Bonneagar Iompair Éireann
Transport Infrastructure Ireland

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Luas Finglas

Environmental Impact Assessment Report 2024

Appendix A6.2: Construction Traffic Management Plan

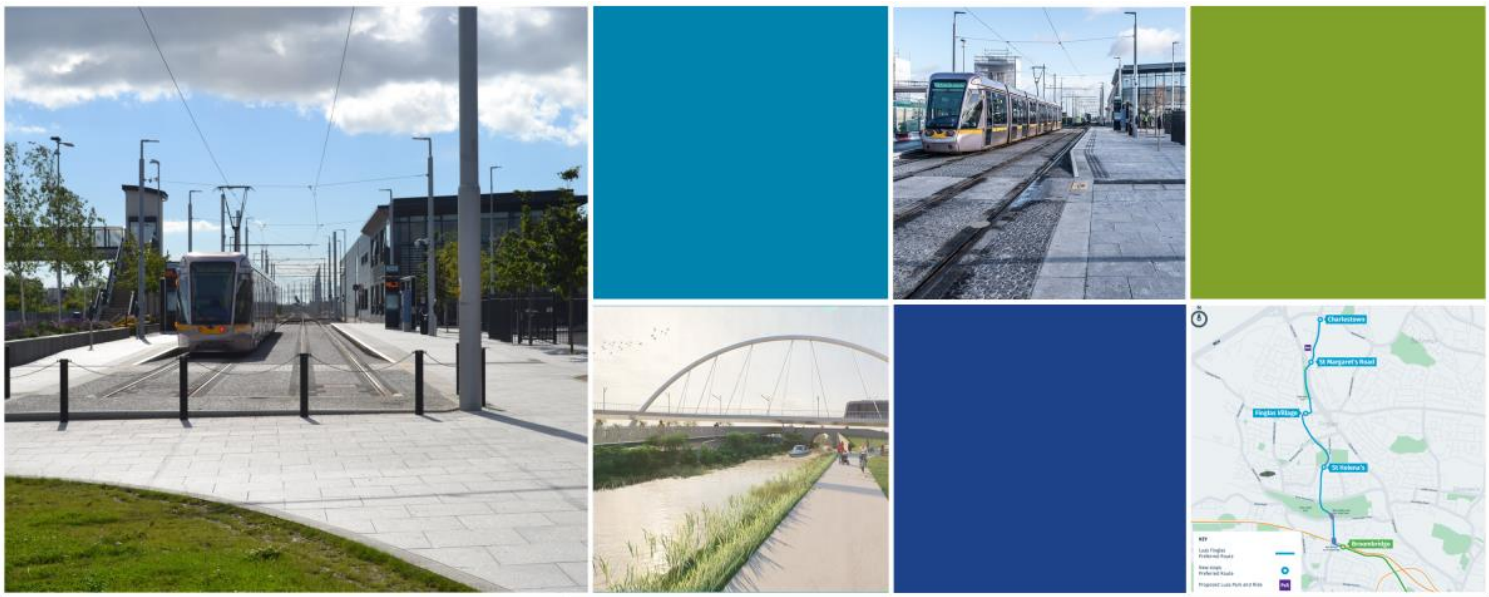
BARRY TRANSPORTATION
egis GROUP
egis

Project Ireland 2040
Building Ireland's Future

Transport Infrastructure Ireland

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Luas Finglas
Preliminary Design & Statutory Process



EIAR
Construction Traffic Management Plan

BARRY TRANSPORTATION

egis

Table of Contents

Appendices

List of Figures

List of Tables

SECTION 1 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

1.1 Introduction

The Construction Traffic Management Plan (hereafter referred to as the CTMP) has been prepared to demonstrate the manner in which the interface between the public and construction-related traffic will be managed and how vehicular movement will be controlled.

1.1.1 Purpose

The purpose of this CTMP is to demonstrate that the residual impacts to public road network during the Construction Phases of the proposed Scheme, which have been identified in the application documentation, can be minimised and that transport related activities are carried out as safely as possible and with the minimum disruption to other road users. The CTMP has also been prepared for the purpose of identifying feasible, appropriate and safe methods of access for construction traffic to the proposed Scheme. Moreover, this CTMP provides a basis for the management of traffic during the Construction Phase of the proposed Scheme to be undertaken by the Project Supervisor for the Construction Stage (PSCS)/Contractor of the project. This plan must be finalised by the PSCS prior to commencing the works and should not be implemented until it has been assessed and developed by the PSCS. The PSCS shall co-ordinate the implementation of the developed Traffic Management Plan during construction of the works.

1.1.2 Objectives

The objectives of the CTMP are to:

- Outline minimum road safety measures to be undertaken, including site access / egress locations, during the works;
- Provide measures that respond to all road user needs, including public transport, pedestrians, cyclists and vehicular traffic;
- Ensure disruption is minimised, with access to houses and businesses maintained as is reasonably practicable in delivering the proposed Scheme;
- Demonstrate to Dublin City Council (DCC), Fingal County Council (FCC), the appointed contractor and suppliers the need to adhere to the relevant guidance documentation for such works; and
- Identify objectives and measures for inclusion in the management, design and construction of the proposed Scheme to control the traffic impacts of construction insofar as it may affect the environment, local residents and the public in the vicinity of the construction works.

1.1.3 Scope

This CTMP illustrates a potential traffic management design for the transportation of construction materials, equipment and personnel along the public road network to facilitate the construction of the proposed Scheme. Light vehicles, such as cars and vans, are used by operatives travelling to and from the works areas. Lorries deliver general construction materials, such as concrete, to/from/around the works areas.

This CTMP should be read in conjunction with Chapter 6 (Construction Activities) of this EIAR.

1.2 Proposed Construction Activities

1.2.1 Overview

Construction activities to be carried out as part of the p are illustrated in Chapter 6 (Construction Activities) of this EIAR. The proposed Scheme is approximately 3.9 km long and entails the new northern extension of the Luas Green Line from its current terminus in Broombridge to a new terminus in Charlestown, near the N2-M50 interchange, with 4 new stops, two major bridges, one new Park and Ride (P&R), an extension to a new Broombridge Stabling Site and associated works. The proposed works shall include planning, excavation, temporary stockpiling (if required), installing, disposal, import, haulage, construction of new bridges and tracks. The Construction Phases of the proposed Scheme shall require movements of materials to/from/around the works areas. Most of the materials leaving the works areas will consist of road plannings.

Due to the dispersed nature of the scheme, it is envisaged that multiple sections will be progressed at the same time as part of the overall phasing of the proposed Scheme in order to optimise the programme duration. The proposed Scheme has been divided into four distinct areas and eleven sections as shown in Table 1-1 and Figure 1-1.

Table 1-1: List of Areas and Sections

Area	Area Description	Section No.	Section Description
30	Broombridge Depot	S30.1	Broombridge Stabling Site
31	Broombridge to Tolka Valley Road	S31.1	Broombridge to Tolka Valley Park
		S31.2	Tolka Valley Park Bridge
		S31.3	Tolka Valley Park to Tolka Valley Road [overlapping Section 31.2]
32	Tolka Valley Road to Finglas Village Stop	S32.1	Tolka Valley Road to St Helana's Road and St Helena's Stop
		S32.2	St Helena's Road to Cardiff Castle Road
		S32.3	Finglas Village and Finglas Village Stop
33	North of Finglas Village Stop to the terminus (Charlestown Stop)	S33.1	Mellowes Park
		S33.2	R135/R104 junction
		S33.3	St Margaret's Stop (including Park and Ride facilities)
		S33.4	St Margaret's Road and Charlestown Terminus

