considered that the installation would be undertaken in weeks and require only a handful of construction vehicles, therefore, it is considered that there is no impact in study scope.

#### Stranraer Water Sports Association Centre & Boat Yard

16.182 The water sports centre, is promoted by the Stranraer Water Sports Association (SWSA), and includes a new centre and additional parking area. The Boat yard application includes erection of boat shelter and an extension of the yard including formation of hardstanding area. It also includes formation of an instructor platform, equipment lay down area, open air showers, stepped access to the beach and erection of instructor shelter, which is assumed to also support the SWSA. Associated with the project is a redevelopment of the Marine Lake Car Park, the plans result in circa 99 standard car and 4 electric vehicle parking spaces would be removed to accommodate 15No. 'motorhome' stances and manoeuvring.

16.183 As discussed, these projects share the same assumed construction route as the proposed development and will likely require a conjoined traffic management plan. On that basis it is considered that 48 two-way construction traffic movements (light and heavy delivery vehicles), will be used within the cumulative impact assessment for this project.

#### Change of use to lorry park, Port Rodie

16.184 This application details the reuse of an assumed marshalling area associated with the former ferry port. A new 2.4m high palisade fence encompassing the site, a new gate and portable cabin are proposed. The scale of the works appears to be limited and would likely last a few months with minimal construction traffic movements, therefore, it is considered that there is no impact in study scope.

#### Formation of Coastal Habitat for Seabirds, Corsewall Estate

16.185 The proposal is for the development of a coastal habitat for seabirds including the creation of an inland pool with islands, engineering works to include water inlets and an outlet (from and into Loch Ryan), provision of construction and maintenance access route including an upgraded bridge crossing of Corsewall Burn, and landscaping works including planting and earth raising.

16.186 Based on the design and access statement (dated June 2024), it is assumed that the majority of materials will be borrowed from the site. Although a predator proof fence enclosing the pools, a replacement bridge and landscaping for the nesting islands would require import of some materials. Additionally, any contaminated soil from the woodland area might need to be treated or removed off-site, which could involve importing clean soil or other materials for replacement.

16.187 The 3m wide construction and maintenance access road, based on the sketches is approximately 500m long. This is also anticipated to require import of materials.

16.188 It is likely that vehicles would use the A717 Market Street to gain access to the Corsewall Estate site.

16.189 Without any volumes of materials, method statements or construction details, it is a challenge to estimate construction traffic for this project. If one-hundred light and heavy delivery vehicles were used over a 10-month period this would amount to an average of 0.5 trips per day. It is therefore assumed that this project would have no construction phase impact on the proposed development study area.

#### 10m High Streetworks Column and Associated Equipment

16.190 The proposal is part of the Borderlands Partnership helping develop economic growth across the South of Scotland and North of England and seeks to provide a private 5G/Wifi network within an area where no existing coverage is available. The proposed site is located within a small grass verge to the north of the Harbour Office, within Stranraer Harbour, off Market Street/ Agnew Crescent to the north of Stranraer town centre at the southern edge of Loch Ryan.

16.191 It is assumed that relatively little construction traffic will be associated with the installation. The access is assumed to be via the harbour access road. Therefore, coordination between contractors will be required.

#### Maintenance dredging between East and Ross Piers

16.192 This proposal includes use of a plough dredger to move material from the dredging area in to the deep void situated off the old Stena Line terminal between the East Pier and Ross Pier. Water injection will be used to liquefy and move any material under the marina pontoons which are inaccessible to the plough dredger. It is assumed that the entire operation will be undertaken by water vessel and therefore, it is considered that there is no impact in study scope.

#### Deposit of Oyster Shells Loch Ryan

16.193 It is understood that 88 tonnes of shells will be deposited into Loch Ryan. The licence expired on 31<sup>st</sup> July 2024, however, if the applicant transported by land this would require 2 or 3 tipper trucks to complete the proposed operation, which is considered to be negligible and would not impact on the study scope.

