Chapter 05

Traffic and Transportation

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5. Traffic and Transportation

5.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) considers and assesses the potential traffic and transportation impacts of the Barnesmore Gap Greenway ('proposed development'). It considers the development's construction and operational phases of the project.

5.2 Policy and Guidance

The following polices have been considered in the traffic and transport assessments which are discussed in detail in EIAR Chapter 2.

5.2.1 Policy

- **European Policy Context**
  - EU Cycling Strategy 2017-2030
- **National Policy Context**
  - National Planning Framework to 2040
  - National Development Plan 2021-2030
  - National Investment Framework for Transport in Ireland (NIFTI)
  - National Sustainable Mobility Policy
  - Climate Action Plan 2025
  - National Cycle Network Plan
- **Regional Policy Context**
  - Northern & Western Regional Spatial & Economic Strategy 2020-2032 (RSES)
- **Local Policy Context**
  - County Donegal Development Plan 2024-2030

5.2.2 Guidance

The assessment was undertaken following consultation by the Project Team, Donegal County Council (DCC) and with reference to the following guiding documents and manuals:

- Environmental Protection Agency (May 2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports;*
- Transport Infrastructure Ireland (May 2014) *Traffic and Transport Assessment Guidelines, PE-PDV-02045;*
- TII Publications Design Standards - Design Manual for Roads and Bridges (DMRB) Volume 5, Section 1, Part 3 TA 79/99
- TII Publications Project Appraisal Guidelines:
  - PAG Unit 5.3 - Travel Demand Projections
  - PAG Unit 16.1 - Expansion Factors for Short Period Traffic Counts
- National Transport Authority (NTA) publication 'Cycle Design Manual' (September 2023)
- TII Mobility and Outdoor Value Estimates (MOVE) dashboard.

To determine the anticipated level of trips associated with the proposed development, the data available on the TII MOVE dashboard has been reviewed. As detailed on the dashboard "MOVE is a pilot research project between Fáilte Ireland and TII" with the aim of the project to "develop a methodology for monitoring the use and impact of Irelands Greenways".

As part of this pilot research study, there were five greenways included in the study which are detailed below along with the relevant local authority and approximate greenway length:

- Waterford Greenway (Waterford County Council) – 46km
- Great Western Greenway (Mayo County Council) – 49km
- Limerick Greenway (Limerick County Council) – 40km
- Old Rail Trail (Westmeath County Council) – 43km
- South East Greenway (Wexford and Kilkenny County Councils) – 6km

The study consisted of undertaking surveys over the seasonal periods of a year to capture the varying usage of the greenways. The periods from the study for which the survey data was gathered are as follows:

- Winter (December 4 – 10 2023)
- Spring (25 March to 1 April 2024)
- Summer (24 – 30 June 2024)
- Autumn (23 – 29 September 2024)

The MOVE dashboard was used to estimate trip generation for the Barnesmore Gap Greenway.

5.3 Methodology

5.3.1 Study Area

The impact of the proposed development has been considered in the context of the external roads adjacent to four proposed trailhead locations, outlined previously in Chapter 4 Description of the Proposed Development:

- Donegal Town – start/end point.
- Lough Eske – mid-point.
- Biddy's O'Barnes – mid-point
- Ballybofey/Stranorlar – start/end point.

The proposed development is shown in Figure 5-1.

