CHAPTER 12:

TRAFFIC AND TRANSPORTATION

12

CHAPTER CONTENTS

12.0 TRAFFIC AND TRANSPORTATION

12.1 INTRODUCTION

This Chapter of the EIAR assesses and evaluates the likely impact of the proposed development on the operation of the surrounding transportation infrastructure and nearby transport services.

This assessment has been carried out in accordance with the following guidance and established best practice:

- Environmental Protection Agency (EPA) (2022). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*
- Transport Infrastructure Ireland (TII) (2014). *Traffic and Transport Assessment Guidelines*
- TII (2011). *Project Appraisal Guidelines*

Reference has also been made to:

- the *Dublin City Development Plan 2022–2028*
- the Trip Rate Information Computer System (TRICS) database
- CSO 2016 and 2022 Census data
- the UK Homes & Community Agency *Employment Density Guide* (3rd Edition, 2015)
- CSO Labour Force Survey (Q2 2023)
- Public Transport Capacity Assessment, North Wall Quay (Derry O'Leary, 2023)
- the *Design Manual for Urban Roads and Streets* (DMURS) (2019)
- the NTA *Cycle Design Manual* (2023)
- Greater Dublin Area Cycle Network Plan (2015)

This chapter presents an analysis of the proposed development's operational trip generation potential, traffic impact, and public transport demand contribution, which is also presented in the Traffic and Transport Assessment (TTA) report prepared by CS Consulting and submitted separately in support of this planning application. While this chapter includes content common to both documents, the TTA also examines certain further aspects of the proposed development (e.g. vehicular access arrangements) that are not pertinent to an EIAR.

Construction phase vehicular trip generation and construction traffic management, including mitigation measures, are also examined in this chapter, as well as in the Outline Construction Management Plan (OCMP) report prepared by CS Consulting and submitted separately in support of this planning application.

12.2 METHODOLOGY

The methodology adopted for the traffic and transportation assessment is summarised as follows:

1) A desktop study of the area surrounding the development site was conducted, examining the nature of the surrounding existing transport infrastructure, the existing public transport services nearby, and proposed future improvements to public transport services and transport infrastructure.
2) Classified junction turning count vehicular traffic surveys were conducted at 7 no. existing junctions in the vicinity of the development site. These surveys were undertaken by Idaso Ltd on behalf of CS Consulting from 06:00 to 20:00 on Tuesday the 16th of May 2023. Raw traffic survey data are provided in Appendix 12.1.
3) A multi-modal development trip generation assessment was carried out using data extracted from the Trip Rate Information Computer System (TRICS) database of traffic surveys (refer to Appendix 12.2), in conjunction with CSO national census data. This quantifies potential trips to and from the proposed development site, across several modes of transport, both for the existing building on the site and for the proposed development once completed. The site's projected trip generation during the proposed development's construction phase has also been established.
4) A specialist Public Transport Capacity Assessment was conducted, which established the capacity of existing public transport services close to the development site and compared this to the development's projected public transport demand at peak times. The Public Transport Capacity Assessment report is attached as Appendix 12.3.

12.2.1 Vehicular Traffic Survey

Full turning movement classified traffic counts were carried out by Idaso Ltd, on behalf of CS Consulting, over a 14-hour period (06:00–20:00) on Tuesday the 16th of May 2023. This traffic survey was intended to include the following 8no. sites (see Figure 12.1):

J1. R750 / Mayor Street Lower / Clarion Quay (West)
(3-arm priority-controlled junction with Luas track)

J2. Mayor Street Lower / Clarion Quay (East) / Custom House Square
(staggered 4-arm priority-controlled junction with Luas track)

J3. Commons Street / Mayor Street Lower / George's Dock
(4-arm signal-controlled junction with Luas track)

J4. Guild Street / Mayor Street Upper / Mayor Street Lower
(4-arm signal-controlled junction with Luas track)

J5. Custom House Quay / Commons Street / North Wall Quay
(3-arm signal-controlled junction)

J6. North Wall Quay / Guild Street / Beckett Bridge
(4-arm signal-controlled junction)

J7. Sheriff Street Lower / Oriel Street Upper / Commons Street
(4-arm priority-controlled junction)

J8. Seville Place / Sheriff Street Upper / Guild Street
(3-arm signal-controlled junction)

Idaso personnel were however prevented from installing survey equipment at site J7 (Sheriff Street Lower / Oriel Street Upper / Commons Street) by antisocial behaviour. Consequently, no traffic data were recorded at this location.

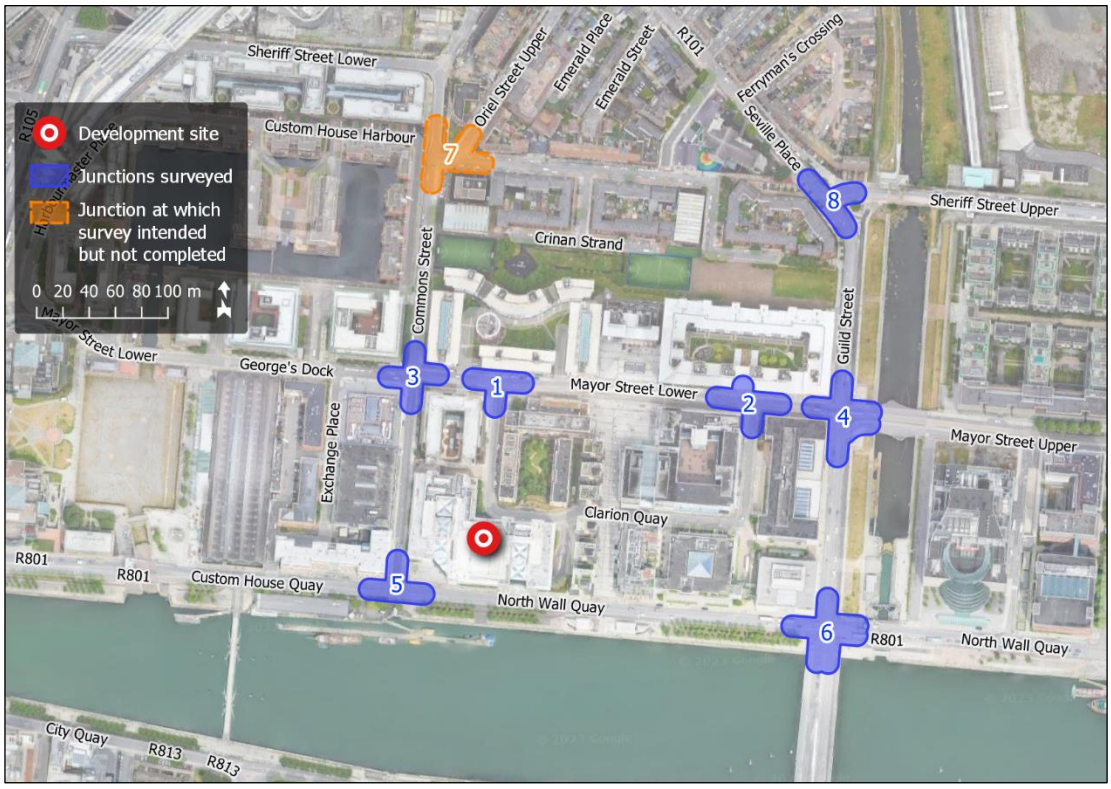

Figure 12.1 *Traffic survey sites (sources: OSM Contributors, Google)*

The peak hour traffic flows across all seven surveyed sites were found to occur between 08:00 and 09:00 (AM peak hour) and between 17:00 and 18:00 (PM peak hour).

Raw data from this traffic survey are provided in Appendix 12.1. The peak hour traffic movements at each of the surveyed junctions have been isolated from the count data and converted to Passenger Car Units (with the exception of Luas trams). A summary of total peak hour traffic movements at the surveyed junctions is given in Table 12.1.

Table 12.1 *Surveyed Total Traffic Flows Summary*

Time Period	Traffic Type	Total Vehicular Movements at Survey Junction Site:						
		J1	J2	J3	J4	J5	J6	J8
Weekday AM Peak (08:00-09:00)	General (as PCU)	266	226	693	701	1289	1802	908
	Luas trams	17	18	17	18	n/a	n/a	n/a
Weekday PM Peak (17:00-18:00)	General (as PCU)	152	194	453	793	1163	1753	911
	Luas trams	19	19	19	19	n/a	n/a	n/a

12.2.2 Development Population and Modal Split

The proposed development primarily comprises offices with a total Gross Floor Area (GFA) of 69,258m^2 and a total Net Internal Floor Area (NIFA) of 47,225m^2. In addition to office space, the proposed development also includes lesser areas of retail space (196m^2 GFA) and community/arts/cultural space (2,371m^2 GFA). Staff within these secondary elements will however represent only a fraction of the development's total population.

To calculate the predicted number of office employees within the development, the following average staff density figure has been sourced from the UK Homes & Community Agency's Employment Density Guide (3rd Edition):

- General Offices (max. density) – 1 staff member per 10m^2 NIFA

This gives a projected total office population of 4,723 people, at full occupancy. A total of 20no. staff members is assumed across the development's retail and cultural elements. A typical daily staff absence rate of 7% is assumed across the development as a whole (in line with CSO Labour Force Survey findings). For all assessment purposes, the proposed development's operational design population is therefore taken to be 4,411 people.

To establish indicative baseline modal splits for occupants of (and visitors to) the development site, reference has been made to CSO data derived from the 2016 census, in the form of Workplace Zone (WPZ) statistics that give modal splits for daytime occupants' trips to places of work or study. For the purposes of the present assessment, these splits are assumed to apply also to office visitors. The development site is located within Workplace Zone no. DC0364 (see Figure 12.2). The census modal splits for this WPZ are given in Table 12.2.

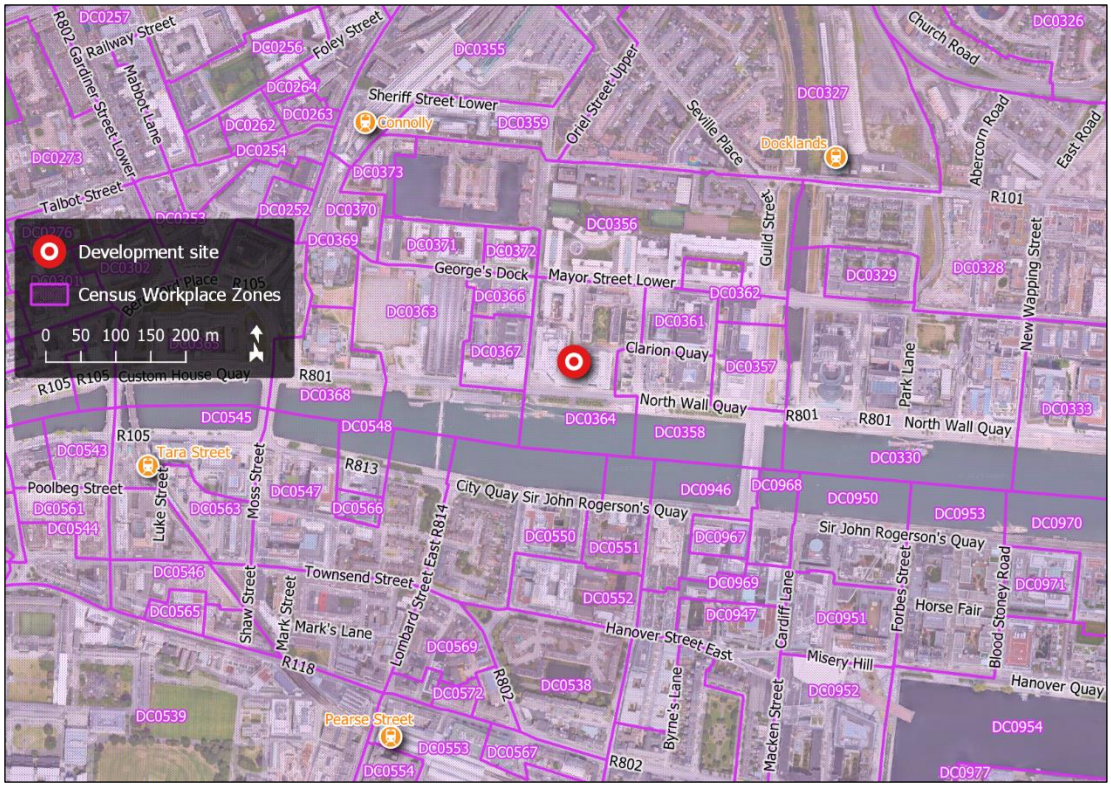

Figure 12.2 *Census Workplace Zones (sources: OSi, CSO, OSM Contributors, Google)*

Table 12.2 *CSO 2016 Census Data – Existing Modal Splits*

Transport Mode	WPZ DC0364 Modal Shares
Driving a Car or Van	17%
Passenger in a Car	1%
Bicycle	9%
Motorcycle	1%
Bus	22%
Train or Tram	36%
Walking	14%
Other / Work from Home	0%
Not Stated	0%

It should be noted that these 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.

As the proposed development has a projected design population of 4,411 people, the direct application of the current WPZ modal shares would result in 750 people commuting to the development by car. As described in section 12.4.2, however, the proposed development has a total car parking provision of only 32no. spaces [30no. basement + 2no. surface] (equivalent to 0.7% of development occupants). Adjusting the census data to reflect this limited car parking provision yields the adjusted development-specific modal shares given in Table 12.3. A modal share of 5% (equivalent to 221 people) has nevertheless been retained for private car use, to reflect the fact that some development occupants or visitors will nevertheless elect to drive to the area and use nearby on-street or off-street parking facilities.

Table 12.3 *Site-Specific Modal Splits for Development Occupants and Visitors*

Transport Mode	Assumed Initial Modal Share
Driving a Car or Van	5%
Passenger in a Car	2%
Bicycle	10%
Motorcycle	1%
Bus	25%
Train or Tram	41%
Walking	16%

12.2.3 Development Occupant and Visitor Trip Generation by Mode

With respect to trip generation, the proposed development has a total effective Gross Floor Area (GFA) of 71,825m^2, comprising 69,258m^2 of office space, 196m^2 of retail space, and 2,371m^2 of community/arts/cultural space.

