

- A review of the existing road/street network in the vicinity of the site, including a site visit on the 26th April 2022, to identify the existing provisions for pedestrians, cyclists, vehicles & public transport users
- The acquisition of manual-classified junction turning counts at relevant junctions in the vicinity of the proposed development and existing signalised junction phases & cycle timings
- Trip Generation, Distribution and Trip Assignment – the estimation of trips, for all transport modes, likely to be generated during construction and during operation of the proposed development and to assign generated trips based on the likely/expected direction pedestrians, cyclists and vehicles would travel to/from the proposed development
- Scope Determination - determining the extent of the existing road/street network which should be assessed in line with the TII “Traffic and Transport Assessment Guidelines” (May 2014)
- Traffic Model Creation – The traffic count data was used to develop a Linsig model for the portion of the existing road/street network (e.g. links & junctions)
- Future Year Assessments – The estimated future year volumes on the study area network, as a result of the increase in background traffic, traffic arising from nearby committed developments and any development generated trips, was used to assess the future operational performance of the surrounding road/street network for 2024 (last year of construction), 2025 (expected opening year), and at two future assessment years, the opening year +5 (2030) and the opening year +15 (2040).

13.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

13.11 The proposed development is described in detail in Chapter 2 (Description of the Proposed Development), and for this assessment can be summarised as follows: -

- The application site consists of lands 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 in the centre of Dublin City c. 165m east of the Tara Street DART Station, 250m south of the Busáras and the Luas Red Line and 400m south of Connolly Station.
- The site is presently brownfield in nature and includes a disused three storey building on the northern portion of the site and a surface car park on the southern portion.
- Adjacent the site, to the east, are the City Quay National School, St. Marys Crèche & Pre-School and the City Quay Church. To the west, on the opposite (western) side of Moss Street is the St. George’s Quay office building.
- A recently completed hotel and residential development is located to the south, on the opposite (southern) side of Gloucester Street South.
- The proposed development would consist of a new 24-storey building accommodating offices (c. 22,587m²), a gym (c. 244m²) and a community arts facility (c. 1,404m²).
- Vehicular access to the development would be via Gloucester Street South, where a loading bay for service/maintenance vehicles would also be located and a car lift for private vehicle access to the proposed basement parking.
- Within the proposed basement parking there would be eleven electric vehicle (EV) car parking spaces (on the basement level -2), 22 motorcycle parking spaces, 36 Electric Scooter parking spaces and 424 bicycle parking stations.

- Pedestrian access to the development would be from Moss Street, along the western boundary, where it is proposed to widen the existing footpath.

13.12 The proposed development will include a Demolition/Construction phase and operational phase.

13.4 RECEIVING ENVIRONMENT

13.13 The site is located on lands zoned as “Z5”, which the Dublin City Development Plan (2016-2022) classes as a land use zoning objective ‘to consolidate and facilitate the development of the central area and to identify, reinforce, strengthen and protect its civic design character and dignity’.

13.14 The city centre location supports a mix of uses, including retail, residential accommodation (build to rent) and commercial while the predominant use at ground floor is retail at principal shopping streets.

13.4.1 Existing Roads

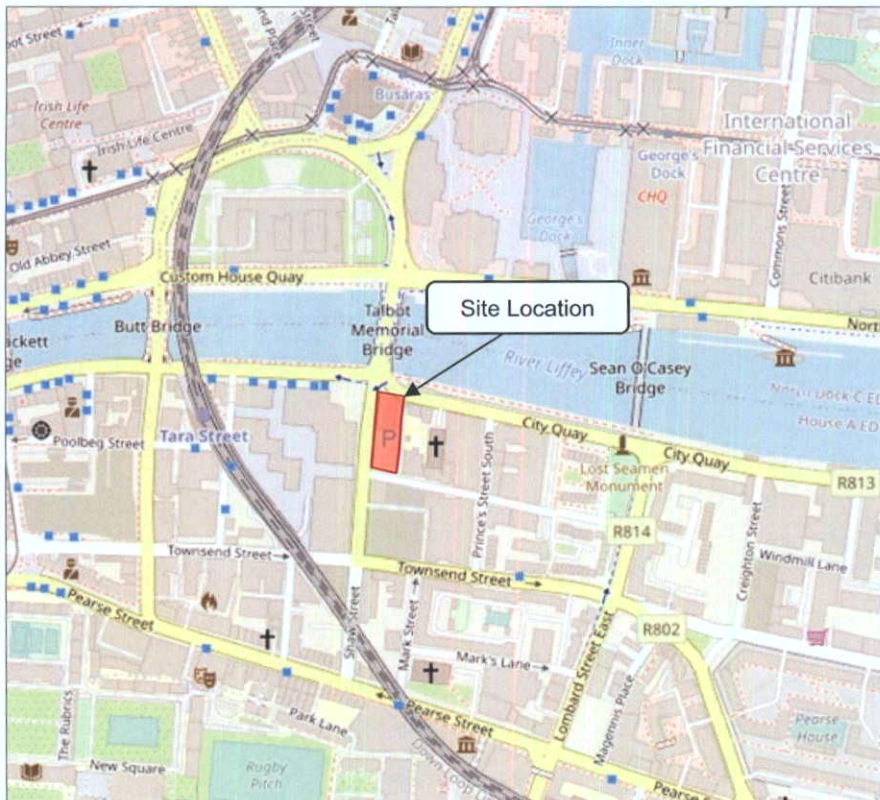


Figure 13.1 Existing Road Network in Vicinity of the Site.

City Quay (R813)

13.15 City Quay (R813) bounds the site to the north, and runs in an east-west direction along the southern side of the River Liffey. It consists of a two-lane one-way single carriageway road. The carriageway width varies along its length but is approximately 6.75m wide in the vicinity of the proposed development with a posted speed limit of 30kph.

- 13.16 City Quay has pedestrian footpaths on both sides of the road and a two-way cycle track adjacent to the northern side of the carriageway. Signalised pedestrian & cyclist crossings are provided within the Talbot Memorial Bridge junction, catering for crossings of City Quay, George's Quay and Moss Street, but not of the Talbot Memorial Bridge arm of the junction.

George's Quay (R105)

- 13.17 George's Quay (R105) extends westwards from the Talbot Memorial Bridge junction towards its junction with Tara Street. It consists of a three-lane one-way single carriageway road, with the nearside lane consisting of a dedicated Bus Lane. It has pedestrian footpaths on both sides of the road and an Advisory Cycle Lane adjacent to the Bus Lane along the southern side of the carriageway.

Gloucester Street South

- 13.18 Gloucester Street South is a two-way single carriageway road running in a west-east direction along the southern boundary of the proposed development. The carriageway is approximately 5.5m wide and has a posted speed limit of 30kph, with Pay & Display on-street parallel parking along the northern side of the street. Footpaths are located on either side of the road, however there are no dedicated cycle facilities.

Moss Street (R802)

- 13.19 Moss Street (R802) is a two-lane one-way single carriageway road running in a north-south direction alongside the western boundary of the proposed development. It commences at the junction with George's Quay, Talbot Memorial Bridge, and City Quay to the north and terminates approximately 170m downstream at its junction with Townsend Street and Shaw Street.
- 13.20 Moss Street is approximately 7.0m wide and has a posted speed limit of 30kph. Pedestrian footpaths and public lighting are available on both sides of the road and a signalised pedestrian crossing is located at the northern extent of the road allowing pedestrians to cross Moss Street and access City Quay and George's Quay. There are currently no cycle facilities on Moss Street.

Shaw Street

- 13.21 Shaw Street extends south from the Moss Street/Townsend Street junction and forms the continuation of Moss Street towards Pearse Street. It consists of a one-way single carriageway road, with effectively a single traffic lane due to the provision of on-street parking, bus stops, and loading bays on its eastern side in the vicinity of the rail overbridge. Footpaths are provided on both sides, however the footpath along its eastern side is relatively narrow.

Townsend Street (R802)

- 13.22 Townsend Street (R802) is a one-way two-lane single carriageway road, with traffic travelling from east to west. It has footpaths on either side, however there are no dedicated cycle facilities along it in the vicinity of its junction with Moss Street/Shaw Street.

Pearse Street (R802)

- 13.23 Pearse Street (R802) is a one-way, east-west, street of four traffic lanes, 2 lanes for buses on the southern side of the road and 2 lanes for general traffic along the northern side of the road. There are footpaths on both sides, and some on-street parking spaces along the northern side.