#### Capital Dredging and Sea Disposal - Loch Ryan Port

16.194 The marine licence suggests that specific water vessels are used in this project, and therefore, it is considered that there is no impact in study scope.

#### Springbank Road, Stranraer, 77No. New Homes etc.

16.195 This project would likely result in use of the A717 Market Street for construction traffic. It is assumed that a build-rate of 15 units per year and 10 two-way heavy delivery vehicle trips per unit is appropriate. That would result in an average of less than 1 two-way vehicle trip per day. It is therefore assumed that this project would have no construction phase impact on the Proposed development study area.

#### Transport Hub, Port Rodie

16.196 This project provides a new building hosting a bus passenger waiting area, toilets, storage lockers, secure bike parking, electric bicycle charging. It is located in an area that is currently used for car parking, which has been estimated to have the capacity to accommodate 16 cars. The proposals remove the existing car parking, but replace these with 6No. electric vehicle charging spaces and 2No. car club parking spaces.

16.197 It is assumed that construction traffic will likely access the site to/from the east and not interact with the proposed development's scope of study. However, it is assumed that the existing parking demand will be displaced to the main Port Rodie car park.

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**Loch Ryan Works**

16.198 The marine licence applications awaiting determination include the installation of an instructor shelter, removal of sewer infrastructure and unlit beacon, beach clearance, marine construction, pontoon deposit and 18 new moorings. These works are associated with the SWSA project and will be undertaken on the water. However, the allowance for SWSA construction traffic would include any land-based clearance within these applications.

16.199 The total planning application construction vehicle trips in **Table 16-16**, are considered in the cumulative impact.

**Table 16-16: Cumulative Construction Phase (Temporary) Forecast Traffic Flows**

Scenario	Location	Baseline		Cumulative Construction Traffic		Total Forecast		Percentage Change	
		All Traffic	HGV	All Traffic	HGV	All Traffic	HGV	All Traffic	HGV
2026	Market Street	5,946	419	248	124	6,194	543	4.18%	29.60%
	Harbour access road	52	1	248	124	300	125	476.92%	12203.52%

16.200 The cumulative impact construction traffic impact is very similar to that of the proposed development. In accordance with IEMA guidance, the increase in traffic on the Market Street receptor is lower than 30% for both all vehicles and HGVs, therefore, no further assessment is required for this receptor.

16.201 The increase in traffic on the harbour access road, during construction, is significant and does merit further consideration.

16.202 The SWSA / Boat Yard projects would result in the existing demand reducing to zero. However, restrictions to the Marine Lake, would displace parking (see separate report) and is also assumed to sever pedestrian access to the slipway and boat yard. In this cumulative assessment, this would require the contractor to plan for pedestrian access to the harbour master building which is remaining open.

**Operational Phases**

16.203 All of the marine licence works have no operational aspects following their completion.

### Mid Moile Wind Farm

16.204 Once constructed, this installation will only require monthly maintenance trips using the A75 / A751 / A77 route, and therefore, will not have an operational phase impact on the proposed development's study area.

### EV Spaces Port Rodie Car Park

16.205 This project reduces the satellite car park by four spaces, with the demand assumed to transfer to the main Port Rodie Car Park. The scale and location result in no operational phase impact on the proposed development's study area.

### Stranraer Water Sports Association Centre & Boat Yard

16.206 The Boat yard project is not expected to lead to noticeable increases in average daily operational traffic.

16.207 The water sports centre, promoted by the Stranraer Water Sports Association (SWSA), lacks a traffic impact assessment in the planning portal. As there is no survey data for this type of development, the closest comparable land use in the TRICS online database is a Leisure Centre.

16.208 A summary of the predicted traffic flows associated with the SWSA development is shown in **Table 16-17**. The weekday traffic generation will be taken forward to consider the cumulative impact.