Trip generation factors from the Trip Rate Information Computer System (TRICS) database have been used to predict the total trip generation to and from the proposed development (across all modes) for the AM and PM peak hour periods, as well as for a full day. The TRICS survey database is maintained by a consortium of English

County Councils but covers the entirety of Great Britain and Ireland. Full details of the TRICS information used are provided in Appendix 12.2.

In calculating total person-trips to and from the proposed development, only its office GFA of 69,258m^2 has been considered, as this shall account for 99.5% of the design population. The TRICS sub-category '02 Employment / A – Office' has been employed; this is described in the TRICS land use category definitions as follows:

"Single office building. May include a number of different organisations within the same building. If there is more than one building, then only include if the buildings belong to the same organisation. If there are different buildings for separate organisations then include as 02/B. Trip rates are calculated by Gross Floor Area, or Employees."

The TRICS trip rates for the proposed development have been selected from the above category, restricted insofar as possible to similar city centre locations, and further refined with reference to 2022 CSO census data on the basis of:

- the population within 1 mile of the development site (60,000 approx.);
- the population within 5 miles of the development site (520,000 approx.);
- the mean car ownership rate within 5 miles of the development site (1.0 cars per household).

The selected trip rates are given in Table 12.4.

Table 12.4 *TRICS Weekday Person-Trip Generation Rates*

Time Period	Arrivals per 100m^2 GFA	Departures per 100m^2 GFA
AM Peak (08:00-09:00)	1.997	0.229
PM Peak (17:00-18:00)	0.151	1.759
Full Day (07:00-21:00)	7.517	7.517

The total person-trip generation figures obtained for the proposed development are given in Table 12.5.

Table 12.5 *Development Weekday Person-Trip Generation from TRICS*

Time Period	Arrivals	Departures	Total Trips
AM Peak (08:00-09:00)	1,383	159	1,542
PM Peak (17:00-18:00)	105	1,218	1,323
Full Day (07:00-21:00)	5,206	5,206	10,412

The development-specific modal splits given in Table 12.3 have been applied to all weekday person-trips to be generated by the proposed development, as given in Table 12.5.

For assessment purposes, a slight adjustment has been made to the development's operational phase vehicular trip generation during the peak hours. This removes car trips above the development's onsite car parking provision of 32no. spaces, on the basis that:

- At most 32no. car driver trips will be made to the site itself during the AM peak hour.
- At most 32no. car driver trips will be made from the site itself during the PM peak hour.

This adjustment does not affect trips made by cars that drop off or collect passengers at the development but do not park at or near the site.

Table 12.6 gives the resultant distribution of development trips across transport modes.

Table 12.6 *Development Occupant/Visitor Weekday Trip Generation by Mode*

Transport Mode	Direction and Time Period					
	Arrivals			Departures		
	AM Peak	PM Peak	Full Day	AM Peak	PM Peak	Full Day
Driving a Car or Van	32	0	82	0	32	82
Passenger in a Car	22	2	83	3	19	83
Bicycle	146	11	550	17	129	550
Motorcycle	10	1	38	1	9	38
Bus	342	26	1,288	39	301	1,288
Train or Tram	574	43	2,157	66	505	2,157
Walking	220	17	830	25	194	830

12.2.4 Development Servicing Vehicle Trip Generation

In addition to trips made to and from the site by occupants and visitors, the proposed development shall also generate vehicular trips by servicing vehicles. These shall be required for operations such as deliveries, maintenance works, and refuse collection, and shall be made by either Ordinary Goods Vehicles (rigid or articulated lorries over 7.5t) or Light Goods Vehicles (vans).

To separate these trips from those made by development occupants and visitors, specific OGV and LGV trip generation rates have been sourced from the TRICS database; these are given in Table 12.7. In contrast to the total person-trip generation for the development, servicing vehicle trips have been calculated separately for the development's office, retail, and cultural elements. For the latter two, the TRICS sub-categories '01 Retail / O - Convenience Store' and '07 Leisure / Q - Community Centre' have been employed; these are described in the TRICS land use category definitions as follows:

Convenience Store
"Small "corner shop" style store or small "local" version of a major retailer store, selling various items which may include groceries, newspapers and magazines, confectionery, and household products. Trip rates are calculated by Gross Floor Area, Retail Floor Area, or Employees."

Community Centre
"Dedicated centre for community activities. Trip rates are calculated by Gross Floor Area, Site Area, Employees, or Parking Spaces."

Table 12.7 *TRICS Weekday Servicing Vehicle Trip Generation Rates*

Time Period	Arrivals per 100m^2 GFA		Departures per 100m^2 GFA	
	OGVs	LGVs	OGVs	LGVs
Offices				
AM Peak (08:00-09:00)	0.002	0.011	0.002	0.007
PM Peak (17:00-18:00)	0.000	0.002	0.000	0.002
Convenience Store				
AM Peak (08:00-09:00)	0.099	0.099	0.099	0.198
PM Peak (17:00-18:00)	0.000	0.148	0.000	0.247
Community Centre				
AM Peak (08:00-09:00)	0.000	0.084	0.000	0.084
PM Peak (17:00-18:00)	0.000	0.084	0.000	0.084

The development's resultant predicted weekday peak hour servicing vehicle trip generation is given in Table 12.8.

Table 12.8 *Development Weekday Servicing Vehicle Trips from TRICS*

Time Period	Arrivals		Departures		Total Trips	
	OGVs	LGVs	OGVs	LGVs	OGVs	LGVs
Offices						
AM Peak (08:00-09:00)	1	8	1	5	2	13
PM Peak (17:00-18:00)	0	1	0	1	0	2
Retail Space						
AM Peak (08:00-09:00)	0	0	0	0	0	0
PM Peak (17:00-18:00)	0	0	0	0	0	0
Cultural Space						
AM Peak (08:00-09:00)	0	2	0	2	0	4
PM Peak (17:00-18:00)	0	2	0	2	0	4

12.2.5 Maximum Motor Vehicle Trip Generation in Operational Phase

The total person-trip generation figures already established for the development technically include servicing trips, although these have not been removed from the trip numbers calculated for occupants and visitors. To estimate the development's maximum potential motor vehicle trip generation, however, a worst-case scenario has been considered, whereby:

- All car drivers and car passengers drive (or are driven) directly to site.
- All car passengers represent distinct trips, independent of drivers.
- Servicing vehicle trips are applied in addition to the development's total person-trip generation.

The vehicular trip generation figures calculated under this scenario are given in Table 12.9. These include all motorised vehicles, including cars, vans, OGVs, and motorcycles, but excluding bicycles.

Table 12.9 *Maximum Potential Development Motor Vehicle Trip Generation*

Time Period	Arrivals	Departures	Total Trips
Development Occupants and Visitors			
AM Peak (08:00-09:00)	64	4	68
PM Peak (17:00-18:00)	3	60	63
Development Servicing Vehicles			
AM Peak (08:00-09:00)	11	8	19
PM Peak (17:00-18:00)	3	3	6
Development Total			
AM Peak (08:00-09:00)	75	12	87
PM Peak (17:00-18:00)	6	63	69

12.2.6 Trip Generation of Existing Site

The existing office building occupying the development site has a total Gross Internal Area of 34,506m^2 and a total Net Internal Area of 21,223m^2 for office use, and includes 164no. internal car parking spaces. The theoretical population of the existing building has been calculated as 1,974 people, using the same staff density figure of 1 staff member per 10m^2 NIFA that has been used for the proposed development, and the same typical daily staff absence rate of 7%.

Modal splits and trip generation figures for the existing office building have been determined using the same methodology as for the proposed development (described in sections **12.2.2** to **12.2.5**) and are given in **Table 12.10** to **Table 12.12**. The modal share for driving a car or van has been set on the assumption that all onsite car parking spaces are in use and assigned to individual users.

Table 12.10 *Modal Splits for Existing Development Occupants/Visitors*

Transport Mode	Calculated Modal Share
Driving a Car or Van	8%
Passenger in a Car	2%
Bicycle	10%
Motorcycle	1%
Bus	24%
Train or Tram	40%
Walking	15%

Table 12.11 *Calculated Existing Development Weekday Trip Generation by Mode*

Transport Mode	Direction and Time Period					
	Arrivals			Departures		
	AM Peak	PM Peak	Full Day	AM Peak	PM Peak	Full Day
Driving a Car or Van	43	3	160	5	37	160
Passenger in a Car	8	1	31	1	7	31
Bicycle	56	4	213	6	50	213
Motorcycle	4	0	15	0	3	15
Bus	132	10	496	15	116	496
Train or Tram	221	17	832	25	195	832
Walking	85	7	320	10	75	320

Table 12.12 *Calculated Existing Motor Vehicle Trip Generation*

Time Period	Arrivals	Departures	Total Trips
Occupants and Visitors			
AM Peak (08:00-09:00)	51	6	57
PM Peak (17:00-18:00)	4	44	48
Servicing Vehicles			
AM Peak (08:00-09:00)	4	3	7
PM Peak (17:00-18:00)	1	1	2
Total			
AM Peak (08:00-09:00)	55	9	64
PM Peak (17:00-18:00)	5	45	50

12.2.7 Net Operational Trip Generation Figures

Table 12.13 and Table 12.14 give the net operational trip generation figures for the proposed development, obtained by subtracting the site's existing trip generation (Table 12.11 and Table 12.12) from that projected for the proposed development in its operational phase (Table 12.6 and Table 12.9).

Table 12.13 *Net Change in Weekday Direct Trip Generation by Mode*

Transport Mode	Direction and Time Period					
	Arrivals			Departures		
	AM Peak	PM Peak	Full Day	AM Peak	PM Peak	Full Day
Driving a Car or Van	-11	-3	-78	-5	-5	-78
Passenger in a Car	+14	+1	+52	+2	+12	+52
Bicycle	+90	+7	+337	+11	+79	+337
Motorcycle	+6	+1	+23	+1	+6	+23
Bus	+210	+16	+792	+24	+185	+792
Train or Tram	+353	+26	+1,325	+41	+310	+1,325
Walking	+135	+10	+510	+15	+119	+510

Table 12.14 *Net Change in Motor Vehicle Trip Generation*

Time Period	Arrivals (as PCU)	Departures (as PCU)	Total Trips (as PCU)
Occupants and Visitors			
AM Peak (08:00-09:00)	+13	-2	+11
PM Peak (17:00-18:00)	-1	+16	+15
Servicing Vehicles			
AM Peak (08:00-09:00)	+7	+5	+12
PM Peak (17:00-18:00)	+2	+2	+4
Total			
AM Peak (08:00-09:00)	+20	+3	+23
PM Peak (17:00-18:00)	+1	+18	+19

This comparison shows that the net effect of the proposed development shall be only a very modest increase in motor vehicle trip generation: 23no. trips (arrivals and departures) during the AM peak hour and 19no. trips (arrivals and departures) during the PM peak hour.

12.2.8 Vehicular Trip Distribution – Operational Phase

All vehicular traffic accessing the development's basement car parking shall do so via its access ramp off Clarion Quay, which connects at either end to Mayor Street Lower. It has likewise been assumed that all operational-phase vehicular servicing, including passenger set-down and collection, shall be conducted on Clarion Quay.

As general traffic along Mayor Street Lower is restricted to the eastbound direction, it has been assumed that all operational-phase vehicular traffic to and from the development shall arrive from the west along Mayor Street Lower and Clarion Quay (via surveyed junction J1), and depart to the east along Clarion Quay and Mayor Street Lower (via surveyed junction J2), as illustrated in Figure 12.3 and Figure 12.4.

At the remaining 5no. junctions surveyed (see Figure 12.1), it is assumed that vehicular traffic to and from the proposed development shall be distributed according to the relevant directional splits currently observed for general traffic at these junctions. These splits, for both the AM and PM peak periods, are given in Table 12.15 to Table 12.19.

