

Blessington eGreenway

Transport Assessment

Quality information

Prepared by

Conor Luttrell
Senior Engineer

Checked by

Eoin O Mahony
Regional Director

Verified by

Michael Condon
Principal Engineer

Approved by

Eoin O'Mahony
Regional Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
2	Dec 21	Planning	EOM	Eoin O'Mahony	Regional Director

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Wicklow County Council

Prepared by:

AECOM Ireland Limited
1st floor, Montrose House
Carrigaline Road
Douglas, Cork T12 P088
Ireland

T: +353 21 436 5006

F: +353 21 436 5156

aecom.com

© 2021 AECOM Ireland Limited. All Rights Reserved.

This document has been prepared by AECOM Ireland Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1.	Introduction	5
2.	Receiving Environment.....	7
3	Existing Road Link Capacity.....	9
4	Existing Car Parking	10
5	Construction Programme and Accesses	11
6	Impact Assessment.....	12
7	Conclusion.....	14

1. Introduction

This Transport Assessment has been prepared for the Blessington eGreenway. This report examines the traffic and transportation system in the vicinity of the scheme. Potential impacts associated with the construction and operation of the development, in relation to traffic and transportation are examined and assessed.

1.1 Project Routing

The scheme is proposed to provide a predominately off-road shared use path for pedestrians and cyclists. The scheme will cover approximately 33km and involve the provision and upgrading of a greenway mostly through forest and woodlands adjacent to the shoreline of the Blessington Lake/Poulaphouca Reservoir SPA.

Traffic lights are proposed at three existing bridge crossings (Knockiernan Bridge, Baltyboys Bridge and Valleymount Bridge) to manage a new shuttle system for vehicular traffic. This will create space within the existing bridge cross section for a shared use path to accommodate users of the eGreenway. The Proposed Development as highlighted in

Figure 1-1, comprises the following;

1. Blessington – The Blessington section of the Proposed Development extends from the Wicklow County Council boundary at Russellstown to Blessington. The section comprises 9.2km in length. This section is proposed to consist of new greenway and the upgrade of existing sections along the route with a connection to Russborough House via an existing underpass of the N81. It is proposed to extend the capacity of the Russellstown car park with an additional 50 car spaces. Works to both the Russellstown Car Park and the Blessington eGreenway Hub and Car Park will provide electric vehicle charging points, bicycle parking, bins, seating areas, drinking water stations and CCTV. There is 1 no. new watercourse crossing included in this section while several existing crossings are to be retained.
2. Baltyboys – The Baltyboys section of the Proposed Development extends from the Blessington section to the Valleymount section. This section comprises 5.3km in length. Works to the Valleymount West Car Park and Baltyboys car park will provide electric vehicle charging points, bike parking, bins, seating, drinking water stations and CCTV. Precast box culverts and gabion retaining walls will be required within this section to construct the Proposed Development. There are approximately 5 no. small watercourses/ditches crossings along this section.
3. Tulfarris – The Tulfarris section of the Proposed Development connects the Baltyboys section to Tulfarris via the R758. This section comprises 3.7km in length. This section is proposed to consist of new greenway and share the existing road to connect with the Tulfarris Hotel & Golf Resort. There are approximately 2 no. new small watercourse/ditch crossings along its length.
4. Valleymount – The Valleymount section of the Proposed Development extends from Baltyboys to Ballyknockan. This section comprises 5.2km in length commencing at the Valleymount carpark, which is located adjacent to Valleymount GAA club. Works to the two carparks in Valleymount East and West will provide electric vehicle charging points, bicycle parking, bins, seating areas, drinking water stations, and CCTV. Precast box culverts and gabion retaining walls will be required within this section. There are approximately 3 no. small watercourses/ditches crossed by the Proposed Development in this section as well as crossing of the Annacarney Stream.
5. Ballyknockan – The Ballyknockan section of the Proposed Development extends from Ballyknockan to Lacken. This section comprises 4.3km in length. Gabion retaining walls will be required within this section. Due to the high ground to the east there are a few small tributaries on this section with approximately 13 no. small watercourses/ditches requiring to be accommodated by the Proposed Development.
6. Lacken – The Lacken section of the Proposed Development extends from Lacken to Knockiernan Bridge. This section comprises 5.6km in length. The section involves new greenway construction. Precast box culverts, concrete underpasses, and gabion retaining walls will be required within this section. It is proposed to extend the capacity of the Knockiernan car park with an additional 50 car spaces. Works to both Knockiernan and Lacken car park will