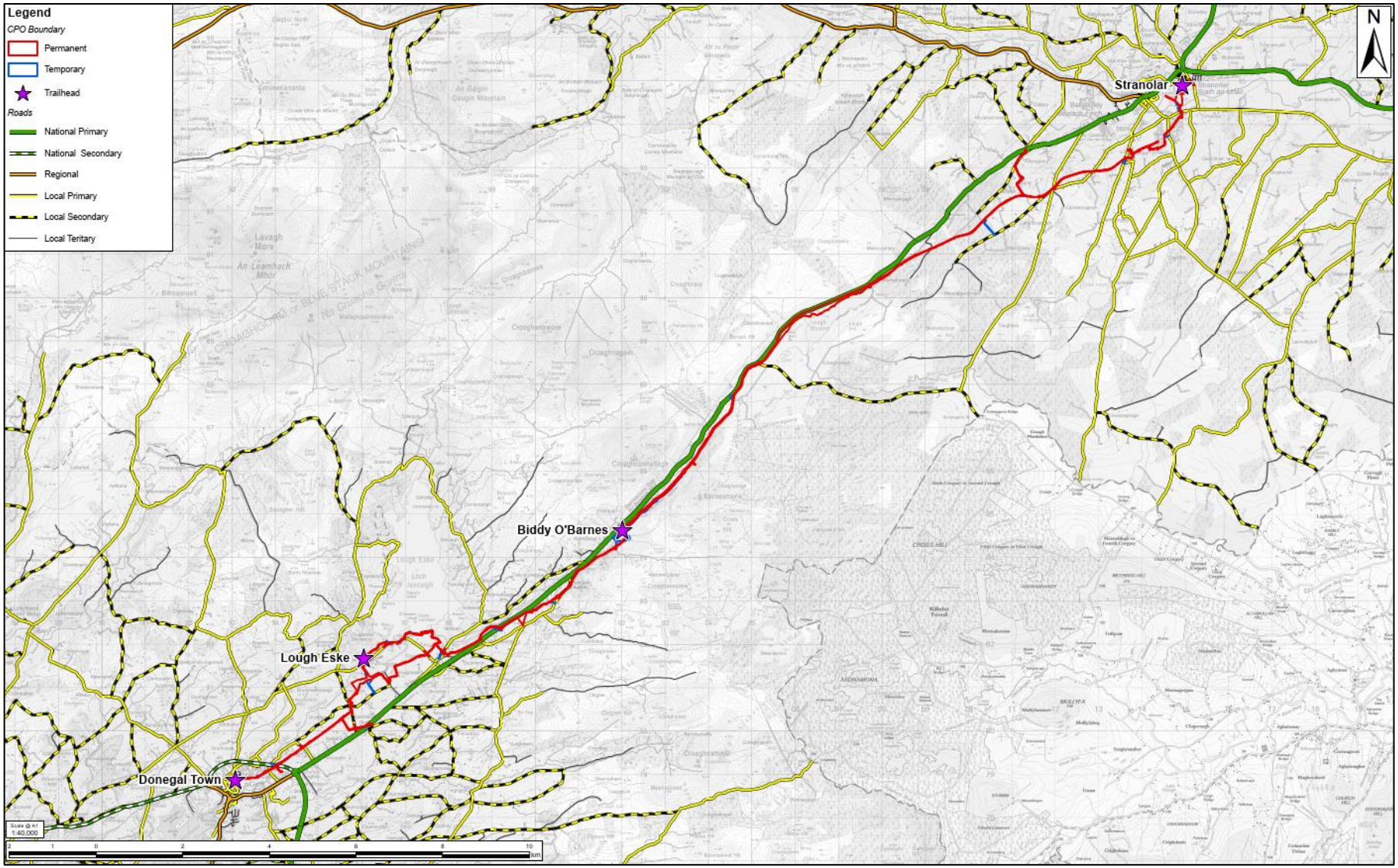

Figure 5-1 - Proposed Development

5.3.2 Assessment Methodology

This traffic and transport assessment has been undertaken in accordance with the TII Traffic and Transport Assessment Guidelines.

To predict and quantify the traffic and transportation impacts that would result from both the construction and operational phases of the development, this assessment has considered the following:

- Description of the Receiving Environment: a review of existing traffic and road characteristics and trends, including the nature of the affected roads and the existing traffic levels;
- Description of Potential Impacts: an assessment of the impact of the proposed development against the baseline conditions;
- Mitigation Measures: details of any proposed mitigation measures to be incorporated into the upgraded road network that could be implemented to avoid any significant impacts; and
- Residual Effects: a summary of the residual effects of the development post mitigation implementation.

5.3.2.1 Assessment Topics

The traffic and transport impacts have been assessed using the following topics, for the construction and operational phases:

- General traffic – a quantitative assessment of the impact of the proposed development on general traffic within the study area.

5.3.2.2 Assessment Scenarios

The assessment considers the traffic and transport conditions within the study area before and after the proposed development is in place. The following scenarios have been considered:

- ‘Current State of the Environment’ – this scenario represents the traffic and transport conditions within the study area, as per 2025.
- ‘Future Receiving Environment Construction Phase’ (2028) – This scenario outlines the background traffic conditions at the assessment sites on the local road network that will be used by construction traffic. It effectively presents a ‘do-minimum’ scenario for the construction phase.
- ‘Future Receiving Environment Operational Phase’ (2030) – This scenario outlines the background conditions at the assessment sites on the local road network that will be used once the proposed development is operational. It effectively presents a ‘do-minimum’ scenario for the operational phase.
- ‘Assessment of proposed development – Construction Phase’ (2028) – representing the single worst-case period for impacts on the road network at the assessment sites during the construction of the proposed development. It effectively presents a ‘do-something’ scenario for the construction phase.
- ‘Assessment of proposed development – Operational Phase’ (2030) - This scenario assesses the operation of the road network at the assessment sites with the proposed development in place. It effectively presents a ‘do-something’ scenario for the operational phase. The Assessment Year is the year of opening, which is assumed to be 2030.

5.4 Receiving Environment

5.4.1 Existing Infrastructure

The assessment study area is the road network adjacent to the four proposed trailheads, outlined previously in Chapter 4 Description of Proposed Development and shown in Figure 5-1:

- Donegal Town – Tirchonaill Street is a single carriageway, with a width of approximately 6.5m. It is an urban road, providing access to housing estates, with a footpath on its eastern side.
- Lough Eske – the local road that runs adjacent to the Lough Eske trailhead is rural in nature, with a narrow carriageway width of approximately 5.75m, no road markings, no verge, and a limited number of access points.
- Biddy O'Barnes - The N15 is a National Primary route running from Sligo to Lifford. In the vicinity of Biddy's O'Barnes, it has a carriageway width of approximately 13m, with verges on both sides.
- Ballybofey/Stranorlar – Main Street is part of N15. In the vicinity of the proposed trailhead, it is a single carriageway, with a width of approximately 9m. It is an urban road, with multiple accesses and footpaths on both sides.

5.4.2 Existing Traffic Flows

Background traffic flows were established at the assessment locations through:

- Traffic surveys, undertaken between Monday April 21st and Monday May 5th, 2025[1]:
    1. Adjacent to the proposed start/end point trailhead on Tirchonaill Street in Donegal Town.
    2. Adjacent to the proposed mid-point trailhead at Lough Eske.
    3. Adjacent to the proposed start/end point trailhead in Ballybofey/Stranorlar.
- Data from the TII permanent traffic monitoring unit (TMU) on the N15 (TMU N15 030.0 N) was used as a proxy for the Biddy's mid-point N15 trailhead, for the same period as the traffic surveys.

These locations are illustrated in Figure 5-2. The data from the traffic surveys and the permanent TMU was used to establish 5-day average weekday traffic flows and 7-day average daily traffic flows, at each location, for the survey period.

For each survey site, data from the closest TII TMU was used to establish a monthly flow profile. For the counters at Donegal Town and Lough Eske, this was TMU N56 000.0 S on the N56 north of Donegal Town. For the counter in Stranorlar, this was TMU N13 010.0 N on the N13 north of the town, also shown in Figure 5-2.

These monthly flow profiles were then used to derive annualisation factors to convert surveyed traffic flows to 5-day Annual Average Weekday Traffic flows[2] (AAWT), for use in the construction phase assessment, and 7-day Annual Average Daily Traffic flows[3] (AADT), for use in the operational phase assessment, as per the method outlined in TII PAG Unit 16.1 - Expansion Factors for Short Period Traffic Counts[4]. This process is summarised in Table 5-1 and Table 5-2.