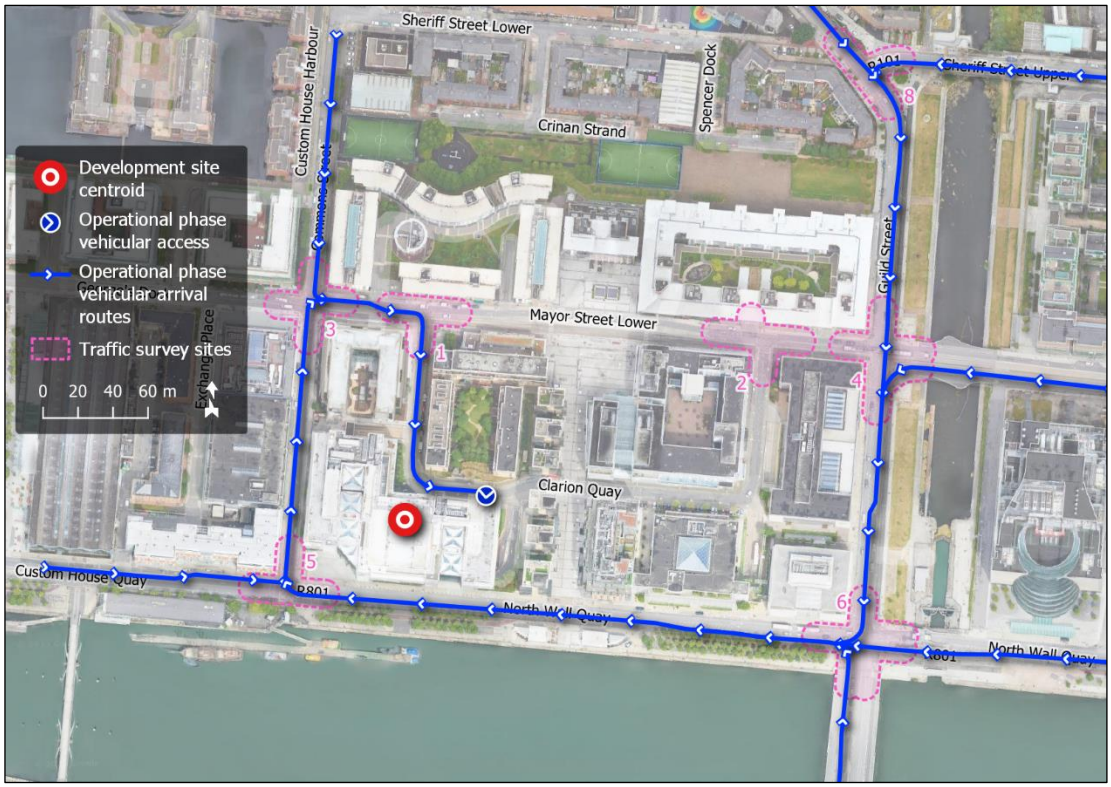

Figure 12.3 *Operational phase vehicle arrival routes (sources: OSM Contributors, Google)*

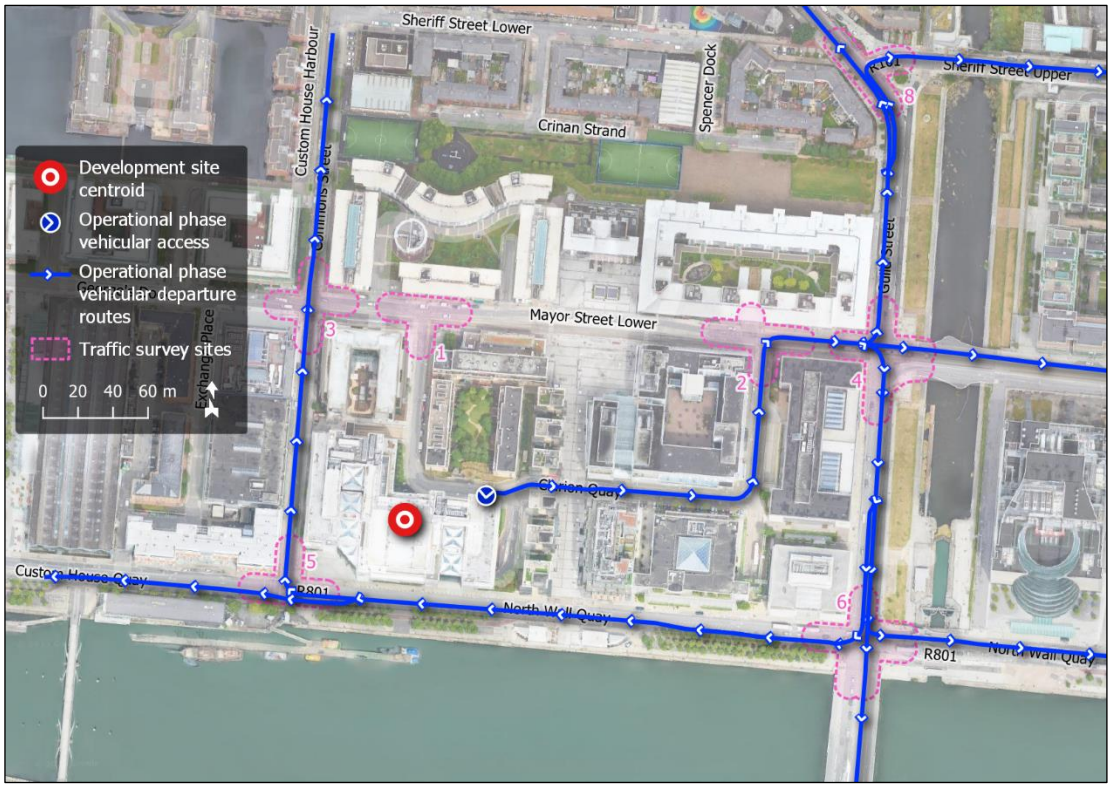

Figure 12.4 *Operational phase vehicle departure routes (sources: OSM Cont., Google)*

Table 12.15 *Relevant Directional Splits at Traffic Survey Site J3*

Time Period	Arrivals TO Mayor Street Lower (East) FROM:		
	Commons Street (North)	Commons Street (South)	George's Dock (West)
AM Peak	55%	45%	0%
PM Peak	41%	59%	0%

Table 12.16 *Relevant Directional Splits at Traffic Survey Site J4*

Time Period	Arrivals TO Guild Street (South) FROM:		
	Guild Street (North)	Mayor St Upper (East)	Mayor St Lower (West)
AM Peak	76%	24%	0%
PM Peak	58%	42%	0%
Time Period	Departures FROM Mayor Street Lower (West) TO:		
	Guild Street (North)	Mayor St Upper (East)	Guild Street (South)
AM Peak	46%	12%	42%
PM Peak	57%	1%	42%

Table 12.17 *Relevant Directional Splits at Traffic Survey Site J5*

Time Period	Arrivals TO Commons Street (North) FROM:	
	Custom House Quay (West)	North Wall Quay (East)
AM Peak	41%	59%
PM Peak	38%	62%
Time Period	Departures FROM North Wall Quay (East) TO:	
	Custom House Quay (West)	Commons Street (North)
AM Peak	67%	33%
PM Peak	66%	34%

Table 12.18 *Relevant Directional Splits at Traffic Survey Site J6*

Time Period	Arrivals TO North Wall Quay (West) FROM:		
	Guild Street (North)	North Wall Quay (East)	Beckett Bridge (South)
AM Peak	3%	69%	28%
PM Peak	6%	64%	30%
Time Period	Departures FROM Guild Street (North) TO:		
	North Wall Quay (East)	Beckett Bridge (South)	North Wall Quay (West)
AM Peak	4%	91%	5%
PM Peak	12%	79%	9%

Table 12.19 *Relevant Directional Splits at Traffic Survey Site J8*

Time Period	Arrivals TO Guild Street (South) FROM:	
	Seville Place (North)	Sheriff Street Upper (East)
AM Peak	94%	6%
PM Peak	95%	5%
Time Period	Departures FROM Guild Street (South) TO:	
	Seville Place (North)	Sheriff Street Upper (East)
AM Peak	46%	54%
PM Peak	40%	60%

The above-described vehicular trip distribution methodology has been employed both for adding the proposed development's projected vehicular trips to the surrounding street network and for removing those of the existing office building on the subject site.

12.2.9 Vehicular Trip Generation in Construction Phase

The following factors, which shall influence the maximum potential construction traffic generation to and from the site in the development's construction phase, shall be determined by the appointed Main Contractor (subject to planning conditions) and cannot be predicted with certainty:

- Site working hours.
- The scheduling of HGV-intensive operations, such as spoil removal or fill importation.
- The maximum number of construction personnel to be employed on the site at any one time.
- The provision of on-site car parking (which shall influence the modal share of private car use by construction personnel).

For the purposes of the present assessment, the following assumptions have therefore been made and are considered generally representative of typical conditions on similar construction sites:

- Site working hours shall be 07:00-19:00, Monday to Friday, and 08:00-14:00 on Saturdays.
- The maximum frequency of HGV trips to and from the site shall be 4 vehicles per hour.
- The maximum frequency of LGV trips to and from the site (excluding commuting personnel) shall be 6 vehicles per hour.
- A maximum of 125no. construction operatives will be employed full time on the site.
- 10no. car parking spaces will be provided on-site for construction personnel, and all of these shall be used (i.e. 10no. car trips shall be made to and from the site each day by personnel commuting).
- 17no. construction operatives will commute to and from the site by bicycle.
- At most 50% of weekday construction personnel commuting trips to the site shall be made during the AM peak hour, and at most 50% of weekday return commuting trips from the site shall be made during the PM peak hour.

The maximum potential construction traffic vehicular trip generation calculated from these assumptions is given in Table 12.20.

Table 12.20 *Maximum Construction Phase Vehicular Trip Generation*

Time Period	Heavy Vehicles	Light Vehicles	TOTAL
Arrivals			
Weekday AM Peak	4	13	17
Weekday PM Peak	4	6	10
Departures			
Weekday AM Peak	4	6	10
Weekday PM Peak	4	13	17
Total Trips			
Weekday AM Peak	8	19	27
Weekday PM Peak	8	19	27

The above vehicular trip generation figures include all motorised vehicles, including cars, vans, and HGVs, but excluding bicycles.

12.2.10 Vehicular Trip Distribution – Construction Phase

In the proposed development's construction phase, vehicular access to the development site is expected to be via a dedicated temporary access on Commons Street, at the site's western boundary.

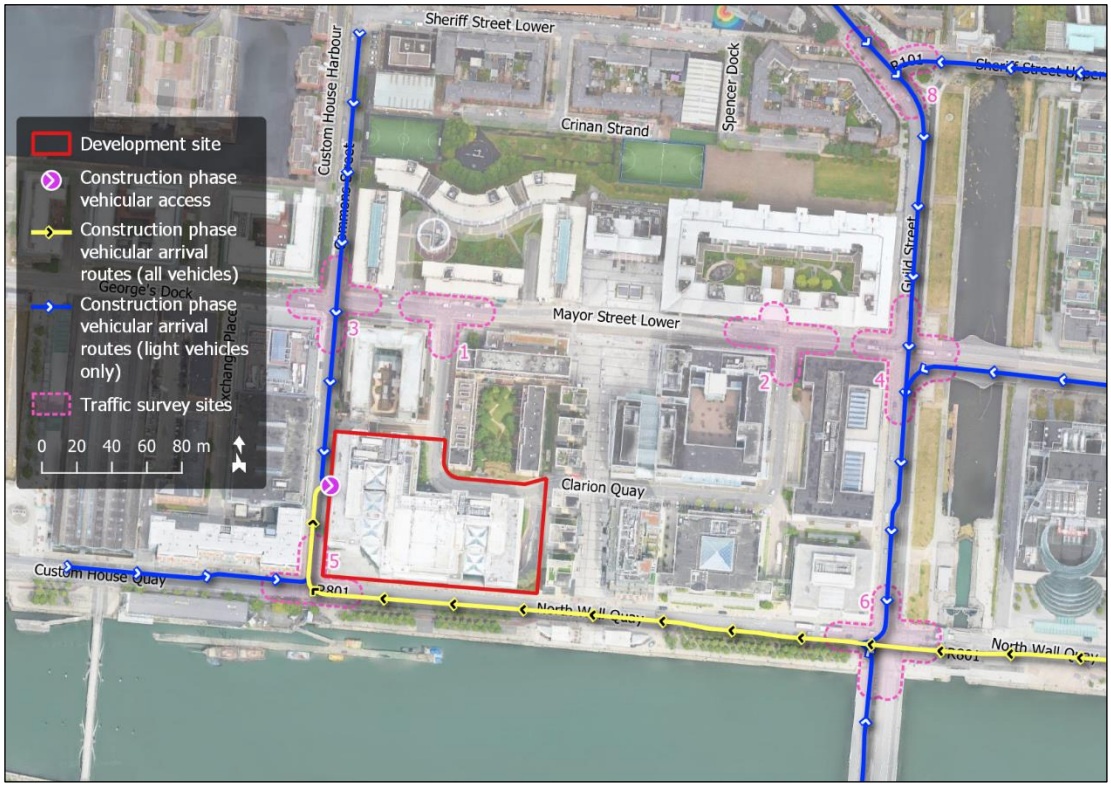

Figure 12.5 *Construction phase vehicle arrival routes (sources: OSM Contributors, Google)*

Heavy construction vehicles travelling to and from the site will be restricted to a designated route from/to the M50 motorway (Dublin Tunnel) via the north quays, as shown in Figure 12.5 and Figure 12.6. Other construction traffic may arrive and depart along Commons Street either from/to the north or from/to the south, and is expected

to do so in accordance with the prevailing peak hour directional splits along this street (given in Table 12.21).

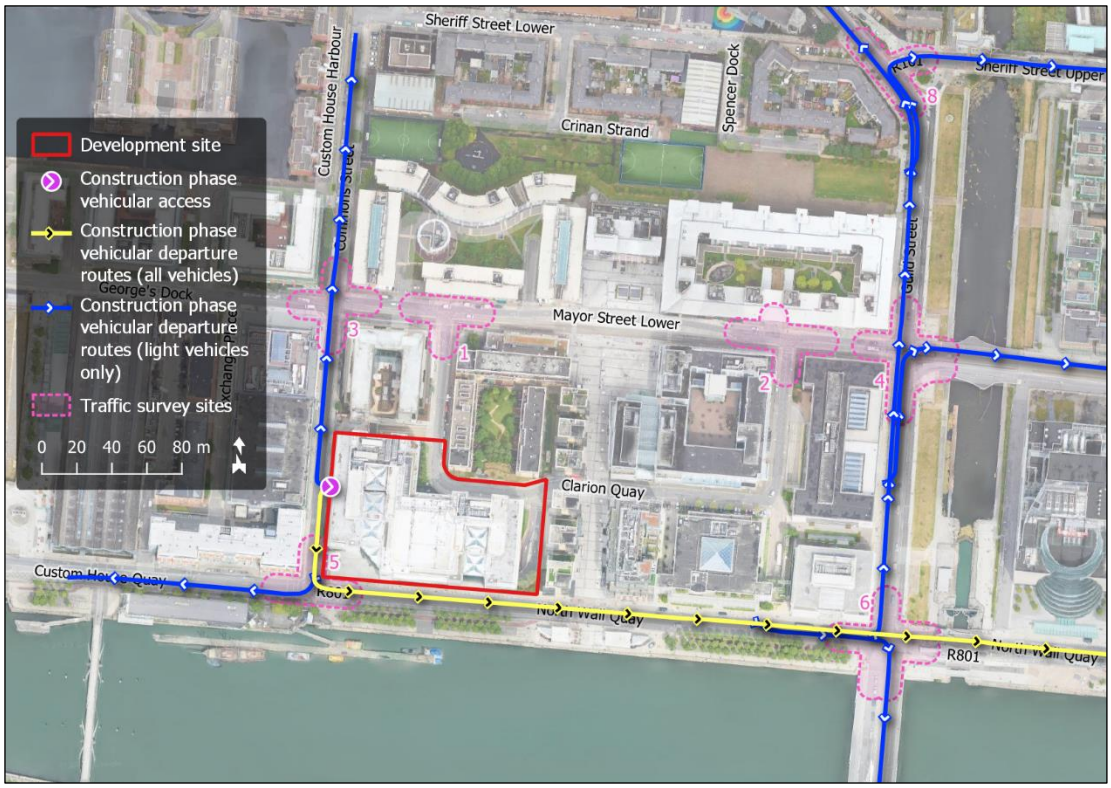

Figure 12.6 *Construction phase vehicle departure routes (sources: OSM Cont., Google)*

Table 12.21 *Peak Hour Directional Splits along Commons Street*

Time Period	Traffic Direction	
	Northbound	Southbound
Weekday AM Peak	65%	35%
Weekday PM Peak	73%	27%

At traffic survey site J3 (the junction of Commons Street with Mayor Street Lower and George's Dock), it is assumed that all arriving and departing construction traffic will proceed straight along Commons Street. As for operational-phase traffic, it is assumed that construction traffic shall be distributed according to the relevant existing directional splits at each of the other surveyed junctions on the surrounding road network (see Figure 12.1). The following tables give these directional splits, where these differ from those already given in Table 12.15 to Table 12.19.