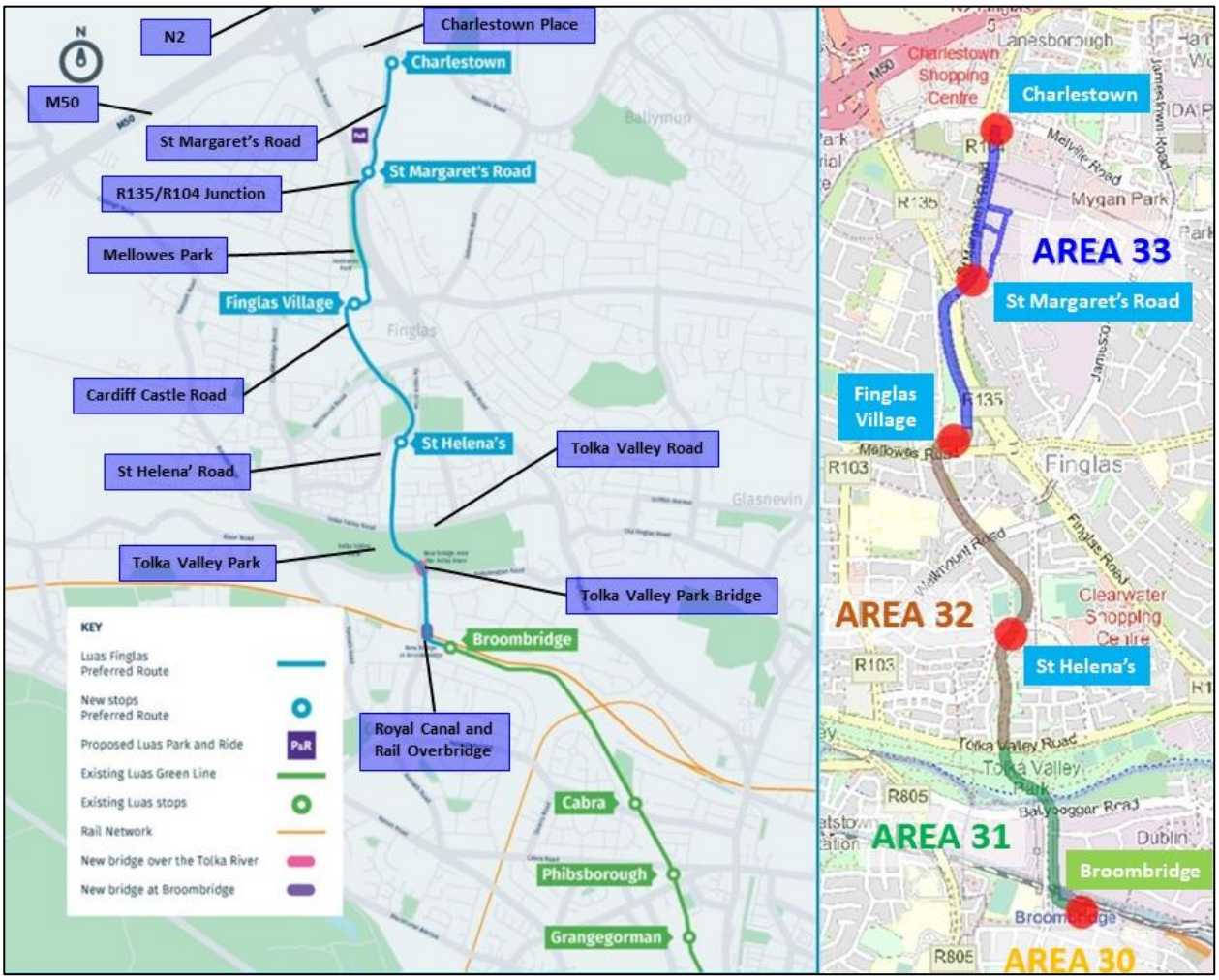


Figure 1-1: Area and Section of the proposed Scheme

1.2.2 Construction Programme

To facilitate the works, TII are currently planning to procure the Works under Enabling Works contracts, a Main Works – Main Civil and Track Works contract and a Main Works - Power and Systems contract. A programme for the proposed Scheme is provided in Section 6.3.3 in Chapter 6 (Construction Activities) of this EIAR. The total Construction Phase duration for the overall proposed Scheme, including the procurement period, is estimated at approximately 6 years. The expected construction programme for the construction of the Main Works including testing and commissioning is approximately 3.5 years. Enabling Works contracts, with approximately 1 year, will be progressed in advance of this. Multiple work fronts will be progressed concurrently during the Main Works in order to achieve the overall programme.

In order to achieve the overall programme duration, it will be necessary to work on more than one section at any one time. The programme has been prepared with a view to providing as much separation as practicable between sections under construction at any given time. This has been done in order to minimise traffic disruption and facilitate the ease of movement of sustainable modes, bus services and goods along the proposed Scheme.

The staging of construction and associated temporary traffic management measures has considered the receiving environment when developing the schedule of works.

1.2.3 Temporary Traffic Management Designs

In the event An Bord Pleanála decides to grant approval for the proposed Scheme, Temporary Traffic Management designs (drawings and method statements) will be prepared by the appointed contractor in accordance with the requirements of the 'Traffic Signs Manual Chapter 8 – Temporary Traffic Measures and

Signs for Roadworks)' published by the Department of Transport in August 2019 and the "Temporary Traffic Management Design Guidance" 3rd Edition 2019 published also by the Department of Transport, to facilitate the safe and efficient construction of the proposed Scheme.

To minimise the traffic impacts to public during construction, the works along public roads (i.e. Broombridge Road, Patrickswell Place, St Margaret's Road, etc.) will be phased so as to first complete the demolition works and road alignment works outside the existing roads. After that, more space can be provided to facilitate the construction works and the existing traffic lanes can be shifted to the new space in order to maintain the number of traffic lanes as far as possible.

Temporary construction traffic management provisions should be developed using works areas for the purpose of safety, to minimise disruption and to facilitate the smooth operation of construction activities. The temporary traffic management schemes will be implemented phase by phase to facilitate the works. The roads and streets along the proposed Scheme, will remain open to general traffic wherever practicable during the Construction Phase. However, lane closures, road closures and diversions will be necessary to facilitate construction. Traffic management provisions for each section are included in Table 1-2.

Table 1-2: Traffic Management Provisions at each Section

Section No.	Estimated Construction Duration	Traffic Management Provisions
S30.1	18 months	The proposed works is mainly located at the existing Broombridge depot and outside the public road so no specific traffic management is anticipated.
S31.1	18 months	All works which will affect the railway will be completed during night and weekend possessions. All works which will affect the Royal Canal shall fulfil the requirements as stipulated in the Waterways Ireland restriction. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided. Overnight junction closure to facilitate road pavement works and construction of Tolka Valley River Bridge. Overnight closure along Broombridge Road to facilitate material deliveries (i.e. structural elements).
S31.2	12 months	Provision of pedestrian crossings facilitates within the Tolka Valley Park is required as two new haul roads from Ballyboggan Road to south riverbank and from Tolka Valley Road to north riverbank / construction compound will be provided to facilitate the proposed works. The detailed requirements for the proposed works passing through Public Areas shall be referred to the Section 6.5.18 of Chapter 6 (Construction Activities) of this EIAR. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided.
S31.3	12 months	
S32.1	9 months	Provision of pedestrian crossings facilitates within the park is required as a new haul road between Tolka Valley Road and St Helena's Road will be provided to facilitate the proposed works. The detailed requirements for the proposed works passing through Public Areas shall be referred to the Section 6.5.18 of Chapter 6 (Construction Activities) of this EIAR.

Section No.	Estimated Construction Duration	Traffic Management Provisions
		Provision of appropriate signs to divert vehicles travelling to Resource Centre and Childcare Centre via Farnham Drive extension due to permanent closure of access road, which is located to the west of Resource Centre and Childcare Centre. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided.
S32.2	12 months	Provision of pedestrian crossings facilitates within the Farnham Pitches is required as a new haul road between St Helena's Road and Wellmount Road will be provided to facilitate the proposed works. The detailed requirements for the proposed works passing through Public Areas shall be referred to the Section 6.5.18 of Chapter 6 (Construction Activities) of this EIAR. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided. Overnight junction closure to facilitate road pavement works.
S32.3	9 months	Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided.
S33.1	12 months	Provision of pedestrian crossings facilitates near the southern boundary of Mellowes Park is required as a new haul road between Mellows Road and link road into Casement Road will be provided to facilitate the proposed works. The detailed requirements for the proposed works passing through Public Areas shall be referred to the Section 6.5.18 of Chapter 6 (Construction Activities) of this EIAR. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). Minimum road lane widths of 3.0 metres must be provided. Overnight full lane closure at R135 as required to facilitate demolition of pedestrian footbridge across the R135. For the affected northbound traffic on R135, traffic will be diverted via Mellowes Road, Finglaswood Road and Cardiff Castle Road. For the affected southbound traffic on R135, traffic will be diverted via St Margaret's Road, Mckee Avenue, Jamestown Road, Seamus Ennis Road and North Road. Safe pedestrian crossings will need to be in place at the R135/R104 junction prior to the demolition work of the existing footbridge.
S33.2	9 months	Phased lane closures as required such as lane narrowing or single lane closure during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. demolition of central island of roundabout and traffic islands, utilities / cable duct laying works, installation of kerb / tracks, etc.). Temporary traffic lights are not envisaged during the initial phasing until the layout is fully changed from a roundabout to a signalised junction with 2 lanes in each direction along the R135. Minimum road lane widths of 3.0 metres must be provided. Overnight junction closure to facilitate road pavement works.
S33.3	24 months	Phased lane closures as required (i.e. lane narrowing or realignment of lanes).

Section No.	Estimated Construction Duration	Traffic Management Provisions
		One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided. Overnight junction closure to facilitate road pavement works.
S33.4	12 months	Liaison with stakeholders of St. Margaret's Court about changing the access from St. Margaret's Road to Jamestown Business Park. Phased lane closures as required (i.e. lane narrowing or realignment of lanes). One lane of traffic in either direction will be maintained as required by using temporary traffic signals or STOP/GO traffic management scheme, which will only be permitted during the off-peak hour (i.e. 10:00 – 16:00 and overnight works) to facilitate the works (i.e. utilities / cable laying works and installation of tracks at the junctions). Minimum road lane widths of 3.0 metres must be provided. Overnight junction closure to facilitate road pavement works.

1.2.4 Traffic Management Principles and Standards

Temporary traffic control measures will be required to facilitate the construction works. Trenches will be excavated on one side of the road at any one time, allowing single lane traffic flow on the other side via a shuttle system if road width permits. The excavation must be reinstated prior to excavation of the opposite side. A shuttle system of traffic flow shall be adopted to enable traffic to pass through the works on one lane only if the remaining road width permits. This may be operated by two methods:

- "STOP and GO"; and
- Temporary Traffic Signals.

"STOP and GO" allows traffic flow to move according to demand. It is ideal during peak traffic flow periods. Signing (Traffic Signs Manual references RUS 060 and RUS 061) and coning for the "STOP and GO" system shall be in accordance with "Traffic Signs Manual (Chapter 8 – Temporary Traffic Measures and Signs for Roadworks)" and "Guidance for the Control and Management of Traffic at Roadwork Manual". This operation must be undertaken by trained personnel wearing high visibility garments.

Temporary traffic signals can be vehicle actuated or manually operated. Temporary traffic signals must be positioned with adequate forward visibility, and where possible, have inter-visibility. The design and the operation of temporary traffic signals shall be undertaken by competent personnel.

Where temporary traffic signals are adopted for traffic management then signage and coning for Temporary Traffic Signals should be in accordance with 'Traffic Signs Manual (Chapter 8 – Temporary Traffic Measures and Signs for Roadworks)' and the 'Guidance for the Control and Management of Traffic at Roadwork Manual'.