**Table 16-17: Committed SWSA Estimated Daily Vehicle Trips**

SWSA Daily Traffic Flows	Weekday			Weekend		
	In	Out	Total	In	Out	Total
Vehicle Trip Rate per 100sqm	19.493	19.468	38.961	10.242	10.100	20.342
Vehicle Trips	111	111	222	58	57	115

16.209 The SWSA site plan indicates twelve parking spaces (including six accessible spaces) on the slipway access road. Standard spaces are for drop-off parking, resulting in vehicles returning to one of the car parks.

16.210 The SWSA works require the relocation of the Boat yard, which will be retained for marina operations. There are two access routes to the Boat yard: via the harbour access road (gated) or through the Marine Lake car park (unrestricted). The primary access to the SWSA is through the Marine Lake car park, with most users parking at the Marine Lake or Breastworks car park. The harbour access road has a controlled barrier, restricting its daily use.

### Change of use to lorry park, Port Rodie

16.211 Once constructed this facility provides benefits to local businesses, secure parking for the haulage industry, and improvement of a derelict area. The consent suggests there are no concerns regarding traffic, with the proposed parking strategy considered sufficient, with adequate staff and driver parking available on-site.

16.212 The proposed lorry park has been assessed based on a set of operational assumptions regarding staff movements, vehicle types, and parking provision. The following outlines the key assumptions and resulting trip generation estimates:

#### Staff and Vehicle Movements

- Management personnel are assumed to arrive and depart in private cars, generating 4 trips per day per person (arrival and departure for work, plus a lunchtime trip).
- Staff members arrive in private cars, generating 2 trips per day (one arrival and one departure). Upon arrival, staff collect a tractor unit and container for onward transit.
- Upon return, staff arrive in lorries and subsequently depart in private cars, generating 1 lorry arrival and 1 car departure per staff member.
- Each staff member's trip is assumed to span a 24-hour period, ensuring a consistent daily turnover.

#### Parking Provision

- Container Spaces: 20
- Management Staff Parking: 3 (located closest to the portacabin)
- General Staff Parking: 10 (remainder of provision)
- Tractor Unit / Driver Parking: 40

#### Trip Distribution and Directionality

- All lorry movements are assumed to be to/from the east.
- Staff car trips are distributed in accordance with the Market Street ATC survey, ensuring alignment with observed traffic patterns.

**Table 16-18: Lorry Park Predicted Daily Trip Generation**

Vehicle Type	Total Daily Trips
Cars	32
Lorries	40

**Table 16-19: Lorry Park Impact on Market Street**

Vehicle Type	Total Daily Trips
Cars	14

Vehicle Type	Total Daily Trips
Lorries	0

#### Formation of Coastal Habitat for Seabirds, Corsewall Estate

16.213 The operational phase of this proposal will likely include maintenance, upkeep and monitoring / access to the bird hides. However, there are no parking spaces included so it is assumed that no public access, with the exception of viewing from the coastal path. Therefore, it is assumed that there is no cumulative impact associated with this potential development.

#### 10m High Streetworks Column and Associated Equipment

16.214 The operational phase is assumed to require only occasional maintenance and therefore has no impact within the cumulative assessment.

#### Springbank Road, Stranraer, 77No. New Homes etc.

16.215 The application includes a Transport Assessment (TA) with TRICS data estimating the daily demand. The TA suggests that 57% of generated traffic would use the A717 Market Street, resulting in 202 two-way daily trips impacting the proposed development.

16.216 The total baseline vehicle trips in **Table 16-17**, are considered in the cumulative impact.

**Table 16-20: Cumulative Assessment Operational Phase (Permanent) Forecast Traffic Flows (All Vehicles)**

Scenario	Location	Base		Proposed + Foreseeable Development		Total Forecast		Percentage Change	
		All Traffic	HGV	All Traffic	HGV	All Traffic	HGV	All Traffic	HGV
2028	Market Street	5,971	421	438	0	6,409	421	7.34%	0.00%
	Harbour Access Road	53	1	0	0	53	1	0.00%	0.00%

16.217 In accordance with IEMA guidance, the increase in traffic on both the Market Street and Harbour access road receptors are lower than 30% for both all vehicles and HGVs, therefore, no further assessment is required for the cumulative impact operational phase.