provide electric vehicle charging points, bicycle parking, bins, seating areas, drinking water stations, and CCTV. The eastern side of the lakes has many small tributaries resulting in the Proposed Development having to accommodate approximately 7 no. small watercourses/ditches.

Signage will be provided to include visitor information, way-finding information, heritage information and advisory/regulatory information in proximity to road crossings. All signage will be subject to full specification at detailed design stage of the project in accordance with national technical standards and guidance.

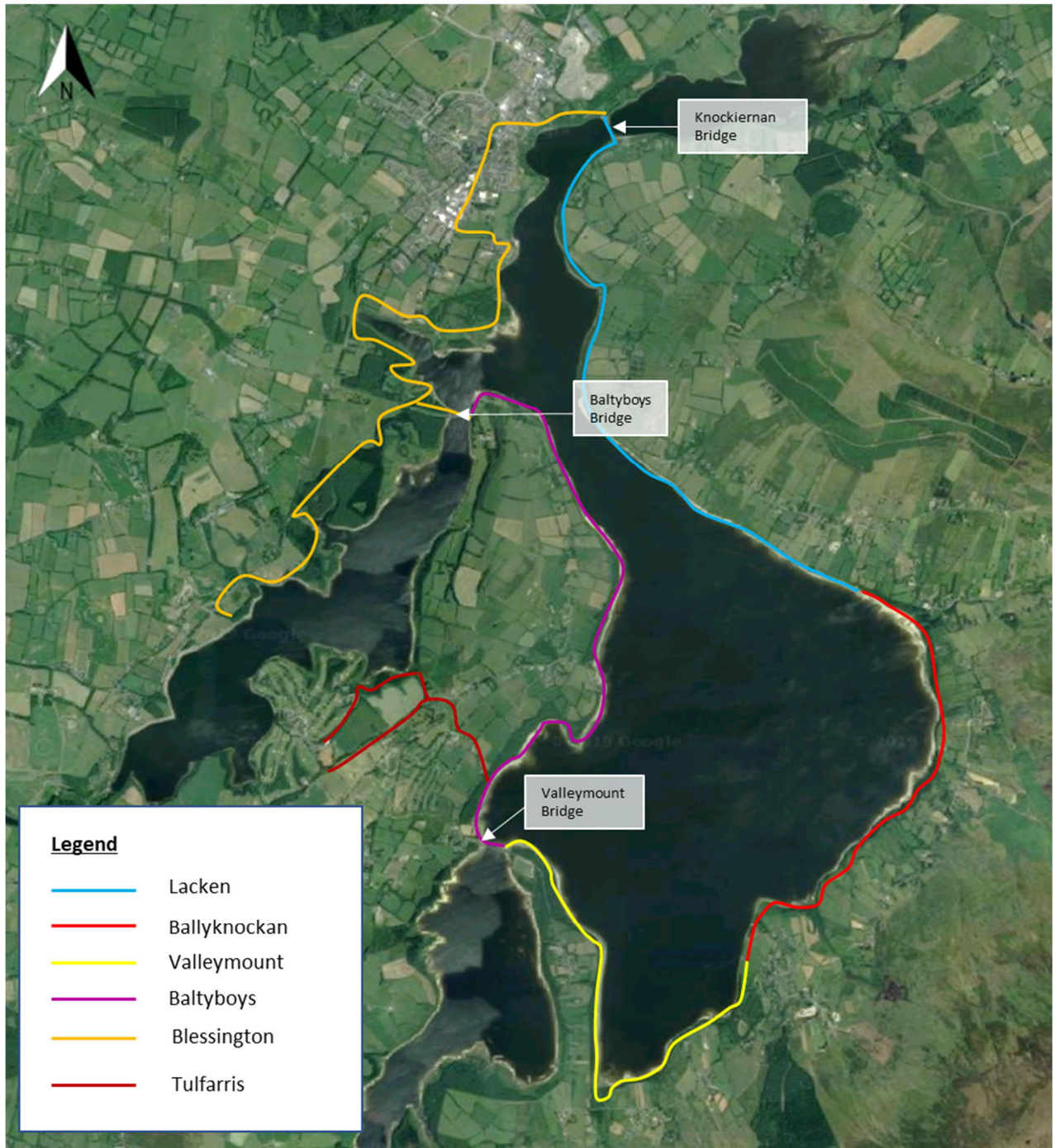


Figure 1-1 Routing of the Proposed Development

2. Receiving Environment

The proposed project is located 26.8km South West of Dublin City Centre. The surrounding roads around the Blessington Lakes include N81, R758, L4365, Lake Drive and Kilbride Road. The M7 is approximately 13km South East of the proposed project. The N81 and the N7 are the two major national road that would support visitors travelling to and from the Blessington eGreenway.

2.1 Road Network

2.1.1 N81

The N81 is a primary National Road between Tallaght, Co. Dublin and Carlow where it joins with the N80. The road travels through, City West, Blessington, Baltinglass and Tullow. The N81 has a speed limit of 50km/h through the town of Blessington. The proposed project involves the construction of a shared use pedestrian and a two-way cycle path from N81/Rockypool Villas junction to N81/Kilbride Road junction. The purpose of the route through the N81 is to connect the greenway at The Avon to the entrance to the greenway on Kilbride Road.

2.1.2 L4425 Kilbride Road

Kilbride Road is a local road which connects Blessington Town Centre and the N81 to Blessington Bridge and Lake Drive in the vicinity of the project.

2.1.3 R758