Temporary safety barriers placed around the working area should be clearly defined by temporary road markings, signage and coning as specified in Chapter 8 of the Traffic Signs Manual. The PSCS/Contractor shall carry out a risk assessment before commencing any works on site, to determine the type of barriers (if any) and cones most suitable for the works.

Static lane closures will be required under this contract. A static lane closure is appropriate for works that are confined to a fixed location. The appropriate level of signage and temporary traffic measures required for a static lane closure are detailed in "Guidance for the Control and Management of Traffic at Road Works".

Works to be undertaken within or less than the 60km/hr speed limit zones. In accordance with Table 8.2.2.2 to Table 8.2.2.5 of Chapter 8 of the Traffic Signs Manual, a lateral safety zone of 0.5 metres is required for works being undertaken within or less than the 60km/hr limit between the works and shuttled traffic operating on a "STOP and GO" system. A minimum lane width of 3.0 metres is required for normal traffic including buses and HGV's.

Road closures will be required under this contract. A road closure is appropriate for works that are confined to a fixed location and where the minimum lane widths in accordance with Chapter 8 of the Traffic Signs Manual cannot be maintained. In such instance traffic should be temporarily diverted on signed detours on suitable roads to accommodate the diverted traffic. If it is not possible to provide a detour, i.e. cul-de-sac, then temporary alternative arrangements should be made for locals to access their properties and for emergency vehicle access through the works site. Road closures are not permitted along routes where diversion routes are currently in operation.

There are pedestrian footpaths on some streets subject to the works and it is the responsibility of the PSCS/Contractor to maintain them for the duration of the works. Where the works are taking place on footpaths then alternative measures for pedestrians must be facilitated on site. The requirements of clause 8.2.8 of 'Traffic Signs Manual (Chapter 8 – Temporary Traffic Measures and Signs for Roadworks)' must be adhered to.

All public roads affected by the works have a posted speed limit between 30km/hr and 60km/hr. In accordance with Chapter 8 of the Traffic Signs Manual, the design parameters will be Level 1. As the works will operate in all flow and visibility conditions, it is anticipated that the class of the roadworks more than 12 hours and less than 12 hours will be 'Type A' and 'Type B' respectively. The temporary traffic measures should be in accordance with Table 8.2.2.2 to Table 8.2.2.5 from Chapter 8 of the Traffic Signs Manual.

It is the PSCS/Contractor's responsibility to keep informed, inter alia by close liaison with the Gardaí, DCC, FCC and the Employer's Representative, of on-going or planned construction events, which may impact on his works.

The Contractor must obtain approval from DCC and FCC for the final developed CTMP before commencement of construction.

All works areas shall be surrounded with secure barriers to prevent access to the public both during the day and at night.

1.2.5 Lane Width Restrictions and Alterations to Footpaths

The PSCS/Contractor shall liaise with DCC, FCC and the Garda Siochána when and where it is intended to reduce traffic lane widths or make alterations to public footpaths. The PSCS/Contractor will be required to provide the following information:

- Location of lane width restrictions and footpath alterations;
- Data and duration of lane width restrictions and footpath alterations;
- Details of restricted width of traffic lane or footpath. Lane widths should be in accordance with Table 8.2.2.2 to Table 8.2.2.5 of Chapter 8 of the Traffic Signs Manual;
- Details of associated signage and warning to motorists and pedestrians, including road markings; and
- Details of proposed system of public communications and public liaison.

1.2.6 Undertaking of Works

Traffic Control measures will be required to facilitate the construction works. Temporary safety barriers placed around the working area should be clearly defined by temporary road markings, signage and coning as specified in Chapter 8 of the Traffic Signs Manual. The PSCS shall carry out a risk assessment before commencing any works on site, to determine the type of barriers (if any) and cones most suitable for the works.

It is envisaged that both static lane closures and temporary road closures will be required under this contract. A static lane closure is appropriate for works that are confined to a fixed location and where minimum lane widths can be maintained. The appropriate level of signage and temporary traffic measures required for a static lane closure is detailed in "Guidance for the Control and Management of Traffic at Road Works". Following lane closure design, the PSCS shall develop a suitable method of controlling traffic past the works site.

It is the Contractor's responsibility to keep informed, inter alia by close liaison with the Gardaí, DCC, FCC, Roads Department and the Employer's Representative, of other ongoing or planned construction events which may impact upon his works.

The Contractor must submit the developed CTMP to DCC and FCC for review and approval before commencement of construction.

The DCC and FCC procedures for road opening licences must be strictly adhered to. The Contractor is entirely responsible for obtaining Road Opening Licenses and Road Closures as necessary to enable him to fulfil his contractual obligations.

The works to be undertaken take place on public roads with posted speed limits between 30km/hr and 60km/hr. Temporary Traffic Management measures on public roads with posted speed limit of equal to or less than 30km/hr shall be in accordance with Table 8.2.2.2 (Minimum Design Parameters for Level 1(i) Roads) as presented in Table 1-3. Temporary Traffic Management measures on public roads with posted speed limit of 40km/hr shall be in accordance with Table 8.2.2.3 (Minimum Design Parameters for Level 1(ii) Roads) of Chapter 8 of the Traffic Signs Manual respectively as presented in Table 1-4. Temporary Traffic Management measures on public roads with posted speed limit of 50km/hr shall be in accordance with Table 8.2.2.4 (Minimum Design Parameters for Level 1(iii) Roads) of Chapter 8 of the Traffic Signs Manual respectively as presented in Table 1-5. Temporary Traffic Management measures on public roads with posted speed limit of 60km/hr shall be in accordance with Table 8.2.2.5 (Minimum Design Parameters for Level 1(iv) Roads) of Chapter 8 of the Traffic Signs Manual respectively as presented in Table 1-6.

The Contractor is required to programme/sequence the works to ensure that no works are undertaken on roads during periods when they are operating as diversion routes for works in other areas. In addition, the Contractor is required to programme/sequence the works to ensure that traffic impacts as a result of the works are kept to a minimum.

Table 1-3: Minimum Design Parameter for Level 1(i) Roads (Single Carriageway ≤ 30km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Warning Signage			
Sign Size (mm)	450	450	-
Sign Visibility (m)	25	25	25
Number of Signs	2	1	-
Cumulative Distance (m)	20	10	-
Distance between Advance Warning Signs (m)	10	10	-
Taper			
Lane Taper Rate	1 in 1	1 in 1	-
Cones			
Cone Height (mm)	750	750	
Taper Spacing (m) [A]	1	1	-
Longitudinal Spacing (m) [A]	3	3	-
Lamps (unlit areas only)			
Taper Spacing (m)	3	3	-
Longitudinal Spacing (m)	6	6	-
Safety Zones			
Longitudinal (m)	0.5	0.5	-
Lateral (m)	0.5	0.5	-
Lanes			
Lane Width (m) [B]	2.5	2.5	-
Two-way Roadway Width (m)	5	5	-

Notes:

A. Cone spacing is the maximum permitted. Where geometry or any other site-specific reason dictates, the spacing shall be reduced accordingly.

B. The optimum lane width for all classes of vehicles is 3.3m. This may be reduced to a minimum of 3m. Below this, HGVs and buses must be marshalled past the works. The absolute minimum lane width, if only cars and light vehicles are present, is 2.5m. Refer to Paragraphs 8.4.3.1 to 8.4.3.3.

Table 1-4: Minimum Design Parameter for Level 1(ii) Roads (Single Carriageway of 40km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Warning Signage			
Sign Size (mm)	450	450	-
Sign Visibility (m)	35	35	35
Number of Signs	2	2	-
Cumulative Distance (m)	30	30	-
Distance between Advance Warning Signs (m)	15	15	-
Taper			
Lane Taper Rate	1 in 1	1 in 1	-
Hard Shoulder Taper Rate			-
Cones			
Cone Height (mm)	750	750	-
Taper Spacing (m) [A]	1	1	-
Longitudinal Spacing (m) [A]	3	3	-
Lamps (unlit areas only)			
Taper Spacing (m)	3	3	-
Longitudinal Spacing (m)	6	6	-
Safety Zones			
Longitudinal (m)	0.5	0.5	-
Lateral (m)	0.5	0.5	-
Lanes			
Lane Width (m) [B]	3 (2.5)	3 (2.5)	-
Two-way Roadway Width (m)	5	5	-

Notes:

A. Cone spacing is the maximum permitted. Where geometry or any other site-specific reason dictates the spacing shall be reduced accordingly.

B The optimum lane width for all classes of vehicles is 3.3m. This may be reduced to a minimum of 3m. Below this, HGVs and buses must be marshalled past the works. The absolute minimum lane width, if only cars and light vehicles are present, is 2.5m. Refer to Paragraphs 8.4.3.1 to 8.4.3.3.

Table 1-5: Minimum Design Parameter for Level 1(iii) Roads (Single Carriageway of 50km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Warning Signage			
Sign Size (mm)	600	600	-
Sign Visibility (m)	50	50	50
Number of Signs	2	2	-
Cumulative Distance (m)	40	40	-
Distance between Advance Warning Signs (m)	20	20	-
Taper			
Lane Taper Rate [A]	1 in 5	1 in 5	-
Hard Shoulder Taper Rate [A]			-
Cones			
Cone Height (mm)	750	750	-
Taper Spacing (m) [B]	3	3	-
Longitudinal Spacing (m) [B]	3	3	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	6	6	-
Safety Zones			
Longitudinal (m)	5	5	-
Lateral (m)	0.5	0.5	-
Lanes			
Lane Width (m) [C]	3 (2.5)	3 (2.5)	-
Two-way Roadway Width (m)	5	5	-

Notes:

A. 45° taper is required at shuttle traffic controlled layouts with cones at 1m centres.

B. Cone spacing is the maximum permitted. Where geometry or any other site-specific reason dictates the spacing shall be reduced accordingly.