[1] Note: Survey period included May bank holiday weekend

[2] the average daily traffic volume on a road, calculated only for weekdays (Monday through Friday) over a full year

[3] The average daily traffic volume on a road, calculated over a full 365-day year

[4] https://cdn.tii.ie/publications/PE-PAG-02039-01.pdf

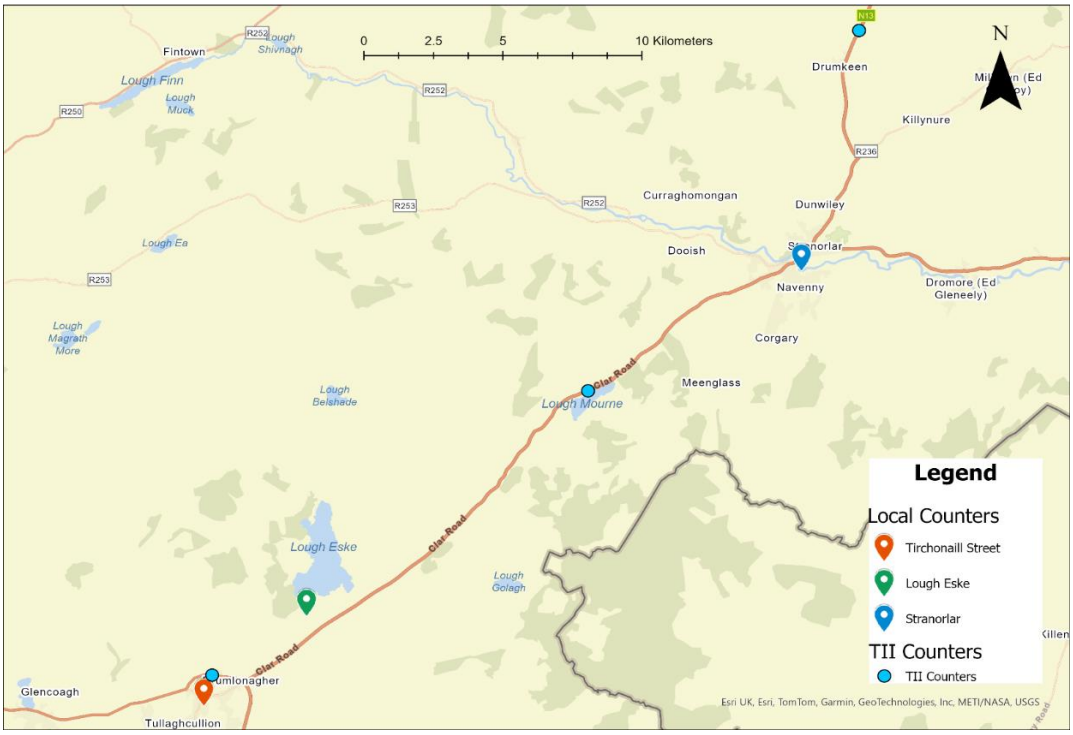

Figure 5-2 - Traffic Count Locations

Table 5-1 - Estimation of AAWT

	Donegal Town	Ballybofey / Stranorlar	Lough Eske	N15
April 2025 Weekday (5-Day) Traffic Flow	878	15,818	389	9,056
Annualisation Factor	1.003	1.060	1.003	0.979
AAWT	881	16,765	390	8,870

Table 5-2 - Estimation of AADT

	Donegal Town	Ballybofey / Stranorlar	Lough Eske	N15
April 2025 Weekday (7-Day) Traffic Flow	812	15,545	423	8,729
Annualisation Factor	1.006	1.065	1.006	0.977
AADT	817	16,560	425	8,532

5.5 Future Receiving Environment

It is estimated that construction on the proposed development will commence in 2028, and works will take two years to compete. It is estimated that construction traffic volumes will peak in year 1 of the construction period. As such, the future year for the construction traffic assessment is 2028, while the opening year for the operational traffic assessment is 2030.

5.5.1 Construction Phase

For the construction phase, the key compounds will be at located at the proposed trailheads. As such, the construction phase assessment was focused on the access points at Donegal Town and Ballybofey/Stranorlar for the start/end points, at Lough Eske for the mid-point located there, and on the N15, as a proxy for the Biddy's mid-point location that is located on that route. As noted in Section 5.6, there are multiple working areas and locations where the

proposed greenway interacts with the local road network which may be used by construction vehicles to access the works site as construction progresses. The local road providing access to the Lough Eske trailhead was chosen as a representative location to assess a potential worst-case scenario for local roads along the route of the proposed development.

The 2028 background traffic flows at the assessment locations were derived using Central growth rates for Donegal as outlined in Table 6.2 of TII PAG Unit 5.3 - Travel Demand Projections[5]. Since the highest traffic counts along the N15 occur on weekdays[6], AAWT flows were used. This process is summarised in Table 5-3.

Table 5-3 - Estimation of 2028 Future Year AAWT

		Donegal Town	Ballybofey / Stranorlar	Lough Eske	N15
2025 AAWT	Light Vehicles	876	16,521	387	8,322
	Heavy Vehicles	5	244	2	547
Annual Growth Rates: Central – Donegal (2016-2029)	Light Vehicles	1.0111			
	Heavy Vehicles	1.0286			
2025 – 2028 Growth Factor	Light Vehicles	1.034			
	Heavy Vehicles	1.088			
2028 AAWT	Light Vehicles	906	17,077	400	8,602
	Heavy Vehicles	5	266	3	596

5.5.2 Operational Phase

For the operational phase, the key access points will be at the proposed trailheads. As such, the operational phase assessment was focused on the access points at Donegal Town and Ballybofey/Stranorlar for the start/end points, at Lough Eske for the mid-point located there, and on the N15, as a proxy for the Biddy's mid-point location that is located on that route.

Future year background traffic flows for the Opening Year of 2030 were derived using Central growth rates for Donegal as per the methodology outlined above. For the operational phase, AADT flows were considered appropriate. This process is summarised in Table 5-4.

Table 5-4 - Estimation of 2030 Future Year AADT

		Donegal Town	Ballybofey / Stranorlar	Lough Eske	N15
2025 AADT	Light Vehicles	814	16,353	424	8,095
	Heavy Vehicles	3	207	2	437
Annual Growth Rates: Central – Donegal (2016-2029)	Light Vehicles	1.0111			
	Heavy Vehicles	1.0286			
Annual Growth Rates: Central – Donegal (2030-2039)	Light Vehicles	1.039			
	Heavy Vehicles	1.041			
2025 – 2030 Growth Factor	Light Vehicles	1.049			
	Heavy Vehicles	1.135			
2030 AADT	Light Vehicles	854	17,158	444	8,493

[5] https://cdn.tii.ie/publications/PE-PAG-02017-03.pdf

[6] TII TMU Data

	Donegal Town	Ballybofey / Stranorlar	Lough Eske	N15
Heavy Vehicles	4	235	2	496

5.6 Description of Potential Impacts

5.6.1 Potential Construction Impacts

This section outlines the potential traffic and transport impacts associated with the construction of the proposed development. The staging of the construction works will be subject to detailed programme by the successful contractor in advance of commencement of works. It will be cognisant of a list of timeline constraints included in Contract Documents.