The R758 is a regional road which travel in a North-South direction from its junction with the N81 to the south of Blessington Town to a junction with the R756 near Killybegs. The existing road is on the western section of the project and intersects with the project near Russelltown Wood, at Baltyboys Bridge and Valleymount Bridge.

2.1.4 Lake Drive

Lake Drive runs adjacent to the reservoir through Lacken village and Ballyknockan village before joining the R758 to the south of Valleymount village.

2.2 Traffic Volumes

Traffic surveys were undertaken for locations identified in Figure 2. These surveys were factored using TII traffic counter data on the N81 to provide a relevant baseline shown in Table 1.

Table 1. Traffic Surveys

Number	Location	AADT	85%ile speed (km/h)
1	L4365, Outside Blessington eGreenway Hub	3,100	48
2	L4365, West of Blessington Bridge	2,304	62
3	Lake Drive, Knockieran Lower	1,554	82
4	Lake Drive, Lacken	2,179	50
5	Lacken Primary School Road	143	35
6	Lake Drive, Ballyknockan	561	52
7	R759, West of Valleymount Bridge	1743	77
8	N81, South West of Town Centre	12,973	47



Figure 2 Traffic Survey Locations

2.2 Public Transport

Dublin Bus route 65 (Poolbeg Street to Blessington/Valleymount) will allow visitors to travel via public transport to and from Blessington from Dublin and Wexford. Bus Eireann Route 132 Dublin (Connolly Station) travels to and from Wexford Town via Blessington Town.

Wicklow County Council propose to provide a local link bus service which will follow the route of the greenway along the public road connecting the villages along the route. It is also envisioned that groups will visit the greenway via private coach tours. Currently private bus tours visit Russborough House & Parklands which will be directly connected to the scheme. There are currently 8 bus parking bays within Russborough House.