C The optimum lane width for all classes of vehicles is 3.3m. This may be reduced to a minimum of 3m. Below this, HGVs and buses must be marshalled past the works. The absolute minimum lane width, if only cars and light vehicles are present, is 2.5m. Refer to Paragraphs 8.4.3.1 to 8.4.3.3.

Table 1-6: Minimum Design Parameter for Level 1(iv) Roads (Single Carriageway of 60km/h & Multi- Lane / Dual ≤ 60km/h)

Design Parameter	Type A > 12 hours	Type B < 12 hours	Type C < 15 mins
Advance Warning Signage			
Sign Size (mm)	600	600	-
Sign Visibility (m)	60	60	60
Number of Signs	3	2	-
Cumulative Distance (m)	60	40	-
Distance between Advance Warning Signs (m)	20	20	-
Taper			
Lane Taper Rate [A]	1 in 10	1 in 10	-
Hard Shoulder Taper Rate [A]			-
Transition Length (m)	2 x Taper Length	2 x Taper Length	
Cones			
Cone Height (mm)	750	750	-
Taper Spacing (m) [B]	3	3	-
Longitudinal Spacing (m) [B]	6	6	-
Lamps (unlit areas only)			
Taper Spacing (m)	6	6	-
Longitudinal Spacing (m)	12	12	-
Safety Zones			
Longitudinal (m)	15	15	-
Lateral (m)	0.5	0.5	-
Lanes			
Lane Width (m) [C]	3 (2.5)	3 (2.5)	-
Two-way Roadway Width (m)	5	5	-

Notes:

A. 45° taper is required at shuttle traffic controlled layouts with cones at 1m centres.

B. Cone spacing is the maximum permitted. Where geometry or any other site-specific reason dictates the spacing shall be reduced accordingly.

C The optimum lane width for all classes of vehicles is 3.3m. This may be reduced to a minimum of 3m. Below this, HGVs and buses must be marshalled past the works. The absolute minimum lane width, if only cars and light vehicles are present, is 2.5m. Refer to Paragraphs 8.4.3.1 to 8.4.3.3.

1.2.7 Envisaged Construction Traffic Generation

Traffic will be generated during the Construction Phase of the proposed Scheme. Construction traffic can be expected to comprise of trips for the following purposes:

- Journeys by construction personnel to and from the proposed Scheme;
- Delivery and removal of materials to and from the proposed Scheme:
  - Clearance of existing material and waste;
  - Deliveries of construction material; and
  - Removal of construction waste material.

Construction activities associated with the proposed Scheme typically follow a work sequence. The movement of construction vehicles to and from the proposed Scheme is determined by this work sequence; materials either being 'removed from' or 'delivered to' site. There is also stationary dwell time as material is being unloaded or loaded at either end of a journey. Lorry movements for typical construction activity cycles are shown in **Figure 1-2** and **Figure 1-3**.

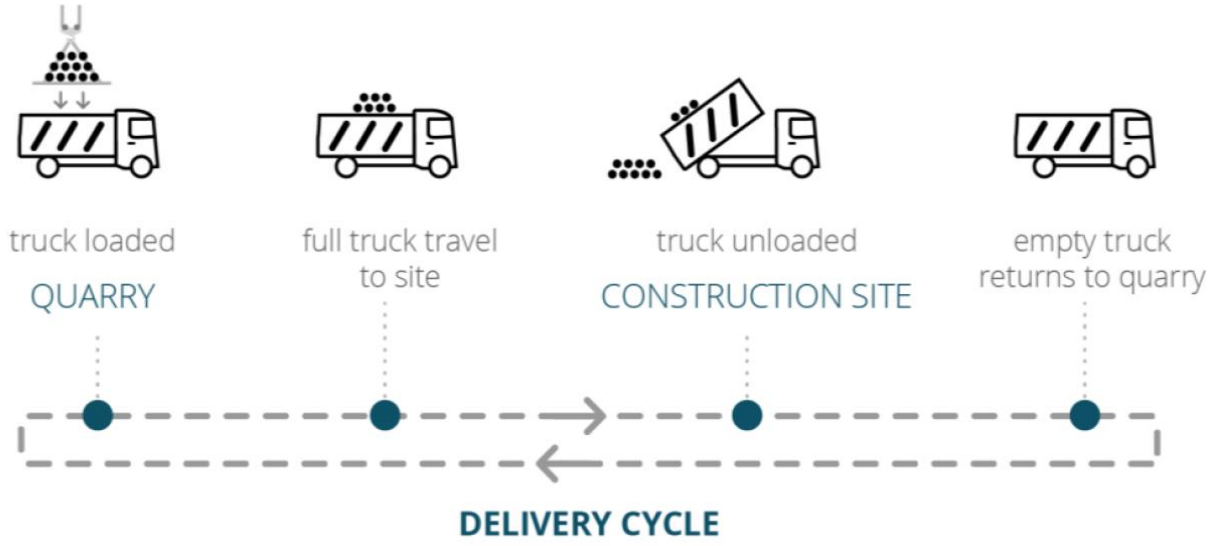


Figure 1-2: Lorry Movements for 'Removal' of Materials

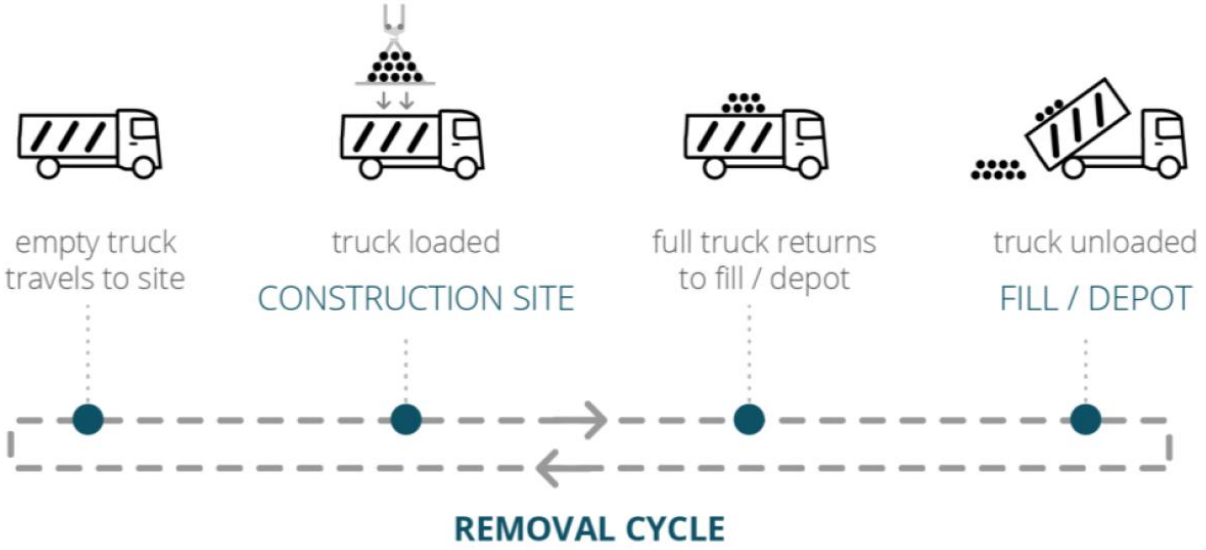


Figure 1-3: Lorry Movements for 'Delivery' of Materials

The proposed works shall include planning, excavation, temporary stockpiling (if required), installing, disposal, import, haulage, construction of new bridges and tracks. Other activities such as traffic signal installation, signage and line marking, do not require lorry movements. Lorries are not always required to facilitate construction activities.

1.2.8 Removal and Delivery of Materials

An estimate peak of construction plant and equipment that will be necessary to construction the proposed Scheme is provided in Section 6.8 in Chapter 6 (Construction Activities) of this EIAR. Of the plant and equipment in operation during construction, lorries use the public road network for delivery and removal of materials to and from the proposed Scheme.

Lorry movements will be managed during the periods of 07:00 to 09:00 and 17:00 to 19:00 to minimise the impact of construction related traffic on peak-hour general traffic.

Construction vehicles will be directed to access work sections via the proposed Scheme and dedicated routes on the National and Regional Road Network where practicable, to minimise use of the Local Road Network. The routes are outlined in Section 1.3.3 of this CTMP. However, local roads which cross the proposed Scheme will also need to be used for localised access to the Works.

1.2.9 Journeys by Construction Personnel to and from the proposed Scheme

Personnel numbers for the proposed Scheme are illustrated in Section 6.7 in Chapter 6 (Construction Activities) of this EIAR. Throughout the Construction Phase the construction workforce numbers will vary depending on the stage of the proposed Scheme. However, it is anticipated that there will be a construction workforce of approximately 180 people directly employed. In addition, it is anticipated that there will be significant indirect employment supported by the proposed Scheme, for example: in logistical support companies, material and plant suppliers, traffic management companies and in the local service industry.

The appointed contractor will prepare a Construction Stage Mobility Management Plan (CSMMP) to actively discourage personnel (including client, design teams and construction contractors involved in this project) from using private vehicles to travel to the proposed Scheme. The CSMMP will promote the use of public transport, cycling and walking by personnel. Private parking at the Construction Compounds will be limited. Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity e.g. for transporting heavy equipment.

Typical working hours are from 07:00 to 19:00 on weekdays (excluding Bank and Public Holidays) and from 07:00 to 13:00 on Saturdays. This includes standard delivery hours to the construction sites and a half hour to prepare site at each end (i.e. giving 11 hours working on weekdays: 07:30 to 18:30).