13.4.2 Existing Traffic Volumes

Traffic Counts

13.24 In accordance with TII Publication PE-PDV-02045 'Traffic and Transport Guidelines' (May 2014), traffic data was collected at peak times during the school term to ensure an accurate understanding of local urban travel patterns was determined, and subsequently used in the preparation of traffic models. Classified Traffic Turning Counts were carried out on the 26th April 2022 at 5 junctions in the vicinity of the proposed development. Each of the traffic counts were carried out between the hours of 7:00am & 10:00am and 4:00pm to 7:00pm, these time periods are considered likely to encompass the peak hours on the adjacent network and for travel to/from the proposed development.

Surveyed traffic was classified into separate categories as follows: -

- Pedestrians
- Cyclists
- Motorcycles (MCL)
- Cars
- LGVs (Light Goods Vehicles)
- HGVs (Heavy Goods Vehicles)
- Buses

Peak Hours

13.25 The morning and evening peak hours have been established as follows: -

Table 13.1: AM & PM Peak Hours at Surveyed Junctions

Junction	AM Peak	PM Peak
4-Arm Signalised Junction of Moss Street and City Quay (referred to as the 'Talbot Memorial Bridge Junction' in this report)	7:15 to 8:15	17:15 to 18:15
3-Arm Junction of Moss Street and Gloucester Street (referred to as the 'Gloucester Street Junction' in this report)	8:00 to 9:00	17:00 to 18:00
4-Arm Signalised Junction of Moss Street and Townsend Street (referred to as the 'Townsend Street Junction' in this report)	8:00 to 9:00	17:00 to 18:00
4-Arm Junction of Prince's Street and Gloucester Street (referred to as the 'Prince's Street Junction' in this report)	8:45 to 9:45	16:00 to 17:00
3-Arm Junction of Prince's Street and City Quay (referred to as the 'City Quay Junction' in this report)	7:15 to 8:15	17:30 to 18:30

13.4.3 Traffic Flows on Adjacent Road Network

13.26 The traffic count data has been converted to Annual Average Daily Traffic (AADT) values using the methods described in Annexes A to C of the TII publication "Expansion Factors for Short Period Traffic Counts" (Unit 16.1 "Project Appraisal Guidelines" 2016).

- 13.27 A combined factor of 0.435 was arrived at by combining the individual hourly factors for the count duration. This factor was then used to determine the 24-hour traffic flow. This was then converted to a Weekly Average Daily Traffic (WADT) using an index of 0.94 for the Tuesday traffic count.
- 13.28 Finally, this was converted to AADT using an index of 0.99 for the month of April. These factors were used to calculate the AADT for each of the 5 junctions, which are summarised in **Table 13.2**.

Table 13.2: Summary of Traffic Flows on Adjacent Road Network

Road/Street	Pedestrian Flows		Cyclist Flows		AADT
	(7am to 10am)	(4pm to 7pm)	(7am to 10am)	(4pm to 7pm)	
George's Quay	505	658	319	512	5,406
City Quay	921	1,309	587	548	10,675
Moss Street	990	1,267	105	47	3,247
Talbot Memorial Bridge	-	-	817	537	19,247
Gloucester Street South	210	352	11	7	323
Townsend Street (East)	186	314	154	165	4,953
Townsend Street (West)	269	504	138	170	2,524
Shaw Street	270	324	77	40	830
Prince's Street	419	927	591	568	314

- 13.29 **Table 13.2** also summarises the pedestrian and cyclist traffic flows for the traffic count periods at the surveyed junctions, more detail on which can be found in the Appendices to this Chapter.

13.4.4 Public Transport

Bus

- 13.30 Bus stops are also located in close proximity to the proposed development serviced by Dublin Bus routes. The closer bus stops are located to the west of the development at Moss Street, and to the southeast at Townsend Street, connecting the development through multiple bus routes within the city extents. The bus stops are also serviced by 'C-spine' bus routes connecting the proposed development with suburb communities in Maynooth, Celbridge, Leixlip, Lucan, Adamstown, Liffey Valley and Palmerstown areas. Pedestrian access to the bus stops is well served by footways on both sides of Moss Street and Townsend Street.
- 13.31 There are also many private bus companies running express services that travel along the north quays serving commuter towns such as Swords, Balbriggan, Drogheda, Dundalk, and Newry. The Bus Eireann terminus at Busáras is approximately 500m from the site which is served by national bus routes.

Rail & Light Rail

- 13.32 The proposed development is in close proximity with Luas stops, with the George's Dock Luas Stop, on the Luas Red Line, located approximately 500m to the northeast

and the Trinity Luas Stop, on the Luas Green Line, approximately 500m southwest from the proposed development.

- 13.33 The Luas Green Line provides a high-quality public transport link to Broombridge in Cabra from Brides Glen, via Grangegorman, O'Connell Street, Trinity, Dundrum and Sandyford. The Luas Red Line provides a high-quality public transport link to The Point, near the 3Arena, or Connolly Station from Tallaght / Saggart via Belgard and Heuston. These services will assist in providing a public transport option for end users and construction staff of the proposed development.
- 13.34 The proposed development is located approximately 180m from Tara Street station which is served by regular commuter trains as well as Dart services. Connolly Station is also within walking distance, located 450m to the North.

13.4.5 Proposed Transport Infrastructure

Liffey Cycle Route

- 13.35 The Liffey Cycle Route is a Primary Route in the Greater Dublin Area Cycle Network Plan published by the National Transport Authority (NTA) in December 2013, and as such is a key objective of the NTA and Dublin City Council (DCC). It is one of a number of routes being developed by DCC as part of its overall 470km of safer cycling routes suitable for cyclists of all ages and abilities and the project is ongoing.
- 13.36 The scheme will deliver pedestrian improvements, a high-quality cycle route that will meet the requirements of cyclists of varied experience and will provide an optimal balance of provision between the various road users along the route. The design will have particular regard to any engineering, architectural and environmental constraints along the route.
- 13.37 This Emerging Preferred Design for the Liffey Cycle Route includes the following: -
- The existing road layout will be reconfigured to provide a one-way segregated cycle track on the north and south quays, located on the building side from the Phoenix Park to O'Donovan Rossa Bridge where it then crosses to the river side of the road to Matt Talbot Memorial Bridge,
 - Provision of boardwalks at various locations,
 - Upgrade of junctions to provide pedestrian and cyclist improvements,
 - Public realm improvements; and
 - Improvements to existing traffic signal operational infrastructure.
- 13.38 For George's Quay, Section 9.4 of the "Liffey Cycle Route Options Assessment Report" outlines 5 options, all of which are considered to be equally likely to be implemented. Regardless of which option is chosen, the proposed improvements would increase the capacity and improve the safety for cyclists along the section of the Quays between O'Connell Bridge and Matt Talbot Memorial Bridge.
- 13.39 For City Quay, Section 9.5 of the "Liffey Cycle Route Options Assessment Report" states that '*Given that other complimentary proposals exist to continue the Liffey Cycle Route to the East Wall Road and Sir John Rogerson's Quay, further consideration is not necessary beyond Matt Talbot Memorial Bridge*'.
- 13.40 In the vicinity of the development, the Liffey Cycle Route scheme introduces cycle track provisions at the western side of Moss Street, and along the northern footpath of

George's Quay, the resurfacing of the bus lane and bus stop areas at George's Quay, and amendments to the junction layout regarding physical islands without changing the allowed movements for each user within the junction extents.

Proposed MetroLink 2018-2027

- 13.41 Plans for the proposed MetroLink project were released in May 2018. The MetroLink project includes the development of a north-south urban railway service that will run along the busy corridor between Swords and Sandyford, connecting key destinations including Dublin Airport and the City Centre along the 26km route.
- 13.42 A large portion of the route will be underground within the city centre and Dublin Airport. The proposed MetroLink will connect to the Luas Green Line and Charlemont to create a Luas / Metro interchange, at Tara Street, adjacent to the subject development, to create a Dart / Metro interchange and at Glasnevin to connect to the Maynooth and Kildare Rail Lines.
- 13.43 The proposed MetroLink will cater for 15,000 passages per direction each hour and will have a maximum journey time of 50 minutes in one direction. The subject development is located within 200m of the proposed MetroLink station at Tara Street, which will form the only interchange in the city between the existing Dart and proposed MetroLink. As such the proposed development of the site, which will provide for significant high-density office accommodation as well as cultural uses, will be able to provide a place of work for a large quantity of workers who can avail of sustainable public transport.