3 Existing Road Link Capacity

The existing road link capacity of the of the main rural roads in the vicinity of the project have been assessed based on TII DMRB Rural Road Link Design DN-GEO-03031 June 2017.

Table 2. Link Road Capacity

Road	Type	Provision	AADT Capacity for Level of service D
L4365	3	Single Carriageway	5,000
Lake Drive	3	Single Carriageway	5,000
R759	3	Single Carriageway	5,000

Source: TII DMRB Rural Road Link Design DN-GEO-03031

The estimated existing urban link peak hour capacities for the urban road N81 through Blessington Town is provided in the table below. The below capacity is calculated using the TII DMRB Traffic Capacity of Urban Roads TA 79/99. The urban road link capacities are per each direction based on a 60/40 directional split. As the classification of the N81 varies along the length of the scheme it is proposed to assess the N81 link at its point of least capacity.

Table 3. Urban Link Capacity

Road	Type	Lanes	Capacity per hour per direction
N81 Blessington	UAP 3	2	1140

Source: TII DMRB Traffic Capacity of Urban Roads TA 79/99

A comparison between the capacity and existing traffic volumes on each of the existing roads is outlined in Table 4 below.

Table 4. Assessment of Capacity and Existing Traffic Volumes

Road	Capacity (AADT)	Current AADT	Volume/Capacity %
L4365	5,000	3,333	67%
Lake Drive	5,000	1,554	31%
R579	5,000	1,553	31%
Road	Capacity per hour per direction	Peak Hour / Direction (60:40 Split)	Volume/Capacity %
N81	1,140	892	78%

The above assessment indicates the existing road network operates within capacity generally for most of a typical day.

Traffic modelling software has been used to assess the proposed shuttle system for Knockiernan Bridge, Baltyboys Bridge and Vallemount Bridge to manage a new shuttle system for vehicular traffic. The assessment and modelling output are contained with the Appendix to the Design Statement for Blessington eGreenway.

4 Car Parking

There are several car parking facilities already available surrounding the lake. Table 5 outlines the existing capacities and proposed additional spaces to be provided.

An additional total 100 car parking spaces are proposed to be provided at Knockiernan car park (50 spaces) and Russellstown car park (50 spaces). Additional bus parking will also be provided within these car parks.

Section 6.1.1 of this report identifies a peak daily arrival by car of 765 vehicles. Assuming all vehicles arrive in a 4-hour window and the average maximum stay is 2 hours than the demand for car parking spaces will peak at 382 vehicles. An over provision of car parking creates the conditions for more vehicular traffic and resulting congestion. The provision of 501 car parking spaces (100 additional car parking spaces) will be sufficient to accommodate the demand while also supporting active travel and public transport trips. While not part of this development further proposals for additional public parking, approximately 200 spaces, will be provided at council lands near the Avon for future planned recreation and amenity.

Table 5. Car Parking Facilities

Location	Existing Capacity	Additional Capacity Proposed
Blessington Hub	27	-
Russellstown	70	50
N81 car park	35	-
Baltyboys	56	-
Tulfarris	26 (for greenway only)	-
Valleymount West	36	-
Valleymount East	24	-
Lacken	20	-
Knockiernan	83	50 + 6 bus parking spaces
Ballyknockan	24	
Total	401	100 + 6 bus parking spaces

5 Construction Programme and Accesses

It is estimated the construction stage will take 18 months. The construction stage programme will be developed by the successful contractor in advance of commencement of the works. The works contractor will be required to prepare a comprehensive traffic management plan for the construction phase. The purpose of such a plan is to outline measure to manage the expected construction traffic activity during the construction period. Several construction access locations (No.25) have been identified in Figure 3. This will facilitate the efficient construction of the scheme.