Table 12.22 *Relevant Directional Splits at Traffic Survey Site J4*

Time Period	Departures FROM Guild Street (South) TO:		
	Guild Street (North)	Mayor St Upper (East)	Mayor St Lower (West)
AM Peak	81%	19%	0%
PM Peak	98%	2%	0%

Table 12.23 *Relevant Directional Splits at Traffic Survey Site J5*

Time Period	Departures FROM Commons Street (North) TO:	
	Custom House Quay (West)	North Wall Quay (East)
AM Peak	23%	77%
PM Peak	38%	62%

Table 12.24 *Relevant Directional Splits at Traffic Survey Site J6*

Time Period	Departures FROM North Wall Quay (West) TO:		
	Guild Street (North)	North Wall Quay (East)	Beckett Bridge (South)
AM Peak	4%	68%	28%
PM Peak	1%	78%	21%

12.2.11 Proportional Increases in Vehicular Traffic

At each surveyed junction, the projected net changes in construction phase and operational phase vehicular traffic flows were calculated to determine the nature and significance of the development's influence on junction operation. In accordance with the TII Traffic and Transport Assessment Guidelines (PE-PDV-02045), an increase of 10% or more in total peak hour traffic flows at any junction was taken as the threshold value beyond which operational modelling of junction performance would be required.

12.2.12 Public Transport Capacity and Demand Assessment

A full description of public transport services in the vicinity of the development site is given in section 12.3.6.

A development-specific Public Transport Capacity Assessment has been carried out by specialist Transport Consultant Derry O'Leary, on behalf of CS Consulting. This takes account of the proposed development's public transport demand, as established in section 12.2.3.

Briefly summarised, the Public Transport Capacity Assessment determines that "the proposed development at North Wall Quay can be easily accommodated by the sheer scale of the public transport offering open to future commuters to and from the subject site", and reaches the following specific conclusions:

- The development site is very well located close to both extensive bus and rail networks, adjacent to the heart of Dublin's city centre.
- A bus survey undertaken in the key evening peak shows the local network of services to be functioning well. This analysis showed a significant degree of spare capacity in the existing bus network passing the development site.
- When the generated bus trips anticipated from the development were added to observed passenger data, the impact on bus spare capacity was limited. There remained more than adequate spare capacity in the bus network available to passengers.
- Some of the key BusConnects routes already operate close to the subject site. In the event of any material rise in patronage in the years to come, the National Transport Authority, through "Measure Bus5", will respond to this increased demand with even higher bus frequencies, in keeping with its transport strategy for the Dublin area. It is anticipated that commercial bus operators will likely follow with enhanced services.

- Similar analyses carried out on the surveyed LUAS passenger numbers at nearby Mayor Square showed significant levels of existing spare capacity.
- The overall trend data since the commencement of the pandemic suggests that there is still some leeway to increase LUAS patronage. The number of generated trips expected to use the LUAS service from the planned development will not challenge existing LUAS network capacity at this location.
- DART and commuter rail services operating out of nearby Connolly, Docklands, Tara St Station and Pearse St, like LUAS, saw dramatic falls in patronage during the pandemic. Recovery in rail passengers has been relatively slow with significant spare capacity in the system.
- The future infrastructure and service enhancements expected with Metrolink, DART+ and BusConnects (including the new CBCs), will further boost the capacity and quality of the public transport network in the vicinity of the development site at North Wall Quay.

The Public Transport Capacity Assessment report is attached as Appendix 12.3.

12.2.13 Forecasting Methods and Difficulties Encountered

As previously described (section 12.2.1), Idaso personnel were prevented from installing survey equipment at one of the intended traffic survey sites, and no traffic data could be gathered at this location. This junction was however the least important of those to be surveyed, and the absence of survey data from this site did not impede analysis of the proposed development's potential influence on surrounding traffic flows.

As described in section 12.2.9, certain factors yet to be determined by the appointed Main Contractor (and subject to planning conditions) shall influence the maximum potential construction traffic generation to and from the site in the development's construction phase. These are:

- Site working hours.
- The scheduling of HGV-intensive operations, such as spoil removal or fill importation.
- The maximum number of construction personnel to be employed on the site at any one time.
- The provision of on-site car parking (which shall influence the modal share of private car use by construction personnel).

For the purposes of the present assessment, the following assumptions have therefore been made:

- Site working hours shall be 07:00-19:00, Monday to Friday, and 08:00-14:00 on Saturdays.
- The maximum frequency of HGV trips to and from the site shall be 4 vehicles per hour.
- The maximum frequency of LGV trips to and from the site (excluding commuting personnel) shall be 6 vehicles per hour.
- A maximum of 125no. construction operatives will be employed full time on the site.
- 10no. car parking spaces will be provided on-site for construction personnel, and all of these shall be used (i.e. 10no. car trips shall be made to and from the site each day by personnel commuting).
- 17no. construction operatives will commute to and from the site by bicycle.

- At most 50% of weekday construction personnel commuting trips to the site shall be made during the AM peak hour, and at most 50% of weekday return commuting trips from the site shall be made during the PM peak hour.

These assumptions are however considered generally representative of typical conditions on similar construction sites, and do not fundamentally compromise the forecasting methodology for this assessment.

In respect of the development's operational phase, ~~S~~standard trip generation forecasting methodology was employed for this assessment, using TRICS rates and census data, and no particular difficulties were encountered.

Finally, the assessment of cumulative effects (described in Section 12.9) relies in large part on the application of Transport Infrastructure Ireland (TII) standard traffic growth rates to account for the influence of additional vehicular traffic to be generated by other developments in the surrounding area and further afield. These growth rates are derived from the National Transportation Model (NTpM) managed by TII and the National Transport Authority.

As noted in Unit 5.3 of the TII Project Appraisal Guidelines (PE-PAG-02017 Travel Demand Projections), the NTpM growth scenario projections depend on "explicit projections of population, settlement patterns, employment, and job location". In addition, the NTpM incorporates "a large number of implicit assumptions about the performance of the transport network and vehicles, the costs of travel, personal tastes and preferences and all of the other factors that actually determine individual decisions about travel behaviour". The TII Project Appraisal Guidelines therefore caution that "making future projections over an extended time period is highly uncertain".

12.3 RECEIVING ENVIRONMENT

Figure 12.7 *Site extents and environs (sources: NTA, OSM Contributors, Google)*

12.3.1 Existing Site Use

Figure 12.8 *Existing office building on development site (sources: OSM Cont., Google)*

The development site is brownfield and is occupied by an existing office building (the Citigroup headquarters), which shall be demolished as part of the proposed development but which is presently still in full use.

The existing office building comprises 6 no. storeys over a single-level basement and has a total Gross Internal Area of 34,506m^2 (a total Net Internal Area of 21,223m^2). It includes 164 no. car parking spaces at basement level, accessed via a ramp off Clarion Quay (see Figure 12.8). As detailed in section 12.2.6, the theoretical population of the existing building has been calculated as 1,974 people.

12.3.2 Existing Road Network Characteristics

The development site proper has frontage onto the three streets described below (see Figure 12.7).

North Wall Quay (R801)

- Single carriageway two-way road with a total pavement width of approx. 11m generally along the development site boundary, inclusive of a bus lane in the westbound direction.
- Regional road with an east-west alignment, connecting to the R131 in the east and to the R105 in the west.
- Raised footpaths are present along both sides of North Wall Quay in the vicinity of the development site. An advisory cycle lane is in place in the eastbound direction, and segregated two-way cycle lanes are present along the southern road edge.
- On-street parking is not permitted on North Wall Quay in the vicinity of the development site. A single recessed loading bay is present on the northern side of the street, close to the development site's south-western corner.
- North Wall Quay is subject to a 50km/h speed limit.

Commons Street

- Single carriageway two-way road with a pavement width of approx. 7m along the development site boundary.
- Local street 320m in length with a north-south alignment, connecting to Sheriff Street in the north and to North Wall Quay in the south, and intersecting with Mayor Street Lower and George's Dock approx. halfway along its length.
- Raised footpaths are present along both sides of Commons Street, for its full length. No bus lanes or cycle tracks/lanes are present.
- On-street parking is not permitted on Commons Street between North Wall Quay and Mayor Street Lower.
- Commons Street is subject to a 30km/h speed limit.

Clarion Quay

- Single carriageway two-way road with a typical pavement width of approx. 5.5m along its full length.
- 'U'-shaped local access street 380m in length, connecting at either end to Mayor Street Lower.
- Raised footpaths are present along both sides of Clarion Quay, for its full length. No bus lanes or cycle tracks/lanes are present.
- On-street parking is not permitted on Clarion Quay.
- Clarion Quay is subject to a 30km/h speed limit.

Mayor Street Lower, to which Clarion Quay connects at either end, is described below.

Mayor Street Lower

- Single carriageway road with a typical total pavement width of approx. 11m generally in the vicinity of the development site, including partially segregated tram lanes.
- Local street with an east-west alignment, running from George's Dock in the west to the Royal Canal in the east (there becoming Mayor Street Upper).
- Two-way LUAS light rail traffic runs along Mayor Street Lower. General traffic is restricted to the eastbound direction only (from Commons Street to Guild Street).
- Raised footpaths are present along both sides of Mayor Street Lower. No cycle lanes or bus lanes are present.
- Limited recessed on-street parking (12no. spaces approx. in total) is in place at 3no. locations on the north side of Mayor Street Lower. No other on-street parking is permitted.
- Mayor Street Lower is subject to a 30km/h speed limit.

12.3.3 Existing Local Vehicular Traffic Flows

As described in section 12.2.1, existing vehicular traffic flows at key junctions on the surrounding street network were established by full turning movement classified traffic counts carried out at 7no. locations on Tuesday the 16th of May 2023.

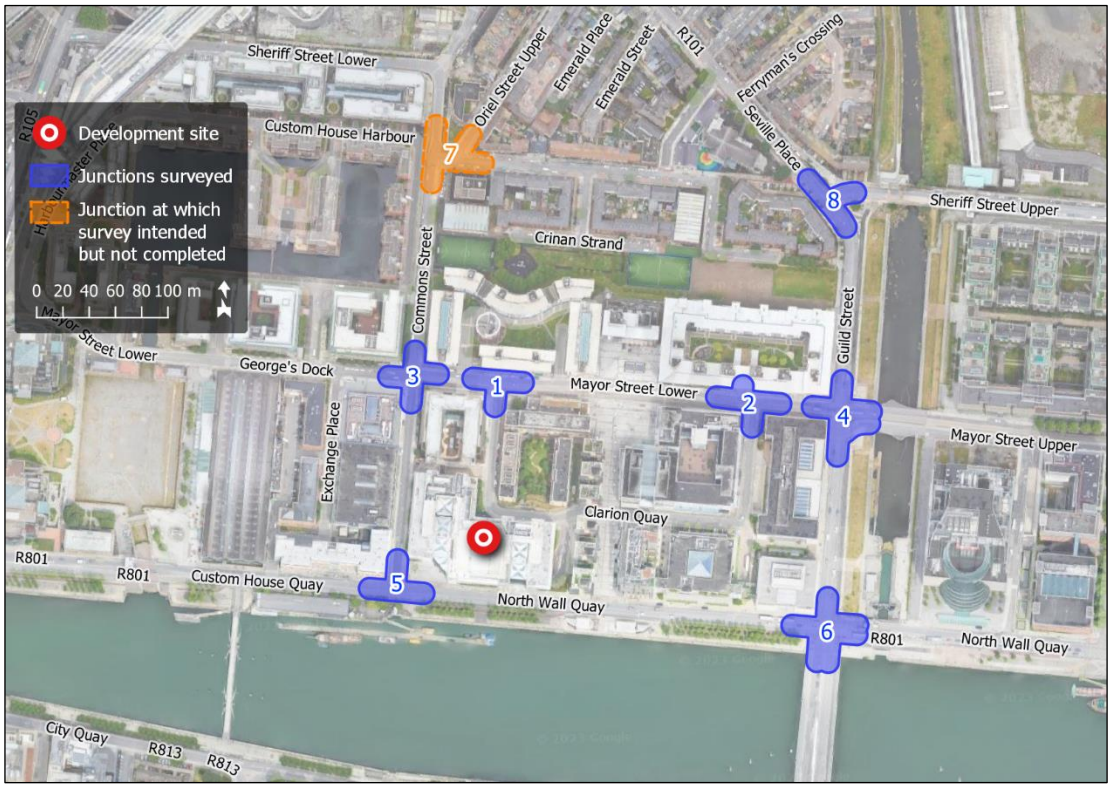

Figure 12.9 *Traffic survey sites (sources: OSM Contributors, Google)*

The peak hour traffic flows across all seven surveyed sites were found to occur between 08:00 and 09:00 (AM peak hour) and between 17:00 and 18:00 (PM peak hour). The peak hour traffic movements at each of the surveyed junctions have been isolated from the count data and converted to Passenger Car Units (with the exception

of Luas trams). A summary of total peak hour traffic movements at the surveyed junctions is given in Table 12.25.