1.3 Construction Traffic Management Plan Contents

Based on this CTMP, the appointed contractor shall be responsible for developing a Construction Traffic Management Plan (CTMP) to effectively manage traffic and transport during the construction stage of the project. The appointed contractor shall address the following aspects, in addition to any other aspects identified by the appointed contractor during the preparation of the CTMP:

- Access and egress;
- Construction Compounds;
- Routing of construction vehicles;
- Pedestrian (including able-bodied pedestrians, wheel-chair users, mobility impaired pedestrians, pushchair users, etc.) and cyclist provisions;
- Public transport provisions;
- Parking and access;
- Lighting;
- Construction Stage Mobility Management Plan (CSMMP);
- Traffic management signage;

- Timings of material deliveries;
- Traffic management speed limits;
- Vehicle cleaning;
- Road condition;
- Road closures and diversions;
- Enforcement of Construction Traffic Management Plan;
- Interface with other projects;
- Emergency procedures during construction;
- Communication;
- Public Notices;
- Key Personnel and Organisations – Responsibilities; and
- Garda Síochána.

The PSCS/Contractor shall finalise and implement this Construction Traffic Management Plan. This Plan must be submitted to DCC and FCC for review and agreed prior to work commencing and shall include drawings detailing all proposed arrangements including those listed below:

- The location and details of any proposed road closures including temporary diversions and duration of proposed closure;
- Details of lane width restrictions, footpath alterations, and proposed alterations to established traffic management systems;
- Details of lane width restrictions, footpath alterations, and proposed alterations to established traffic management systems;
- The location and details of all temporary signage to be erected by the PSCS/Contractor; and
- Details of any arrangements for the delivery and storage of plant, equipment, and materials.

A Road Opening License will be required from DCC and FCC prior to commencement of the works.

All road opening licenses, temporary traffic management plans and method statements will be monitored, and DCC and FCC reserve the right to alter and amend in the interest of Traffic Management health and safety.

Where Shuttle Working is permitted under the approved traffic management plan, a one-way traffic system using 'STOP/GO' boards or temporary traffic signals may be implemented which shall comply with the specific Traffic Management Plan conditions. The Licensee/Contractor is advised that the use of regulatory traffic control (e.g. Stop/Go Boards; temporary traffic signals) is subject to the approval of An Garda Síochána and the Licensee/Contractor shall consult with An Garda Síochána prior to commencement of the works.

Outside the working hours agreed in the Traffic Management Plan and the roads authority T-consents, two-way traffic flow is to be maintained on the public road at all times.

The safe passage of pedestrians (including Mobility Impaired) and cyclists along the public road shall be maintained at all times during the period of the works and adequate signage for pedestrians will be provided.

In the event of excessive traffic disruption/congestion arising due to unforeseen circumstances/events, e.g. traffic collision, the Licensee shall, upon being so directed by DCC and FCC, suspend the works, save that any such suspension shall not apply to works/measures necessary to maintain the safety/security of the site or to prevent immediate loss/damage/injury to persons or property. The Licensee shall thereafter consult with the DCC, FCC, Municipal District, regarding any variation or amendment to the works, their management or sequence that may be required prior to works recommencement.

Where, as a result of any such discussions, amendments to the Traffic Management Plan are proposed, the Licensee/Contractor shall apply to DCC and FCC for a variation/amendment to same as provided for above.

All signs and traffic management apparatus shall be removed promptly when not required and two-way traffic flow shall be restored on all roads outside of actual working hours. However, any signs/apparatus not causing an obstruction to traffic/pedestrians, and whose re-use is required in the very short-term (e.g. less than 24hrs), may be temporarily covered or otherwise masked.

The Contractor is required to programme/sequence the works to ensure that no works are undertaken on roads during periods when they are operating as diversion routes for works in other areas. In addition, the Contractor is required to programme/sequence the works to ensure that traffic impacts as a result of the works are kept to a minimum.

Road and junction upgrade and reinstatement works will be completed in a staged manner whereby traffic of all modes will be managed to ensure construction can continue while ensuring the safety of all road users, and personnel, and maintaining flow of all modes of transport so far as practicable.

The roadworks will require preparation of a comprehensive traffic management plan to facilitate safe construction and minimise the impact on pedestrian and vehicular traffic.

Further details on issues to be addressed are provided in Section 1.3.1 to Section 1.3.23.

1.3.1 Access and Egress

The appointed contractor shall provide advanced warning signs, in accordance with Chapter 8 of the Traffic Signs Manual, on approach to the proposed access locations, entry and exit points throughout the live working area.

The following provisions should be made in terms of traffic management at construction access points:

- Advance warning signage of construction access points must be adequately signed on the local road i.e. construction vehicle access ahead, uneven surface, and flagman control ahead;
- Construction access gates should remain closed when not in use;
- A site safety notice should be erected at construction access points;
- Temporary traffic management measures deployed during the hours of darkness should serve to highlight the precise location of the construction access. Such measures could include additional traffic cones, road danger lamps and/or reflectorised signage;
- Routine inspection should be carried out to ensure that signage and visibility splays are not obstructed;
- Control of dust generated by trucks; and
- Public roads outside the site should be regularly inspected for cleanliness and cleaned as necessary. Any damage to public roads caused by construction traffic should be repaired as necessary.

When roads and streets are being upgraded, there will be some temporary disruption / alterations to on street and off-street parking provision, and access to premises in certain locations along the proposed Scheme. Local arrangements will be made on a case-by-case basis to maintain continued access to homes and businesses affected by the works, at all times, where practicable. Details regarding temporary access provisions will be discussed with homes and businesses prior to construction starting in the area.

1.3.2 Construction Trips

In order to identify the number of trips which would be generated by the proposed Scheme during the construction phase, information provided by the designers has been reviewed to identify the number of HGV and worker trips which would be generated by the northern and southern primary compounds at their peak use. It should be noted that within the assessment taken forward in this report only those trips which would occur in the Weekday AM and PM peak hours during the peak construction phase for that location have been included. These are set out in the Table below.

Routing is discussed further in Section 1.3.4. To limit the impact of the construction of the proposed Scheme on the highway and sustainable transport networks, routing to compounds has been identified. Primarily, construction vehicles will make use of the main highway network with limited use of any residential roads unless there is an absolute requirement to do so.

1.3.2.1 Site Operatives

As described in Chapter 6 (Construction Activities), there is expected to be a peak of 180 staff directly employed across the proposed Scheme. Standard working hours, as set out in Chapter 6, are from 07:00hrs to 19:00hrs on weekdays (excluding Bank and Public Holidays) and from 07:00hrs to 13:00hrs on Saturdays.

The appointed contractor will prepare a Construction Stage Mobility Management Plan (CSMMP) which will be developed prior to construction, as described in the CEMP of the EIAR, to actively discourage personnel from using private vehicles to travel to site. The CSMMP will promote the use of public transport, cycling and walking by personnel. Private parking at the Construction Compounds will be limited.

Vehicle-sharing will be encouraged, subject to public health guidelines, where travel by private vehicle is a necessity e.g. for transporting heavy equipment. A combination of CSMMP measures, as well as work shift patterns, means that fewer than 8 trips by private vehicle are envisaged to and from the primary site compound at Broombridge and similarly 8 from the primary site compound at St Margarets Road during peak periods.

1.3.2.2 Heavy Goods Vehicles (HGVs):

Additional construction traffic will be generated during the construction phase of the proposed Scheme for the purpose of the following:

- Clearance of existing site material and waste;
- Earthworks cut/fill operations;
- Deliveries of construction material; and
- Removal of construction waste material.

Chapter 6 (Construction Activities) in Volume 2 of this EIAR, provides a construction programme breakdown of the expected operation for the construction of the proposed Scheme during each subsection. Multiple Works fronts will progress concurrently.

It should be noted that the CTMP will control vehicular movement along the construction route, including restrictions on the number of HGVs accessing and egressing the construction works throughout the day to mitigate the impacts to general traffic on the surrounding road network.

Main earthworks movements are envisaged to mainly progress outside peak hours. The main movement of site-won material for re-use will be the cut to fill from the Valley sections north of Tolka Valley Park Bridge (S31.3/S32.1) to the Stabling Site (S30.1) with approximately 4000m^3. The remaining balance of cut material will be routed for disposal to a suitably licenced facility e.g. soil recovery / landfill. The routing of other aggregate materials is further described in Section 1.3.4 and is expected to be from quarries via the M50, N3 and N2.

Based on the programme and the construction activities associated with the proposed Scheme an estimated maximum of 8 and 6 HGV trips respectively will access / egress the southern section of the construction works during the AM and PM Peak Hours primarily via the M50/N3. Similar activity would be expected for the northern section of the site with access / egress primarily via the M50/N2. Overall, this amounts to an expected maximum of 16 and 12 HGV trips respectively will access/egress the construction works per hour during the AM and PM Peak Hours.

Overall Peak Hour Impacts:

Table 1-7 identifies the anticipated maximum construction traffic generation by site operatives and HGVs during the AM and PM Peak Hours.

Table 1-7: Anticipated Maximum Peak Construction Traffic per hour during AM/PM peak hours

Peak Hour	Arrivals (veh)		Departures (veh)		Total Two-Way Traffic Flows (vehicles)
	Car/Van	HGV	Car/van	HGV	
AM Peak Hour	16	16	0	16	48
PM Peak Hour	0	12	16	12	40

1.3.3 Construction Compounds

Construction Compounds will be put in place in advance of progressing the Works in the associated areas and will provide facilities both for the Contractor and the Employer's Representatives and facilities for the temporary storage of materials. Potential Compound locations have been identified along the route and these are shown on drawing in Appendix 6-1 and illustrated in Section 6.5.7.1 in Chapter 6 (Construction Activities) of this EIAR.

The Construction Compound locations have been selected due to the amount of available space at this location, its location near the majority of the proposed Scheme major works and its access to the National and Regional Road network. The locations of the proposed Primary and Seconding Construction Compounds are shown in Table 1-8 below.