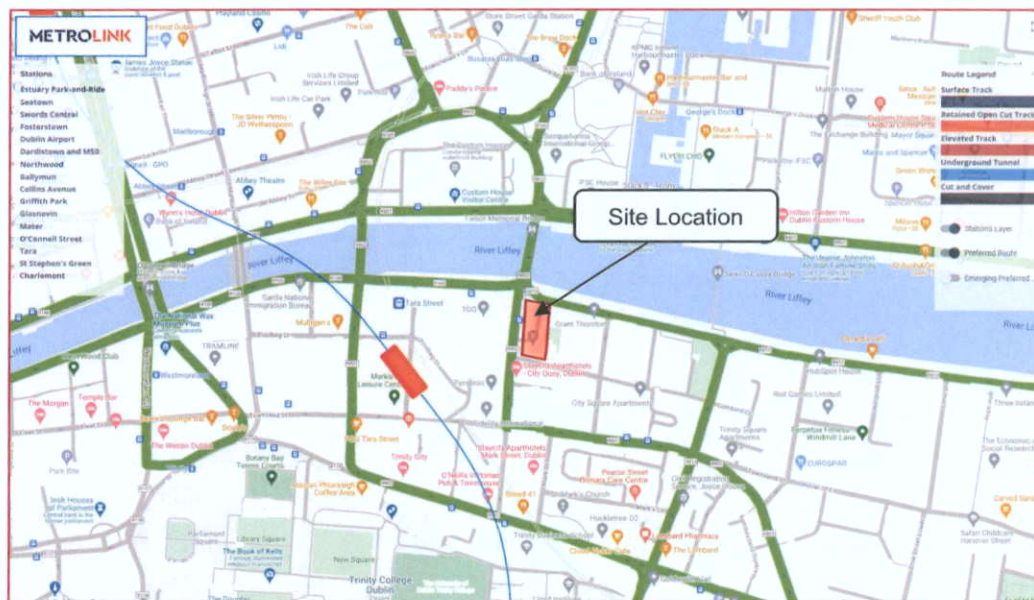


Figure 13.2 Proposed route of Metrolink in the Vicinity of the Proposed Development.

Bus Connects

- 13.44 The BusConnects project will provide for 16 new core bus corridors that will be fast, reliable, punctual, convenient, and affordable in addition to radically enhancing the cycling infrastructure.
- 13.45 The BusConnects project will provide for direct access to the City Centre and will provide significantly improved interconnections between the various public transportation offerings in the city. City Quay will play a key role in the public transport network in the city, capable of facilitating high density developments in the vicinity.

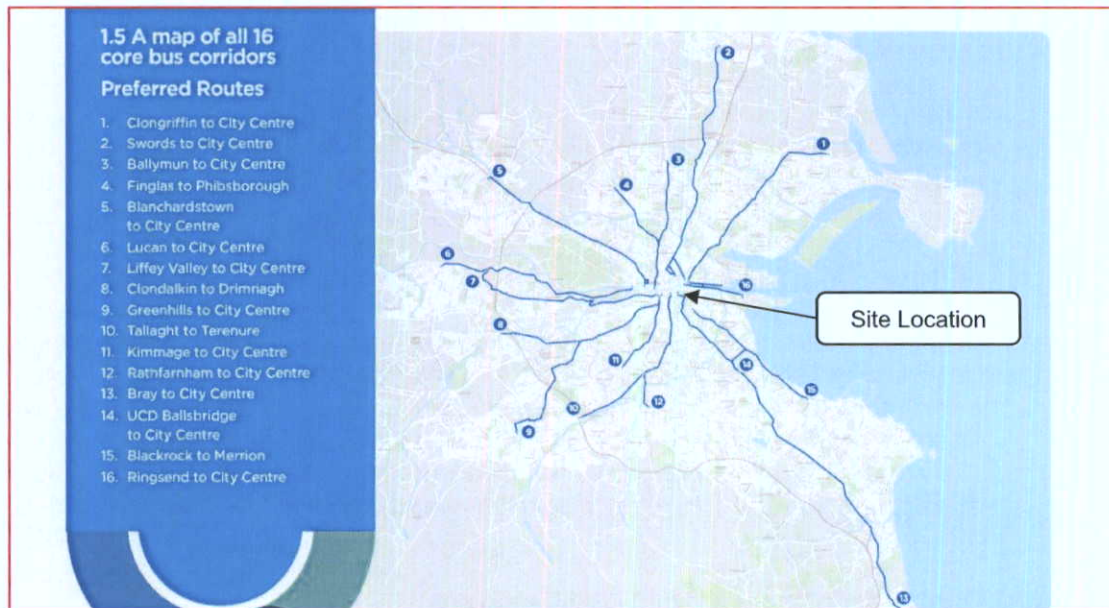


Figure 13.3 Map of all of Core Bus Corridors routes in relation to the site location.

13.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

13.5.1 Trip Generation & Distribution

13.46 The traffic impacts associated with the proposed development are likely to occur in two distinct phases, (i) during the Demolition/Construction Phase and (ii) during the Operational Phase. Consequently, each phase is addressed separately as part of this assessment.

13.5.1.1 Demolition/Construction Phase

13.47 During the Demolition/Construction Phase the traffic associated with the proposed development would consist of a mix of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) associated with, respectively, operatives/tradespersons working at the site, the removal of waste material from the site and transporting of construction materials to the site.

13.48 Works associated with the proposed development will generate temporary additional traffic on the surrounding road network for a period of approximately 32-36 months, assumed to commence in 2023. The most likely construction access and materials handling locations for the site are considered to be via City Quay or Moss Street.

Staff Trips

13.49 During construction it is estimated that between 50 and 100 people will be employed on the site at any given time, with normal working hours assumed to be between 7.00am and 7.00pm.

13.50 Due to the proximity of the site to well-serviced bus routes, the Luas, commuter train and DART services, it is assumed that 20% of the construction workers would travel by public transport, bicycle/scooter or on-foot and that 80% would travel to the site by private vehicle with an occupancy rate of 1.5 persons per vehicle. Staff/operative vehicular traffic is therefore estimated to be 27 arrivals/departures per day, consisting

of 54 arrivals between 7.00am and 8.00am with the same number leaving the site between 4.00pm and 5.00pm.

- 13.51 No general car-parking is likely to be made available within the site, however bicycle/scooter parking facilities would be accommodated. Consequently, those staff who travel by private vehicle to the site would have to park on-road or at public car park facilities.

Deliveries & Waste Removal

- 13.52 Given the constrained nature of the existing site, and in particular the likely constraints on utilising areas of the adjacent roads for materials handling/storage, it is considered that no more than one HGV at-a-time could be accommodated at the site either for waste removal or materials delivery. Assuming an average turnaround time per HGV of 15 minutes, then a maximum of 60 deliveries per day could be accommodated, resulting in a total of 120 trips associated with the removal of waste or delivery of materials to the site.

Table 13.3: Summary of Predicted Daily Trips

Construction Traffic	Daily Trips	
	Arrivals	Departures
LVs	54	54
HGVs	60	60

13.5.2 Operational Phase

Forecast Trips

- 13.53 During the operational phase the volumes of vehicular traffic associated with the development will reduce and consist of private vehicles and routine service/maintenance vehicles. The forecast development traffic during the operational phase has been estimated using trip rates from the Trip Rate Information Computer System (TRICS) database based on the surveyed traffic for similar types of development in similar urban locations.
- 13.54 The estimated numbers of arrivals at, and departures from, the proposed development between 7am and 7pm is summarised in the following tables.

Table 13.4: Development Traffic (Offices) - Forecast Arrivals & Departures (07:00 to 19:00)

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	22,587m ²	0.665	150.2	0.111	25.1	175.3
08:00 - 09:00		3.06	691.2	0.298	67.3	758.5
09:00 - 10:00		2.943	664.7	0.404	91.3	756.0
10:00 - 11:00		1.115	251.8	0.7	158.1	410.0
11:00 - 12:00		0.643	145.2	0.543	122.6	267.9
12:00 - 13:00		0.868	196.1	1.091	246.4	442.5
13:00 - 14:00		1.074	242.6	1.251	282.6	525.1
14:00 - 15:00		0.724	163.5	0.676	152.7	316.2

15:00 - 16:00		0.306	69.1	0.727	164.2	233.3
16:00 - 17:00		0.212	47.9	0.956	215.9	263.8
17:00 - 18:00		0.203	45.9	2.828	638.8	684.6
18:00 - 19:00		0.084	19.0	1.998	451.3	470.3
Totals			2,687		2,616	5,303

Table 13.5: Development Traffic (Gym) - Forecast Arrivals & Departures (07:00 to 19:00)