The assumptions taken when preparing the trip generation estimates include:

- Construction stage traffic generation has been estimated based on the preliminary 24-month project schedule. It is possible that the final construction programme could extend beyond this period, however, for the purposes of assessing worst case for construction stage traffic, a compressed programme would result in higher additional average daily trips on the road network, and therefore represent worst case in terms of traffic related impacts.
- Construction movements will involve import of approximately 70,000m^3 of mainly crushed stone materials (capping, sub-base, bituminous pavement and drainage aggregate) in 12m^3 (c.20-25 tonne) loads which will generate 6,000 two-way truck movements, along with a further 650 two-way truck movement for earthworks material moved between areas of the site. There will be 3no main construction compounds along the route coinciding with the main trailheads, and the construction programme has been split into three sections as outlined in Chapter 4. However, for the purposes of assessing the worst case traffic related impacts, it has been assumed that all HGVs will access the site at a single point at any given time.
- Based on the works sequencing in the preliminary project schedule, it is estimated that approximately 100no construction workers will be on-site per day at the peak of the construction programme. Using baseline data from TII Publication RE_ENV-01109 N22 Carbon Benchmarking and Analysis to assess modal split and car share percentages, the number of light vehicle trips can be estimated. This generates an estimated 182no light vehicle trips accounting for shared trips during the peak of the construction stage.

5.6.1.1 Construction Access Routes

The tables below outline the locations of the proposed compound and works areas, and direct accesses.

Table 5-5 - Compound and Working Area Locations

Description	Location	Chainage	Type
Compound No. 1	Donegal Town	000	Main Compound
Working Area No. 1	N56	1120	Temporary Works Area and Access – N56 Underpass
Working Area No. 2	Clar	700 (Clar Spur)	Temporary Works Area – N15 Underpass
Working Area No. 3	Clardrumnagahan	3500	Temporary Works Area
Working Area No. 4	River Eske South	4200	Temporary Works Area and Access – River Eske Crossing

Description	Location	Chainage	Type
Working Area No. 5	River Eske North	100 (Lough Eske Loop)	Temporary Works Area and Access – River Eske Crossing
Working Area No. 6	Lough Eske Demesne	650 (Lough Eske Loop)	Temporary Works Area
Working Area No. 7	St Francis NS	6650	Temporary Works Area and Access – River Derg Crossing
Working Area No. 8	N15 North	8150	Temporary Works Area and Access – N15 Underpass
Working Area No. 9	N15 South	8350	Temporary Works Area and Access – N15 Underpass
Working Area No.10	N15 South	8800	Temporary Works Area and Access
Working Area No. 11	Coillte land east of Keadew Lower	10550	Temporary Works Area
Compound No. 2	Biddy's	12150	Main Compound
Working Area No. 12	Meenbog Wind Farm Access	16200	Temporary Works Area
Working Area No. 13	Derg Line	17300	Temporary Works Area
Working Area No. 14	Coillte land near Goland	23550	Temporary Works Area
Working Area No. 15	Carrickmagrath	25450	Temporary Works Area
Working Area No. 16	Coppering Heights	26400	Temporary Works Area
Working Area No. 17	Sessiaghnoneill	27250	Temporary Works Area and Access – Sessiagh View Crossing
Working Area No. 18	Sessiaghnoneill	27300	Temporary Works Area and Access – Sessiagh View Crossing
Working Area No. 19	Sessiaghnoneill School	27530	Temporary Works Area
Working Area No. 20	River Finn South	29350	Temporary Works Area – River Finn crossing
Working Area No. 21	River Finn North	29550	Temporary Works Area – River Finn crossing
Working Area No. 22	River Finn North	29550	Temporary Works Area – River Finn crossing
Compound No. 3	Stranorlar	30100	Main Compound

Table 5-6 - Direct Access Locations

Location	Chainage
Railway Road	600
Mill Lane	875
L19952	1800
L65251	3230
L65251	460 (Clar Link)
L19453 south of Lough Eske Demesne	540 (Lough Eske Loop)

Location	Chainage
L19453 south of Lough Eske	1350 (Lough Eske Loop)
L19453 south of Lough Eske	1700 (Lough Eske Loop)
L65351 Clarlougheask	4830
L19453	6100
L19752 at St Francis NS	6700
Private Road at Keadew Lower	9630
L25951	10260
Private Road at Keadew Lower	10340
Private Road off N15	10860
Private Road at Biddy's	11920
Meenbog Wind Farm Access	16150
Coillte Access	23500
Unclassified Road in Goland	24080
L65441 Goland	810 (Goland Link)
The Beeches	28950
Navenny Street L30443	29350

5.6.1.2 Construction Traffic Generation

Construction traffic generation was estimated as per the methodology outlined previously in Section 5.6.1. Assuming a 24-month construction programme, an indicative sequence of works has been developed, breaking down the main construction activities in each section and assigning gangs to each activity. The anticipated number of HGV journeys have therefore been estimated against pavement, earthworks and drainage activities, and the peak volume of HGV movements identified.

Furthermore, numbers of car/van movements for site staff have also been estimated based on the amount of construction activity on site at any given time. These numbers are outlined in the table below.

Table 5-7 - Construction related HGV and LGV Journeys

Construction Month	Number of additional daily LGV journeys*	Number of additional daily HGV journeys
1	18	0
2	55	0
3	164	40
4	182	80
5	164	80
6	128	80
7	146	89
8	109	69

Construction Month	Number of additional daily LGV journeys*	Number of additional daily HGV journeys
9	128	78
10	91	38
11	73	18
12	73	18
13	109	43
14	109	43
15	109	43
16	128	34
17	128	34
18	109	34
19	55	25
20	73	25
21	73	25
22	55	25
23	36	0
24	18	0

** Based on TII Publication RE-ENV-01109 N22 Carbon Benchmarking and Analysis. 'The on-site observations also revealed, that 1 in 12 construction workers share a lift (8.33%), 50% travel by car (25% by small car, and 25% by large car), and 45% travel by van.'*

The peak month for construction vehicles is Month 4 in Year 1. The forecast daily two-way (weekday) construction vehicles during this peak month is outlined in Table 5-8.