Table 1-8: Location of Primary and Secondary Construction Compounds

No.	Area	Section	Location	Use	Approximate Size
C-30A	30	S30.1	Compound at Area 30 Broombridge Depot	Secondary	1,472 m^2
C-31A	31	S31.1	West of Broombridge Road – on southern side of rail and canal crossing adjacent depot entrance	Secondary	2,036 m^2
C-31B		S31.1	West of Broombridge Road – use of green area to north of railway	Primary	3,427 m^2
C-31C		S31.1	West of Broombridge Road – use of unit in the Glen Industrial estate prior to demolition	Primary	1,522 m^2
C-31D		S31.3	Tolka Park – The Parks Building	Secondary	2,142 m^2
C-32A	32	S32.1	Adjacent to St Helena's Stop	Secondary	5,448 m^2
C-32B		S32.2	Northwest corner of Wellmount road crossing	Secondary	1,034 m^2
C-33A	33	S33.1	Old Park superintendent's cottage and land to north next to Finglas Fire station	Secondary	1,829 m^2
C-33B		S33.3	Northern extents of Mellowes Park	Primary	2,017 m^2
C-33C		S33.3	St. Margarets/Mckee Ave Junction	Secondary	948 m^2

The Primary Construction Compounds will contain a Main site office, and welfare facilities for the Employers personnel and Contractor personnel. An area for materials to be stored for reuse as necessary will be provided. Items of plant and equipment will also be stored within the Compound. The Secondary Construction Compounds will contain some local site office and welfare facilities. They will also localised storage for material, plant and equipment within the Compound. Limited parking for construction vehicles will also be available within the Primary and Secondary Construction Compounds.

1.3.4 Routing of Construction Vehicles

Access to and egress from the Construction Compounds is envisaged to be along dedicated construction vehicle routes. It is assumed that all national roads and regional roads in the immediate vicinity of the proposed Scheme would be used by construction vehicles.

The following national roads are expected to be used as construction vehicle access routes during the Construction Phase of the proposed Scheme:

- N2;
- N3; and
- M50 Motorway.

The following regional roads are expected to be used as construction vehicle access routes during the Construction Phase of the proposed Scheme:

- Broombridge Road;
- Ballyboggan Road;
- Tolka Valley Road;
- St Helena's Road;
- Farnham Drive;
- Farnham Drive Extension;
- Wellmount Road;
- Patrickswell Place;
- Cappagh Road;
- Cardiff Castle Road;
- Mellowes Road;
- Finglas Road / North Road;
- St. Margaret's Road;
- Charlestown Place;
- R147;
- Nephin Road;
- Faussagh Avenue; and
- R131.

Potential construction vehicle access routes for the proposed Scheme are shown in Figure 1-4.

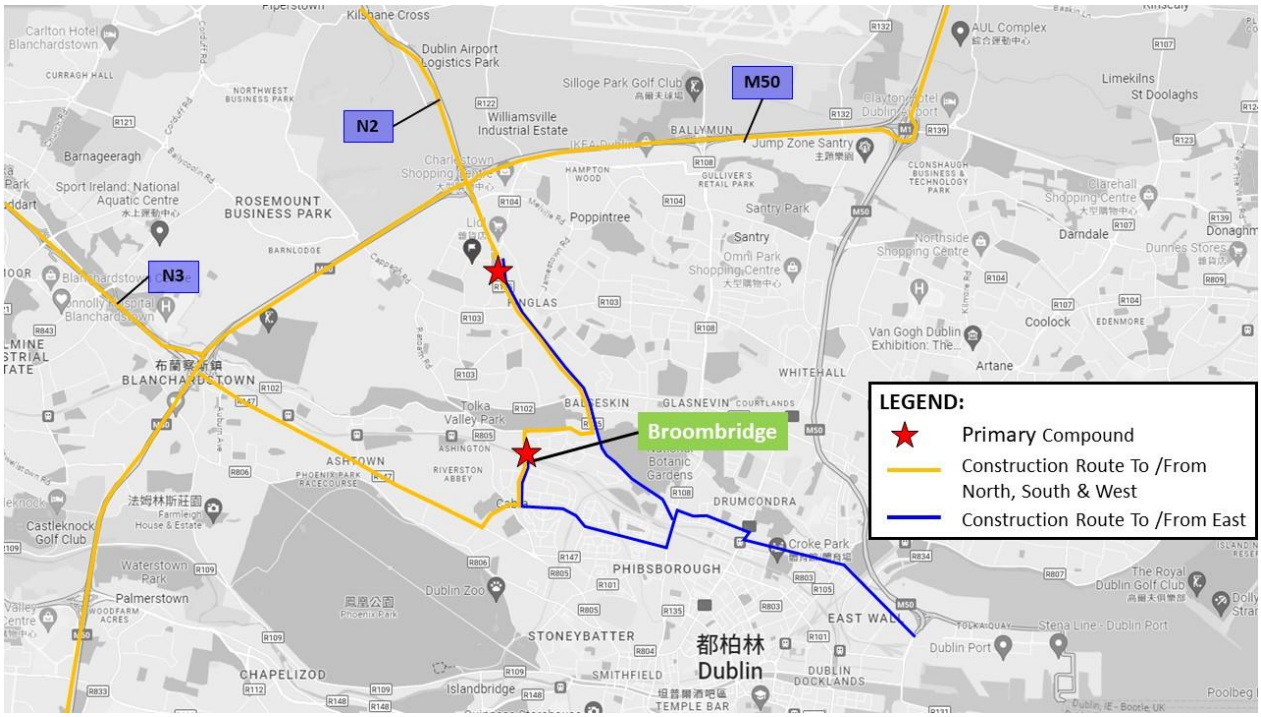


Figure 1-4: Potential Construction Vehicle Access Routes

The construction of the haul roads through the Parks will typically entail a 6m wide hydraulically bound compacted layer of granular aggregate materials constructed parallel and offset from the track alignment. The topsoil will be stripped and set aside in bunds for reuse. A geotextile material will be installed followed by the installation and compaction of the suitable layer of granular material. Importation of these materials will be from local quarries directly to the Works.

The haul roads will be maintained and used throughout the construction period to facilitate the construction works. Wheel cleaning facilities will be provided where necessary. The haul roads have been identified in **Appendix 6-1** and illustrated in Section 6.5.8.2 in Chapter 6 (Construction Activities) of this EIAR.

The main proposed haul roads through the park areas are further described in Table 1-9 below.

Table 1-9: Haul Roads through Park Areas

No.	Area/ Section	Location	Access Arrangements	Approximate Length
1	S31.1	Tolka Valley Road	A haul route is required to access/egress the Works in Tolka Valley Park and for the Construction of the Tolka Valley Park Bridge from the north at Tolka Valley Road. This will also facilitate access to the Construction Compound. A turning area will be required north of the bridge. A separate access to the Tolka Valley Park Bridge from Ballyboggan Road will also be required for the Works.	254m
2	S32.1	Tolka Valley Road to St Helena's Road	A haul road will be required the length of St Helena's Park to facilitate the Works with access/egress at either end. This will follow to the west of the proposed track alignment and generally along the proposed cycletrack. This will provide two-way access to the Works.	545m
3	S32.2	Farnham Pitches to Wellmount Road	A haul road will be required adjacent to Farnham pitches. It will be constructed post repositioning of the pitches and used for construction of the Luas infrastructure. This will follow to the west of the proposed track alignment and to	440m

No.	Area/ Section	Location	Access Arrangements	Approximate Length
			the east of the repositioned pitches. This will provide two-way access to the Works.	
4	S33.1	Mellows Road to Casement Road	A haul road will be required the length of Mellows Park. The road will follow the proposed footpath route to the west of the track alignment. This will provide two-way access to the Works.	757m

1.3.5 Pedestrian and Cyclist Provisions

The measures set out in Section 8.2.8 of the Traffic Signs Manual will be implemented, wherever practicable, to ensure the safety of all road users, in particular pedestrians (including able-bodied pedestrians, wheel-chair users, mobility impaired pedestrians, pushchair users) and cyclists. Therefore, where footpaths or cycle tracks are affected by construction, a safe route will be provided past the work area, and where practicable, provisions for matching existing facilities for pedestrians and cyclists will be made.

1.3.6 Public Transport Provisions

Existing public transport routes and bus stops (where possible, providing temporary facilities maybe required in agreement with bus providers) will be maintained throughout the duration of the Construction Phase of the proposed Scheme (notwithstanding potential for occasional road closures / diversions as discussed in **Section 1.3.16**). Wherever practicable, bus services will be prioritised over general traffic. Some existing bus stop locations will need to be temporarily relocated to accommodate the works. In such cases, bus stops will be safely accessible to all users and all temporary impacts on bus services will be determined in consultation with DCC, FCC and the service providers.

1.3.7 Parking and Access

When roads and streets are being upgraded, there will be some temporary disruption / alterations to on street and off-street parking provision, and access to premises in certain locations along the proposed Scheme. Local arrangements will be made on a case-by-case basis to maintain continued access to homes and businesses affected by the works, at all times, where practicable. Details regarding temporary access provisions will be discussed with homes and businesses prior to construction starting in the area. The duration of the works will vary from property to property, but access and egress will be maintained at all times.

Temporary suspension of existing parking spaces will be required to facilitate the works. If feasible, temporary parking spaces should be provided to minimize the impact to public. In order to ensure that parking spaces will be reserved/kept free before the commencement of works, the PSCS/Contractor will need to suspend all required bays for the day's work prior to the commencement of Pay & Display. Also, private residents with permit parking and commercial businesses must be made aware of the intention to temporarily suspend parking and loading bays in close proximity to proposed works at least 24hours prior to the suspension taking place. The PSCS/Contractor must also consult with both DCC/FCC and the Garda Siochána in a timely manner when it is intended to temporarily close off, make alterations to, and make use of parking and loading bays during the construction stage.