#### Transport Hub, Port Rodie

16.218 Transport hubs allow people who are walking, wheeling or cycling to connect to rail, tram and, for this location in particular, bus services. They can also provide shared mobility schemes and form part of a park and ride site. It is considered that no new trips would be generated within

the scope of the proposed development. Also, the anticipated users would be catered for by the proposed facilities, there will be no further impact on the Port Rodie car park.

### *Cumulative Construction Phase*

#### *Cumulative Construction Phase (Temporary) Severance*

16.219 The harbour access road will remain open, therefore, the magnitude of impact due to severance on all users is **negligible**. The sensitivity of the receptor is **low**, resulting in the significance being **negligible**.

16.220 The Core Paths are assumed to be closed, therefore, the magnitude of impact due to severance on NMUs is **high**. The sensitivity of both receptors is low, resulting in the significance being **moderate**.

#### *Cumulative Construction Phase (Temporary) Driver Delay*

16.221 The volume of traffic used in this study results in an average of 1 vehicle every 30 seconds (based on an eight-hour day). This increase in traffic onto the harbour access road, which is predicted to have an existing average of one vehicle every 15-minutes represents a significant increase in traffic. However, the frequency of this additional traffic is low and unlikely to increase delay by any noticeable amount, the magnitude of impact is therefore **negligible**, the sensitivity is **low**, resulting in a significance of **negligible**.

#### *Cumulative Construction Phase (Temporary) Pedestrian Delay*

16.222 For the harbour access road, the increase of 248 two-way movements represents a 477% increase in traffic. However, as above, the frequency of vehicles results in the magnitude of impact on pedestrian delay also considered to be **negligible**. The sensitivity of the receptor is **low**, therefore, the significance of the impact is **negligible**.

#### *Cumulative Construction Phase (Temporary) Non-motorised User Amenity*

16.223 Including the construction traffic, the harbour access road Star Ratings do not change, therefore, the magnitude of impact on NMU amenity is **negligible**. The sensitivity of the receptor is **low**, resulting in the significance of impact on NMU amenity being **negligible**. Whilst not affected by traffic, the Core Paths are expected to be closed during construction, affecting NMU amenity. The magnitude of impact is **high**, the sensitivity of the receptor is **low**, resulting in the significance being **moderate**.

#### *Cumulative Construction Phase (Temporary) Fear and Intimidation*

16.224 The change in traffic due to construction activities results in no change to the hazard scores (IEMA guidance Table 3.1) on the harbour access road receptor, therefore the levels (IEMA guidance Table 3.2) of fear and intimidation remain 'small'. The increase in traffic due to

construction activities does represent a step change and the corresponding magnitude of impact (IEMA guidance Table 3.3) is **low**. The receptor sensitivity is **low**, resulting in a significance of effect being **negligible/ slight**.

**Cumulative Construction Phase (Temporary) Road Safety**

16.225 The collision data shows no incidents on the harbour access road, which is the assumed route for construction vehicles and therefore a low risk. It is considered that the volume of construction vehicles is unlikely to affect this rating and therefore the magnitude of impact is **low**. The sensitivity of the receptor is **low**; therefore, the significance of impact is **negligible/ slight**.

**Cumulative Construction Phase (Temporary) Road Safety Audits**

16.226 The standard and prescribed Road Safety Audits (GG 119 – Road Safety Audit DMRB) should be used to review the road safety attributes of any proposed engineering changes in the adopted highway prior to submission.

