11.0 MATERIAL ASSETS - TRAFFIC AND TRANSPORTATION

11.1 INTRODUCTION

The objective of this chapter is to evaluate the traffic implications of the proposed development, focusing on its integration with the existing traffic in the area. The assessment aims to determine and quantify the number of trips generated by the development during both the construction and operational phases, and to assess any potential impacts on the local road network.

This chapter has been prepared by Niall Barrett B.Eng, CEng, M.I.E.I, Cert Health and Safety, Cert PSDP, Cert RSA, Director of Cronin & Sutton Consulting Engineers (CS Consulting). Niall is a Chartered Civil and Transport Engineer and a 2005 graduate of Napier University, Edinburgh. He has extensive engineering consultancy experience in design, planning, and construction across a broad range of infrastructure, commercial, residential, and institutional development projects.

In preparing this chapter reference has been made to the following documents;

- Dublin City Development Plan 2022-2028
- Greater Dublin Area Cycle Network Plan
- The Institute of Highways and Transportation: Guidelines for Traffic Impact Assessments
- Trip Rate Information Computer System (TRICS)
- CSO 2022 Census Data
- CSO 2016 Census Data
- National Transport Authority (NTA) BusConnects
- Greater Dublin Area Cycle Network Plan
- TII Traffic and Transport Guidelines (PE-POV-02045)

The proposed development is well-connected to public transport, with George's Dock Luas Stop on the Red Line about 500m northeast and the Trinity Luas Stop on the Green Line approximately 500m southwest. Pearse Street railway station, situated about 400m southeast, provides access to the DART and national rail network. Several bus stops are also in close proximity on Moss Street and Townsend Street, served by multiple bus routes. Pedestrian access to these bus stops is facilitated by footways on both sides of Moss Street and Townsend Street, along with pedestrian crossings across City Quay, Moss Street, and Gloucester Street South.

The Dublin City Development Plan (2022-2028) does not set a minimum requirement for car parking spaces in the development zone where the site is located. The development proposes a total of 9 car parking spaces, including 7 car share spaces and 2 spaces designated for art and cultural facilities.

In line with the Dublin City Development Plan (2022-2028), a minimum of 314 bicycle parking stands is required. The development proposes 330 bicycle parking stands, which is considered sufficient to meet the expected demand.

11.2 STUDY METHODOLOGY

A desktop study of the area surrounding the development site has been conducted, examining the nature of the surrounding existing transport infrastructure, the existing public transport services nearby, and proposed future improvements to transport infrastructure and services.

The estimation of trips for all transportation modes, both during the construction and operational phases of the proposed development, involves determining the likely number of trips generated and assigning these trips based on the expected directions of travel for pedestrians, cyclists, and vehicles to and from the site.

Car, motorcycle, and bicycle parking provisions within the proposed development have been assessed with reference to the parking standards set out in the Dublin City Development Plan 2022–2028.

11.3 THE EXISTING RECEIVING ENVIRONMENT (BASELINE SCENARIO)

11.3.1 Existing Roads

City Quay (R813)

City Quay (R813) is bound to the northern boundary of the site, running east-west along the southern side of the River Liffey. It is a two-lane, one-way road with a single carriageway. The width of the carriageway varies, but it is approximately 6.75 meters wide near the proposed development, with a posted speed limit of 30 kph.

Pedestrian footpaths are present on both sides of the road, and a two-way cycle track runs along the northern side of the carriageway. Signalized pedestrian and cyclist crossings are provided at the Talbot Memorial Bridge junction, facilitating crossings of City Quay, George's Quay, and Moss Street, although they do not cover the Talbot Memorial Bridge arm of the junction.

Georges Quay (R105)

George's Quay (R105) extends westward from the Talbot Memorial Bridge junction to its intersection with Tara Street. It is a three-lane, one-way road, with the nearside lane designated as a dedicated bus lane. Pedestrian footpaths are provided on both sides of the road, and an advisory cycle lane runs alongside the bus lane on the southern side of the carriageway.

Gloucester Street South

Gloucester Street South is a two-way, single carriageway road running west to east along the southern boundary of the proposed development. The carriageway is approximately 5.5 meters wide and has a posted speed limit of 30 kph, with Pay & Display on-street parallel parking along the northern side. Footpaths are provided on both sides of the road, although there are no dedicated cycle facilities.

Moss Street (R802)

Moss Street (R802) is a two-lane, one-way road running north-south along the western boundary of the proposed development. It starts at the junction with George's Quay, Talbot Memorial Bridge, and City Quay to the north and ends approximately 170 meters downstream at its junction with Townsend Street and Shaw Street.

The street is approximately 7.0 meters wide, with a posted speed limit of 30 kph. Pedestrian footpaths and public lighting are provided on both sides of the road, and a signalized pedestrian crossing at the northern end allows pedestrians to cross Moss Street and access City Quay and George's Quay. Currently, there are no dedicated cycle facilities on Moss Street.

11.3.2 Existing Site Conditions

The development site is well positioned with respect to public transport services. As shown in Figure 11.1, it is within 200m of Tara Street railway station (approx. 3 minutes' walk) and is within a 10-minute walk of Connolly Station. The Busáras tram stop on the Luas Red Line is within a 5-minute walk, and several stops on the Luas Green Line are within a 10-minute walk. Numerous bus stops are within easy walking distance of the site.

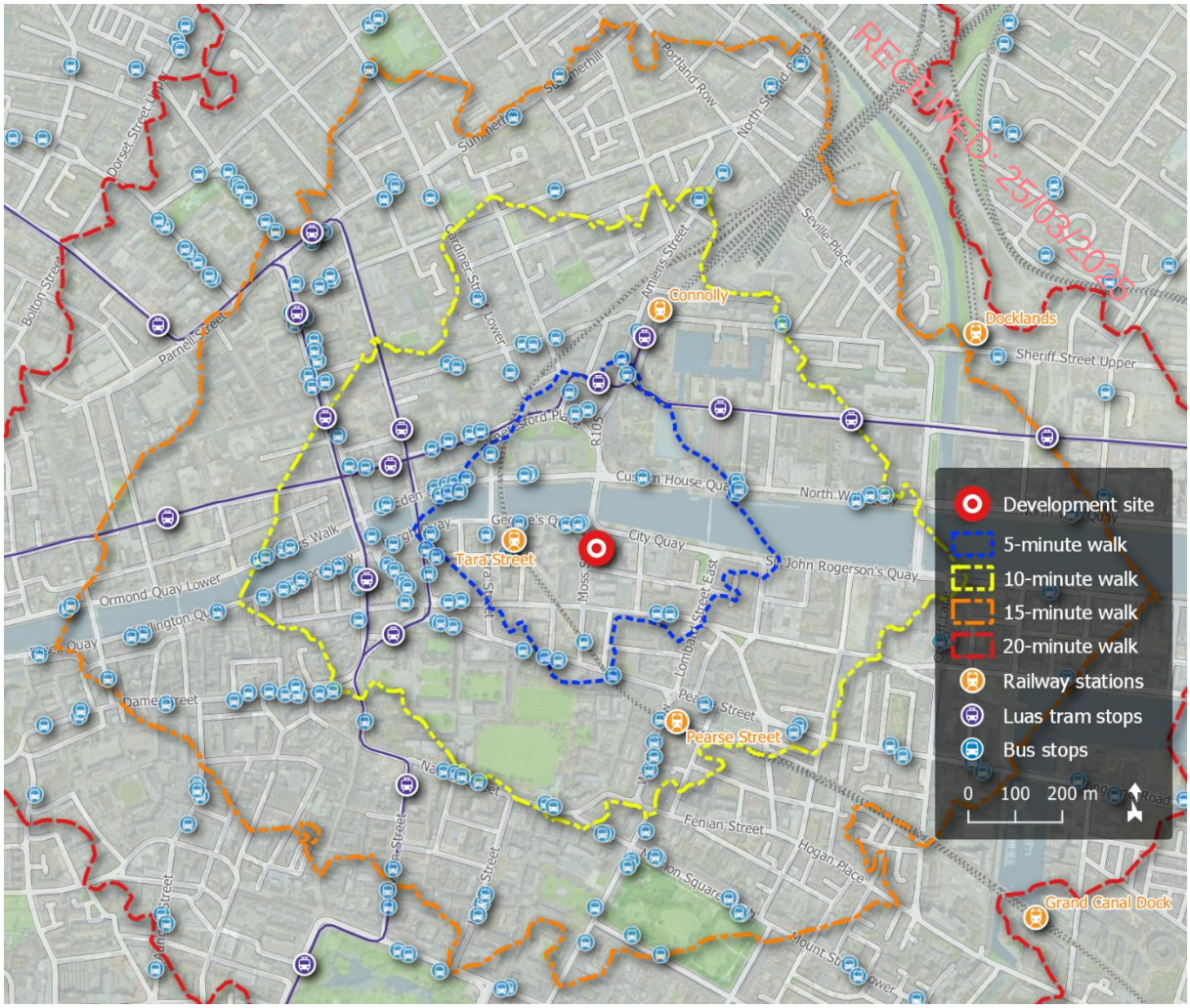

Figure 11.1: Walking times to public transport service points

11.3.3 Pedestrian Accessibility

Existing pedestrian facilities on City Quay, Moss Street, and Gloucester Street South and neighbouring streets in the vicinity of the development site are generally of good quality, with raised footpaths and public lighting. A signal-controlled pedestrian crossing is present on City Quay to the north of the development site.