1.3.8 Lighting

The majority of the proposed Scheme is already artificially lit, however temporary lighting will be required at times along the proposed Scheme at certain locations during the Construction Phase, where necessary. Where it is necessary to disconnect public lighting during the construction works or to undertake works outside of daylight hours where the existing lighting is low, appropriate temporary lighting will be provided. Temporary lighting will also be installed at the Construction Compounds for the duration of the Construction Phase.

The standard of temporary lighting installed during the Construction Phase will meet the standard of the existing carriageway and will be appropriate to the speed and volume of traffic during construction.

Temporary construction lighting will generally be provided by tower mounted floodlights, which will be cowled and angled downwards to minimise spillage of light from the site.

1.3.9 Construction Stage Mobility Management Plan (CSMMP)

Mobility Management measurements will be put in place during the Construction Stage by the appointed contractor in accordance with the following procedures. These are procedures are to actively discourage personnel (including client, design teams and construction contractors involved in this project) from using private vehicles to travel to the proposed Scheme. This Construction Stage Mobility Management Plan (CSMMP) will be finalised and implemented by the appointed contractor.

The proposed Scheme will promote the use of public transport, cycling and walking by personnel during the Construction Stage. Measures will include where appropriate the following:

- Encouraging use of public transport (e.g. to Broombridge Luas Stop);
- Encouraging active travel and having appropriate provisions;
- Encouraging car-pooling;
- Prescribing specific routes for journeys (including access arrangements, compounds, parking and public transport);
- Provision of a minibus around site; and
- Provision of temporary accommodation.

Workforce travel will be managed and controlled by implementing systems to monitor and record travel movements during the works. In order to gauge change in favour of more sustainable travel, it is essential to establish current practices, behaviours and costs, as well as identifying opportunities for change or action. This will be done by conducting an “CSMMP Travel Survey” similar to the one included in Appendix 1 of this CTMP. The travel survey will also be used to communicate to employees letting them know that the options and provisions in place and making them aware of current services and potential changes. The CSMMP will broadly comprise the following headings, as well as other relevant topics identified by the appointed contractor:

- Introduction;
- Objectives and targets;
- Strategy of travel;
- Construction phase specific measures;
- Access and surrounding road network;
- Opportunities for car sharing;
- Implementation and co-ordination;
- Monitoring; and
- Adherence to public health guidelines.

An example questionnaire for CSMMP Travel Survey is attached in Appendix 1.

1.3.10 Traffic Management Signage

Temporary traffic management signage will be put in place in accordance with the requirements of the ‘Traffic Signs Manual (Chapter 8 – Temporary Traffic Measures and Signs for Roadworks)’ published by the Department of Transport in August 2019 and the “Temporary Traffic Management Design Guidance” 3rd Edition 2019 published also by the Department of Transport to warn road users of the works ahead and to advise of any changes to the carriageway layout. In addition to temporary traffic management signage, requirements may include:

- Provision of temporary signage indicating access route and locations for the appointed contractor and associated suppliers; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including contract details.

1.3.11 Timings of Material Deliveries

The appointed contractor will seek to reduce the impact of material deliveries on local communities and residents adjacent to the proposed Scheme during the Construction Phase, where practicable.

1.3.12 Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all personnel / suppliers by the appointed contractor during induction training. The use of special speed limits for construction traffic in sensitive areas will be considered, such as 30km/hr at school locations. Recommended speed limits would only apply to construction traffic and not to general traffic. The sign posting of such speed limits is not expected in the interest of clarity for local road users.

The contractor shall continually undertake a risk assessment of all temporary traffic management installations to assess if traffic speeds are inappropriate. If traffic speeds are deemed inappropriate, the contractor is to provide measures to reduce such speeds to a level appropriate to the works.

The contractor shall be wholly responsible for applying for any road works speed limit orders and any road closures that are required to fulfil his contractual obligations and shall allow for any and all notifications and approvals periods as required in his programming of the works.

1.3.13 Vehicle Cleaning

Details and information on vehicle cleaning to be carried out during the Construction Phase of the proposed Scheme is provided in the following:

- Vehicles and plant provided for use on the proposed Scheme will be in good working order to ensure optimum fuel efficiency, and will be regularly inspected to ensure they are free from leaks and are promptly repaired when not in good working order;
- Spill kits will be carried on all vehicles;
- Vehicles and plant will not park near or over surface water drains or watercourses;
- Refuelling of vehicles and plant will be carried out on hard standing surfaces, using drip trays to ensure no fuel can contaminate the ground outside of the bunded areas;
- For deliveries and dispensing activities, the appointed contractor will ensure that:
  - Site-specific procedures are in place for bulk deliveries;
  - Delivery points and vehicle routes are clearly marked; and
  - Emergency procedures are displayed, and a suitably sized spill kit is available at all delivery points, and staff are trained in these procedures and the use of spill kits.
- The appointed contractor will provide wheel washing facilities, and any other necessary measures to remove mud and organic material from vehicles, at the Construction Compound and egress from haul roads, where necessary. These will be located at least 10m away from any surface water drains or watercourses;
- The cleaning of delivery trucks shall be carried out at the Construction Compound and shall not be undertaken at the works areas;
- The surface run-off from vehicle washing areas will be directed to an on-site treatment system where possible; this also increases the potential for reusing the water. Such a treatment system would typically include:
  - A settlement tank to remove suspended solids such as mud and silt;
  - Catchpits or silt traps on drains and ensure that they are in place during cleaning. Empty them at regular intervals; and
  - Removal of oil, grease, petrol, and diesel from wash water by passing it slowly through an appropriately sized oil separator.
- The use of detergents in the cleaning process will be minimised; where required, biodegradable and phosphate-free detergents will be used;

- If detergents are used in the washing process, the wash water will not be directed through the oil separator as this will prevent it from working. It will be contained and disposed of off-site using a suitable licensed waste disposal operator, or if a foul or combined sewer is nearby, the surface runoff could be directed to it, with the permission of the sewerage undertaker; and
- To further minimise water used for washing vehicles, trigger-operated spray guns will be used, with an automatic water supply cut-off.

1.3.14 Road Cleaning

Roads being used for dedicated construction vehicle access routes shall be regularly inspected for cleanliness.

The appointed contractor will monitor for mud and debris on the roads as a result of the Construction Phase works and use a road sweeping vehicle for cleanliness if needed. The use of road cleaning sweepers should be considered as a last resort with prevention being the main objective.

1.3.15 Road Condition

It is anticipated that traffic may be running on temporary surfaces at isolated locations during the works prior to permanent reinstatement of road carriageway areas i.e. at road crossings, tunnel shafts and manholes temporarily reinstated.

All Temporary and Permanent Reinstatements shall be in accordance with the DOE publication “Guidelines for the Opening, Backfilling and Reinstatement of Trenches in Public Roads” (known as the purple book). It is the duty of the Contractor/PSCS to ensure temporary signage is erected prior to permanent reinstatement of surfaces to ensure road users are aware of temporary surfaces.

The Contractor/PSCS shall also be responsible for the temporary restoration of the existing carriageways, in the event that they are damaged as a result of the works. No traffic shall be permitted to enter unrestored areas. Manholes and valve chambers should have permanent covers secured prior to permitting traffic to pass over reinstated areas.

In the event of any interference with road markings, the Contractor/PSCS shall arrange for immediate replacement with temporary markings and arrange with DCC and FCC to have permanent markings restored in conjunction with the permanent trench reinstatement.

- The extent of the lorry traffic movements and the nature of the payload may create problems of:
  - Fugitive losses from wheels, trailers, or tailgates; and
  - Localised areas of subgrade and wearing surface failure.
- Activities which may reduce the impact on road condition are outlined below. They should be incorporated into the CTMP by the appointed contractor where practicable.
  - Loads of materials leaving each works areas will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation;
  - Take all reasonable measures while transporting waste or any other materials likely to cause fugitive losses from a vehicle during transportation to and from the works areas, including but not limited to:
    - Covering of all waste or material with suitably secured tarpaulin / covers to prevent loss; and
    - Utilisation of enclosed units to prevent loss.
  - Undertake pavement condition surveys along roads forming part of the construction traffic route, based on consultation with DCC and FCC and professional judgement regarding the condition of the route pre-construction. These record the baseline structural condition of the road being surveyed immediately prior to construction; and
  - Throughout the course of construction of the proposed Scheme, undertake on-going visual inspections and monitoring of the construction traffic routes to ensure any damage caused by

construction traffic is recorded. Arrangements can then be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

- Upon completion of construction of the proposed Scheme, the surveys carried out pre-construction shall be repeated, and a comparison of the pre-construction and post-construction surveys carried out.

1.3.16 Road Closures and Diversions

Road closures and diversions will need to be carried out during the Construction Phase of the proposed Scheme; however, these measures will be minimised wherever possible. Where necessary, road closures and diversions will take into consideration the impact on road users, residents, businesses etc. Road closures and diversions will be carried out with regard to Chapter 8 of the Traffic Signs Manual. All road closures and diversions will be consented to DCC and FCC, in consultation with the local authority and An Garda Siochána, as necessary.

Access will be maintained for emergency vehicles along the proposed Scheme, throughout the Construction Phase.

The PSCS/Contractor shall ensure that no works shall take place on any route during the period where it is in use as a diversion route for any other works locations and shall programme the works accordingly.

To satisfy the statutory requirements for granting a Temporary Closing of Roads Order, the PSCS/Contractor shall advise DCC and FCC of the following:

- Name of the road to be closed;
- Location of closing points;
- Date and period of closure required;
- Reasons for closure;
- Details of alternative routes; and
- Details of method of traffic management and maintenance of alternative routes, including sign posting and traffic control plans.