Table 12.25 *Surveyed Total Traffic Flows Summary*

Time Period	Traffic Type	Total Vehicular Movements at Survey Junction Site:						
		J1	J2	J3	J4	J5	J6	J8
Weekday AM Peak (08:00-09:00)	General (as PCU)	266	226	693	701	1289	1802	908
	Luas trams	17	18	17	18	n/a	n/a	n/a
Weekday PM Peak (17:00-18:00)	General (as PCU)	152	194	453	793	1163	1753	911
	Luas trams	19	19	19	19	n/a	n/a	n/a

12.3.4 Pedestrian Accessibility

As shown in **Figure 12.10**, the development site is highly accessible on foot and is within a 15-minute walk of O'Connell Street. Connolly, Tara Street, Pearse Street, and Docklands railway stations are all within approx. 10 minutes' walk. 2no Luas tram stops on Mayor Street Lower and George's Dock are within a 5-minute walk, as are numerous bus stops. All walking times are based on a 4.5km/h average walking speed.

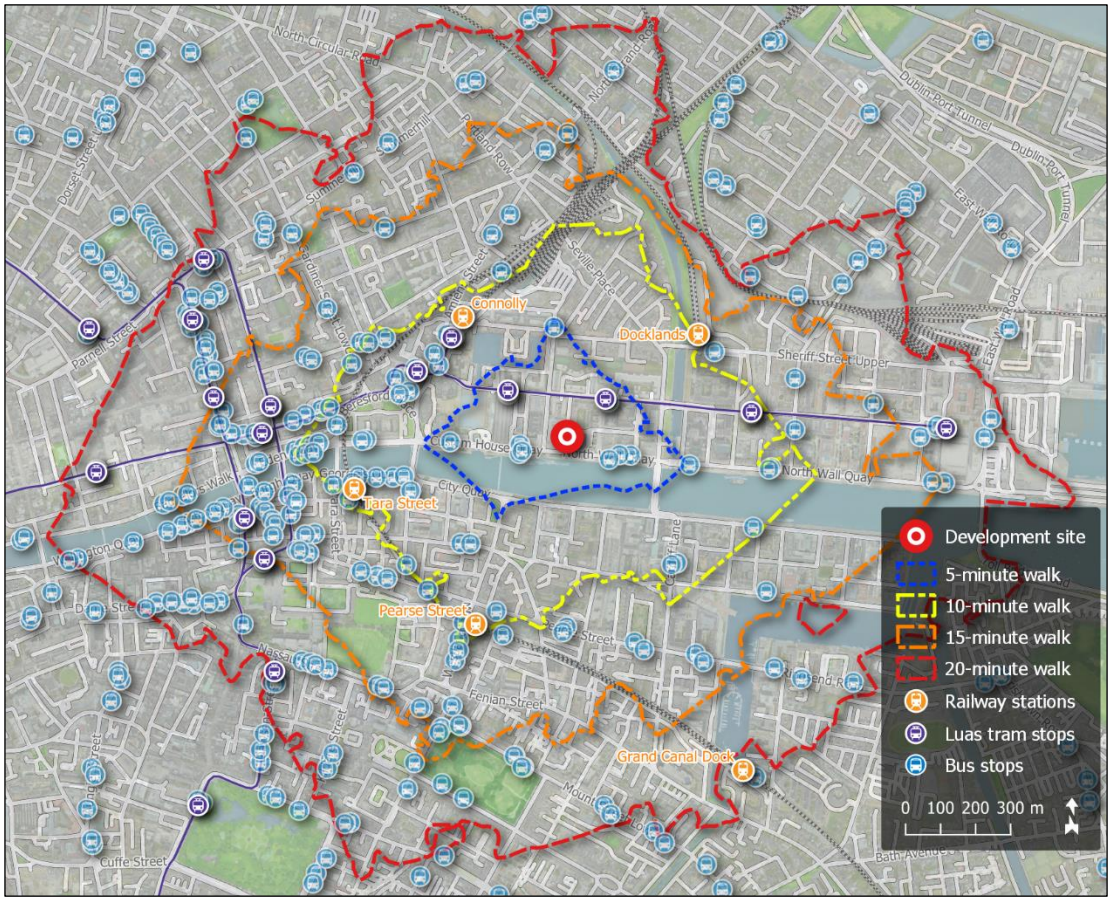

Figure 12.10 *Walking times (sources: NTA, OSi, OSM Contributors, Google)*

Existing pedestrian infrastructure surrounding the development site is extensive and of a good standard. Wide, raised footpaths and public lighting are in place on all surrounding streets, and signal-controlled pedestrian crossings are present at all nearby major junctions and at intermediate points along the Quays. Two bridges across the Liffey are within a 5-minute walk, one of which carries only pedestrian traffic.

12.3.5 Bicycle Infrastructure and Accessibility

Cycling infrastructure in the vicinity of the development site is generally of a good standard and includes:

- Eastbound bus lanes and advisory cycle lanes on the north side of Custom House Quay and North Wall Quay.
- Two-way segregated cycle tracks and westbound bus lanes on the south side of North Wall Quay and Custom House Quay.
- A two-way segregated cycle track along Guild Street, which connects to the Royal Canal Greenway (currently extending as far as North Strand Road).
- Cycle tracks or lanes on the Samuel Beckett Bridge and the Talbot Memorial Bridge.
- A two-way segregated cycle track along City Quay and Sir John Rogerson's Quay, on the opposite side of the Liffey.

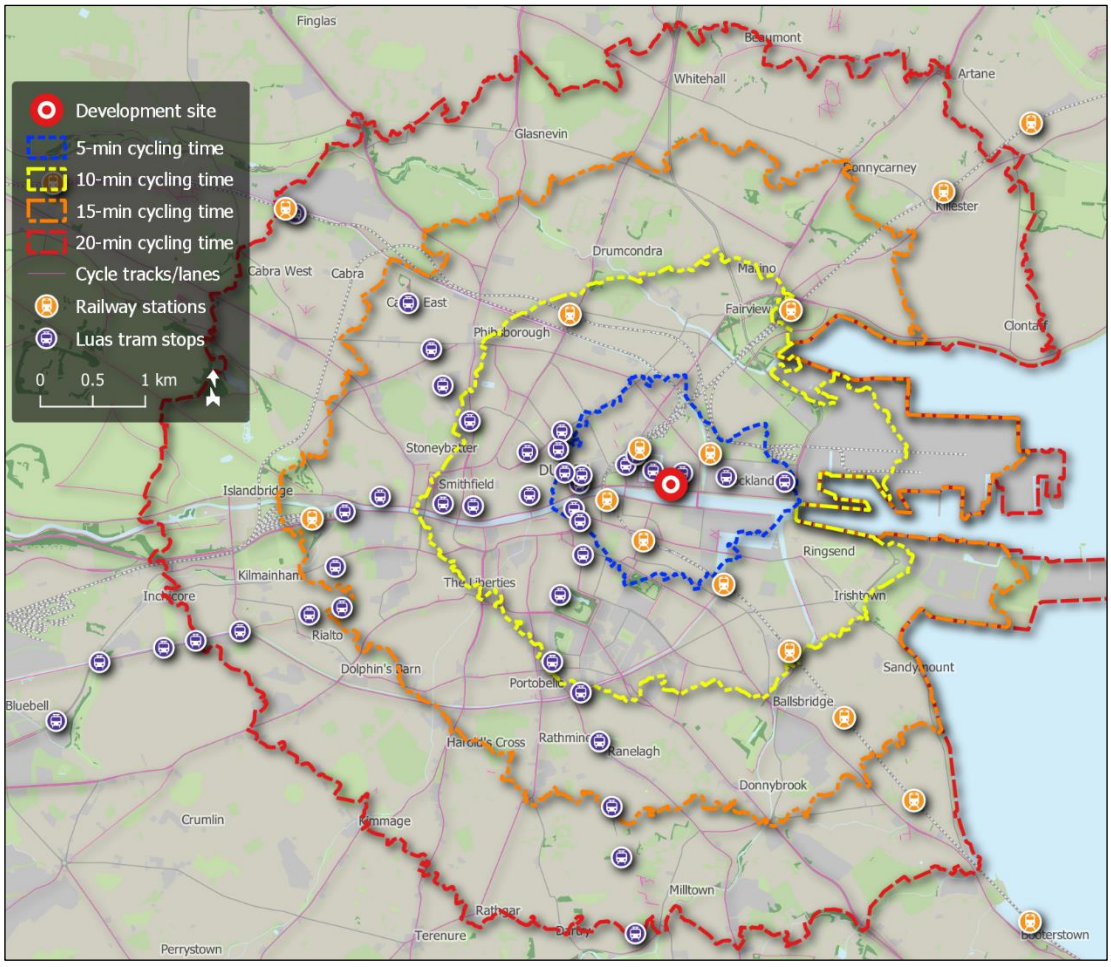

Figure 12.11 *Bicycle journey times (sources: DCC, NTA, OSi, OSM Contributors)*

Recent years have seen rapid improvement in many elements of bicycle infrastructure in Dublin City. This includes numerous small-scale interventions, as well as larger-

scale projects such as the interim Liffey Cycle Route and the initial phases of the Royal Canal Greenway, all of which contribute to making bicycle journeys to and from this area safer and more efficient.

Figure 12.11 shows bicycle journey times to and from the development site (based on a 16km/h average speed). Almost all parts of Dublin city centre are within a 15-minute bicycle journey of the development site, including Heuston railway station and the Phoenix Park. Suburbs as far as Beaumont, Cabra, Inchicore, and Rathgar are all within a 20-minute bicycle journey of the site.

12.3.6 Local Public Transport Services

12.3.6.1 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 development site is within a 4-minute walk of the George's Dock and Mayor Square tram stops, both on the Luas Red Line. Light rail services operating to and from these stops run to The Point, 1km to the east, and to Tallaght or Saggart in the south-west (11km and 15km away, respectively). Trams serve the George's Dock and Mayor Square stops at average intervals of 6 minutes at peak times.

Table 12.26 *Luas Light Rail Services within 4-minute Walk*

Direction	Destination	Average Weekday Services	Peak Time Headway
Eastbound	The Point	222	6 min
Westbound	Tallaght / Saggart	223	6 min

12.3.6.2 Bus Services

Bus stops within a 5-minute walk of the site are served by a total of 42no. NTA-licenced bus routes operated by Dublin Bus, Bus Éireann, Go-Ahead Ireland, and other private operators. These operate with an average frequency of 18 services per day in either direction, and include 2no. very high frequency routes (G1 and G2) with more than 80 services per day in either direction. A further 96no. bus routes serve stops within a 10-minute walk of the development site.

12.3.6.3 Rail Services

The development site is within a 10-minute walk of Connolly railway station, as well as the other two principal city-centre stations on the Dundalk-Dublin-Wexford railway line (Tara Street and Pearse Street). Connolly Station is also on the Maynooth-Longford-Sligo line, is connected to the southern Kildare line via the Phoenix Park tunnel, and forms the southern terminus of the Dublin-Belfast Enterprise service. Frequent Dublin Area Rapid Transit (DART) trains also serve this station, running between Howth/Malahide in the north and Bray/Greystones in the south. Commuter rail services operating to and from Connolly Station directly serve towns as far as Dundalk in the north, Wexford in the south, and Newbridge and Maynooth in the west, while Intercity services to and from this station extend as far as Belfast and Sligo. Table 12.27 gives a summary of rail services to and from Connolly Station.

Table 12.27 *Direct Rail Services to/from Connolly Station*

Service Type	Origins / Destinations	Daily Services (Mon-Fri average, each direction)
DART	Howth / Malahide	95
	Bray / Greystones	95
Commuter Rail	Balbriggan / Drogheda / Dundalk	18
	Gorey / Wexford / Rosslare	5
	Hazelhatch-Celbridge / Newbridge	25
	Maynooth	15
Intercity	Newry / Portadown / Belfast	9
	Longford / Sligo	10

Also within a 10-minute walk of the development site is the Docklands railway station. Commuter rail services operate between this station and the M3 Parkway Park & Ride facility near Dunboyne.