One of the specific objectives of the Dublin City Development Plan is to implement, at appropriate locations, pedestrian permeability schemes and enhancements. The proposed development shall provide an expanded public realm along its northern, western, and southern boundaries, thereby improving facilities for pedestrian movement along City Quay, Moss Street, and Gloucester Street South.

11.3.4 Public Transport

Bus Services

Bus stops within a 5-minute walk of the site are served by a total of 86no. PSO bus routes operated by Dublin Bus, Bus Éireann, and Go-Ahead Ireland. These operate with an average frequency of 34 services per day in each direction, and include 6no. very high frequency routes (15, 39a, 46a, 103, 145, and 740) with more than 100 services per day in each direction. A further 53no. bus routes serve stops within a 10-minute walk of the development site.

Light Rail Services

The Luas light rail network consists of two principal lines with an interchange at Abbey Street/ Marlborough Street/ O'Connell Street in Dublin city centre.

- LUAS Red Line (E-W) Dublin Docklands to Tallaght/Saggart
- LUAS Green Line (N-S) Broombridge to Bride's Glen

The Busáras tram stop on the Luas Red Line is within a 5-minute walk, and several stops on the Luas Green Line are within a 10-minute walk from the development site.

Rail Services

The development site is located within 5-minutes walk of Tara Street railway station, which is one of the three principal city-centre stations on the Dundalk-Dublin-Wexford railway line and is also connected to the northern and southern Kildare rail lines (the latter via the Phoenix Park tunnel). Frequent Dublin Area Rapid Transit (DART) trains serve this station, running between Howth/Malahide in the north and Bray/Greystones in the south. Commuter rail services operating to and from this station directly serve towns as far as Dundalk in the north, Wexford in the south, and Newbridge and Maynooth in the west.

11.3.5 External Shared Transport

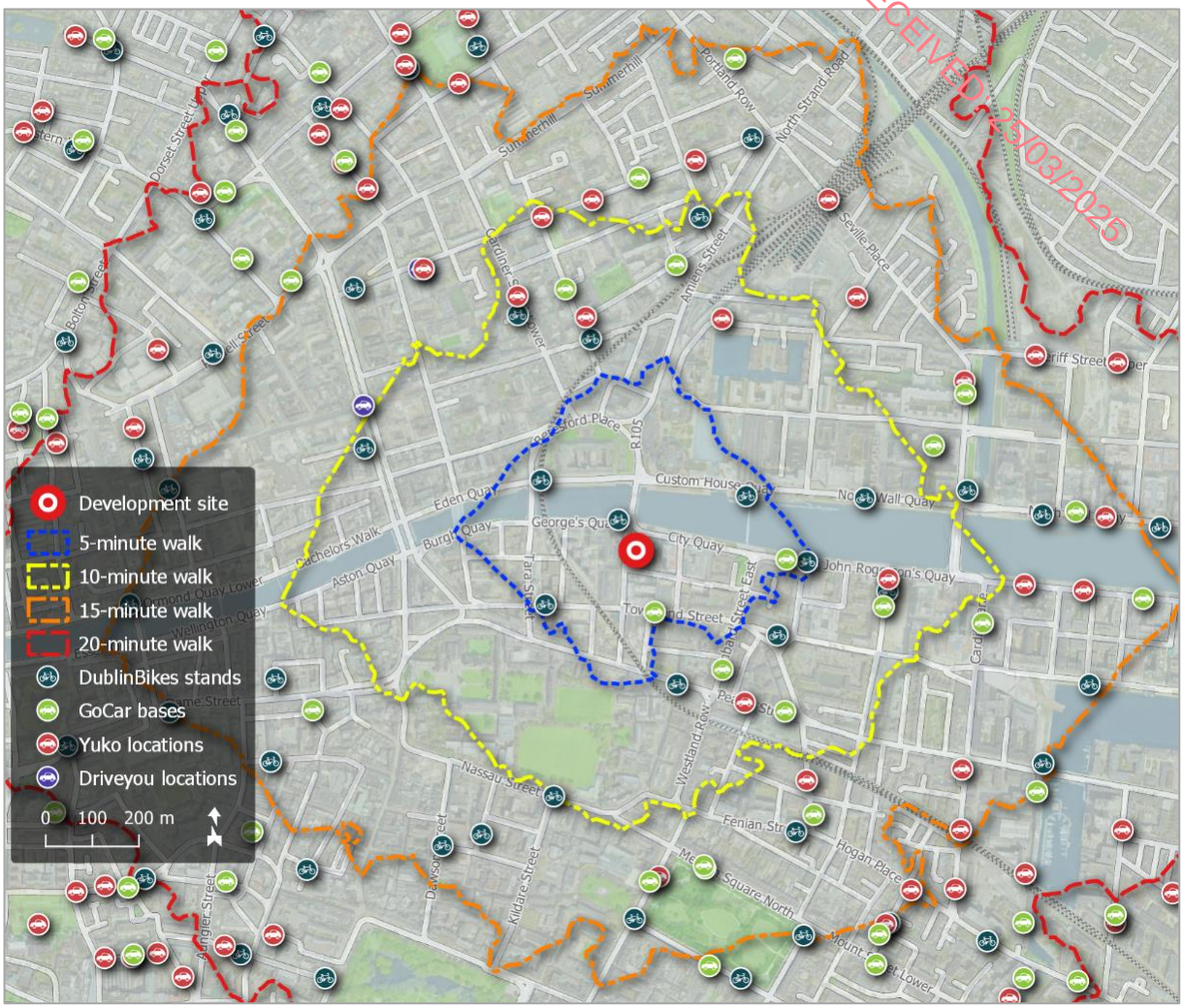

Figure 11.2: Walking times and shared transport services

The area surrounding the subject site is well served by commercial car-share services and by the DublinBikes, and Bleeper Bikes bicycle sharing schemes.

5no. DublinBikes stations are located within 5-minutes walk of the subject site. A further 8no. DublinBikes stations are located within 10-minutes walk.

2no. bases for the GoCar commercial car-sharing service are located within 10-minutes walk of the development site. A further 13no. GaCar bases are located within 15-minutes walk.

19no. bases for the Yuko commercial car-sharing service are located within 15-minutes walk of the development site.

The development site is also situated within the geofenced operating zones for the Bleeper Bikes commercial bicycle sharing schemes. Within these areas, these bicycles may be collected from or returned to any public bicycle parking stand.

11.3.6 Proposed Transport Infrastructure

MetroLink

MetroLink is proposed mostly underground 19,4km rail route, with 16 stations on opening, between the Swords area and Charlemont in the southern Dublin city centre. The stations on its route will connect to Irish Rail, DART and DART+ services (at Tara Street and Glasnevin train stations), Luas services (at the Charlemont stop), bus and BusConnects services, as well as to Dublin Airport. Trains are to run every 3 minutes at peak time, and the system will be capable of carrying up to 20,000 passengers in each direction every hour.
Responsibility for the design and delivery of the MetroLink project lies with Transport Infrastructure Ireland (TII), while the Department of Transport is responsible for the allocation of funding. Permission for construction works related to the project must be secured by the obtention of a Railway Order from An Bord Pleanála.
Initial design proposals for the MetroLink project were published by TII in April 2018. Following a period of public consultation, revised design proposals were then published in March 2019. Government approval of MetroLink was given under Decision Gate 1 in the Public Spending Code in July 2022, and a Railway Order application to An Bord Pleanála was submitted by TII in September 2022. Dependent on the planning and procurement processes, MetroLink could commence construction in late 2025, such that it would be operational in the early 2030s.

A MetroLink station (Tara Station) is to be constructed underground, within 5-minutes walk of the development site, providing an interchange with Tara Street railway station.