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	244m ²	0.553	1.3	0.111	0.3	1.6
08:00 - 09:00		0.442	1.1	0.442	1.1	2.2
09:00 - 10:00		1.106	2.7	0.664	1.6	4.3
10:00 - 11:00		0.664	1.6	0.996	2.4	4.1
11:00 - 12:00		0.442	1.1	0.221	0.5	1.6
12:00 - 13:00		0.774	1.9	0.553	1.3	3.2
13:00 - 14:00		0.885	2.2	1.106	2.7	4.9
14:00 - 15:00		0.553	1.3	0.553	1.3	2.7
15:00 - 16:00		0.221	0.5	0.774	1.9	2.4
16:00 - 17:00		0.332	0.8	0.111	0.3	1.1
17:00 - 18:00		2.723	6.6	0.743	1.8	8.5
18:00 - 19:00		1.485	3.6	2.97	7.2	10.9
Totals				25		23

Table 13.6: Development Traffic (Arts Centre) - Forecast Arrivals & Departures (07:00 to 19:00)

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	1,404m ²	0	0.0	0	0.0	0.0
08:00 - 09:00		0.222	3.1	0.056	0.8	3.9
09:00 - 10:00		0.556	7.8	0.167	2.3	10.2
10:00 - 11:00		0.111	1.6	0.056	0.8	2.3
11:00 - 12:00		0.167	2.3	0.111	1.6	3.9
12:00 - 13:00		0.056	0.8	0.056	0.8	1.6
13:00 - 14:00		0.111	1.6	0	0.0	1.6
14:00 - 15:00		0.222	3.1	0	0.0	3.1
15:00 - 16:00		0.056	0.8	0.111	1.6	2.3
16:00 - 17:00		0	0.0	0.222	3.1	3.1
17:00 - 18:00		0.111	1.6	0	0.0	1.6
18:00 - 19:00		0.222	3.1	0.222	3.1	6.2
Totals				26		14

Modal Split

- 13.55 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.

- 13.56 The Census of Population 2016, Figure 2.9 “Means of Travel by Urban Type”, in Profile 6 “Commuting in Ireland” published by the Central Statistics Office (CSO) gives the breakdown of the means of travel reported in the Census within the Dublin City & Suburbs area, which are summarised in Table 13.7. Table 13.8 summarises the data from Table 13.7, excluding the ‘Not Stated’ category.

Table 13.7: Summary of CSO 2016 Census Data - Profile 6, Figure 2.9

Means of Travel	Percentage
Car (Driver)	44.6
Car (Passenger)	2.7
On Foot	13.2
Bicycle	7.6
Bus	13.6
Dart or Luas	7.9
Motorcycle or Scooter	0.8
Other Means	3.1
Not Stated (e.g. Van or Lorry)	6.4

Table 13.8: Summary of CSO 2016 Census Data - Profile 6, Figure 2.9 (Excluding 'Not Stated')

Means of Travel	Percentage
Car (Driver)	47.7
Car (Passenger)	2.9
On Foot	14.1
Bicycle	8.1
Bus	14.5
Dart or Luas	8.4
Motorcycle or Scooter	0.9
Not Stated (e.g. Van or Lorry)	3.3

- 13.57 Figure 13.4 summarises the transport modal split table for the Dublin City centre catchment area published by the Central Statistics Office (CSO) from the 2016 National Census (Ref: Small Area Sa2017_087071058).

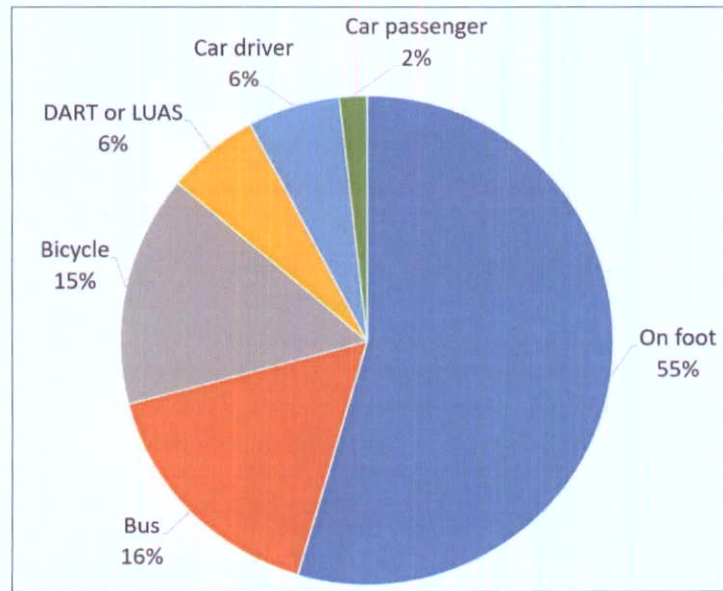


Figure 13.4: Means of Travel for the Dublin City Centre Small Area Catchment (CSO, 2016 Census)

13.58 It is proposed to use the 2016 Census data for the Dublin City Centre Small catchment area to estimate the projected Modal Split for the proposed development in relation to the low car parking provision, which is expected to discourage commuter car parking, and promote a shift from private car use towards more sustainable forms of transport. **Table 13.9** summarises the predicted daily trips for the proposed development by transport mode.

Table 13.9: Summary of Predicted Daily Trips

Means of Transport	Projected Modal Split	Arrivals	Departures	Total Daily Trips
Private Car	2%	55	54	109
Bicycle	16%	438	424	862
Pedestrians	51%	1,307	1,353	2,750
Bus	22%	603	584	1,187
Luas/Dart	9%	247	239	486

13.5.3 Committed Developments

13.59 Future committed developments in the vicinity of the proposed development were considered within this assessment, where they were determined to be of a sufficient scale such that traffic generated by these developments may impact on the future performance of the transportation network. These future developments are noted in the following sections.

Tara Street

13.60 The proposed Tara Street development (Dublin City Council Reg. Ref.: 3794/18, An Bord Pleanála Ref.: ABP-302980-18, Decision to Grant Permission by ABP on 2nd April 2019) consists of a change of use at ground floor level hotel/restaurant foyer to retail/restaurant/café foyer, from hotel to office at 1st to 4th floor level and from hotel/office to retail/café/restaurant at 5th floor level. The proposed development also

included modifications to the façade and minor alteration to the number of car and bicycle parking spaces.

- 13.61 The planning application documentation in the online planning file for the Tara Street development included a Traffic and Transport Assessment report. The trip rates and modal split indicated in this Traffic and Transport Assessment were used to quantify the additional traffic arising from the Tara Street development. The assignment of the Tara Street development traffic onto the adjacent road network was based on the existing traffic distribution at each junction derived from the traffic count data.

Hawkins House

- 13.62 The proposed Hawkins House development (Dublin City Council Reg. Ref. 3037/16, Decision to Grant Permission 19th December 2016) would consist of the demolition of the existing Hawkins House and the construction of a commercial office building with heights ranging from 6 storeys to 10 storeys and with a total gross floor area above ground of circa 18,861m².
- 13.63 The Hawkins House development would include two café/restaurant/retail units, an entrance foyer and public reception, one public office entrance onto a new civic space, a two level basement with access from Poolbeg St, 51 car parking spaces, 204 bicycle parking spaces, shower & toilet facilities, plant area, and a public office accessed from ground level of approx. 700 sq. m.
- 13.64 The Hawkins House development planning application documentation (DCC ref. 3037/16 & ABP ref. PLS92S.27912) in the online planning file included a Traffic Report. The trip rates and modal split indicated in this Traffic Report were used to quantify the additional traffic arising from the Hawkins House development. The assignment of the Hawkins House development traffic onto the adjacent road network was based on the existing traffic distribution at each junction derived from the traffic count data.

College House

- 13.65 The proposed College House development (Dublin City Council Reg. Ref. 3637/17, An Bord Pleanála Reg. Ref. ABP-300709-18, Permission granted by An Bord Pleanála on 16th July 2018) would comprise the demolition of the existing nine storey College House including its associated multi-storey car park, demolition of an existing three-storey cinema building and the construction of a ten storey over two level basement commercial building (25,224 m² including basement) accommodating office space, a café/retail/restaurant unit at ground floor level; a 500 seat entertainment venue and associated bar, restaurant and box office.
- 13.66 Forecast traffic for the College House development has been estimated using trip rates from the Trip Rate Information Computer System (TRICS) database based on the surveyed traffic for similar types of development in similar urban locations. The assignment of the traffic onto the adjacent road network is based on the existing traffic distribution at each junction derived from the traffic count data.

Apollo House

- 13.67 A decision to grant permission was made on the 16th December 2016 for a development at a site of 0.2925ha. at Apollo House, Tara Street and 9-11 Townsend Street (incl. The Long Stone Pub), Dublin 2 (Dublin City Council Reg. Ref. 3036/16, Decision to Grant Permission 16th December 2016) comprising the demolition of the

existing Apollo House and the construction of a commercial office building ranging in height from five to twelve storeys with a gross floor area circa 16,205 m².