Table 5-8 - Estimated Peak Daily (Weekday) Construction Vehicles

	Car / Van	HV	Total
Construction Vehicles	182	80	262

5.6.1.3 Network Performance

It is likely that construction will take place on a phased basis across multiple sections and locations simultaneously. The route that a construction vehicle will take will depend on its point of origin and the location of the works area to which it is travelling. The number of trailheads and large number of potential access points along the site creates a large number of potential haul routes for construction vehicles. When assessing network performance during the construction phase, it was assumed that 100% of the forecast total daily construction vehicles would utilise a single access point. Using this assumption, each of the road links at the survey sites identified above was assessed. This highly unlikely scenario was chosen to assess a worst-case scenario in terms of potential impact and ensure a robust assessment.

Construction activities will be mostly limited to weekdays and so AAWT values were used for the assessment. To determine the Construction Phase effects, the construction vehicles were compared to the forecast background 2028 AAWT flows to determine the percentage impact. The sensitivity of the road links assessed was established based on the background traffic flows of the road links and the scale of the impact, as determined using the thresholds outlined

in Table 2.1 of TII's Traffic and Transport Assessment Guidelines.[7] Generally where traffic exceeds 10% of the traffic flow on the road link, or exceeds 5% of the traffic flow on the road link where congestion exists or the location is sensitive, then a transport assessment is recommended.

The results of the assessment are shown in Table 5-9.

Table 5-9 - Network Performance – Construction Phase

	Donegal Town	Ballybofey / Stranorlar	Lough Eske Mid-Point	Biddy's Mid-Point
2028 AAWT	911	17,343	403	9,198
2028 %HV	0.55%	1.53%	0.65%	6.48%
2028 Construction Vehicles	262	262	262	262
2028 Combined AAWT	1,173	17,605	666	9,461
2028 Combined %HV	7%	2%	12%	7%
Percentage Impact of Construction Vehicles	29%	2%	65%	3%

The results indicated that, in the worst-case scenario, the impact of the construction traffic on the road network adjacent to the Donegal Town start/end point and the Lough Eske mid-point is forecast to be greater than 10%. Albeit this is a result of the relatively low background traffic flows at these locations. To ensure robustness, however, link capacity assessment was undertaken for both of these locations. At the Ballybofey/Stranorlar start/end point and Biddy's mid-point, the impact of the construction traffic was forecast to be below the TII threshold, as such, the impact was not considered to be significant.

The high-level link capacity assessment of the road network adjacent to the Donegal Town and Lough Eske trailhead was undertaken using the standards outlined in TII's Design Manual for Roads and Bridges (DMRB) Volume 5, Section 1, Part 3 TA 79/99, which outlines typical capacities for urban roads.

The road link in Donegal Town was classified as Urban All Purpose (UAP) 3, according to Table 1 in TA 79/99, and the hourly capacity was established based on its approximate width and the capacity outlined in Table 2 in TA 79/99. For the road link adjacent to Lough Eske, a directly corresponding road type could not be found in Table 1. To test a 'worst-case' scenario for this location, the minimum stated capacity value in Table 2 was used. These hourly capacities were converted to daily values for the assessment. Since construction activities will generally not occur overnight, a more conservative 12-hour 'daily' value was calculated.

Table 5-10 provides a summary of the analysis and indicates that the road network at both locations has ample capacity to facilitate the forecast construction traffic, even in the extremely unlikely worst-case scenario where 100% of construction traffic used a single access location.

Table 5-10 - Link Capacity Assessment of Construction Phase Impacts

	Donegal Town	Lough Eske Mid-Point
Type	UAP 3	n/a
Width	6.4m	5.75m
Hourly Capacity	997	750
AAWT Capacity	11,964	9,000
2028 AAWT	1,173	666

[7] https://www.tiipublications.ie/library/PE-PDV-02045-01.pdf

	Donegal Town	Lough Eske Mid-Point
AAWT Volume/Capacity	10%	7%

It is expected that the potential impact of the additional demand associated with the construction phase of the proposed development on the road network adjacent to the four trailhead locations is *negative*, *slight* to *moderate* and '*temporary*' to '*short term*'. These effects can be managed through the mitigation measures outlined in Section 0 of this Chapter.

5.6.1.4 Temporary Road Closures (National Road)

24-hour working will be required for the construction of the three underpasses under the N15/N56 national roads. Each underpass location will require 1-2 weekends where construction activities take place outside of normal working hours (24 hours a day) while the national road is closed. Further details, including diversionary routes and advance warning to motorists, are included in the CTMP in Appendix H of the CEMP. Given that the works will be temporary in nature, the potential impact is *negative, slight to moderate and 'short term'.*

5.6.2 Potential Operational Impacts

This section outlines the potential transport impacts associated with the operation of the proposed development, namely, the movement of cars accessing the various trailheads. The assessment of these impacts is summarised below.

5.6.2.1 Operational Traffic Generation

Data from the "User Count" menu of TII's MOVE dataset provides average daily trips by site, and by season for each site in the database. Using this dataset, the likely number of users for the proposed development was estimated. The average number of daily users across all of the greenways in MOVE were estimated for two scenarios:

1. An annual average value.
2. A 'peak' summer months-only average.

The total daily users for each scenario are summarised in Table 5-11.

Table 5-11 - Estimated Total Daily Greenway Users

	Walking	Cycling	Total
Annual Average	557	425	982
Summer Average	1,129	1,107	2,236

Data from the User Intercept Survey (UIS) contained within MOVE was used to establish the average trip characteristics of greenway users in Ireland. From this, it was established that;

- 45.4% of users travel to a Greenway by car.
- The average party size of respondents was two.
- Of those users who drive to a greenway, 44% access at a start/end point, whereas 56% access via a mid-point location.