Table 12.28 *Direct Rail Services to/from Docklands Station*

Service Type	Origins / Destinations	Daily Services (Mon-Fri average, each direction)
Commuter Rail	Clonsilla / M3 Parkway	11

12.3.6.4 Public Transport Overview

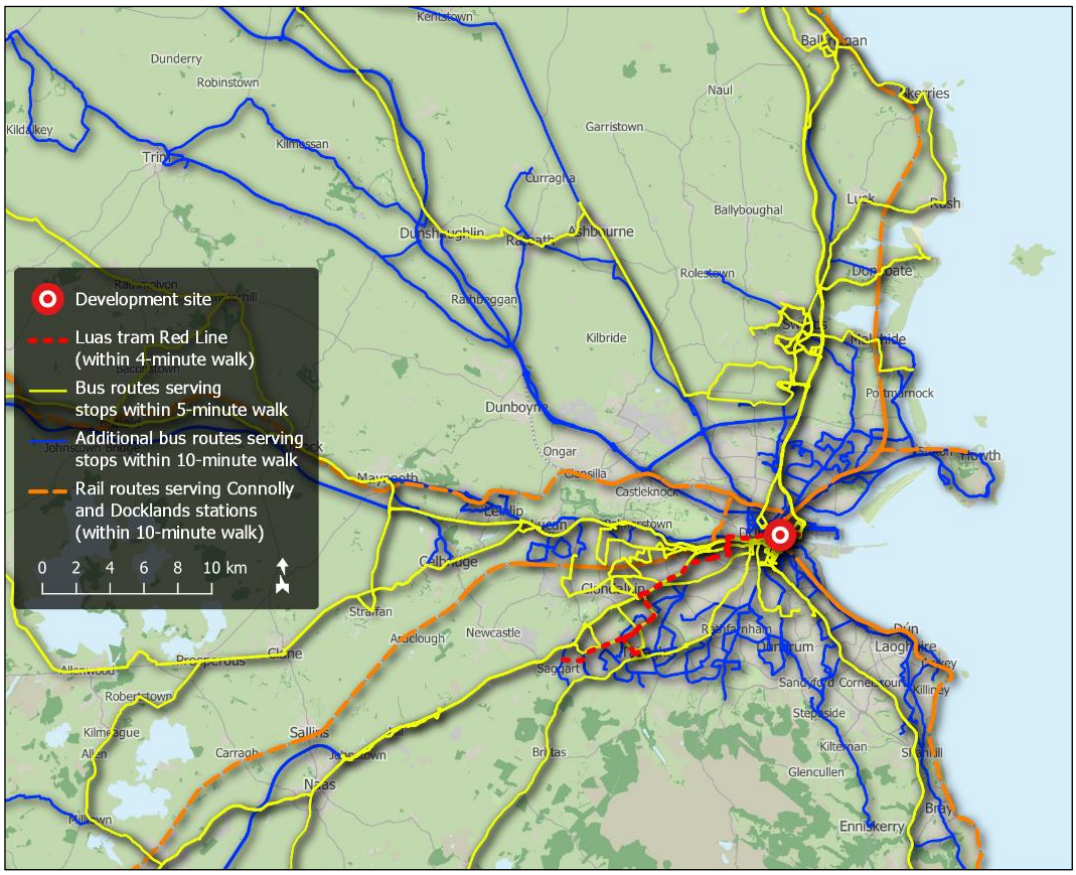

Figure 12.12 *Nearby public transport routes (sources: NTA, OSM Contributors)*

Figure 12.12 shows the extents of the direct rail, light rail, and bus routes within a 10-minute walk of the development site, within the greater Dublin area. Figure 12.13 shows the reach of public transport journeys to the development site by total travel time (including service interchanges, and walking to and between stops), based upon an arrival time of 09:00 on a typical weekday.

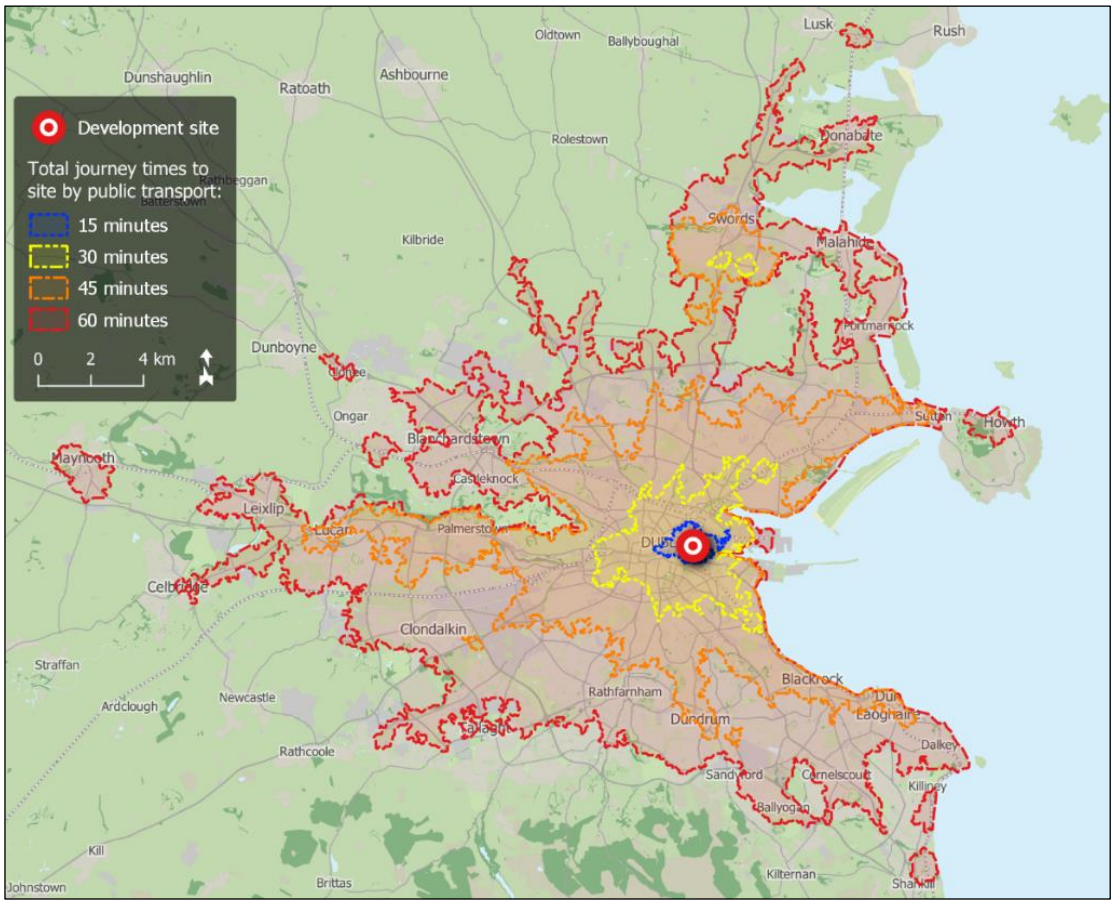

Figure 12.13 *Public transport travel times (sources: EPA, OSM Contributors, TravelTime)*

12.3.7 External Shared Transport

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

- 3no. DublinBikes stations are located within a 5-minute walk of the subject site. A further 9no. DublinBikes stations are located within a 10-minute walk.
- 2no. bases for the GoCar commercial car-sharing service are located within a 5-minute walk of the development site. A further 6no. GoCar bases are located within a 10-minute walk.
- 6no. bases for the Yukõ commercial car-sharing service are located within a 10-minute walk of the development site.
- The development site is situated within the geofenced operating zones for the Bleeper Bikes and Moby Bikes commercial bicycle sharing schemes. Within these areas, these shared bicycles may be collected from or returned to any public bicycle parking stand.

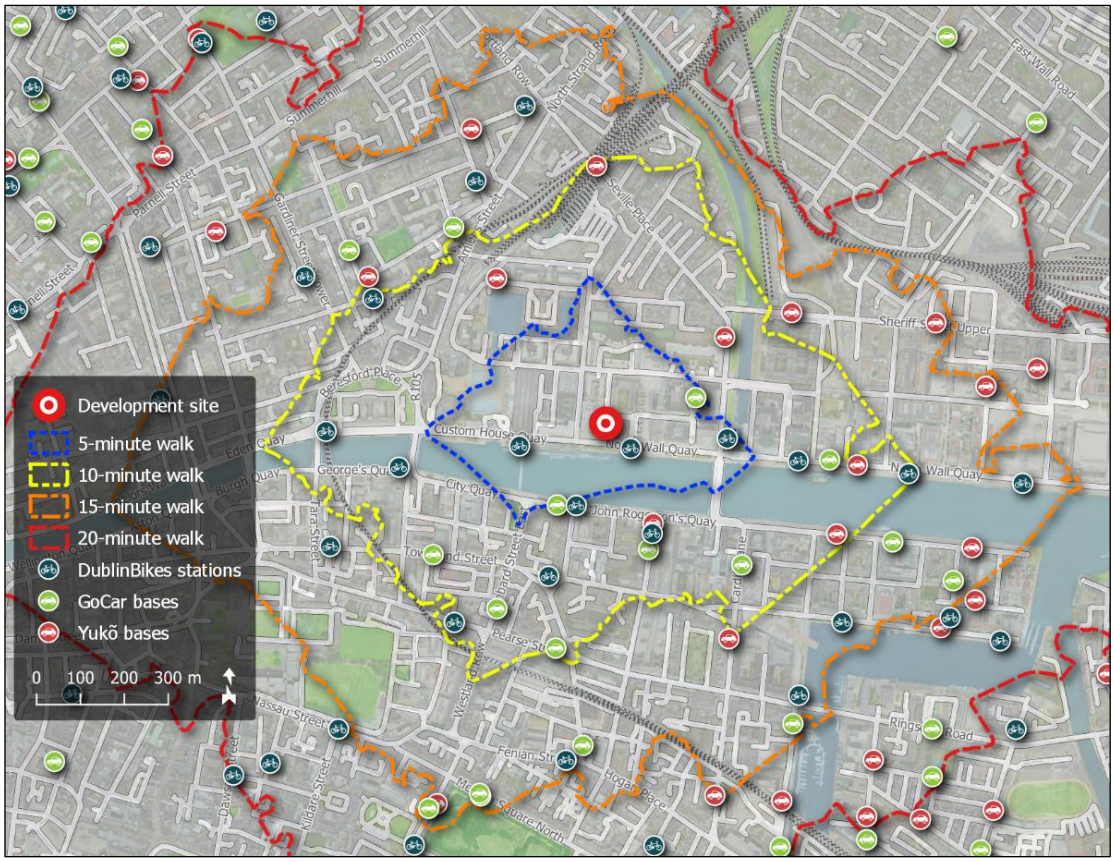

Figure 12.14 *Shared transport services (sources: DCC, GoCar, Yuko, OSM Cont., Google)*

Note:

The above car sharing locations represent the most up to date information available on the publicly-accessible GoCar and Yukõ bases at the time of preparing this report. These base locations are subject to periodic alteration by the scheme operators, in response to usage demand and to traffic management considerations.

12.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The purpose of this section is to provide an overview of the key relevant details of the construction phase and operational phase of the proposed development. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Development. Therefore, it should be read in conjunction with the full development package. For a more comprehensive understanding of the Proposed Development, please refer to Chapter 2 (Description of the Proposed Development) of the EIA Report. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant document in order to define the proposed development.

Briefly summarised, the development is to entail the demolition of an existing office building and the construction of a new commercial development comprising 4no. building elements ranging in height from 9 storeys to 17 storeys and 12 storeys over 3 levels of below ground accommodation. The proposed development primarily comprises offices with a total Gross Floor Area (GFA) of 69,258m^2 and a total Net Internal Floor Area (NIFA) of 47,225m^2. In addition to office space, the proposed development also includes lesser areas of retail space (196m^2 GFA) and community/arts/cultural space (2,371m^2 GFA).

The site of the proposed development is on Dublin's North Quays, in the eastern city centre, some 200m to the west of the Samuel Beckett Bridge and some 400m to the east of the Custom House. The area subject to this application extends to approx. 0.90ha and is within the operational area of Dublin City Council.

12.4.1 Construction Phase

The proposed development includes demolition of the existing office building that currently occupies that subject site. It is expected that construction traffic to and from the site shall reach a peak during the removal of demolition waste material from the site. Construction activity onsite is expected to reach a peak in the year 2026.

As described in section 12.2.9, the development's construction phase shall generate vehicular traffic comprising Heavy Goods Vehicles (HGVs), Light Goods Vehicles (LGVs), cars, and bicycles, increasing traffic flows at nearby existing junctions. In addition, the development shall generate increased demand for public transport services.

12.4.2 Operational Phase

The proposed development shall include a total of 32no. car parking spaces (30no. spaces located internally at basement level -1 and 2no. external surface-level spaces on Clarion Quay). This represents a reduction of 132no. car parking spaces (an 80% reduction) in comparison to the existing office building on the site. The proposed car parking provision equates to 1no. car parking space per 2,164m^2 GFA, whereas the existing office building has a car parking ratio of 1no. space per 129m^2 GFA.

Once operational, the proposed development shall generate regular vehicular trips on the surrounding road network, increasing traffic flows at nearby existing junctions. In addition, the development shall generate increased demand for public transport services. Conversely, the development shall also remove the trips currently generated by the office building that now occupies the site.

The development's projected net weekday peak hour trip generation across all vehicular and non-vehicular modes is given in section 12.2.7. For assessment purposes, it has been assumed that the proposed development shall be completed and operational by the year 2030.

12.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

12.5.1 Construction Phase

It is estimated that a maximum of 125no. construction operatives will be employed full time on the site. In the absence of mitigation measures, it may be expected that their journeys to and from the site be distributed across transport modes as shown in Table 12.29. These modal splits are based on the CSO 2016 Census WPZ statistics given in Table 12.2 (section 12.2.2), adjusted to reflect the fact that construction operatives are less likely to live within walking distance of the development site than operational-phase employees.

Table 12.29 *Potential Construction Operative Modal Splits and Weekday Trip Generation*

Transport Mode	Estimated Modal Share	Weekday Trips by Mode	
		Arrivals	Departures
Driving a Car or Van	25%	16	16
Passenger in a Car	5%	3	3
Bicycle	9%	6	6
Motorcycle	1%	1	1
Bus	21%	13	13
Train or Tram	34%	21	21
Walking	5%	3	3

Subject to planning conditions, site working hours are expected to be 07:00-19:00, Monday to Friday, and 08:00-14:00 on Saturdays. Construction operatives' trips to and from site are therefore expected to take place largely outside the weekday background peak hours of 08:00-09:00 and 17:00-18:00. To ensure a robust assessment of the development's impact, it has however been assumed that 50% of all such arrival trips shall be made during the background AM peak hour, and 50% of departure trips made during the background PM peak hour.