- 13.68 The Apollo House development would include an office entrance and foyer, two café/restaurant/retail units, one bar/café/restaurant unit, 40 car parking spaces, 174 bicycle parking spaces, shower & toilet facilities. Following a Further Information Request, responses were submitted to Dublin City Council which included amendments to the proposed scheme including the removal of the 10th floor of the proposed building and revisions to the proposed street and public realm layout.
- 13.69 Permission was sought from Dublin City Council for amendments to the previously permitted development at College House and Apollo House. The development was granted by Dublin City Council on the 3rd December 2019. The decision was subject to a 3rd party appeal to ABP and was subsequently granted permission. The amendments consisted of alterations to the basement layout and core locations. The development included a new 'Build-to-Rent' residential accommodation over the permitted Apollo House building containing 54 units.
- 13.70 Permission was sought (Dublin City Council Reg. Ref.: 2583/20, Decision to Grant Permission on the 2nd December 2020) for amendments to previous permission at Apollo House and College House. The proposed amendments consisted of the demolition of 'The Brokerage' apartment building and the construction of a new 8-11 storey commercial office building adjacent to the permitted buildings at College House and Apollo House. The proposal included for the extension and alterations to the layouts of the permitted basement levels. The ground floor of the development would consist of café/restaurant/retail uses. The grant of permission was appealed to ABP, however, this appeal was subsequently withdrawn and a final grant of permission was issued on the 2nd December 2020.
- 13.71 The most recent permission (Dublin City Council Reg. Ref.: 3684/21, Decision to Grant Permission on 25th April 2022) was granted in April 2022 to add a storey of residential development onto the permitted scheme as well as amendments to the basement. As a result of this most recent amendment application, the permitted development will reach a height of 22 storeys (82m).
- 13.72 The planning application documentation in the online planning file for the Apollo House development (DCC ref. 3684/21) included a Mobility Management Plan. However, trip rates were not included in this Mobility Management Plan. The planning application documentation in the online planning file for the Apollo House development (DCC ref. 3036/16) included a Traffic Report reflecting the land use of 'Office'. The modal split indicated in this Mobility Management Plan and the trip rates indicated in this Traffic Report were used to assess the additional traffic for the Apollo House development. Trip rates were not available for all other permitted land uses (Café/Restaurant, Residential apartments, Entertainment). Therefore, forecast development traffic has been estimated using trip rates from the Trip Rate Information Computer System (TRICS) database based on the surveyed traffic for similar types of development in similar urban locations. The assignment of the traffic onto the adjacent road network is based on the existing traffic distribution at each junction derived from the traffic count data.

The Exo Building

- 13.73 The proposed Exo Building development (Dublin City Council Reg. Ref.: 3632/15, Decision to Grant Permission on 24th March 2016) would comprise a commercial office

building ranging in height from 8 storeys to 17 storeys with a total gross floor area circa 19,263 m².

- 13.74 There have a number of amendment applications granted since the original permission, primarily for minor amendments which did not alter the overall height of 17 storeys.
- 13.75 The construction of Exo Building development has been completed, however, it was not in operation at the time when the traffic counts were undertaken. Therefore, it was identified as being potentially significant in relation to traffic flows in the vicinity of the proposed development.
- 13.76 The forecast traffic for the Exo Building development has been estimated using trip rates from the Trip Rate Information Computer System (TRICS) database based on the surveyed traffic for similar types of development in similar urban locations. The projected Modal Split for the Exo Building development was estimated using the 2016 Census data for the Dublin City Centre Small catchment area in relation to the low car parking provision, which is expected to discourage commuter car parking, and promote a shift from private car use towards more sustainable forms of transport, similarly to the proposed development. The assignment of the traffic onto the adjacent road network is based on the existing traffic distribution derived from the traffic count data.

13.5.4 Committed Developments - Generated Traffic

- 13.77 **Table 13.10 to Table 13.17** (inclusive) give the estimated trips for the adjacent committed developments. The trips generated by these developments, for which permission has been granted but which have not yet been completed, have been added to the background traffic for the traffic assessments for the Opening Year (2025), the Opening Year +5 (2030), and the Opening Year +15 (2040).
- 13.78 This is considered a conservative approach as the traffic growth factors used in the analysis are based on the forecast of future developments such as these adjacent developments.

Table 13.10: Adjacent Development Traffic (Tara House- Offices) - Forecast Arrivals & Departures (07:00 to 19:00) as per application

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	14,185m ²	0.293	41.6	0.111	15.7	57.3
08:00 - 09:00		0.48	68.1	0.066	9.4	77.5
09:00 - 10:00		0.336	47.7	0.084	11.9	59.6
10:00 - 11:00		0.191	27.1	0.125	17.7	44.8
11:00 - 12:00		0.139	19.7	0.12	17.0	36.7
12:00 - 13:00		0.123	17.4	0.113	16.0	33.5
13:00 - 14:00		0.101	14.3	0.117	16.6	30.9
14:00 - 15:00		0.095	13.5	0.125	17.7	31.2
15:00 - 16:00		0.1	14.2	0.24	34.0	48.2
16:00 - 17:00		0.069	9.8	0.389	55.2	65.0
17:00 - 18:00		0.06	8.5	0.447	63.4	71.9
18:00 - 19:00		0.042	6.0	0.132	18.7	24.7
Totals						

Table 13.11: Adjacent Development Traffic (Tara House- Café & Restaurant) - Forecast Arrivals & Departures (0700 to 1900) as per application

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	1,071m ²	-	-	-	-	-
08:00 - 09:00		-	-	-	-	-
09:00 - 10:00		-	-	-	-	-
10:00 - 11:00		0.088	0.9	0.088	0.9	1.9
11:00 - 12:00		0.189	2.0	0.054	0.6	2.6
12:00 - 13:00		1.029	11.0	0.162	1.7	12.8
13:00 - 14:00		0.947	10.1	1.029	11.0	21.2
14:00 - 15:00		0.65	7.0	0.947	10.1	17.1
15:00 - 16:00		0.596	6.4	0.731	7.8	14.2
16:00 - 17:00		0.526	5.6	0.376	4.0	9.7
17:00 - 18:00		0.726	7.8	0.526	5.6	13.4
18:00 - 19:00		1.227	13.1	0.576	6.2	19.3
Totals						

Table 13.12: Adjacent Development Traffic (Hawkins House- Office) - Forecast Arrivals & Departures (07:00 to 19:00) as per application

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	20,436m ²	0.618	126.3	0.126	25.7	152.0
08:00 - 09:00		1.096	224.0	0.193	39.4	263.4
09:00 - 10:00		0.783	160.0	0.217	44.3	204.4
10:00 - 11:00		0.352	71.9	0.193	39.4	111.4
11:00 - 12:00		0.276	56.4	0.222	45.4	101.8
12:00 - 13:00		0.252	51.5	0.279	57.0	108.5
13:00 - 14:00		0.278	56.8	0.253	51.7	108.5
14:00 - 15:00		0.264	54.0	0.29	59.3	113.2
15:00 - 16:00		0.232	47.4	0.486	99.3	146.7
16:00 - 17:00		0.197	40.3	0.891	182.1	222.3
17:00 - 18:00		0.153	31.3	0.972	198.6	229.9
18:00 - 19:00		0.077	15.7	0.367	75.0	90.7
Totals						

Table 13.13: Adjacent Development Traffic (College House & Apollo House- Office) - Forecast Arrivals & Departures (0700 to 1900) as per application

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	46,334m ²	0.618	286.3	0.126	58.4	344.7
08:00 - 09:00		1.096	507.8	0.193	89.4	597.2
09:00 - 10:00		0.783	362.8	0.217	100.5	463.3
10:00 - 11:00		0.352	163.1	0.193	89.4	252.5
11:00 - 12:00		0.276	127.9	0.222	102.9	230.7
12:00 - 13:00		0.252	116.8	0.279	129.3	246.0
13:00 - 14:00		0.278	128.8	0.253	117.2	246.0
14:00 - 15:00		0.264	122.3	0.29	134.4	256.7
15:00 - 16:00		0.232	107.5	0.486	225.2	332.7
16:00 - 17:00		0.197	91.3	0.891	412.8	504.1
17:00 - 18:00		0.153	70.9	0.972	450.4	521.3
18:00 - 19:00		0.077	35.7	0.366	169.6	205.3
Totals						

Table 13.14: Adjacent Development Traffic (College House & Apollo House- Café & Restaurant) - Forecast Arrivals & Departures (07:00 to 19:00)- estimated by TRICS data