Figure 11.3: MetroLink Route Map

BusConnects

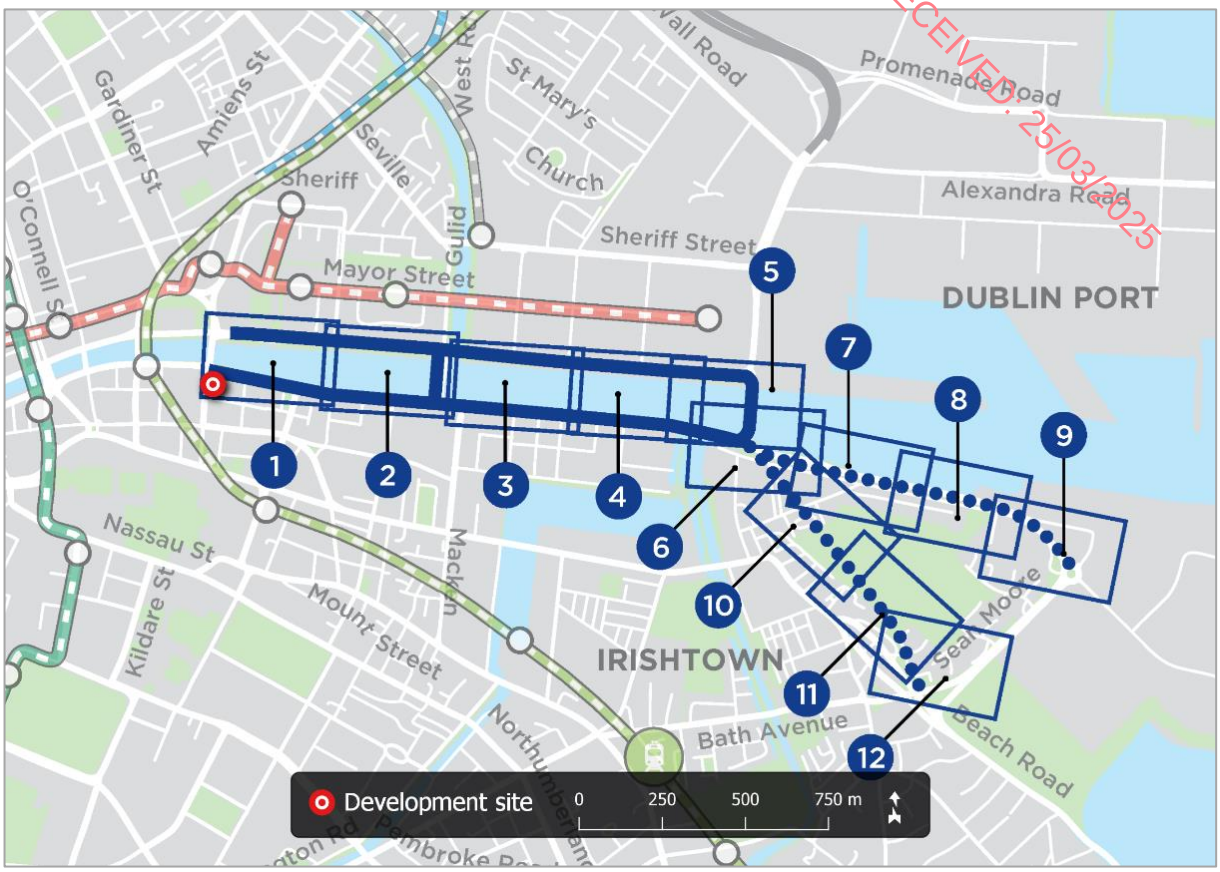

Figure 11.4: BusConnects Core Bus Corridor 16 index map

The NTA BusConnects Core Bus Corridor Project includes the implementation of Core Bus Corridor no. 16 (Ringsend to City Centre) along the north and south quays, to the north of the development site. However, the NTA's published route alignment drawings for this Core Bus Corridor show no work to City Quay adjoining the site itself.

This will provide new bus lanes and eliminate some existing pinch points along the quays, improving journey times for the numerous bus services that follow these routes. Three rounds of Public Consultation have been conducted in respect of the Core Bus Corridor Project, and the has presented planning applications to An Bord Pleanála for several of the other Core Bus Corridor routes.

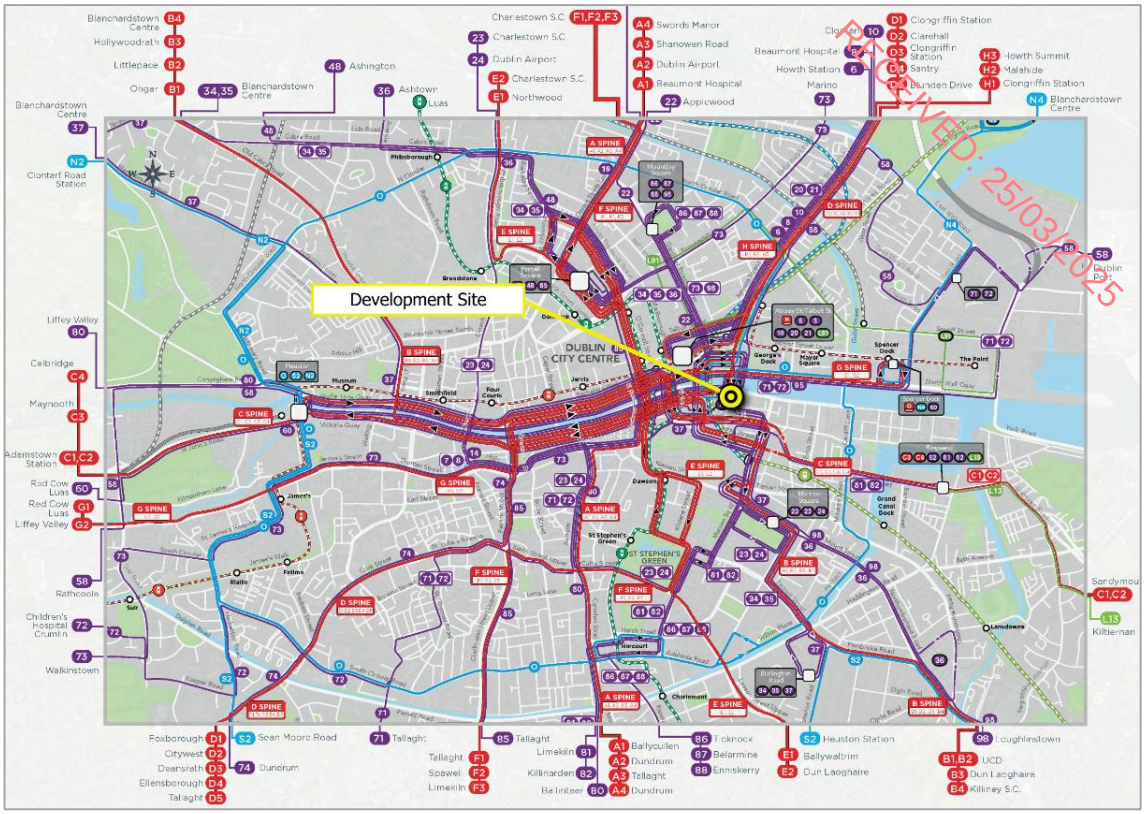

Figure 11.5: Dublin Area Revised Bus Network city centre area map

The Core Bus Corridor Project is accompanied within the BusConnects framework by the Dublin Area Revised Bus Network initiative, which seeks to improve the overall convenience and efficiency of the city's bus routes. This includes the implementation of high-frequency spine routes through the city centre, all of which are to serve stops in proximity to the development site. These spine routes consolidate branching radial routes and harmonise their timetabling. To date, the H-Spine, C-Spine, and G-Spine routes have been introduced, with A-Spine, B-Spine, D-Spine, E-Spine, and F-Spine routes to follow.

Cycle Network Plan for the Greater Dublin Area

As part of the Cycle Network Plan for the Greater Dublin Area, administered by the National Transport Authority, it is proposed that a primary cycle route no. 13 be implemented immediately to the north of the development site along City Quay. It is also proposed to implement east-west cycle route along the north quays in proximity to the subject development site. This is identified in the GDA Cycle Network Plan written report as Route 5, to run from the Docklands in the east along the Liffey Quays to Heuston Station in the west, and then through the Phoenix Park to Castleknock and Blanchardstown.

Interim cycling measures have already been provided by Dublin City Council along part of this route, at a number of sections along quays between Heuston Station and O'Connell Bridge. Further interim measures are proposed along Eden Quay, George's Quay, Burgh Quay, Aston Quay, City Quay, and Crampton Quay. The final implementation of this cycle route – the Permanent Liffey Corridor Project – is currently estimated to be delivered after 2027 and will provide new cycle facilities along the quays on both sides of the river.