In conjunction with the other LGV and HGV trips to be generated during construction (as given in section 12.2.9), the development therefore has the following potential peak hour motor vehicle trip generation in its construction phase:

Table 12.30 *Potential Construction Phase Peak Hour Motor Vehicle Trip Generation as PCU*

Time Period	Heavy Vehicles (as PCU)	Light Vehicles (as PCU)	TOTAL (PCU)
Arrivals			
Weekday AM Peak	8	25	33
Weekday PM Peak	8	6	14
Departures			
Weekday AM Peak	8	6	14
Weekday PM Peak	8	25	33
Total Trips			
Weekday AM Peak	16	31	47
Weekday PM Peak	16	31	47

To quantify the development's potential construction-phase impact on the surrounding road network and on local public transport services, the net peak hour vehicular traffic generated (taking into account the removal of traffic currently generated by the existing office building on the site) has been distributed across the surrounding street network as described in section 12.2.10, and the resultant changes in total traffic flows at surveyed junctions have been calculated.

Table 12.31 and Table 12.32 show the absolute and proportional changes in weekday peak hour traffic flows (excluding Luas trams) at each of the 7no. surveyed junctions shown in Figure 12.1 that shall be produced by the following combined effects:

- The removal of vehicular traffic currently generated by the existing building on the development site.
- The addition of vehicular traffic potentially generated by the proposed development in its construction phase.

Table 12.31 *Changes in Junction Traffic Flows – Construction Potential – AM Peak*

Total Motor Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	266	226	693	701	1289	1802	908
Effect of Removing Existing Building	-58	-10	-58	-10	-26	-18	-5
Potential Development Construction Traffic	+4	+4	+20	+4	+43	+35	+2
Combined Change in Total Flows	-54	-6	-38	-6	+17	+17	-3
Change in Flows as Proportion of Baseline	-20.3%	-2.7%	-5.5%	-0.9%	+1.3%	+0.9%	-0.3%

Table 12.32 *Changes in Junction Traffic Flows – Construction Potential – PM Peak*

Total Motor Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	152	194	453	793	1163	1753	911
Effect of Removing Existing Building	-5	-46	-6	-46	-5	-21	-26
Potential Development Construction Traffic	+5	+5	+28	+5	+35	+30	+3
Combined Change in Total Flows	0	-41	+22	-41	+30	+9	-23
Change in Flows as Proportion of Baseline	0.0%	-21.1%	+4.9%	-5.2%	+2.6%	+0.5%	-2.5%

At most of the surveyed junctions, the net potential effect of the development in its construction phase shall be to reduce the total traffic flows during peak hours. At junctions that shall experience a net increase in traffic flows, this peak hour increase is always less than 10% of the existing baseline flows. In its construction phase, the proposed development shall therefore have a ***slight positive short-term*** potential effect on the operation of the surrounding road network.

It is also recognised that there is potential during the construction phase for construction-related activity to affect the surrounding road network in ways beyond junction operational performance. These further effects would potentially take the form of surrounding streets being temporarily obstructed by stopped/parked construction vehicles or by delivery/loading operations, or their condition being temporarily degraded by the presence of dirt/debris originating from the construction site. There is also a risk of overspill car parking on surrounding streets by construction operatives driving to work but not being able to park within the development site. In the absence of mitigation measures, these effects would likely be ***negative*** in nature, ***short-term*** in duration, and ***significant***. The construction phase mitigation measures detailed in section 12.6.1 will prevent or minimise these impacts, and these measures will be strictly adhered to.

The overall potential construction-phase effect of the proposed development on the operation of the surrounding road network (absent mitigation measures) is therefore considered to be ***negative*** in nature, ***short-term*** in duration, and of ***moderate*** significance.

12.5.2 Operational Phase

To quantify the development's potential operational-phase impact on the surrounding road network, the net peak hour vehicular traffic generated (taking into account the removal of traffic currently generated by the existing office building on the site) has been distributed across the surrounding street network as described in section 12.2.8, and the resultant changes in total traffic flows at surveyed junctions have been calculated.

The development's projected operational-phase trip generation across all transport modes (presented in sections 12.2.2 to 12.2.5) takes into account certain mitigation measures that form part of its design. These include a restricted car parking provision, a significant secure bicycle parking provision, and ancillary facilities such as showers and lockers to support active travel modes. These intrinsic mitigation measures are therefore not presented separately and will not result in any difference between the development's potential effects and its residual effects.

Table 12.33 and Table 12.34 show the absolute and proportional changes in weekday peak hour traffic flows (excluding Luas trams) at each of the 7no. surveyed junctions shown in Figure 12.1 that shall be produced by the following combined effects:

- The removal of vehicular traffic currently generated by the existing building on the development site.
- The addition of vehicular traffic to be generated by the proposed new building, once operational.

These illustrate that the proposed development will result in negligible changes to the existing vehicular traffic flows on the surrounding street network, and it has accordingly not been deemed necessary to conduct operational modelling of any existing surveyed junction. In its operational phase, the proposed development shall therefore have a ***long-term imperceptible neutral*** effect on the operation of the surrounding road network.

Table 12.33 *Changes in Junction Traffic Flows – Operational Potential – AM Peak*

Total Motor Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	266	226	693	701	1289	1802	908
Effect of Removing Existing Building	-58	-10	-58	-10	-26	-18	-5
Potential Development Operational Traffic	+70	+13	+70	+15	+31	+23	+7
Combined Change in Total Flows	+12	+3	+12	+5	+5	+5	+2
Change in Flows as Proportion of Baseline	+4.5%	+1.3%	+1.7%	+0.7%	+0.4%	+0.3%	+0.2%

Table 12.34 *Changes in Junction Traffic Flows – Operational Potential – PM Peak*

Total Motor Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	152	194	453	793	1163	1753	911
Effect of Removing Existing Building	-5	-46	-6	-46	-5	-21	-26
Potential Development Operational Traffic	+6	+57	+7	+57	+6	+26	+32
Combined Change in Total Flows	+1	+11	+1	+11	+1	+5	+6
Change in Flows as Proportion of Baseline	+0.7%	+5.7%	+0.2%	+1.4%	+0.1%	+0.3%	+0.7%

Similarly to the construction phase, there is also the potential during the development's operational phase for the surrounding road network to be affected in ways beyond junction operational performance. This relates primarily to waste collection and deliveries, which, if not properly managed, could result in adjacent streets being temporarily obstructed by stopped/parked servicing vehicles. There is also a risk of overspill car parking on surrounding streets by development occupants driving to work but not being able to park on site.

In the absence of mitigation measures, these effects would likely be ***negative*** in nature, ***long-term*** in duration, and ***moderate*** in significance. The servicing management and travel planning mitigation measures detailed in section 12.6.2 will prevent or minimise these impacts, and these measures will be strictly adhered to.

The overall potential operational-phase effect of the proposed development on the operation of the surrounding road network (absent servicing-related mitigation measures) is therefore considered to be ***negative*** in nature, ***long-term*** in duration, and of ***slight*** significance.

The potential operational-phase effect of the proposed development on the operation of local public transport services is determined in the Public Transport Capacity Assessment report prepared by Derry O'Leary, which is attached as Appendix 12.3 and is summarised in section 12.2.12. This effect is considered to be ***negative*** in nature, ***long-term*** in duration, and of ***slight*** significance.

12.6 MITIGATION MEASURES

12.6.1 Construction Phase

Heavy Goods Vehicle traffic (vehicles 3.5t or over) to and from the construction site shall comprise primarily 3-axle and 4-axle lorries for the removal of construction waste and the delivery of large structural elements or plant. All HGV construction traffic to and from the site will follow a designated route, ensuring that heavy construction vehicles avoid sensitive streets to the greatest extent possible and travel as little as possible within the city centre. Subject to final agreement between the lead Contractor and DCC (as part of the Contractor's Construction Management Plan), this designated route will require heavy construction vehicles travelling to and from the site to arrive and depart from/to the M50 motorway (Dublin Tunnel) via the north quays, as shown in Figure 12.15.

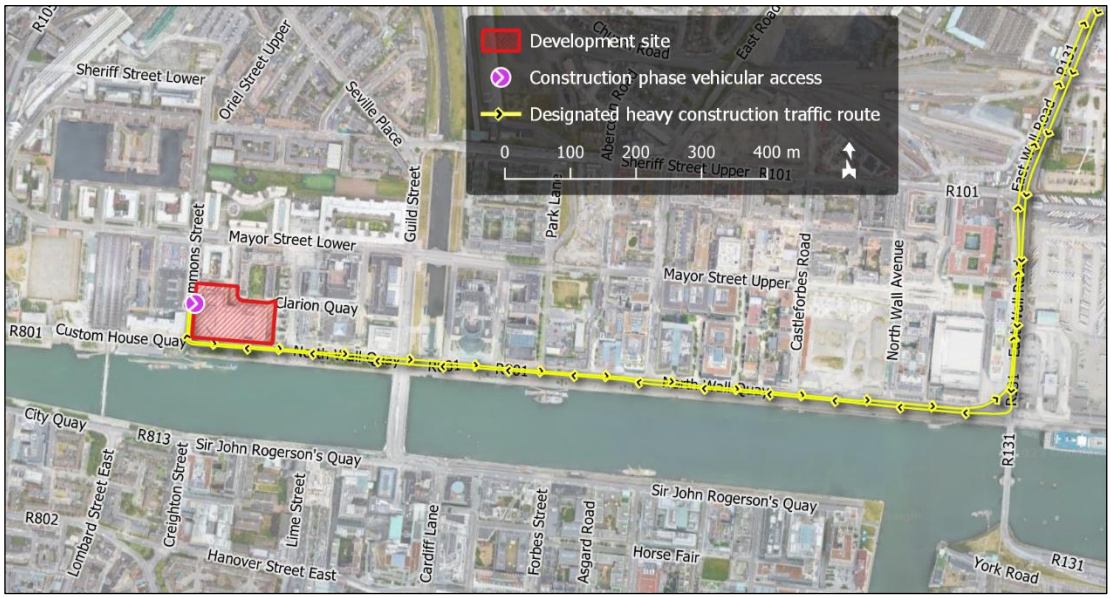

Figure 12.15 *Designated HGV access routes (sources: OSM Contributors, Google)*

The lead contractor appointed for the construction of the development will be required to prepare a site-specific Construction Management Plan (CMP), including a plan for the scheduling and management of construction traffic, which will outline measures to be taken to mitigate the effects of construction traffic on the surrounding road network. A Designated Community Liaison Officer (DCLO) will be nominated for the proposed development, who will act as a point of contact for local residents, Dublin City Council, and An Garda Síochána.

The final site-specific CMP will include the following measures for minimising construction traffic and mitigating its effects:

- Limiting onsite car parking for construction operatives.
- Restricting all heavy construction traffic to a designated route, ensuring that heavy construction vehicles avoid sensitive streets to the greatest extent possible and travel as little as possible within the city centre.
- Conducting all loading and unloading operations within the site.
- Scheduling deliveries outside of peak hour periods to avoid disturbance to surrounding pedestrian and vehicular traffic.
- Staggering HGV movements to/from site to avoid site queues.

- Preventing haulage vehicles travelling in convoys of more than two vehicles at any time and spacing haulage vehicles by a minimum of 250m at all times.
- Installation of a wheel wash at exit from the site to prevent any dirt being carried out onto surrounding roads.
- Deployment of a road sweeper as necessary to keep roads around the site clean.

The following specific traffic control and marshalling measures will be included in the CTMP, to minimise the potential for obstruction of surrounding streets:

- At no time will construction associated vehicles be stopped or parked along haulage routes.
- Haulage vehicles will not travel in convoys of greater than two vehicles at any time.
- Haulage vehicles will be spaced by a minimum of 250m at all times.
- At no time will haulage vehicles be parked or stopped at the entrance to the site.
- All loading of excess material will occur within the site boundary.
- All off-loading of deliveries will take place within the site, away from the public road and will access via the construction site access.

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to/from the site and management of large deliveries on site to occur outside of peak periods.
- Use of precast/prefabricated materials where possible.
- Reuse on site of any ‘cut’ material generated by the construction works, where possible, through various accommodation works.
- Provision of adequate storage space on site.
- Development of a strategy to minimise construction material quantities as much as possible.

Construction personnel will be encouraged to make use of the available high-quality public transport links to the area and/or to commute by bicycle, to minimise private car trips to and from the site. To avoid problems of parking overspill on surrounding streets, parking restrictions and management measures on surrounding streets will be reviewed and implemented as necessary in agreement with local residents and Dublin City Council.

12.6.2 Operational Phase

Development occupants’ use of sustainable travel modes (public transport, walking, and cycling) constitutes the primary means by which the development will avoid the excessive generation of motor vehicle trips. As described in the Public Transport Capacity Assessment report prepared by Derry O’Leary (attached as Appendix 12.3 and summarised in section 12.2.12), use of these travel modes will however have only slightly significant potential effects on the operation of nearby public transport services. No mitigation measures are therefore required in this respect. It is however 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.

As described in the Workplace Travel Plan Framework prepared in support of this planning application and provided separately, a Travel Plan Coordinator shall be appointed for the proposed development, with the remit to implement and oversee an ongoing Workplace Travel Plan (WTP). In conjunction with the development's intrinsic mitigation measures (reduced car parking, significant bicycle parking, and ancillary facilities), this shall assist development occupants and visitors in making the most of sustainable transport opportunities and in avoiding single-occupant car journeys to and from the development site, which shall in turn reduce the likelihood of overspill parking on surrounding streets.

The development's facilities management will prepare and implement a Development Servicing Management Plan that will specifically aim to ensure that servicing of the development can be carried out efficiently, whilst minimising both:

- conflicts between vehicular servicing traffic and internal pedestrian and cyclist traffic, and
- any effects on the operational performance of the surrounding road network.

Delivery scheduling

Peak hour deliveries will be discouraged throughout the development. On the basis that the AM peak is often the busiest hour for servicing, the operation of the development will spread deliveries throughout the day wherever possible. The majority of postal deliveries will be made to grouped mailboxes or to reception areas, reducing delivery time in this instance.

Waste management

The development shall provide sufficient facilities for storage and collection of segregated waste. Refuse collection will be undertaken outside of peak hours where possible, with the specific collection times being arranged with the private waste contractors to minimise the impacts on the operation of the site and of the surrounding street network.