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	1,663m ²	0.276	4.6	0.069	1.1	5.7
08:00 - 09:00		0	0.0	0.069	1.1	1.1
09:00 - 10:00		0.345	5.7	0.207	3.4	9.2
10:00 - 11:00		0.471	7.8	0.389	6.5	14.3
11:00 - 12:00		0.922	15.3	0.492	8.2	23.5
12:00 - 13:00		1.742	29.0	0.615	10.2	39.2
13:00 - 14:00		1.373	22.8	1.496	24.9	47.7
14:00 - 15:00		1.373	22.8	1.537	25.6	48.4
15:00 - 16:00		1.619	26.9	1.742	29.0	55.9
16:00 - 17:00		1.66	27.6	1.271	21.1	48.7
17:00 - 18:00		1.763	29.3	1.66	27.6	56.9
18:00 - 19:00		1.824	30.3	1.968	32.7	63.1
Totals						

Table 13.15: Adjacent Development Traffic (College House & Apollo House- Residential) - Forecast Arrivals & Departures (0700 to 1900)- estimated by TRICS data

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per Unit)	Trips	Trip Rate Factor (Per Unit)	Trips	
07:00 - 08:00	58	0.01	0.6	0.092	5.3	5.9
08:00 - 09:00		0.044	2.6	0.141	8.2	10.7
09:00 - 10:00		0.058	3.4	0.097	5.6	9.0
10:00 - 11:00		0.087	5.0	0.083	4.8	9.9
11:00 - 12:00		0.053	3.1	0.053	3.1	6.1
12:00 - 13:00		0.078	4.5	0.083	4.8	9.3
13:00 - 14:00		0.063	3.7	0.049	2.8	6.5
14:00 - 15:00		0.053	3.1	0.078	4.5	7.6
15:00 - 16:00		0.087	5.0	0.034	2.0	7.0
16:00 - 17:00		0.068	3.9	0.068	3.9	7.9
17:00 - 18:00		0.083	4.8	0.073	4.2	9.0
18:00 - 19:00		0.097	5.6	0.053	3.1	8.7
Totals						

Table 13.16: Adjacent Development Traffic (College House & Apollo House- Entertainment) - Forecast Arrivals & Departures (07:00 to 19:00)- estimated by TRICS data

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	2,342m ²	0	0.0	0	0.0	0.0
08:00 - 09:00		0	0.0	0	0.0	0.0
09:00 - 10:00		0.643	15.1	0.056	1.3	16.4
10:00 - 11:00		0.138	3.2	0	0.0	3.2
11:00 - 12:00		0.364	8.5	0.415	9.7	18.2
12:00 - 13:00		0.679	15.9	0.434	10.2	26.1
13:00 - 14:00		0.419	9.8	0.318	7.4	17.3
14:00 - 15:00		0.636	14.9	0.492	11.5	26.4
15:00 - 16:00		0.795	18.6	0.333	7.8	26.4
16:00 - 17:00		0.52	12.2	0.549	12.9	25.0
17:00 - 18:00		0.998	23.4	0.636	14.9	38.3
18:00 - 19:00		1.561	36.6	0.593	13.9	50.4
Totals						

Table 13.17: Adjacent Development Traffic (Exo building- Office) - Forecast Arrivals & Departures (0700 to 1900)- estimated by TRICS data

Time Range	Development Unit size	Arrivals		Departures		Total
		Trip Rate Factor (Per 100m ²)	Trips	Trip Rate Factor (Per 100m ²)	Trips	
07:00 - 08:00	19,263m ²	0.665	128.1	0.111	21.4	149.5
08:00 - 09:00		3.06	589.4	0.298	57.4	646.9
09:00 - 10:00		2.943	566.9	0.404	77.8	644.7
10:00 - 11:00		1.115	214.8	0.7	134.8	349.6
11:00 - 12:00		0.643	123.9	0.543	104.6	228.5
12:00 - 13:00		0.868	167.2	1.091	210.2	377.4
13:00 - 14:00		1.074	206.9	1.251	241.0	447.9
14:00 - 15:00		0.724	139.5	0.676	130.2	269.7
15:00 - 16:00		0.306	58.9	0.727	140.0	199.0
16:00 - 17:00		0.212	40.8	0.956	184.2	225.0
17:00 - 18:00		0.203	39.1	2.828	544.8	583.9
18:00 - 19:00		0.084	16.2	1.998	384.9	401.1
Totals						

13.5.5 Trip Assignment

Demolition/Construction phase

13.79 The assignment of the forecast construction traffic onto the adjacent road network is based on the likely & available routes for traffic to/from the site. Two likely routes have been identified using either City Quay or Moss Street. The construction traffic routes are shown in **Figure 13.5** and **Figure 13.6**.



Figure 13.5: Construction Traffic Trip Assignment (City Quay Route)

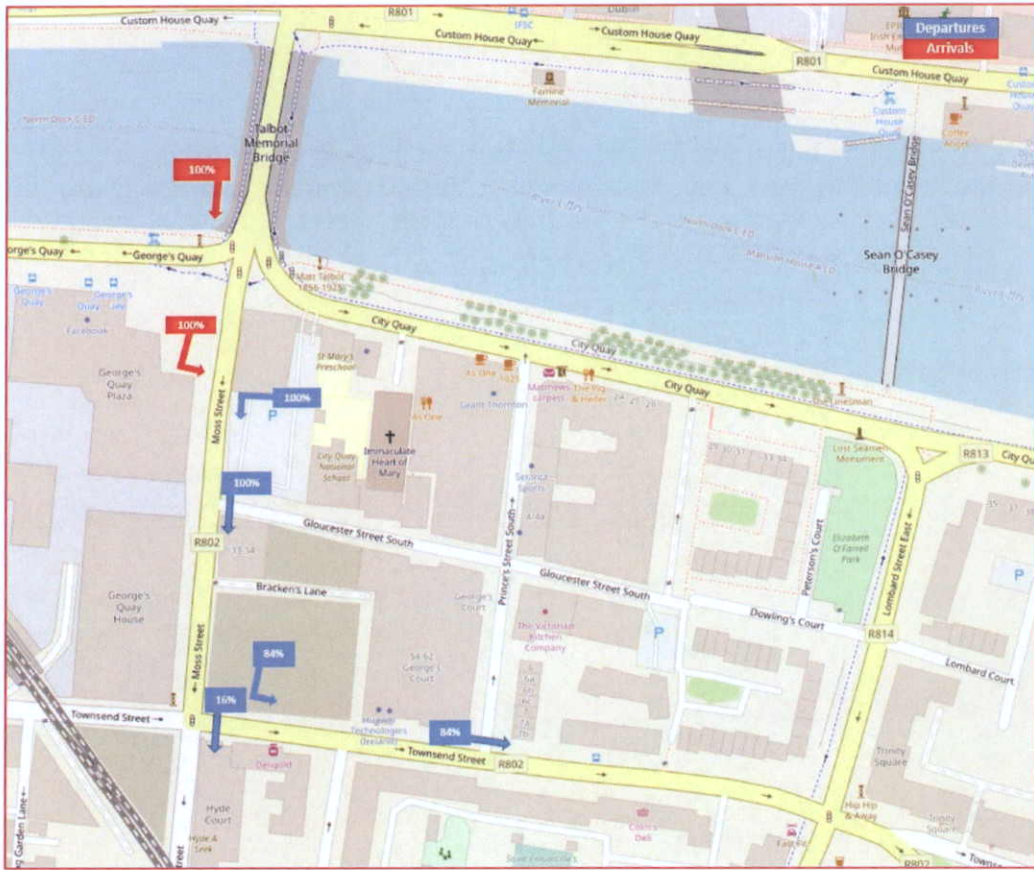


Figure 13.6: Construction Traffic Trip Assignment (Moss Street Route)

Operational Phase

13.80 The assignment of the forecast development traffic for each mode of transport onto the adjacent road network is based on the existing traffic distribution at each junction derived from the traffic counts and the expected travel routes, and are indicated graphically in Figure 13.7 to Figure 13.9.