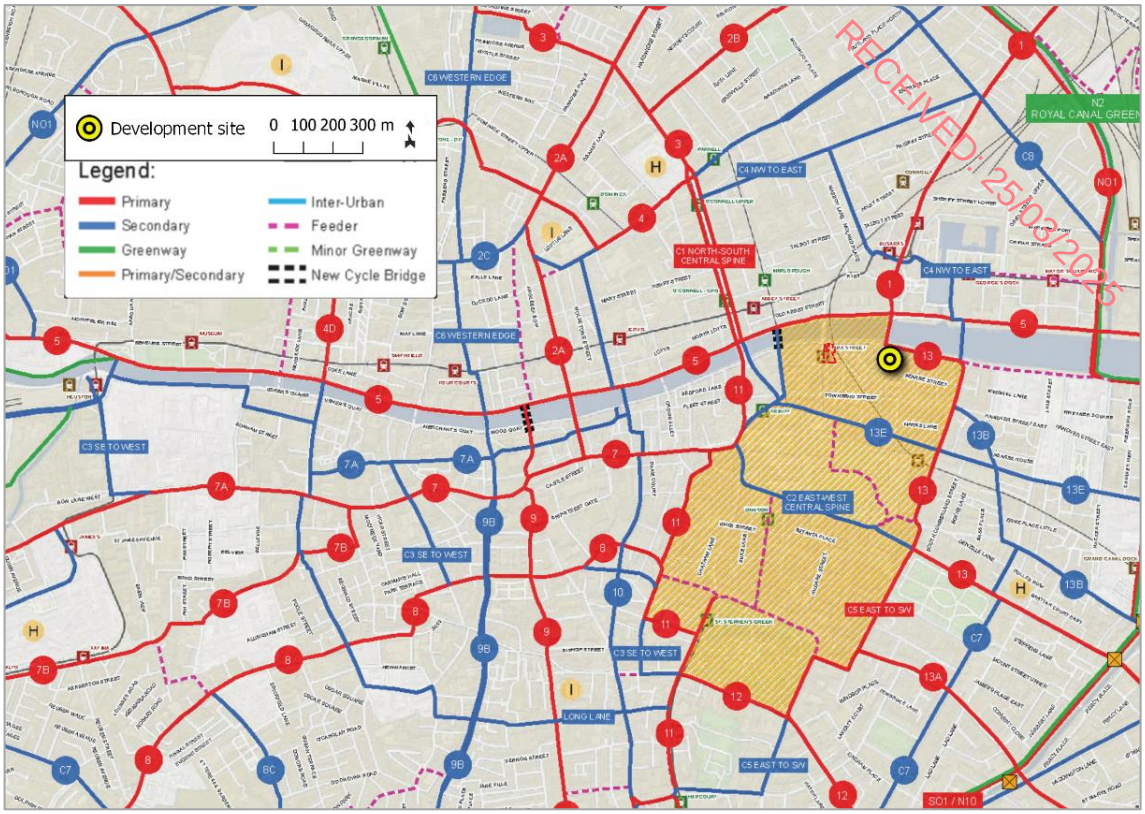

Figure 11.6: Extract of GDA Cycle Network Plan mapping

DART+ Programme

The DART+ Programme consists of a series of proposals that aim to modernise and improve the existing rail services in the Greater Dublin Area (GDA). It will provide a sustainable, electrified, reliable and more frequent rail service, improving capacity on rail corridors serving Dublin. The current DART network is 50km long, extending from Malahide/ Howth to Greystones. The DART+ programme will increase the length of the DART network to 150km of railway corridor through the electrification and upgrade of existing lines transforming commuter train travel in the Greater Dublin Area (GDA). The DART+ Programme also includes the purchase of new train fleet.

As set out in the map, the DART+ Programme will deliver frequent, modern, electrified services between Dublin City Centre (Tara Street, Connolly and Spencer Dock) to:

- Maynooth and M3 Parkway
- Hazelhatch and Celbridge
- Drogheda, and
- Greystones

Given the connectivity of the site to the rail wider network via the Tara Street railway station located within 5-minutes' walk of the subject site, all parts of the DART+ programme will be of benefit to the proposed development site.

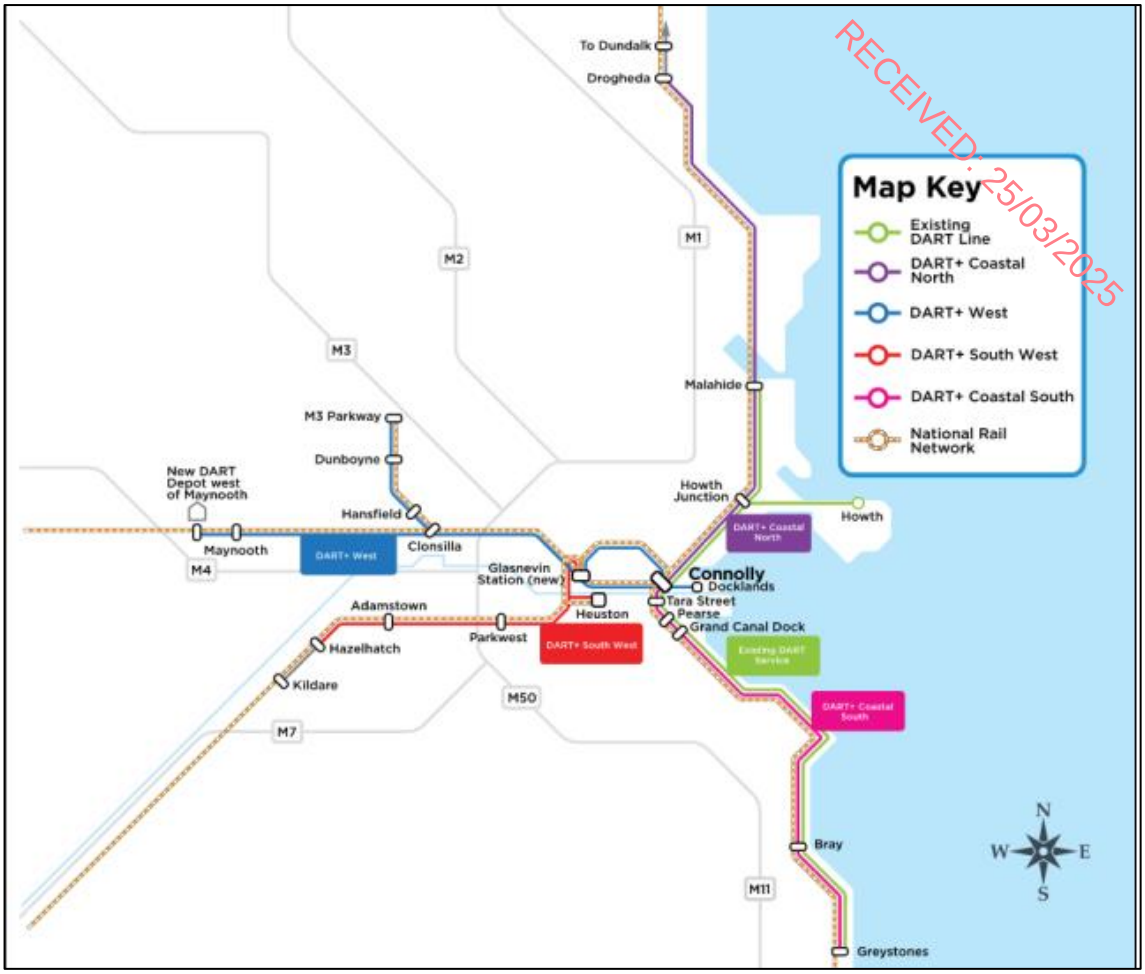

Figure 11.7: DART+ Programme map

DART Rail expansion

As part of the DART expansion project, it is proposed to increase the capacity of the northern line from circa 10,500 in the morning peak hour to approx. 15,000 by 2035. Train capacity shall be increased from 10-minute to 5-minute frequency and all trains shall be lengthened to 8 carriages. At present detailed design is being undertaken to inform the full delivery programme for DART expansion.

11.4 DO NOTHING SCENARIO

Should the proposed development not take place, the subject site will remain in its current state and use. Vehicular traffic to and from the site will therefore remain unchanged.

11.5 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development, as outlined in Chapter 2 (Description of the Proposed Development), can be summarized as follows:

The application site is bounded by City Quay to the north, Moss Street to the west, Gloucester Street South to the south, and the City Quay National School to the east. The site is located in the heart of Dublin City, approximately 165 meters east of Tara Street DART Station, 250 meters south of Busáras and the Luas Red Line, and 400 meters south of Connolly Station.

Currently, the site is a brownfield area featuring a disused three-story building in the northern section and a surface car park to the south. Adjacent to the site, to the east, are the City Quay National School, St.

Mary's Creche & Pre-School, and the City Quay Church. To the west, across Moss Street, is the St. George's Quay office building.

The proposed development involves the demolition of the existing structures and the construction of a building up to 14 storeys in height, including a double basement with an arts centre. Vehicular access to the site will be via Gloucester Street South, where a loading bay for service and maintenance vehicles will be located, along with a car lift for private vehicle access to the basement parking. Pedestrian access will be from Moss Street, along the western boundary, where the existing footpath will be widened.