**Cumulative Construction Phase (Temporary) Hazardous / Large loads**

16.227 It is currently unknown whether there will be hazardous or large loads. It is considered that a Construction Traffic Management Plan be prepared by the contractor that clearly outline the estimated number and composition of such loads. Where the number of movements is considered to be significant, the assessment should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event.

**Summary of Effects for the Cumulative Construction Phase (Temporary)**

16.228 The effects of the construction phase of the development are summarised in **Table 16.18**.

**Table 16-14: Summary of Cumulative Construction Phase (Temporary) Effects**

Effect	Receptor	Sensitivity	Significance	Nature	Duration
<b>Severance</b>	Core Paths	Low	Moderate	Adverse	Short Term
<b>NMU Amenity</b>	Core Paths	Low	Moderate	Adverse	Short Term
<b>Fear &amp; Intimidation</b>	Harbour access road	Low	Negligible / Slight	Adverse	Short Term

**Cumulative Operational Phase (Permanent) Traffic & Movement Assessment**

16.229 The increase in traffic on the Market Street and harbour access road receptors is predicted to be 7% and 0%. In accordance with IEMA Rules 1 and 2, no further assessment is required.

- 16.230 The completed development will return the Core Paths STRA/544/1 and 2 to their original route and provide local improvements. This results in no further assessment being required.
- 16.231 It is therefore concluded that the operational phase has no significant traffic and movement effects. No mitigation is required.

## Cumulative Mitigation, Monitoring and Residual Effects

### *Mitigation/ Monitoring*

#### Mitigation During Construction

- 16.232 The construction stage will be managed by the appointed Principal Contractor, who will through the development and implementation of a Construction Traffic Management Plan reduce construction traffic impacts. The Construction Traffic Management Plan will ensure movement of HGV construction traffic will not occur during the opening, closing and lunchtime periods associated with Primary Schools accessed via the A77 and A717.
- 16.233 The Construction Traffic Management plan will be agreed with the D&GC prior to the commencement of construction and will ultimately include details on the following:
- Daily and weekly working hours;
  - Agreed haul routes for incoming materials;
  - Licensed hauliers to be used;
  - Disposal sites, if necessary;
  - Travel arrangements for construction personnel;
  - Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
  - Temporary construction entrances to be provided;
  - Wheel wash facilities if required;
  - Road cleaning and sweeping measures to be put in place if required;
  - Temporary construction signage to be put in place and maintained; and
  - Any proposed traffic management measures such as temporary traffic lights and signage on any public roads.
- 16.234 The Construction Programme in conjunction with the Construction Traffic Management Plan will specifically consider impacts associated with the occupation/closure of required sections of the Coastal Path facilitate construction activities within the site. Specific mitigation measures will be agreed with D&GC and may include:
- The ideal solution for the Core Paths would be to provide a protected route through the construction area, although this would require crossing points to allow for construction activities and vehicles. Physical space is unlikely to be available,
-

particularly to accommodate shared pedestrian / cyclist use along the harbour wall;  
or,

- The more likely mitigation approach would be for the Core Paths to be closed during the construction phase and an appropriate temporary diversion route with suitable signage be established through agreement with the planning authority and in discussion with DGC Harbours Service, DGC Environment Team (re. core paths), DGC Roads (re. TTRO for closures and diversions), SWSA and harbour master.
- Measures are required to support the continued pedestrian access to the harbour master facility, likely fenced routes from the Marine Lake Car Park, although interaction with the HM Coastguard / SCAMPP building construction would have to be carefully considered. The solutions should be detailed in the Construction Environmental Management Plan (CEMP) and CTMP.

16.235 If the Core Paths are closed, it is suggested that the temporary diversion route makes use of the Market Street footways for pedestrians, which are considered adequate provision to support the transfer trips. Transferred cyclists from the Core Paths would have to join the road traffic, which is not ideal when the level of construction traffic and larger vehicles are likely to increase. This may lead to a temporary reduction in the number of cyclists during the construction phase.