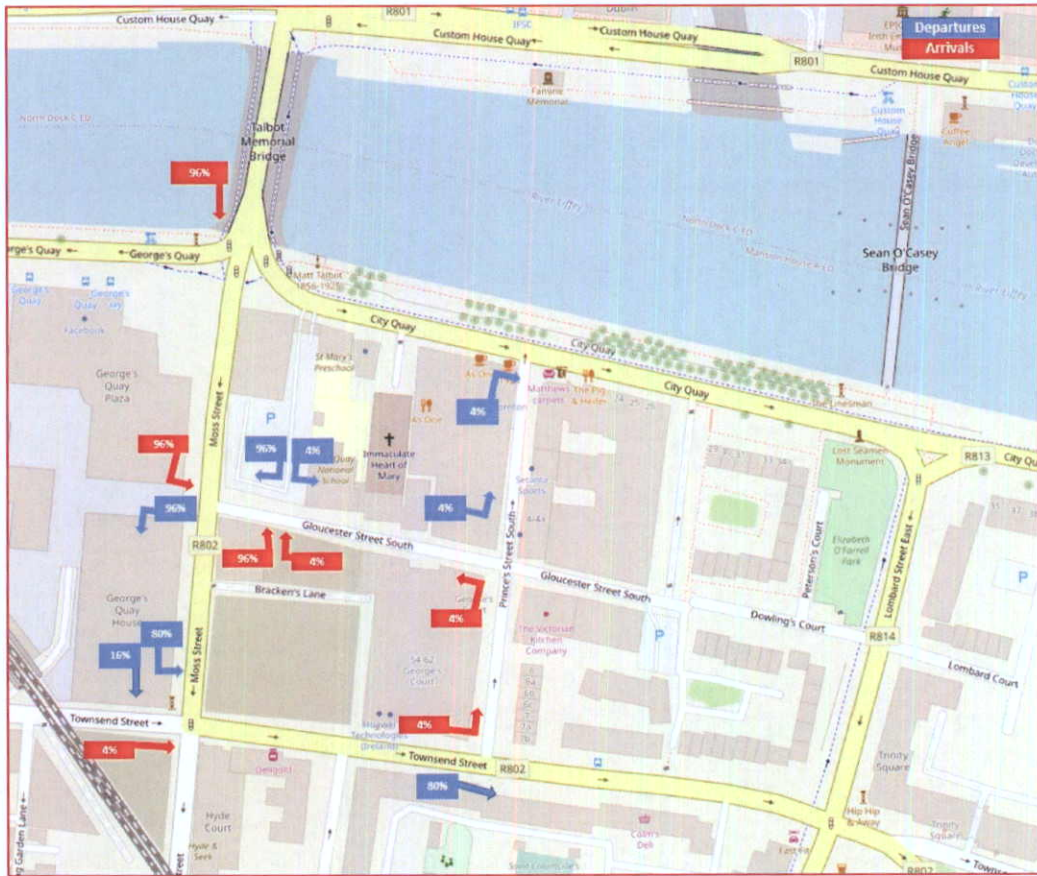


Figure 13.7: Assignment of Development Traffic (Private Car) Throughout the Adjacent Road Network

13.5.6 Scope of Assessment

- 13.81 Section 2.1 of the “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommends that in an urban or congested setting that a traffic assessment should cover all of the roads and junctions where the development traffic exceeds 5% of the existing or background traffic.
- 13.82 Section 4.1.3 of Appendix 4 to the Dublin City Development Plan (2016-2022) states that, as a general guideline, Dublin City Council will require a TA (Traffic Assessment) if the proposed development meets with one or more of the following criteria:
- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road
 - Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive
 - Residential development in excess of 200 dwellings
 - Retail and leisure development in excess of 1,000 sq.m
 - Office, education and hospital development in excess of 2,500 sq.m
 - Industrial development in excess of 5,000 sq.m
 - Distribution and warehousing in excess of 10,000 sq.m.

13.5.6.1 Demolition/Construction Phase

- 13.83 While the traffic associated with the demolition/construction of the proposed development falls below the threshold of 5% of existing/background traffic on the adjacent network and at the adjacent junctions (Ref. **Figure 13.10 & Figure 13.11** below), for each of the potential routes examined, the assessment includes an assessment of the impact of construction-related development traffic on: -
- City Quay
 - Moss Street
 - Gloucester Street South
- 13.84 **Figure 13.10** and **Figure 13.11** summarise the development construction traffic as a percentage of the background traffic on the adjacent road network for the two routes identified.



Figure 13.10: Construction Traffic as a % of Existing Traffic (City Quay Route)



Figure 13.11: Construction Traffic as a % of Existing Traffic (Moss Street Route)

13.85 The assessment also takes account of possible site access and materials-handling arrangements for: -

- Talbot Memorial Bridge Junction
- Moss Street/Gloucester Street South Junction

13.5.6.2 Operational Phase

13.86 As noted previously, Section 2.1 of the “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommends that in an urban or congested setting that a traffic assessment should cover all of the roads and junctions where the development traffic exceeds 5% of the existing or background traffic.

13.87 **Figure 13.12 to Figure 13.14** summarises the forecast development traffic for each transport mode as a percentage of the existing background traffic on the adjacent road network.

Vehicular Traffic

13.88 Vehicular traffic associated with the proposed development exceeds the threshold of 5% of existing/background traffic on Gloucester Street South, and an assessment of the impact of development traffic on Gloucester Street South and its junctions with Moss Street & Prince’s Street (South) has been undertaken.



Figure 13.12: Forecast Development Vehicular Traffic as a % of Existing Vehicular Traffic

Pedestrian Traffic

13.89 The forecast volumes of pedestrian traffic associated with the proposed development exceeds the threshold of 5% above existing/background traffic on City Quay, George's Quay, Moss Street & Gloucester Street South. This assessment includes the impacts of pedestrian development traffic on the following junctions: -

- Talbot Memorial Bridge/George's Quay/City Quay Junction
- Moss Street/Gloucester Street South Junction

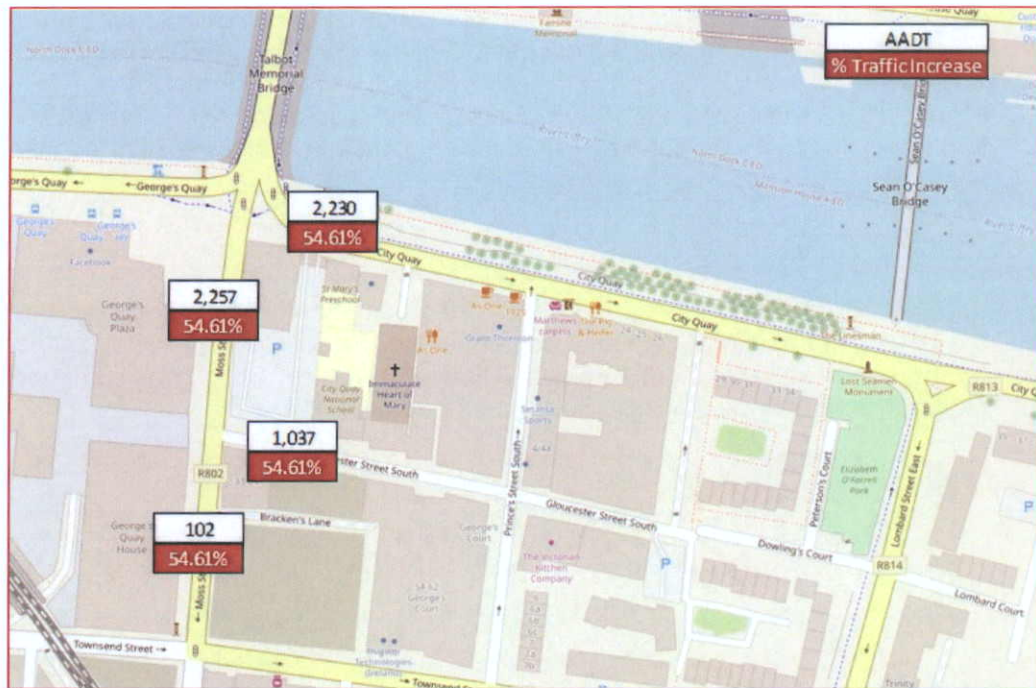


Figure 13.13: Forecast Development Pedestrian Traffic as a % of Existing Pedestrian Traffic

Bicycle Traffic

13.90 The forecast volumes of bicycle traffic associated with the proposed development exceeds the threshold of 5% of existing/background traffic, and this assessment include the impact of development traffic on: -

- | | |
|---------------------------|----------------------------|
| a) Talbot Memorial Bridge | d) Shaw Street |
| b) City Quay | e) George's Quay |
| c) Moss Street | f) Gloucester Street South |

13.91 In addition the assessment of the impact of bicycle traffic was undertaken for: -

- Talbot Memorial Bridge Junction
- Moss Street/Gloucester Street South Junction
- Moss Street/Townsend Street Junction



Figure 13.14: Forecast Development Bicycle Traffic as a % of Existing Bicycle Traffic

13.5.6.3 Public Transport

- 13.92 It is proposed that the Traffic & Transport Assessment should consider the likely impact of the additional public transport provision associated with the development on the existing public transport facilities (bus, DART, Luas).
- 13.93 As noted in **Table 13.9**, it is forecast that 31% of trips associated with the proposed development will be undertaken by public transport, with 22% (1,187 trips) being undertaken by bus and 9% (486 trips) being undertaken by DART or Luas.