The development will consist of both a Demolition/Construction phase and an operational phase.

11.6 POTENTIAL IMPACTS/EFFECTS OF THE PROPOSED DEVELOPMENT

11.6.1 Trip Generation and Distribution

The traffic impacts associated with the proposed development are expected to occur in two distinct phases: (i) the Demolition/Construction Phase and (ii) the Operational Phase. Therefore, each phase is addressed individually in this assessment.

11.6.1.1 Demolition and Construction Phase

During the Demolition/Construction Phase, the traffic associated with the proposed development will consist of a combination of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs), which will be used for transporting construction materials to the site, removing waste material, and supporting the work of operatives/tradespersons.

Staff Trips

It is estimated that between 50 and 100 people will be employed on-site at any given time during construction, with working hours expected to be from 7:00am to 7:00pm. Given the site's proximity to well-connected bus routes, Luas, commuter trains, and DART services, it is assumed that 20% of the construction workers will use public transport, bicycles/scooters, or walk to the site, while 80% will commute by private vehicle with an average vehicle occupancy rate of 1.5 persons per vehicle. This results in an estimated 27 arrivals and departures per day, with 54 arrivals between 7:00am and 8:00am and the same number of departures between 4:00pm and 5:00pm.

Although no car parking will be provided on-site, bicycle/scooter parking facilities will be available.

Deliveries and Waste Removal

Due to the limited space on the existing site, particularly for the use of adjacent roads for materials handling and storage, it is expected that only one HGV can be accommodated at a time for either waste removal or material delivery. With an average turnaround time of 15 minutes per HGV, a maximum of 60 deliveries per day can be managed, resulting in a total of 120 trips per day for waste removal and material deliveries.

Table 11.1: Summary of Predicted Daily Trips

Construction Vehicle Type	Daily Trips		
	Arrivals	Departures	Total
Light Goods Vehicles	54	54	108
HGVs	60	60	120

11.6.1.2 Operational Phase

Forecast Trips

It should be noted that the existing car parking services within the development site comprises 65no. car parking spaces.

During the operational phase the volumes of vehicular traffic associated with the development will reduce and consist only of Car Share spaces, art and cultural facilities trips, and services and delivery trips.

The proposed development comprises of 9no. car parking spaces, of these, 2no. car parking spaces shall be allocated to the community centre element of the development, 6no. car parking spaces shall be allocated as car share spaces, and 1no. spaces shall be disabled accessible spaces and shall be allocated for the use of Disabled Person's Parking Permit holders. The proposed development's car parking is 56no. car parking spaces less than what is currently present on site.

The 6no. 'car share spaces' car parking spaces shall serve to accommodate a shared fleet of vehicles to be used by office tenants who require the use of a car for business trips during the working day. These shared vehicles shall remain within the development overnight; they shall therefore not be used for commuting to and from the development at the beginning and end of the working day.

It has been assumed that, in a worst-case scenario, all the car share clubs drivers, disabled accessible spaces driver, and community facility car drivers shall arrive and depart the development site within the AM and PM peak hour periods. Therefore, a total of 18no. trips (including arrivals and departures) shall be generated by the occupants and visitors of the overall development during either peak hour periods.

Table 11.2: Summary of Predicted Operational Peak Hour Trips

Construction Traffic	Peak Hour Trips	
	Arrivals	Departures
AM Peak	9	9
PM Peak	9	9

Modal Split

The choice of travel mode for trips to/from the proposed development during the operational phase will be influenced by the site location, within Dublin City Centre, its proximity to public transport options, the available facilities for Active Travel modes (e.g. walking & cycling) and the availability of private vehicle parking spaces within the development or nearby.

To establish indicative baseline model splits for the development site, reference has been made to the following data sources:

- CSO data derived from the 2016 census
- TRICS multi-model survey data for a comparable nearby office development

The CSO census data are in the form of Workplace Zone (WPZ) statistics, which give modal splits for daytime occupants' trips to places of work or study. The development site is located within Workplace Zone no. DC0547 (see Figure 11.8) The census modal splits for this WPZ, as well as for the adjacent zones, are given in **Table 11.3**.

Table 11.3: CSO 2016 Census Data – Existing Modal Splits

Transport Mode	Workplace Zone Modal Shares	
	WPZ DC0547 only	WPZ DC0545 + adjacent
Driving a Car or Van	12%	18%
Passenger in a Car	3%	2%
Bicycle	6%	10%
Motorcycle	1%	1%
Bus	20%	21%
Train or Tram	33%	31%
Walking	23%	17%
Other / Work from Home	2%	1%
Not Stated	0%	0%

These census data have been considered in conjunction with the results of a multi-modal trip survey drawn from the Trip Rate Information Computer System (TRICS) database. The TRICS survey database is maintained by a consortium of English County Councils but covers the entirety of Great Britain and Ireland. Reference has been made in this instance to a survey conducted in 2010 at La Touche House, a comparable office building located on Amiens Street in Dublin, close to Connolly railway station (see Figure 11.8). The modal splits recorded by this survey are given in **Table 11.4**.

Table 11.4: TRICS Modal Split Data – La Touche House Survey

Transport Mode	Weekday Modal Share
Driving a Car or Van	7%
Passenger in a Car	1%
Bicycle	2%
Bus or Tram	14%
Train	10%
Walking	66%

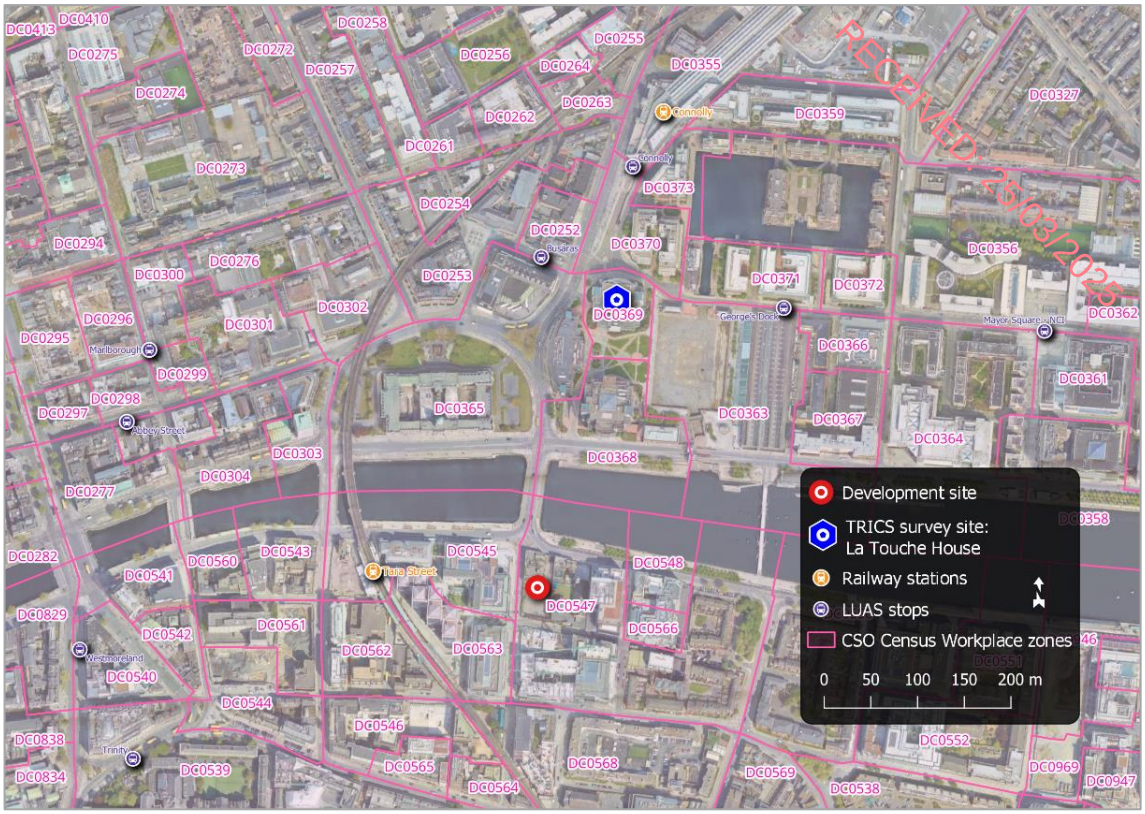

Figure 11.8: Census Workplace Zones and TRICS survey site

The assumed starting modal splits have been informed by CSO census data from the year 2016 and by TRICS survey data, as previously described, as well as by the proposed car parking provision within the subject development.