16.236 To the west of the site, pedestrians can either use the existing footways on Agnew Crescent, leading to Foreland Place to reconnect with the Core Path. Alternatively, access could be provided through Agnew Park.

### **Mitigation During Operation**

16.237 Traffic flow increases could be minimised within Stranraer by encouraging trips by sustainable means such as walking, cycling and public transport.

16.238 Existing bus and rail services are accessible from Market Street / Harbour Street / Port Rodie and at Stranraer Railway Station, respectively. The local bus stops are located within 800 metre walking distance from the site, whilst rail services can be accessed within approximately 1.2km walking distance from the Marina Access.

16.239 A site-specific Employee Travel Plan will be implemented at the site which sets out a series of measures to facilitate and encourage a positive modal shift towards more sustainable modes of transport. These measures will be refined based on travel surveys conducted at the occupied development.

16.240 It is therefore concluded that despite increases in traffic flows, the proposals will have an overall beneficial effect on sustainable travel and the choice of travel options in Stranraer.

### **Cumulative Residual Effects**

16.241 During the construction phase, assuming the diverted Core Path proposals are included, the route would be shorter than the Core Paths, so no additional delays would be expected.

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16.242 The NMU amenity of Market Street for both pedestrians and cyclists is adequate. With regard to fear and intimidation, the existing level is ‘moderate’ but this is not affected by the construction phase traffic. Therefore, the magnitude would be **low**, resulting in a significance for the Market Street receptor being **negligible / slight**.

16.243 Routing Boat Yard / SWSA / harbour master bound pedestrians and cyclists via the shared use path in the Marine Lake Car Park would mitigate the fear and intimidation impact on the harbour access road receptor for NMUs. The sensitivity of the alternative access is **low**, the magnitude of impact would be **negligible**, resulting in the significance of effect being **negligible**.

**Table 16-15: Summary of Cumulative Construction Phase (Temporary) Residual Effects**

Effect	Receptor	Sensitivity	Original Significance	Mitigation	Residual Significance
<b>Severance</b>	Core Paths	Low	Moderate	Alternative route to be established via Market Street for affected parties	Moderate
<b>NMU Amenity</b>	Core Paths	Low	Moderate		Moderate
<b>Fear &amp; Intimidation</b>	Harbour access road	Low	Negligible / Slight	Protected route from Marine Lake Car Park	Negligible
	Market Street	Low	Negligible / Slight	Transferred Core Path NMUs	Negligible / Slight

16.244 The residual effects arising from the construction phase of the proposed development are considered to be adverse **moderate**.

### Summary and Conclusions

16.245 This Chapter assesses the likely significant traffic and transport effects resulting from the proposed development. Assessments have been undertaken using current guidance documents, best practice and professional judgement, assessing existing and future baseline conditions through industry-standard methods.

16.246 This Chapter has considered the impacts of the proposed development on its own as well as undertaking a cumulative assessment in conjunction with wider committed developments and other emerging developments. Traffic surveys were undertaken in 2024 to determine the

existing conditions. It is considered that the methodology presented as part of this Chapter provides a suitable assessment from which the impacts of the proposed development (in conjunction with wider developments) can be isolated.

- 16.247 The assessments completed highlight that the proposed development will result in no long term significant adverse impacts, with short term moderate adverse impacts foreseen during the construction phase although this can be managed by supporting affected parties and establishing alternative existing routes on implementation of wider mitigation measures to come forward as part of the proposals.
- 16.248 On completion of wider cumulative developments as part of Dumfries & Galloway Council and Marine Scotland (as planning authorities), baseline traffic flows will increase slightly. However, this results in no significant adverse impacts in the future. During the construction phase of the cumulative projects, there are the same short term moderate adverse impacts foreseen, again affected parties can use alternative existing routes on implementation of wider mitigation measures to come forward as part of the development proposals.
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