All applications for road closures must be lodged with DCC and FCC for consideration, a minimum of 8 weeks in advance of the requested road closure period.

With respect to making temporary alterations to an existing system of traffic management i.e. reversing the one-way system, the Contractor/PSCS must apply to the Council for a temporary road closure or temporary alteration to an existing system of traffic flow. Because of the time involved in the various processes to give legal status to the closure/alteration, 8 weeks is required as a minimum in order to arrange for the closure or alteration to an existing system of traffic management.

All advertising costs and road closure fees must be paid by the Licensee.

1.3.17 Enforcement of Construction Traffic Management Plan

The appointed contractor shall develop the CTMP for use throughout the Construction Phase. All personnel and material suppliers shall be required to adhere to the CTMP. The appointed contractor shall agree and implement monitoring measures to confirm the effectiveness of the CTMP and compliance shall be monitored by Employer's Representative. Regular inspections / spot checks shall be carried out to ensure that all personnel and material supplies follow the agreed measures adopted in the CTMP.

1.3.18 Interface with Other Projects

The likely timelines of the proposed Scheme construction works have considered the potential for simultaneous construction of, and cumulative impacts with other infrastructure projects and developments which are proposed along, or in the vicinity, of the proposed Scheme. The likely significant cumulative impacts caused by the proposed Scheme in combination with other existing or planned projects are identified and assessed in Chapter 23 (Interactions) and Chapter 24 (Cumulative Impacts) of this EIAR.

Interface liaison will take place on a case-by-case basis through DCC and FCC, as will be set out in the Construction Contract, to ensure that there is coordination between projects, that construction access locations remain unobstructed by the proposed Scheme works and that any additional construction traffic mitigation measures required to deal with cumulative impacts are managed appropriately.

1.3.19 Emergency Procedures During Construction

The appointed contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and accesses. The appointed Contractor/PSCS shall provide to the local authorities and emergency services, contact details of the appointed contractor personnel responsible for construction traffic management.

In case of a construction traffic related emergency, the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the appointed contractor;
- All construction traffic shall be notified of the incident (where such occurs off site);
- Where required, appointed first aiders will attend the emergency immediately; and
- The appointed contractor will ensure that the emergency services are directed to and arrive at the emergency location.

1.3.20 Communication

The appointed contractor shall, through TII and Employer's Representative, ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the Construction Phase.

The appointed contractor shall, through TII and Employer's Representative, also ensure that the local community, landowners, and strategic stakeholders are appropriately informed of proposed traffic management measures in advance of their implementation. Contact information for key points of contact will be provided for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures. The appointed contractor will liaise with landowners through the Communication Plan agreed with DCC and FCC, where access to their property is temporarily affected by works.

Not less than 7 days prior to commencement of the works the Licensee/Contractor shall advise all relevant authorities likely to be affected by the works and shall enter into discussions as necessary regarding the avoidance/mitigation of impacts arising from the works. The Licensee/Contractor shall use their best endeavours to minimise the impact of the works. As a minimum, the Licensee/Contractor shall contact the following:

- The DCC and FCC regarding the nature, extent and construction programme of the works;
- An Garda Siochána and Emergency services regarding traffic management where the proposed works are likely to significantly impact traffic on main roads; and
- Bus providers (i.e. Dublin Bus), and any other licensed PSV Operators affected by the works in order to determine their requirements in relation to bus-stops etc. All necessary alternative arrangements shall be provided and maintained by the Licensee/Contractor in accordance with the requirements of affected Bus Operators, DCC and FCC.

Not less than 7 days prior to commencement of the works the Licensee/Contractor shall advise all local property owners/occupiers likely to be adversely affected by the works and shall enter into discussions as necessary regarding the avoidance/mitigation of impacts arising from the works. The Licensee/Contractor shall use its best endeavours to minimise the impact of the works on property owners/occupiers. Access to all houses and premises to be maintained save with the prior approval of the property owner. Any such

agreement shall ensure that adequate provision is maintained for Emergency Service access to the affected properties during the works.

1.3.21 Public Notices

All local residents and businesses shall be informed of the works in advance via a letter drop and given contact details for the PSCS/Contractors Representative and General Foreman. In advance of works approaching each dwelling or business, a visit shall be made to the dwelling to consult with the resident regarding their requirements for access to their dwelling - both vehicular and pedestrian.

The PSCS/Contractor shall liaise with DCC and FCC in respect of any lane closures, temporary road closures, diversion routes, and other traffic management controls required to be carried out to ensure the safety of the workforce and the general public during the duration of the works. The advertising of such notices in local press, local radio, and leaflet drops will be required to warn motorists and local residents and businesses of the changes involved and new road layouts to be expected. Additionally, the Contractor/PCSC is required to provide Variable Message Signs (VMS) on all approaches to the Works in advance of the implementation of each of the proposed temporary traffic management works to warn motorists of the hazard and lane closure/ road closure/queuing traffic as appropriate. The location of the VMS signs must be agreed with the Employer's Representative.

1.3.22 Key Personnel and Organisations - Responsibilities

In all aspects of the management of traffic, the PSCS shall liaise with the following parties:

- PSCS/Contractor;
- DCC;
- FCC;
- Garda Síochána;
- Emergency Services (Fire and Ambulance);
- Employer's Representative; and
- Project Supervisor for the Design Process (PSDP).

The PSCS/Contractor shall consult with all relevant authorities as listed above during the development of the CTMP. The PSCS/Contractor shall co-ordinate the implementation of the Developed Traffic Management Plan throughout the duration of the work.

Where a problem arises with traffic management, the PSCS/Contractor shall consult with the PSDP and the Traffic Management Designer to revise or modify the traffic management plan as necessary, as per paragraph 3.5.2 of the "Temporary Traffic Management Design Guidance".

The PSCS shall take into account the impact of the construction works on general traffic, business, and local property owners.

1.3.23 Garda Síochána

The Gardaí shall have final authority with regard to day-to-day traffic control. The PSCS/Contractor shall comply with all directions, instructions and requirements of the Garda Síochána.

Appendix 1: Construction Stage Mobility Management Plan Travel Survey Questionnaire

Dear Employee/staff,

RE: CONSTRUCTION STAGE MOBILITY MANAGEMENT PLAN MEMBER QUESTIONNAIRE

Following the construction of Luas Finglas between Broombridge and Charlestown, a Construction Stage Mobility Management Plan must be prepared. The primary aim of the Construction Stage Mobility Management Plan will be to encourage more sustainable modes of transport where possible and reduce the number of car journeys.

The first step in the Construction Stage Mobility Management Plan process is to ascertain the current travel patterns for employees (including client, design teams and construction contractors involved in this project). In order to achieve this, a questionnaire has been designed to assess the methods used by you to travel to and from work.

The attached questionnaire asks a few short questions associated with how you travel to and from work. This questionnaire will take approximately 5 minutes to complete.

In addition, the last question provides you with the opportunity to provide your comments and observations associated with the delivery of the improvements to access work and also the Workplace Travel Plan.

As an employee/staff involved in this project, your inputs and support are vital to the successful implementation of a Construction Stage Mobility Management Plan. On this basis, your observations are welcomed and will be thoroughly considered.

Please return your completed questionnaire to:

no later than …….

Thank you for your consideration and support.

Yours sincerely,

1. Name:

Forename: ……

Surname: ……

2. Company Name:

Company name: ……

3. What is your home address?

Home Address: ……

……

……

……

4. How far is your home from work?

	Km

5. How long does your journey currently take?

Morning journey - home to work:		Minutes
Evening journey – work to home:		Minutes

6. How do you normally travel to work in the morning? (Please tick the most appropriate, or state other)

	Drive (alone)
	Drive (shared with other staff)
	Bus
	LUAS
	Dublin Commuter Train Service
	Walk
	Cycle
	Taxi

Other, please state: ……

7. How do you normally travel home from work in the evening? (Please tick the most appropriate, or state other)

	Drive (alone)
	Drive (shared with other staff)
	Bus
	Dublin Commuter Train Service
	LUAS
	Walk
	Cycle
	Taxi

Other, please state: ……

8. Would you consider other modes of transport for your journey between home and work? (Please tick the most appropriate, or state other)

	Drive (alone)
	Drive (shared with other staff)
	Bus
	LUAS
	Dublin Commuter Train Service
	Walk
	Cycle
	Taxi

Other, please state: ……

9. Which factors are most important to you for selecting how you travel to work? (select up to 3)

	Trip Time
	Security
	Convenience
	Cost
	Health
	Reliability
	Flexibility

Other, please state: ……

10. What currently prevents you travelling to and from work using the method you have identified in Question 8?

……
……
……
……
……

11. Describe your typical working pattern

	Full-time, standard hours (eg 7am-7pm)
	Part-time (eg 7am to 1pm)
	Shift work
	Full-time, irregular hours
	Part-time, irregular hours

Other, please state: ……

12. What time do you normally start work?

……

13. What time do you normally finish work?

……

14. Are your start and finish times flexible?

	No flexibility
	1 or 2 times per week
	3 or 4 times per week
	Whenever I wish

Other, please state: ……

15. **Are you aware that public transport users can purchase a Tax Saver commuter ticket through your employer? This can save you approximately 50% of the price of the ticket.**

Yes	
No	

16. **Finally, please provide us with your comments, observations or any other information you feel is relevant in relation to the proposed Construction Stage Mobility Management Plan:**

……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……

1.3.23.1 Thank You for taking the time to complete this questionnaire.

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Údarás Náisiúnta Iompair
National Transport Authority

BARRY TRANSPORTATION
egis GROUP

egis

Project Ireland 2040
Building Ireland's Future