Table 11.5: Modal Splits for Development Occupants

Transport Mode	Assumed Starting Modal Share	Suggested Initial Target Modal Share
Driving a Car or Van	0%	0%
Passenger in a Car/Van/Taxi	0%	0%
Bicycle	12%	12%
Motorcycle	1%	0%
Bus	29%	28%
Train or Tram	38%	39%
Walking	20%	21%

It should be noted that the above modal shares refer to the greatest proportion (by distance) of each journey. A train journey, for example, is likely to involve walking or cycling at one or both ends of the trip, but will not be classified as a walking or cycling journey. Similarly, a car journey made to the development need not involve parking at the development site itself; drivers may make use of an offsite car park and walk from there.

11.6.2 Trip Distribution

Demolition/ Construction Phase

The precise designated route will be determined by the lead Contractor at a later stage and agreed with DCC as part of the final Construction Traffic Management Plan (CTMP). It is however expected that this route will require HGVs to arrive and depart from/to the east along Custom House Quay, Talbot Memorial Bridge, accessing the development site via City Quay, and exiting the site from City Quay.

Operational Phase

The vehicular lifts proposed for the development can be access via Gloucester Street South. It has been therefore assumed that the vehicular traffic to and from the overall development shall be distributed east and west along Gloucester Street South as given in **Table 11.6** and **Table 11.7**

Table 11.6: Development Traffic Distribution - Arrivals

From	Gloucester Street S (West)	Gloucester Street S (East)
AM Peak	80%	20%
PM Peak	80%	20%

Table 11.7: Development Traffic Distribution - Departures

From	Gloucester Street S (West)	Gloucester Street S (East)
AM Peak	20%	80%
PM Peak	20%	80%

11.6.3 Traffic Assessment

Section 2.1 of the *Traffic and Transport Assessment Guidelines* published by Transport Infrastructure Ireland states that, in urban or congested areas, a traffic assessment should include all roads and junctions where the development traffic exceeds 10% of the existing or background traffic (or 5% in sensitive locations).

11.6.3.1 Demolition/ Constrution Phase

The demolition/ construction traffic for the proposed development shall generate a maximum of 120 trips (arrivals and departures) throughout the day. It is therefore, envisaged that the demolition/ construction traffic for the proposed development shall not result in an increase in more than 5% during either peak hour period. Therefore, operational assessment has not been carried out at the surrounding road network.

11.6.3.2 Operational Phase

As previously mentioned, the site currently contains 65no. car parking spaces. Considering the city centre location of the site and the limited public car parking spaces available in this area, it can be assumed that the existing car parking facility on the development site is likely to be fully occupied for much of a typical weekday. For comparison purposes, however, a best-case scenario is assumed whereby only 50% of these existing car parking spaces are occupied or vacated during either peak hour period; this results in 33no. trips (arrivals and departures combined) during each peak hour.

The proposed development includes 9no. car parking spaces. Of these, 2no. car parking spaces shall be allocated to the community centre element of the development, 6no. car parking spaces shall be allocated as car share spaces, and 1no. space (of suitable dimensions) shall be allocated for the use of Disabled Person's Parking Permit holders.

As a wort-case scenario, it has been assumed that:

- each of the 6no. car share club vehicle will account for one departure trip and one arrival trip in each peak hour; and
- each of the remaining 3no. car parking spaces will generate one arrival trip in the AM peak hour and one departure trip in the PM peak hour.

Under this scenario, a total of 15no. vehicular trips (arrivals and departures combined) shall be generated by development occupants and visitors of the overall development in each of the peak hour periods.

The worst-case scenario for the proposed development represents a 55% reduction in vehicular trip generation when compared to the best-case scenario for the existing site.

Therefore, it can be concluded that the proposed development shall result in an overall positive effect on local traffic flows and that no further operational assessment is required.

11.6.3.3 Public Transport Capacity Assessment

A full description of public transport services in the vicinity of the subject site is given in sub-section 11.3.4 of this report.

Commuter Rial/ DART Capacity

The development site is located within 5-minutes walking distance of Tara Street railway station, which is served by frequent Dublin Area Rapid Transit (DART) trains and by a number of commuter rail services.

DART services are operated using 8500-20 Class EMU (Electrical Multiple Unit) 4-car sets, each with a maximum capacity of approx. 400no. passengers (160no. seated and approx. 240no. standing), and 8100/8300 Class EMU 2-car sets, each with a capacity of up to approx. 320no. passengers (128no. seated and approx. 192no. standing). These can be coupled up to form a maximum 8-piece train, with an approximate capacity of either 800no. passengers or 1,280no. passengers. As the higher-capacity 8100/8300-based trains represent 55% of the current DART fleet (car for car), an average DART train capacity of 1,060no. passengers has been assumed.

Commuter rail services in the Greater Dublin Area are most commonly operated using 29000 Class DMU (Diesel Multiple Unit) 4-car sets, which can be coupled together to form a maximum 8-piece train. Each 4-car set has a maximum capacity of approx. 280no. passengers (185no. seated and approx. 95no. standing), giving a maximum train capacity of approx. 560no. passengers.

Table 11.8 and **Table 11.9** show the numbers of relevant light rail and commuter rail services in each of the peak hours, as well as the approximate peak hour capacities of these services.

Table 11.8: Tara Street DART Capacity

Direction	Peak Hour Services **(trains)**	Peak Hour Capacity **(passengers)**
AM Peak Hour (08:00-09:00)		
Northbound	7	7,420
Southbound	6	6,360
PM Peak Hour (16:00-17:00)		
Northbound	7	7,420
Southbound	6	6,360

Table 11.9: Tara Street Commuter Rail Capacity

Origin / Destination	Peak Hour Services **(trains)**	Peak Hour Capacity **(passengers)**
AM Peak Hour (08:00-09:00) - Inbound Services		
Balbriggan / Drogheda / Dundalk	3	1,680
Gorey / Wexford / Rosslare	1	560
Hazelhatch-Celbridge / Newbridge	2	1,120
Maynooth	1	560
PM Peak Hour (16:00-17:00) - Outbound Services		
Balbriggan / Drogheda / Dundalk	2	1,120
Gorey / Wexford / Rosslare	1	560
Hazelhatch-Celbridge / Newbridge	3	1,680
Maynooth	2	1,120

Light Rail Capacity

The development site is located within 5-minutes walk of Busáras red Line Luas stop and within 10-minutes walk of Westmoreland and Trinity Green Line Luas stops.

The Luas Red Line is operated using 40-metre Alstom Citadis 401 trams (70% low-floor configuration), each with a maximum capacity of 358no. passengers. On average, a tram serves the Abbey Street Luas stop every 4 minutes in either direction between 07:00 and 10:00 and between 16:00 and 19:00.

The Luas Green Line is operated using 43-metre and 55-metre Alstom Citadis 402 and Citadis 502 trams (100% low-floor configuration), with a maximum capacity per tram of 408no. passengers. On average, a tram serves the northbound and southbound Westmoreland and Trinity Luas stops every 4 minutes between 07:00 and 10:00. Between 16:00 and 19:00, trams serve the Westmoreland stop every 5 minutes and the Trinity stop every 4 minutes.

Table 11.10 and **Table 11.11** give the calculated peak time capacities at the Luas stops closest to the development site. These are the average peak capacities, each applicable to a 3-hour period. Luas frequencies (and therefore hourly capacities) are higher still at the times of greatest Luas demand: 08:00-09:00 in the morning and 16:00-17:00 in the evening. As the exact number of trams serving a given stop during these two hourly periods is not specified, however, the true peak capacity cannot be determined.

Table 11.10: Local Luas Light Rail Capacity - AM Peak

Direction	Destinations	Average Weekday Peak Interval	Average Peak Capacity (passengers/hr)
Luas Red Line (Abbey Street stop)			
Eastbound	The Point / Connolly	4 min	5,370
Westbound	Tallaght / Saggart	4 min	5,370
Luas Green Line (Westmoreland and Trinity stops)			
Northbound	Broombridge	4 min	6,120
Southbound	Bride's Glen	4 min	6,120

Table 11.11: Local Luas Light Rail Capacity - AM Peak

Direction	Destinations	Average Weekday Peak Interval	Average Peak Capacity (passengers/hr)
Luas Red Line (Abbey Street stop)			
Eastbound	The Point / Connolly	4 min	5,370
Westbound	Tallaght / Saggart	4 min	5,370
Luas Green Line (Westmoreland and Trinity stops)			
Northbound	Broombridge	5 min	4,896
Southbound	Bride's Glen	4 min	6,120

Bus Capacity

Bus stops within a 5-minute walk of the site are served by a total of 86no. PSO bus routes operated by Dublin Bus, Bus Éireann, and Go-Ahead Ireland. An analysis of General Transit Feed Specification (GTFS) data published by the National Transport Authority shows that:

- Approx. 180no. buses in each direction on these routes serve these stops during the AM peak hour of 08:00-09:00.
- Approx. 170no. buses in each direction on these routes serve these stops during the PM peak hour of 16:00-17:00.