Operational coordination, restrictions, and enforcement

Facilities management shall be responsible for establishing and enforcing restrictions on the nature and scheduling of permitted vehicular servicing operations relating to the development. Facilities management shall maintain records of all large deliveries and shall coordinate with all development occupants to ensure that regular scheduled servicing operations are conducted at suitable times and do not conflict with one another. Facilities management shall take enforcement measures where such operations are conducted without its approval.

Accommodating special deliveries

Any special deliveries to the subject development will need to be arranged with facilities management in advance. Special deliveries are defined as unusually large items which would arrive on an infrequent basis. The delivery time and duration will be agreed with facilities management to minimise the impact upon the routine daily servicing requirements of the development and the operation of the surrounding street network. All special deliveries should be arranged for off-peak periods, where possible.

12.7 MONITORING OR REINSTATEMENT MEASURES

12.7.1 Construction Phase

The lead contractor appointed for the construction of the development will be required to prepare a site-specific Construction Management Plan (CMP) that shall include a Construction Traffic Management Plan for the scheduling and management of construction traffic. This CMP shall outline measures for monitoring the impact of construction traffic on the operation and condition of the surrounding street network, including remedial actions to be taken in the event of construction traffic causing damage to road infrastructure.

The lead contractor will also be required to monitor the travel habits of construction personnel and to tailor supports for public and shared transport use accordingly. Surrounding streets will be monitored to ensure that no nuisance parking associated with construction activity takes place.

No reinstatement works of relevance to traffic and transport are proposed as part of the subject development, with the exception of any repair works made necessary by the passage of construction traffic.

12.7.2 Operational Phase

Post-development monitoring of the surrounding street network's performance is not required or proposed in this case.

Within the scope of the Workplace Travel Plan (WTP) to be implemented for the development, a Travel Plan Coordinator shall be responsible for monitoring the travel habits of development occupants and visitors. A WTP is a dynamic process whereby a package of measures and campaigns is identified, piloted, and then monitored on an ongoing basis. The WTP will identify specific targets against which the effectiveness of the plan can be assessed at each review; these will typically take the form of target modal splits for journeys to and from a site. The Travel Plan Coordinator shall gather data on travel patterns, for instance by conducting periodic travel surveys of development occupants. A Workplace Travel Plan Framework has been prepared by CS Consulting and is submitted under separate cover as part of this planning application; that document provides a template for the implementation of a full WTP once the development is completed and operational.

As part of the Service Delivery and Access Strategy to be implemented for the development, facilities management shall be responsible for establishing and enforcing restrictions on the nature and scheduling of permitted vehicular servicing operations relating to the development. Facilities management shall maintain records of all large deliveries and shall coordinate with all development occupants to ensure that regular scheduled servicing operations are conducted at suitable times and do not conflict with one another. Facilities management shall take enforcement measures where such operations are conducted without its approval. The Service Delivery and Access Strategy has been prepared by CS Consulting and is submitted under separate cover as part of this planning application.

No reinstatement works of relevance to traffic and transport are proposed as part of the subject development in its operational phase.

12.8 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

12.8.1 Construction Phase

Limited onsite parking (maximum 10no. spaces) is to be provided for construction operatives, as one means of limiting vehicular traffic to and from the site during the construction phase. This shall alter the potential modal splits given previously in **Table 12.29**, producing the following residual distribution of construction operative trips across travel modes:

Table 12.35 *Residual Construction Operative Modal Splits and Weekday Trip Generation*

Transport Mode	Estimated Modal Share	Weekday Trips by Mode	
		Arrivals	Departures
Driving a Car or Van	8%	10	10
Passenger in a Car	2%	2	2
Bicycle	14%	17	17
Motorcycle	2%	2	2
Bus	26%	32	32
Train or Tram	44%	55	55
Walking	5%	6	6

Table 12.36 and **Table 12.37** show the absolute and proportional changes in weekday peak hour traffic flows (excluding Luas trams) at each of the 7no. surveyed junctions shown in **Figure 12.1** that shall be produced by the following combined effects:

- The removal of vehicular traffic currently generated by the existing building on the development site.
- The addition of residual vehicular traffic generated by the proposed development in its construction phase.

At most of the surveyed junctions, the net residual effect of the development in its construction phase shall be to reduce the total traffic flows during peak hours. At junctions that shall experience a net increase in traffic flows, this peak hour increase is always less than 10% of the existing baseline flows. In its construction phase, the proposed development shall therefore have a **slight positive short-term** residual effect on the operation of the surrounding road network.

With the implementation of the construction-phase mitigation measures described in section **12.6.1**, which will minimise the risk of construction-related activity affecting the surrounding road network in ways beyond junction operational performance, the overall residual construction-phase effect of the proposed development on the operation of the surrounding road network shall be **negative** in nature, **short-term** in duration, and of **slight** significance.

Table 12.36 *Changes in Junction Traffic Flows – Construction Residual – AM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	266	226	693	701	1289	1802	908
Effect of Removing Existing Building	-58	-10	-58	-10	-26	-18	-5
Residual Development Construction Traffic	+4	+4	+16	+4	+34	+29	+2
Combined Change in Total Flows	-54	-6	-42	-6	+8	+11	-3
Change in Flows as Proportion of Baseline	-20.3%	-2.7%	-6.1%	-0.9%	+0.6%	+0.6%	-0.3%

Table 12.37 *Changes in Junction Traffic Flows – Construction Residual – PM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	152	194	453	793	1163	1753	911
Effect of Removing Existing Building	-5	-46	-6	-46	-5	-21	-26
Residual Development Construction Traffic	+3	+3	+19	+3	+31	+26	+2
Combined Change in Total Flows	-2	-43	+13	-43	+26	+5	-24
Change in Flows as Proportion of Baseline	-1.3%	-22.2%	+2.9%	-5.4%	+2.2%	+0.3%	-2.6%

12.8.2 Operational Phase

The operational-phase mitigation measures to be implemented for the proposed development shall not alter the modal splits of occupant and visitor trips, nor shall they influence the generation of servicing vehicle trips. In terms of the development's vehicular trip generation and its impact on the operation of surrounding junctions, the development's operational-phase residual effects are therefore equivalent to its potential effects: these shall be **neutral** in nature, **long-term** in duration, and **imperceptible**.

Additional mitigation measures are to be implemented primarily in the context of the Development Servicing Management Plan, which shall regulate vehicular servicing operations and thereby reduce the likelihood of adjacent streets being temporarily obstructed by stopped/parked servicing vehicles. Alongside this, the implementation of the Workplace Travel Plan will complement the development's intrinsic mitigation measures (reduced car parking, significant bicycle parking, and ancillary facilities) by supporting development occupants in making the most effective use of sustainable and active travel modes. This shall reduce the likelihood of overspill parking on surrounding streets.

With the implementation of these additional mitigation measures, the overall residual operational-phase effect of the proposed development on the operation of the surrounding road network shall be **negative** in nature, **long-term** in duration, but **not significant**.

12.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

Planning permission is in place for a number of committed developments close to the subject site, some of which are currently under construction. All of these committed developments are on brownfield sites and are not expected to result in significant increases in the vehicular traffic flows near the subject development site, as they are either:

- already in operation for a similar use to that proposed, or a more intensive use; or
- currently under construction and generating construction traffic that is likely equal to or greater than the development's future operational traffic.

Nevertheless, the application of Transport Infrastructure Ireland (TII) standard traffic growth rates provides a means of accounting for the potential influence of other traffic-generating developments in the area of the proposed development, whether or not already planned or permitted.

Unit 5.3 of the TII Project Appraisal Guidelines (PE-PAG-02017 Travel Demand Projections) has been used to apply growth factors to the recorded background traffic flows (from 2023), to obtain traffic flows for the years 2026 (construction peak) and 2045 (15 years after development completion). The TII annual growth rates applied are given in Table 12.38, and the resultant compound growth in background traffic for each of the relevant years is given in Table 12.39.

Table 12.38 *TII Central Growth Rates per Year (Light Vehicles or PCU)*

Geographic Area	2016-2030	2030-2040	2040-2050
Dublin Metropolitan	+ 1.62%	+ 0.51%	+ 0.44%

Table 12.39 *Predicted Background Traffic Growth (over 2023 surveyed traffic levels)*

2026 Construction peak	2030 Development completion	2045 Completion +15 years
+ 4.5%	+ 11.9%	+ 20.4%

12.9.1 Construction Phase

Table 12.40 and Table 12.41 show the absolute and proportional changes in weekday peak hour traffic flows (excluding Luas trams) at each of the 7no. surveyed junctions shown in Figure 12.1 that shall be produced by the following cumulative effects:

- Projected growth in background traffic between the years 2023 and 2026, unrelated to the proposed development, derived from TII growth factors.
- The removal of vehicular traffic currently generated by the existing building on the development site.
- The addition of residual vehicular traffic generated by the proposed development in its construction phase.

At these surveyed junctions, the cumulative construction-phase effect of the proposed development (in conjunction with background traffic growth) varies between a net decrease of 17.5% in total peak hour traffic flows and a net increase of 7.3%. Across all junctions, in both peak hour periods, there is a mean average net increase of 3.1% in total traffic flows. In the proposed development's construction phase, there shall

therefore be a ***moderate negative short-term*** cumulative effect on the operation of the surrounding road network.

Table 12.40 *Changes in Junction Traffic Flows – Construction Cumulative 2026 – AM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	266	226	693	701	1289	1802	908
TII Background Traffic Increase 2023-2026	+12	+10	+31	+32	+58	+81	+41
Effect of Removing Existing Building	-58	-10	-58	-10	-26	-18	-5
Residual Development Construction Traffic	+4	+4	+16	+4	+34	+29	+2
Cumulative Change in Total Flows	-42	+4	-11	+26	+66	+92	+38
Cumulative Change as Proportion of Baseline	-15.8%	+1.8%	-1.6%	+3.7%	+5.1%	+5.1%	+4.2%

Table 12.41 *Changes in Junction Traffic Flows – Construction Cumulative 2026 – PM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	152	194	453	793	1163	1753	911
TII Background Traffic Increase 2023-2026	+7	+9	+20	+36	+52	+79	+41
Effect of Removing Existing Building	-5	-46	-6	-46	-5	-21	-26
Residual Development Construction Traffic	+3	+3	+19	+3	+31	+26	+2
Cumulative Change in Total Flows	+5	-34	+33	-7	+78	+84	+17
Cumulative Change as Proportion of Baseline	+3.3%	-17.5%	+7.3%	-0.9%	+6.7%	+4.8%	+1.9%

With the implementation of the construction-phase mitigation measures described in section 12.6.1, which will minimise the risk of construction-related activity affecting the surrounding road network in ways beyond junction operational performance, the overall cumulative construction-phase effect of the proposed development on the operation of the surrounding road network (in conjunction with background traffic growth) shall be ***negative*** in nature, ***short-term*** in duration, and of ***slight*** significance.

12.9.2 Operational Phase

Table 12.42 and Table 12.43 show the absolute and proportional changes in weekday peak hour traffic flows (excluding Luas trams) at each of the 7no. surveyed junctions shown in Figure 12.1 that shall be produced by the following cumulative effects:

- Projected growth in background traffic between the years 2023 and 2045, unrelated to the proposed development, derived from TII growth factors.
- The removal of vehicular traffic currently generated by the existing building on the development site.

- The addition of vehicular traffic to be generated by the proposed new building, once operational.

Across all junctions, in both peak hour periods, there is a mean average net increase of 21.1% in total traffic flows. In the proposed development's operational phase, by the design horizon year of 2045, there shall therefore be a ***long-term significant negative*** cumulative effect on the operation of the surrounding road network. This cumulative effect is however due almost entirely to the TII-derived projected growth in background traffic over the coming 22 years, which is unrelated to the proposed development.

Table 12.42 *Changes in Junction Traffic Flows – Operational Cumulative 2045 – AM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	266	226	693	701	1289	1802	908
TII Background Traffic Increase 2023-2045	+54	+46	+141	+143	+263	+368	+185
Effect of Removing Existing Building	-58	-10	-58	-10	-26	-18	-5
Residual Development Operational Traffic	+70	+13	+70	+15	+31	+23	+7
Cumulative Change in Total Flows	+66	+49	+153	+148	+268	+373	+187
Cumulative Change as Proportion of Baseline	+24.8%	+21.7%	+22.1%	+21.1%	+20.8%	+20.7%	+20.6%

Table 12.43 *Changes in Junction Traffic Flows – Operational Cumulative 2045 – PM Peak*

Total Vehicle Movements (as PCU)	Survey Junction Site:						
	J1	J2	J3	J4	J5	J6	J8
2023 Surveyed Baseline Flows	152	194	453	793	1163	1753	911
TII Background Traffic Increase 2023-2045	+31	+40	+92	+162	+237	+358	+186
Effect of Removing Existing Building	-5	-46	-6	-46	-5	-21	-26
Residual Development Operational Traffic	+6	+57	+7	+57	+6	+26	+32
Cumulative Change in Total Flows	+32	+51	+93	+173	+238	+363	+192
Cumulative Change as Proportion of Baseline	+21.1%	+26.3%	+20.5%	+21.8%	+20.5%	+20.7%	+21.1%

12.10 REFERENCES

- Environmental Protection Agency (EPA) (2022): *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*
- 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*
- Department of Transport, Tourism and Sport and Department of Housing, Planning and Local Government (2019): *Design Manual for Urban Roads and Streets (DMURS)*
- UK Homes & Community Agency (2015): *Employment Density Guide (3rd Edition)*
- Central Statistics Office (CSO): *Labour Force Survey Q2 2023*
- Derry O'Leary (2023): *Public Transport Capacity Assessment, North Wall Quay*
- National Transport Authority (NTA) (2023): *Cycle Design Manual*
- National Transport Authority (NTA) (2015): *Greater Dublin Area Cycle Network Plan*
- TRICS Consortium: Trip Rate Information Computer System (TRICS) database
- Central Statistics Office (CSO): 2016 and 2022 Census data