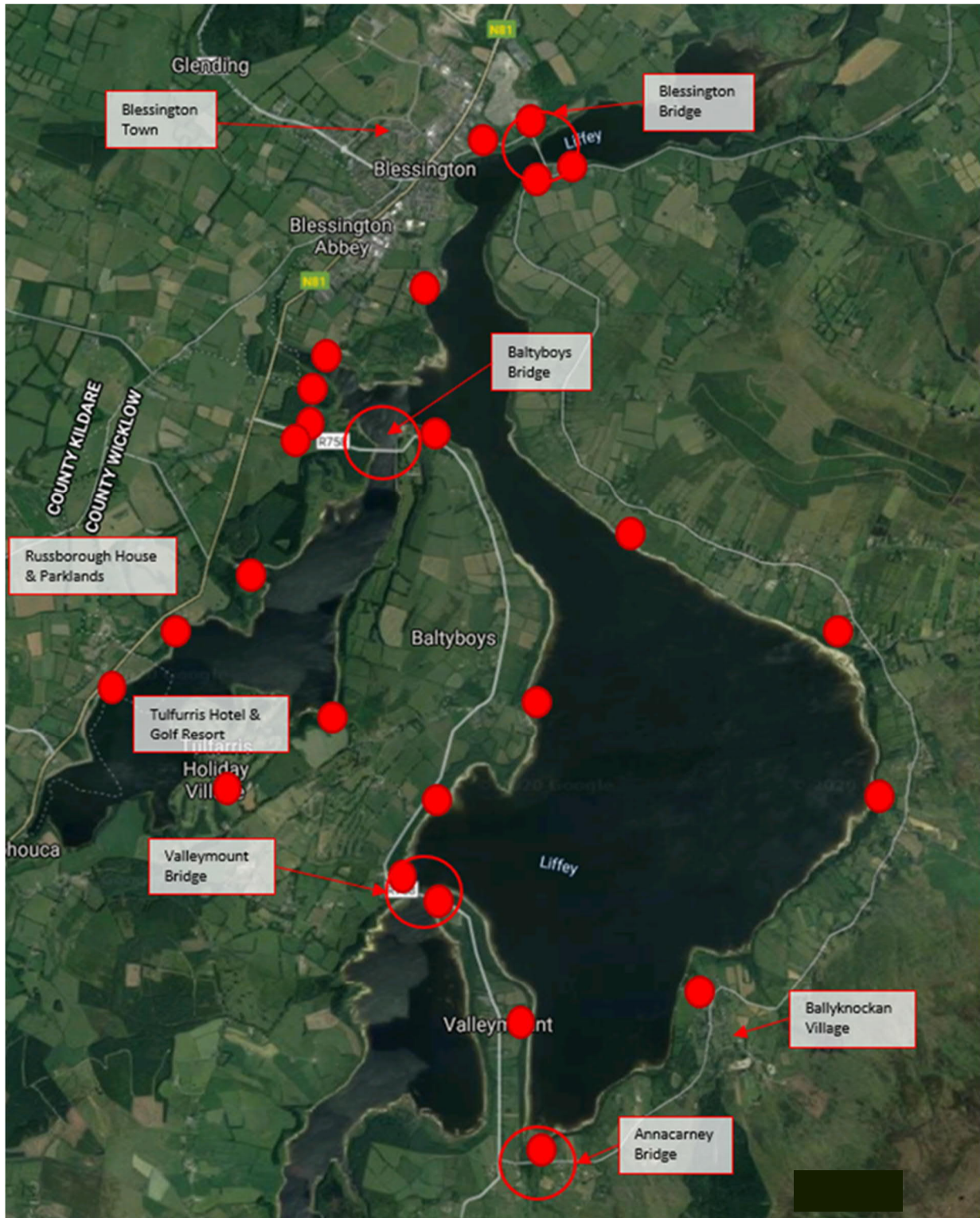


Figure 3 Construction Access Locations

6 Impact Assessment

6.1 Operational Stage

6.1.1 Trip Generation

It is projected that the Blessington eGreenway has the potential to attract 300,000 visitors annually. This projection was obtained from a business plan prepared by ILC.

The annual number of visitors was disaggregated into monthly, weekly, and daily profiles using quantitative data from greenways located a similar distance from Dublin. Using this information, it was possible to establish a weekend and weekday distribution split.