Bus capacity depends upon bus model, which in turn varies according to the bus route, the time of day, and other operational factors. The most common bus model currently used by Dublin Bus is the Volvo B5TL double-decker, with a capacity of 95no. passengers. Other buses in the Dublin Bus fleet have typical capacities ranging between 78no. passengers and 91no. passengers. Go-Ahead Ireland operates a bus fleet comprising principally Volvo B5TL double-deckers (approx. 65% of its fleet) and Wright StreetLite single-deckers (approx. 30% of its fleet); these have capacities of 95no. passengers and 45no. passengers, respectively. Bus Éireann operates a very diverse fleet of coaches and town buses; routes to and from Dublin city centre are however generally operated using coaches with a typical seating capacity of approx. 60no. passengers.

For the purposes of estimating overall bus service capacity, an average capacity per bus of 85no. passengers has been assumed.

Table 11.12: Local Bus Service Single-Direction Capacities

Time Period	Peak Hour Services (buses, all routes, one direction only)	Approx. Peak Hour Capacity (passengers)
AM Peak (08:00-09:00)	180	15,300
PM Peak (16:00-17:00)	170	14,450

11.6.3.4 Contribution to Public Transport

The proposed development comprises of the offices with a total Gross Floor Area (GFA) of 23,501m2. TRICS data for similar office developments (included in Appendix A) indicates that, an average, 7.365 person trips (by all modes of transport) are made to and from each such office developments on a typical weekday between the hours 07:00 and 21:00. The development therefore has the potential to generate the following person trips during this time range:

- 1,731 departures

- 1,731 arrivals

Table 11.13: TRICS Person Trip Time Distribution Proportions

Hour of the Day	Proportion of Arrival Trips	Proportion of Departure Trips
07:00-08:00	8.4%	1.2%
08:00-09:00	**25.9%**	**2.8%**
09:00-10:00	20.4%	4.1%
10:00-11:00	8.9%	5.5%
11:00-12:00	5.6%	5.1%
12:00-13:00	7.5%	11.5%
13:00-14:00	10.0%	9.1%
14:00-15:00	4.9%	4.6%
15:00-16:00	2.8%	6.1%
16:00-17:00	2.8%	9.9%
17:00-18:00	**2.0%**	**23.8%**
18:00-19:00	0.9%	14.1%
19:00-20:00	0.0%	1.9%
20:00-21:00	0.0%	0.3%

Table 11.14 applies these time distribution proportions to the development's projected total person trip generation between 07:00 and 21:00.

Table 11.14: TRICS Person Trip Time Distribution Proportions

Hour of the Day	Arrival Trips	Departure Trips
07:00-08:00	146	22
08:00-09:00	**449**	**48**
09:00-10:00	353	70
10:00-11:00	154	95
11:00-12:00	98	87
12:00-13:00	129	200
13:00-14:00	173	158
14:00-15:00	85	80
15:00-16:00	48	106
16:00-17:00	48	171
17:00-18:00	**35**	**411**
18:00-19:00	15	245
19:00-20:00	0	33
20:00-21:00	0	6

During the relevant peak hours for public transport demand, the proposed development is projected to generate:

- 48no. departure trips and 449no. arrival trips in the AM peak (08:00-09:00)
- 411no. departure trips and 35no. arrival trips in the PM peak (17:00-18:00)

The initial modal splits assumed for the proposed development are given in **Table 11.5**. Applying these initial modal split targets, the development may therefore be expected to generate the following maximum possible public transport demand during each weekday peak hour.

Table 11.15: Development Weekday Peak Public Transport Demand

Transport Mode	Direction and Time Period	
	Arrivals in AM Peak	Departures in PM Peak
Bus	126	115
Train or Tram	175	160
TOTAL	301	275

Table 11.16 contrasts the development's projected public transport demand against the existing service capacities. This shows that development occupant and visitors' use of public transport services at peak times is projected to represent less than 1% of the existing service capacity.

Table 11.16: Development Public Transport Demand Against Capacity

Transport Mode	**Existing Capacity (passengers)**	Development Demand (passengers)	Demand as Proportion of Capacity
AM Peak Hour (08:00-09:00)			
Bus	15,300	126	0.8%
Train or Tram	40,680	175	0.4%
PM Peak Hour (16:00-17:00)			
Bus	14,450	115	0.7%
Train or Tram	40,016	160	0.3%

It is therefore concluded that the existing public transport service capacity is sufficient to meet the demands of the proposed development, and that the proposed development is not expected to contribute significant additional service demand.

It is further noted that, should additional public transport capacity be required on services in proximity to the development site, this can be provided by means of increased frequency on the existing services or by the use of higher-capacity trains, trams, or buses. Such a decision would be made on the basis of observed demand, of which regular monitoring is undertaken by the National Transport Authority.

11.6.3.5 Parking

Car Parking

The *Dublin City Development Plan 2022–2028* does not permit the provision of car parking spaces within new developments in Parking Zone 1, with the exception of car-share parking and accessible car parking. The development shall include a total of 9no. car parking spaces (including 1no. disabled assessable spaces), all located internally at basement level -1.

The proposed development comprises of 9no. car parking spaces, of these, 2no. car parking spaces shall be allocated to the art and cultural element of the development, 6no. car parking spaces shall be allocated as car share spaces, and 1no. spaces shall be disabled accessible spaces and shall be allocated for the use of Disabled Person's Parking Permit holders.

The 6no. 'car share spaces' car parking spaces shall serve to accommodate a shared fleet of vehicles to be used by office tenants who require the use of a car for business trips during the working day. These shared vehicles shall remain within the development overnight; they shall therefore not be used for commuting to and from the development at the beginning and end of the working day. The provision of this shared fleet and associated parking spaces shall therefore not promote car use for travel to and from the development. On the contrary, it shall allow more efficient use of cars for necessary business trips and

permit those office tenants who require the use of a car during the day to commute by other modes of transport, rather than having to bring an external vehicle with them when travelling to work.

Bicycle Parking

The proposed development's bicycle parking provision has been assessed with respect to the Dublin City Development Plan 2022–2028, which defines the minimum standard bicycle parking provision for new developments by land use type.

The development shall include a total of 330no. bicycle parking spaces, comprising:

- 314no. long-term bicycle parking spaces for employees, located in a secure dedicated bicycle store at Lower Ground Level; and
- 16no. publicly-accessible short-stay bicycle parking spaces for visitors, in the form of Sheffield stands at surface level within the public realm.

11.6.3.6 Showers, Changing, and Storage Facilities

The Dublin City Development Plan 2022–2028 stipulates that:

"Suitable shower and changing facilities shall be made available in developments incorporating staff cycle parking. Facilities shall be secure, lockable and located in well-lit locations.

"The following standards shall be adhered to:

- 1 shower per commercial development over 75m2
- A minimum of 2 showers for commercial developments over 500m2
- 1 shower per 1,000m2 thereafter

"Changing/drying areas, toilets and lockers should be provided in association with shower facilities. The number of lockers provided shall relate to the number of cycle parking spaces. Lockers shall be well ventilated, secure and lockable. Lockers that facilitate multiple short-term users are recommended."

The proposed development has a total Gross Floor Area (GFA) of 28,569m2, and therefore requires the provision of at least 29no. showers for staff use. As shown on the architectural plans, shower and changing areas are provided at Lower Ground Floor, in proximity to the bicycle store; these include a total of 29no. shower stalls and 4no. toilet cubicles.

Storage lockers are provided within the staff shower and changing areas, and a drying room for clothing and equipment is provided adjacent to the shower and changing areas.

11.7 MITIGATION MEASURES

Based on the traffic study conducted in this chapter, it can be concluded that the impact of the development on the local road network during both the demolition/construction and operational phases will be minimal. However, a Construction Management Plan will be developed in consultation with Dublin City Council to ensure effective traffic management during construction. Additionally, key stakeholder engagement will be carried out to communicate site activities and programme expectations.

11.8 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

The proposed development includes intrinsic traffic generation mitigation measures as part of its design. These include a reduced car parking provision and significant high-quality bicycle parking. Additional construction phase and operational phase mitigation measures shall be implemented under the development's Travel Plan, Development Servicing Management Plan, and Construction Traffic Management Plan, as previously described.

Residual Construction Phase Impacts:

- **Negative** in nature
- **Short-term** in duration
- **Not significant**

Residual Operational Phase Impacts:

- **Negative** in nature
- **Long-term** in duration
- **Not significant**

11.9 MONITORING

The Construction Management Plan is a dynamic document that will be updated and maintained throughout the Demolition/Construction phase. It will include the monitoring of site activities and ensure regular engagement with stakeholders.