Based on the above, the total number of daily two-way car trips to the proposed development was estimated, for both scenarios, as summarised in Table 5-12. This also breaks down the demand between the combined start/end points and the combined mid-points.

Table 5-12 - Estimated Total Daily Car Trips to Barnesmore Greenway

	Start / End Points	Mid-Points	Total
Annual Average	196	249	445
Summer Average	446	568	1,014

The proposed development will have two start/end points, in Donegal Town and Ballybofey/Stranorlar, and two mid-point trailheads. The number of cars trips generated by users at each start/end point was calculated by taking the total outlined in Table 5-13 and applying a weighting based on the populations of Ballybofey/Stranorlar (5,406) and Donegal Town (2,749). The mid-point trailheads are in rural locations with low populations. As such, a simple average was considered as a feasible approach and was used in the assessment of these mid-point locations. Table 5-13 and Table 5-14 summarise this process.

Table 5-13 - Start / End Point Operational Traffic

		Donegal Town	Ballybofey/Stranorlar	Total
Population		2,749	5,406	8,155
% of Combined Total		34%	66%	100%
Start / End Point Daily Two-Way Car Trips	Annual Average	66	130	196
	Summer Average	150	296	446

Table 5-14 - Mid-Point Operational Traffic

	Total Daily Mid-Point Trips	Simple Average Mid-Point Trips
Annual Average	249	125
Summer Average	568	284

5.6.2.2 Network Performance

For the Operational Phase effects, the operational vehicles were compared to the forecast background 2030 AADT flows to determine the percentage impact. The sensitivity of the road links assessed was established using the same method as the Construction Phase assessment.

Annual Average Scenario

The results for the average demand across the year are shown in Table 5-15.

Table 5-15 - Network Performance – Operational Phase

	Donegal Town	Ballybofey / Stranorlar	Lough Eske Mid-Point	Biddy's Mid-Point
2030 AADT	858	17,393	447	8,989
2030 %HV	0.5%	1.4%	0.5%	5.5%
2030 Operational Vehicles	66	130	125	125
2030 Combined AADT	924	17,523	572	9,114
Percentage Impact of Operational Vehicles	8%	1%	28%	1%

The results indicated that, in the annual average scenario, the impact of the proposed development on the adjacent road network at both end points, and at the N15 mid-points, are less than 10% of the background traffic. At the Lough Eske mid-point, the impact is an increase of 28%. The magnitude of this percentage impact is a result of the low background traffic on the local road network at this location. However, to ensure a robust assessment, a link capacity assessment was undertaken at this location, as outlined in Table 5-17, below.

Peak Summer Scenario

For the peak summer scenario, the background annual average daily traffic (AADT) flows were converted to Summer Average Daily Traffic (SADT) flows using the monthly flow profiles established at each location previously, as described in 5.4.2.

The results for an average demand across the summer period of the year are shown in Table 5-16.

Table 5-16 - Average Summer Demand

	Donegal Town	Ballybofey / Stranorlar	Lough Eske Mid-Point	Biddy's Mid-Point
2030 AADT	858	17,393	447	8,989
2030 %HV	0.5%	1.4%	0.5%	5.5%
Summer Adjustment Factor	1.07	1.01	1.07	1.04
2030 SADT	914	17,542	476	9,352
2030 Operational Vehicles	150	296	284	284
2030 Combined SADT	1,064	17,838	760	9,636
Percentage Impact of Operational Vehicles	16%	2%	60%	3%

The results indicate that the impact of the proposed development on the road network adjacent to the Donegal Town start/end point and the Lough Eske mid-point is forecast to be greater than 10% in the peak summer scenario. As a result, link capacity assessment was undertaken for both locations. At the Ballybofey / Stranorlar start/end point and N15 mid-points, the impact of the proposed development was forecast to be below the TII threshold, therefore the impact was not considered to be significant.

The high-level link capacity assessment of the road network adjacent to the Donegal Town and Lough Eske trailheads was undertaken using the same methodology outlined previously for the Construction Phase assessment. To ensure a robust assessment, SADT flows were used, as they are higher than the AADT flows, and therefore represent a 'worst-case' scenario. As with the construction phase assessment, the daily demand was assumed to occur over a 12-hour period.

Table 5-17 provides a summary of the analysis and indicates that the road network adjacent to both trailheads has ample capacity during the summer peak period to facilitate the forecast operational traffic.

Table 5-17 - Link Capacity Assessment of Operational Impacts

	Donegal Town	Lough Eske Mid-Point
Type	UAP 3	n/a
Width	6.4m	5.75m
Hourly Capacity	997	750
SADT Capacity	11,964	9,000
2030 SADT	1,064	760
SADT Volume/Capacity	9%	8%

A further sensitivity, which assigned 100% of the end point demand to Donegal Town, showed the SADT volume/capacity increase to 11%.

Considering the forecast volume of the operational vehicles and the results of the link capacity assessment, further assessment at a junction capacity level was not considered necessary.

The impact of the additional demand associated with the operational phase of the proposed development on the road network adjacent to the four trailhead locations is *slight* to *moderate* and *not significant*.

5.6.2.3 Parking Demand

It is proposed to provide car parking at each of the four trailhead locations. These car parks will provide dedicated areas for users to park and access the greenway, as well as providing amenities to rest.

An assessment of the likely parking demand generated by the proposed development was undertaken, using data from the MOVE dataset. For the purpose of this analysis, consideration was given the summer period only, rather than all seasons, this is to present a high peak usage for the proposed development to inform a maximum potential parking demand. For the same reason, maximum values rather than averages were considered. Designing parking to accommodate this maximum would ensure that all car trips at peak times can be catered for. If parking is insufficient during peak periods, users may park in surrounding areas or in unsuitable locations.

Overall, a total maximum potential daily demand of approximately 3,030 pedestrians and cyclists was calculated. Using the same trip characteristics established previously (mode share, access location and party size), the maximum total daily car trips to the proposed development was determined as 689, with 303 trips to/from a start/end point, and 386 to/from a mid-point.

When assessing the potential demand at the start/end points, a worst-case scenario was used whereby 100% of demand used a single location. The potential demand at the two mid-point trailheads was taken as a simple average (ie 50%) of the overall mid-point demand.