Table 6. Arrival Profile of Users

Time Period	Average	Peak
Monthly	23,105	42,177
Weekly	5,977	10,042
	Peak Weekday	Peak Weekend
Daily Users	1,328	1,700
Daily Users by Bus	133	170
Daily Users by Car	1,196	1,530
Average No. by Car	2	2
Daily Car Arrivals	598	765

6.1.2 Trip Distribution

A trip distribution was developed based on the volumes of traffic using these roads and the availability of car parking.

- N81 96% (i.e. 96% of arrivals and departures will use the N81)
- R578 32%
- L4365 Kilbride Road 23%
- Lake Drive 4%

6.1.3 Operational Stage Assessment

This section presents an overview of the potential impacts associated with the Proposed Development during its operational phase. The potential impacts look at the increase in traffic during the AM peak, PM peak and during the mid-day weekend peak as this is when it is anticipated that the greenway will be at its busiest. A conservative approach was taken, and the assessment is based on the visitor numbers for the peak summertime months. This will provide a worst-case scenario in terms of traffic impacts in the locality.

Table 7. Operational Stage Assessment

Road	AADT	Weekday AM Peak	Weekday PM Peak	Weekend Mid-Day Peak
Existing				
N81	11,997	1,486	1,257	869
L4365	3,333	287	344	334
Lake Drive	1,554	110	122	209
R579	1,553	109	122	209
Development Generated Traffic				
N81	716	51	81	128
L4365	168	12	19	30
Lake Drive	27	2	3	5
R579	269	19	30	48
Post Development				
N81	12,789	1,557	1,338	996
L4365	3,542	306	363	364
Lake Drive	1,588	113	125	214
R579	1,816	133	152	257

The table below compares future traffic volumes to the existing road links capacity as per Section 2. This comparison will determine the proposed impact on traffic in Blessington and the surrounding townlands should the project be constructed and fully operational. For the peak hourly traffic flow for the Urban Link Road Capacity analysis the weekday AM peak of 1557 vehicles was used as this is the maximum hourly traffic volume through the proposed link.

Table 8. Post Development Volume Capacity Assessment

Road	Capacity (AADT)	Post Development AADT	Volume/Capacity %
L4365	5,000	3,501	67%
Lake Drive	5,000	1,581	32%
R579	5,000	1,822	36%
N81	1,140	922	81%

The above table demonstrates the road network can satisfactorily accommodate the traffic associated with the operational stage of the proposed development.

6.2 Construction Stage

6.2.1 Trip Generation

Temporary traffic impacts during the construction for the import of 56,000m³ of construction materials and allowing for the export of up to 36,000m³ of unusable cut material. This equates to 6167 HGV movements each way. If construction takes 18 months this would result in on average 16 HGV's per day x 2-way trips.

Table 9. Construction Stage AADT

Activity	Trips per day
Construction operatives	150
HGV deliveries	32
Peak hour construction traffic	75

Table 10. Construction Stage Assessment

Road	Capacity (AADT)	Existing AADT	During Construction AADT	Volume/ Capacity (%)
L4365	5,000	3,333	3,723	74
Lake Drive	5,000	1,554	1,944	39
R759	5,000	1,553	1,943	36

Road	Capacity per hour per direction	Existing Peak Hour	During construction Peak	Volume/ Capacity (%)
N81	1,140	892	967	85%

The above table demonstrates the road network can satisfactorily accommodate the traffic associated with the construction stage of the proposed development.

7 Conclusion

This Transport Assessment has been prepared for the Blessington eGreenway. This report examines the traffic and transportation system in the vicinity of the greenway development works. Potential impacts associated with the construction and operation of the development, in relation to traffic and transportation are examined and assessed.

The assessment concludes sufficient car parking is being proposed within the development. It also concludes the road network can satisfactorily accommodate the increase in traffic associated with the construction and operational stages of the proposed development.