11.10 DIFFICULTIES ENCOUNTERED IN COMPILING

The absence of traffic survey data presented a challenge for the assessment, as it limited the ability to fully analyse the current traffic conditions. However, the assessment was still conducted using available background information and reasonable assumptions.

11.11 REFERENCES

- Transport Infrastructure Ireland (TII) (2014): Traffic and Transport Assessment Guidelines
- Transport Infrastructure Ireland (TII) (2011): Project Appraisal Guidelines
- Dublin City Council (DCC) (2022): Dublin City Development Plan 2022–2028
- TRICS Consortium: Trip Rate Information Computer System (TRICS) database
- Central Statistics Office (CSO): 2016 and 2022 Census data

APPENDIX A – TRICS DATA

Calculation Reference: AUDIT-656801-241023-1033

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BN	BARNET	1 days
	CN	CAMDEN	2 days
	EN	ENFIELD	1 days
	HD	HILLINGDON	1 days
	HM	HAMMERSMITH AND FULHAM	1 days
03	SOUTH WEST		
	BC	BOURNEMOUTH CHRISTCHURCH & POOLE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	TW	TYNE & WEAR	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	1306 to 26639 (units: sqm)
Range Selected by User:	170 to 114000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 23/11/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	3 days
Tuesday	3 days
Wednesday	4 days
Thursday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	12 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	8
Edge of Town Centre	4

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Built-Up Zone	10
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	18 days - Selected
Servicing vehicles Excluded	9 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	12 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000	8 days
50,001 to 100,000	2 days
100,001 or More	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

250,001 to 500,000	3 days
500,001 or More	9 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	3 days
No	9 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	6 days
3 Moderate	1 days
4 Good	2 days
6b (High) Excellent	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BC-02-A-08 OFFICES BOURNEMOUTH CHRISTCHURCH & POOLE
HOLDENHURST ROAD
BOURNEMOUTH

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2600 sqm
Survey date: WEDNESDAY 14/09/22 *Survey Type: MANUAL*

2 BN-02-A-01 OFFICES BARNET
MOON LANE
HIGH BARNET

Edge of Town Centre
No Sub Category
Total Gross floor area: 1366 sqm
Survey date: THURSDAY 11/11/21 *Survey Type: MANUAL*

3 CN-02-A-03 PLANNING & ENGINEERING CAMDEN
FITZROY STREET
FITZROVIA

Town Centre
Built-Up Zone
Total Gross floor area: 26639 sqm
Survey date: WEDNESDAY 06/12/17 *Survey Type: MANUAL*

4 CN-02-A-04 OFFICE CAMDEN
CHARTERHOUSE STREET
FARRINGDON

Town Centre
Built-Up Zone
Total Gross floor area: 20129 sqm
Survey date: TUESDAY 28/06/22 *Survey Type: MANUAL*

5 EB-02-A-06 REGUS OFFICES CITY OF EDINBURGH
ST ANDREW SQUARE
EDINBURGH

Town Centre
Built-Up Zone
Total Gross floor area: 4500 sqm
Survey date: WEDNESDAY 16/03/16 *Survey Type: MANUAL*

6 EN-02-A-01 MICROSOFT OFFICES ENFIELD
GENOTIN ROAD
ENFIELD

Town Centre
Built-Up Zone
Total Gross floor area: 6552 sqm
Survey date: TUESDAY 07/06/22 *Survey Type: MANUAL*

7 GM-02-A-08 REGUS GREATER MANCHESTER
FOUNTAIN STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3960 sqm
Survey date: MONDAY 26/09/16 *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 GM-02-A-11 OFFICES GREATER MANCHESTER
SAINT PETER'S SQUARE
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 6420 sqm
Survey date: FRIDAY *22/04/22* *Survey Type: MANUAL*

9 HD-02-A-10 DATA CENTRE HILLINGDON
MILLINGTON ROAD
HAYES

Edge of Town Centre
Commercial Zone
Total Gross floor area: 16350 sqm
Survey date: WEDNESDAY *02/03/22* *Survey Type: MANUAL*

10 HM-02-A-01 REGUS OFFICES HAMMERSMITH AND FULHAM
QUEEN CAROLINE STREET
HAMMERSMITH

Town Centre
Built-Up Zone
Total Gross floor area: 2036 sqm
Survey date: MONDAY *13/11/17* *Survey Type: MANUAL*

11 MS-02-A-02 SCIENCE PARK OFFICES MERSEYSIDE
MOUNT PLEASANT
LIVERPOOL

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 11250 sqm
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

12 TW-02-A-07 OFFICES TYNE & WEAR
MULGRAVE TERRACE
GATESHEAD

Town Centre
Built-Up Zone
Total Gross floor area: 2090 sqm
Survey date: MONDAY *13/06/16* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 6.99

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	7952	0.109	12	7952	0.032	12	7952	0.141
08:00 - 09:00	12	7952	0.277	12	7952	0.066	12	7952	0.343
09:00 - 10:00	12	7952	0.178	12	7952	0.069	12	7952	0.247
10:00 - 11:00	12	7952	0.091	12	7952	0.050	12	7952	0.141
11:00 - 12:00	12	7952	0.053	12	7952	0.053	12	7952	0.106
12:00 - 13:00	12	7952	0.066	12	7952	0.073	12	7952	0.139
13:00 - 14:00	12	7952	0.068	12	7952	0.074	12	7952	0.142
14:00 - 15:00	12	7952	0.049	12	7952	0.062	12	7952	0.111
15:00 - 16:00	12	7952	0.037	12	7952	0.078	12	7952	0.115
16:00 - 17:00	12	7952	0.045	12	7952	0.117	12	7952	0.162
17:00 - 18:00	12	7952	0.047	12	7952	0.216	12	7952	0.263
18:00 - 19:00	12	7952	0.031	12	7952	0.139	12	7952	0.170
19:00 - 20:00	1	20129	0.005	1	20129	0.005	1	20129	0.010
20:00 - 21:00	1	20129	0.005	1	20129	0.005	1	20129	0.010
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.061			1.039			2.100

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	1306 - 26639 (units: sqm)
Survey date date range:	01/01/16 - 23/11/22
Number of weekdays (Monday-Friday):	12
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	7952	0.001	12	7952	0.001	12	7952	0.002
08:00 - 09:00	12	7952	0.002	12	7952	0.002	12	7952	0.004
09:00 - 10:00	12	7952	0.005	12	7952	0.003	12	7952	0.008
10:00 - 11:00	12	7952	0.003	12	7952	0.003	12	7952	0.006
11:00 - 12:00	12	7952	0.001	12	7952	0.003	12	7952	0.004
12:00 - 13:00	12	7952	0.001	12	7952	0.001	12	7952	0.002
13:00 - 14:00	12	7952	0.000	12	7952	0.000	12	7952	0.000
14:00 - 15:00	12	7952	0.002	12	7952	0.002	12	7952	0.004
15:00 - 16:00	12	7952	0.000	12	7952	0.000	12	7952	0.000
16:00 - 17:00	12	7952	0.000	12	7952	0.000	12	7952	0.000
17:00 - 18:00	12	7952	0.000	12	7952	0.000	12	7952	0.000
18:00 - 19:00	12	7952	0.000	12	7952	0.000	12	7952	0.000
19:00 - 20:00	1	20129	0.000	1	20129	0.000	1	20129	0.000
20:00 - 21:00	1	20129	0.000	1	20129	0.000	1	20129	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.015			0.015			0.030

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	7952	0.008	12	7952	0.004	12	7952	0.012
08:00 - 09:00	12	7952	0.010	12	7952	0.006	12	7952	0.016
09:00 - 10:00	12	7952	0.009	12	7952	0.007	12	7952	0.016
10:00 - 11:00	12	7952	0.012	12	7952	0.014	12	7952	0.026
11:00 - 12:00	12	7952	0.005	12	7952	0.005	12	7952	0.010
12:00 - 13:00	12	7952	0.013	12	7952	0.014	12	7952	0.027
13:00 - 14:00	12	7952	0.007	12	7952	0.006	12	7952	0.013
14:00 - 15:00	12	7952	0.007	12	7952	0.008	12	7952	0.015
15:00 - 16:00	12	7952	0.004	12	7952	0.007	12	7952	0.011
16:00 - 17:00	12	7952	0.006	12	7952	0.007	12	7952	0.013
17:00 - 18:00	12	7952	0.003	12	7952	0.004	12	7952	0.007
18:00 - 19:00	12	7952	0.002	12	7952	0.002	12	7952	0.004
19:00 - 20:00	1	20129	0.000	1	20129	0.000	1	20129	0.000
20:00 - 21:00	1	20129	0.000	1	20129	0.000	1	20129	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.086			0.084			0.170

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*