Since walkers are more likely to drive to the proposed development than cyclists, the MOVE dataset was interrogated to determine a daily profile of those who use a Greenway for walking. This profile was used to disaggregate the daily totals into hourly demand, as summarised in Table 5-18. The results indicated that the maximum hourly demand is 36 at a start/end point, and 23 at a mid-point.

Table 5-18 - Estimated Trailhead Parking Hourly Demand

Hour Starting	% of Daily Demand	Start/End Point	Mid-Point Average
07:00	2.9%	8	5
08:00	4.8%	14	9
09:00	9.1%	21	13
10:00	10.4%	28	18
11:00	8.5%	36	23
12:00	9.6%	31	20
13:00	9.6%	29	18
14:00	8.1%	24	15
15:00	8.3%	26	16
16:00	8.9%	24	15
17:00	9.2%	28	18
18:00	10.5%	33	21
Totals		**303**	**193**

While the above analysis provides information on the likely hourly demand, when determining the appropriate level of parking provision, consideration was also given to trip duration. Further interrogation of the MOVE dataset indicated that 52.5% of trips to greenways lasted longer than one hour.

The dataset does not provide any further disaggregation on trip duration beyond this. It does, however, give details on the proportion of greenway users who are international or domestic

tourists. Tourists will likely have travelled to a Greenway specifically to use it and are therefore more likely to undertake longer trips on it. Given the length of the proposed development, it is estimated that an end-to-end return trip would take approximately 4 hours. It is also likely that anyone undertaking a full length trip like this will also stop for a break/meal etc somewhere along the route and would therefore be on-site for 5 hours in total.

The MOVE dataset indicates that, on average, 12% of summer greenways users are tourists but the maximum at any single greenway is 25%. To ensure a robust assessment, the latter figure was used and it was assumed that all tourists using the proposed development would complete an end-to-end return trip.

With this in mind, the likely occupancy of the trailhead car parks in any single hour was calculated. For midpoint trailheads, 52.5% of the demand from any given hour was assumed to still be present in the next hour as well. For start/end points, 52.5% of demand for any given hour was carried over to the next hours, as per the mid-points, with 25% of demand assumed to carry over for the next 4 hours as well.

The results, outlined in Table 5-19, indicate that the maximum occupancy the car parks for the proposed development in any given hour is 74 vehicles at a start/end point and 33 vehicles at a mid-point.

Table 5-19 - Estimated Trailhead Parking Hourly Occupancy

Hour Starting	Start/End Point	Mid-Point Average
07:00	8	5
08:00	19	12
09:00	31	18
10:00	45	25
11:00	62	33
12:00	68	32
13:00	70	29
14:00	68	25
15:00	70	25
16:00	67	24
17:00	68	26
18:00	74	31
Maximum	**74**	**33**

Given that the two trailheads at Donegal Town and Ballybofey/Stranorlar incorporate existing car parking, an exercise was undertaken to understand how the existing car parks operate and to what extent they could be utilised by greenway users. Monitoring of the existing car parks showed that during the week they are operating at capacity, and therefore the calculated demand for the greenway requires additional spaces to meet that demand. However, it was noted that parking capacity within the existing car parks would be more readily available at the weekends, and therefore to optimise the provision of car parking, an exercise was undertaken to understand the demand scenarios separately on weekdays and weekends.

Demand on Ireland's greenways shows a clear distinction between weekday and weekend activity, consistent with patterns identified in the MOVE (Mobility & Outdoor Value Estimates) programme. MOVE's methodology deliberately captures both types of days by including one weekday and one weekend survey within each survey wave, reflecting the expectation of differing usage profiles. Evidence from MOVE indicates that most greenway trips are motivated by leisure or exercise, which naturally leads to higher weekend activity. This aligns with the weekly demand profile illustrated in the chart, which shows steadier activity across

weekdays and a noticeable increase during weekends. Seasonal and tourism-related factors further amplify this weekend peak, with MOVE highlighting how weather conditions, holiday periods and summer seasons significantly influence greenway use. In contrast, weekday usage tends to be more routine and locally focused, supported by MOVE findings that a substantial share of users arrive on foot, indicating short, everyday trips typical of the working week. Overall, both MOVE evidence and the charted demand profile demonstrate that weekend demand consistently exceeds weekday levels, driven by leisure behaviour, visitor activity and favourable seasonal conditions.

Comparing weekday to weekend values for the Summer on MOVE we see that the majority of trips occur during the weekend. This is presented in Figure 5-3.

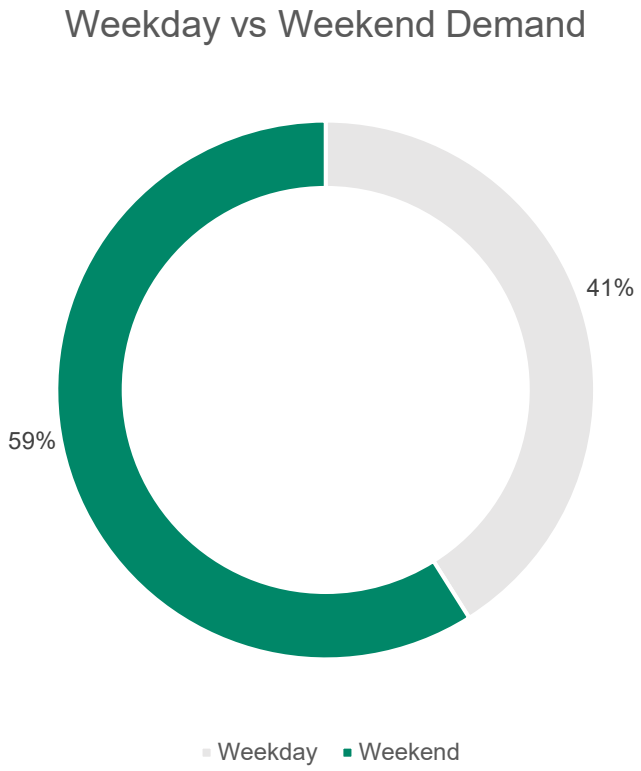

Figure 5-3 - Weekday vs Weekend Demand

The results of the weekday/weekend demand analysis for the start/end points are outlined in Table 5-20, and demonstrate a significant difference between weekday and weekend maximum occupancy levels.

Table 5-20 - Estimated End Point Trailhead Parking Hourly Occupancy – Weekday & Weekend

	Start/End Point
Maximum Occupancy **Weekday**	44
Maximum Occupancy **Weekend**	104
Maximum Occupancy **Combined**	74

The car parking provision was then determined on the basis of new parking for the weekday demand, and the combination of new *and* existing parking for the weekend demand, whichever was greater.

The proposed parking provision, as outlined in the project description in Chapter 4 is considered sufficient to cater for the calculated demand, as illustrated in Table 5-21 below.

Table 5-21 - Trailheads and Car Parking

Location	Regular spaces	Accessible spaces	EV charging spaces	Minibus parking	Total Spaces
Donegal Town	92 (includes 60 existing)	7	4	1	**104**
Lough Eske	30	2	0	0	**32**
Biddy's O'Barnes	30	2	2	1	**35**
Ballybofey / Stranorlar	89 (includes 33 existing)	4	5	3	**101**

5.7 Mitigation Measures

Mitigation measures are proposed to eliminate, as far as possible, the potential negative impacts of the construction and operation of the proposed development, which include (but are not limited to): HGV movements, noise, air quality, traffic delays/congestion, road safety, parking, construction debris/dirt on roads.

5.7.1 Construction Phase

The successful contractor shall prepare a comprehensive Construction Traffic Management Plan (CTMP) in consultation with Donegal County Council, TII, and An Garda Síochána before the commencement of the construction phase. The plan will be developed based on the CTMP provided in Appendix H of the CEMP and will be reviewed throughout the construction phase and revised on a needs basis as works progress.

The purpose of such a plan is to outline the measures which will be employed to manage the expected construction traffic during the construction period. It will detail how facilities for existing road users will be maintained whilst construction operations are proceeding. The CTMP will ensure the safe movement of pedestrians and cyclists around the work areas, including pedestrians with mobility impairments.

The plan will detail the following:

- Traffic Management Coordinator - A dedicated, suitably qualified and experienced Traffic Management Coordinator will be appointed for the duration of the project. The Traffic Management Coordinator shall be competent in temporary traffic management for works on public roads, with appropriate training, qualifications and experience, and shall have sufficient authority to effectively plan, implement, monitor and adjust traffic management arrangements in accordance with relevant legislation, standards and the requirements of the Roads Authority. This person will be the main point of contact for all matters relating to traffic management on the project.
- Schedule of Construction Traffic - HGV deliveries will be scheduled so as not to coincide with the peak periods on the local road network.
- Roads to Be Used and Not Used - The CTMP will clearly identify those roads that will be used to access this project and those roads that are not to be used. In some cases, An Garda Síochána and the roads authority may direct/agree that certain roads cannot be used for laden HGV's but can be used for LGV's or unladen HGV's.
- Road Pre-and Post-Construction Condition Survey - A pre-condition survey will be carried out on all public roads that will be used in connection with the works to record the condition of the road before the works commence. A post construction survey will also be carried out after the works are completed.
- Road Reinstatement - Upon completion of the construction works all roads will be reinstated to their pre-works condition or better and to the satisfaction of the relevant road's authority. If during the construction works, some of the roads used in

connection with the development are damaged then these roads will be made good to the satisfaction of the road's authority.

- Site Inductions - All workers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
- 24 Hour Emergency Phone Number - A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each site compound.
- Orderly Traffic Management - All necessary temporary traffic management will be planned and executed in accordance with best practice, including Chapter 8 of the Traffic Signs Manual as published by the TII/Department of Transport.
- Tracked excavators will be moved to and from the site on low-loaders and will not be permitted to drive on the street pavements.
- The contractor is to arrange for staff parking within the site extents. Contractors', Subcontractors' or Suppliers' vehicles or staff vehicles, or any vehicles associated with the works are not permitted to park, idle or queue on the public road network.
- Wheel washers / judder bars will be placed at all site access points to minimise the migration of detritus onto the public roads. The roads will be inspected and cleaned on a regular basis.
- All haul vehicles transporting loose construction-related materials, including excavated soil, stone, crushed rock, aggregates, spoil or similar materials, to or from the site shall be appropriately covered after loading to ensure there is no risk of material falling onto the public road Water bowsers will be deployed within the sites during periods of hot weather to damp down potential dust generation from unbound surfaces.
- An Application for an Abnormal Load Permit will be made to the relevant Local Authority in advance of any abnormal loads exceeding the thresholds laid out in the Road Traffic (Construction and Use of Vehicles) Regulations 2003. Where possible, abnormal load movements will be restricted to evening or nighttime to minimise disruption to local traffic and traffic on strategic routes.

5.7.2 Operational Phase

The assessment indicates that the proposed development will not have a significant negative impact on the road network during the operational phase. This assessment was conservative and took a 'worst-case' approach to forecasting the potential traffic that could be generated by the proposed development. Monitoring of the proposed development, once it is operational, is recommended to determine the actual trip generation. This monitoring shall include classified vehicular turning movement counts at all site access points during the weekday AM and PM peak periods, together with a minimum seven-day automatic traffic count survey to capture daily and weekly traffic patterns. Where relevant, pedestrian and cyclist movements at site access points shall also be recorded. Monitoring shall be carried out once the development has reached a stable operational state, typically within three to six months of becoming operational, with a further follow-up survey at approximately 12 months. The results shall be compared with the trip generation assumptions contained within the Transport Assessment and submitted to the Roads Authority for review.

5.8 Residual Effects

The construction of the proposed greenway will lead to additional construction traffic, including HGV's, during the construction phase. The construction programme will take place over approximately 24 months.

By adopting the mitigation measures proposed here and through the implementation of the CTMP, it is envisaged that the negative impact construction related traffic will be 'temporary' to 'short-term' in duration, and a 'slight' to 'moderate' in significance.

The primary operational residual effect of the proposed development will be an increase in car trips on the adjacent road network. This increase, however, is relatively minor compared to the future receiving environment conditions. Furthermore, the assessment demonstrated that the local road network has adequate capacity to accommodate the forecast increase in traffic volumes. As such, it is considered that the proposed development will not have a significant impact on general traffic.

5.9 References

As per the guidance documents listed in Section 5.2.2.