13.5.7 Traffic Impacts

13.5.7.1 Assessment Years

- 13.94 The "Traffic and Transport Assessment Guidelines" published by Transport Infrastructure Ireland recommend the assessment of traffic in the Opening Year, for the Opening Year +5 years and the Opening Year +15 years.
- 13.95 This development will be constructed over a 32-36 month period, commencing in 2023, the last year of construction has been included to assess the impact of construction traffic on the surrounding road network. The assessment years for this assessment are therefore 2024 for the last year of construction, 2025 for the Opening Year, and 2030 and 2040 for the Future Assessment Years.

13.5.7.2 Traffic Growth

- 13.96 The "Project Appraisal Guidelines - Unit 5.3" published by the Transport Infrastructure Ireland has been used to determine future year traffic flows on the network from the 2022 traffic count data.
- 13.97 Table 13.18 contains a summary of the traffic growth factors published in the "Project Appraisal Guidelines". For this assessment, a central growth scenario has been adopted.

Table 13.18: Future Year Traffic Growth Figures (Co. Dublin - Metropolitan Area)

Year	Low Growth		Central Growth		High Growth	
	LV	HV	LV	HV	LV	HV
2016-2030	1.0146	1.0280	1.0162	1.0295	1.0191	1.0328
2030-2040	1.0034	1.0116	1.0051	1.0136	1.0087	1.0172

13.5.7.3 Demolition/Construction Phase Traffic Impacts Assessment

Junction Capacity Analysis

- 13.98 LinSig traffic modelling software has been used for predicting capacities, queues, and delays at the junction. The models analyse the junctions in relation to their geometry and traffic flows and calculate the Practical Reserve Capacity (PRC).
- 13.99 PRC is the amount by which traffic demand can grow before Practical Capacity is reached. A PRC close to 0% suggests that the junction is operating at capacity, while a negative PRC indicates the junction is operating above its practical capacity.
- 13.100 The capacity analysis has been carried out for AM and PM peak hours for the last year of construction (2024) for two different scenarios corresponding to two possible routes depending on the location of the construction access (Moss Street and City Quay). Moss Street assumes that the temporary reduction to a single traffic lane will be required, which is included in the modelling/analysis.
- 13.101 It was determined that both construction traffic routes will continue to operate within capacity. However, the selection route will be agreed with Dublin City County Council as part of the construction management plan. Adherence to the plan will ensure that the proposed development takes into account national and EU legislation and guidelines, and industry best practices, to ensure the health, safety and well-being of

employees, sub-contractors, suppliers, residents, stakeholders and local road users. Once these measures are implemented and managed in accordance with the plan it is considered that construction effects will be imperceptible and short-term in duration.

13.102 Table 13.19 to Table 13.29 contain a summary of the junction capacity analysis outputs for the analysed junctions, for the assessment years.

Table 13.19: Summary of Junction Capacity Analysis Results (Construction Year- Moss Street Route, am)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	63.8	5.6	41.1
Moss Street/Gloucester Street South	11.7	0.1	-
Moss Street/Townsend Street	55.5	3.0	62.0
Prince's Street	2.8	0.0	-
City Quay	32.9	0.3	-
With Development			
Talbot Memorial Bridge	63.8	6.3	41.1
Moss Street/Gloucester Street South	11.7	0.1	-
Moss Street/Townsend Street	55.5	3.1	62.0
Prince's Street	3.9	0.0	-
City Quay	32.9	0.3	-

Table 13.20: Summary of Junction Capacity Analysis Results (Construction Year- Moss Street Route, pm)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	39.2	3.6	129.9
Moss Street/Gloucester Street South	5.6	0.0	-
Moss Street/Townsend Street	28.9	1.6	211.5
Prince's Street	1.2	0.0	-
City Quay	20.2	0.1	-
With Development			
Talbot Memorial Bridge	39.6	3.6	127.4
Moss Street/Gloucester Street South	9.8	0.1	-
Moss Street/Townsend Street	48.8	2.8	84.2
Prince's Street	5.6	0.0	-
City Quay	20.4	0.2	-

Table 13.21: Summary of Junction Capacity Analysis Results (Construction Year- City Quay Route, am)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	63.8	5.6	41.1
Moss Street/Gloucester Street South	11.7	0.1	-
Moss Street/Townsend Street	55.5	3.0	62.0
Prince's Street	2.8	0.0	-
City Quay	32.9	0.3	-
With Development			
Talbot Memorial Bridge	71.9	6.5	25.2
Moss Street/Gloucester Street South	11.7	0.1	-
Moss Street/Townsend Street	55.5	3.1	62.0
Prince's Street	3.9	0.0	-
City Quay	37.1	0.4	-

Table 13.22: Summary of Junction Capacity Analysis Results (Construction Year- City Quay Route, pm)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	39.2	3.6	129.9
Moss Street/Gloucester Street South	5.6	0.0	-
Moss Street/Townsend Street	28.9	1.6	211.5
Prince's Street	1.2	0.0	-
City Quay	20.2	0.1	-
With Development			
Talbot Memorial Bridge	39.6	3.6	127.4
Moss Street/Gloucester Street South	5.7	0.0	-
Moss Street/Townsend Street	29.2	2.0	208.7
Prince's Street	5.6	0.0	-
City Quay	20.4	0.2	-

13.5.7.4 Operational Phase Traffic Impacts Assessment

Link Capacity Assessment

13.103 The link capacity of local roads within the vicinity of the development have been assessed using the “Transport for London Roads Task Force – Technical Note 10”.

13.104 The technical note assesses road capacity as the maximum sustainable flow of traffic passing in one hour at one way or two-way roads (assumes a 60/40 directional split), under favourable road and traffic conditions.

13.105 The following roads have been assessed:

- Matt Talbott Bridge
- City Quay
- George’s Quay
- Moss Street
- Townsend Street
- Shaw Street
- Gloucester Street
- Prince Street South

Table 13.23: Summary of Link Capacity Results

Road	Paved Width	Road Type Classification	Peak hour one- direction traffic flow capacity	Forecast peak hour one- direction traffic flow (2040)
Matt Talbott Bridge	10.5m	UAP2- 10m	3,250	2,679
City Quay	6.3m	UAP2- 6.1m	1,800	1,312
George’s Quay	9.0m	UAP2- 6.1m	1,800	527
Moss Street	5m	UAP4-6.1m	750	545
Townsend Street	6m	UAP4-6.1	750	668
Shaw Street	6m	UAP4-6.1m	750	80
Gloucester Street	4m	UAP4- 6.1m	750	39

13.106 In summary, it is concluded that all local roads will have sufficient link capacity for each of the future assessment years with, and without, the proposed development and other known developments.

Junction Capacity Analysis

- 13.107 LinSig traffic modelling software has been used for predicting capacities, queues, and delays at the junction. The models analyse the junctions in relation to their geometry and traffic flows and calculate the Practical Reserve Capacity (PRC).
- 13.108 PRC is the amount by which traffic demand can grow before Practical Capacity is reached. A PRC close to 0% suggests that the junction is operating at capacity, while a negative PRC indicates the junction is operating above its practical capacity. The capacity analysis has been carried out for AM and PM peak hours for each of the assessment years (2025, 2030, and 2040), and for both 'with' and 'without' development scenarios.

Table 13.24: Summary of Junction Capacity Analysis Results (Opening Year, am)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	64.9	5.8	38.7
Moss Street/Gloucester Street South	11.9	0.1	-
Moss Street/Townsend Street	56.5	3.1	59.4
Prince's Street	2.9	0.0	-
City Quay	33.5	0.3	-
With Development			
Talbot Memorial Bridge	64.9	5.8	38.6
Moss Street/Gloucester Street South	12.6	0.1	-
Moss Street/Townsend Street	56.6	3.2	59.0
Prince's Street	4.0	0.0	-
City Quay	33.5	0.3	-

Table 13.25: Summary of Junction Capacity Analysis Results (Opening Year, pm)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	39.8	3.6	126.1
Moss Street/Gloucester Street South	5.7	0.0	-
Moss Street/Townsend Street	29.3	1.7	207.3
Prince's Street	1.2	0.0	-
City Quay	20.5	0.1	-
With Development			
Talbot Memorial Bridge	40.2	4.0	123.7
Moss Street/Gloucester Street South	5.8	0.0	-
Moss Street/Townsend Street	31.1	2.1	189.2
Prince's Street	5.6	0.0	-
City Quay	20.7	0.2	-

Table 13.26: Summary of Junction Capacity Analysis Results (+5, am)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	69.8	6.5	28.8
Moss Street/Gloucester Street South	12.9	0.1	-
Moss Street/Townsend Street	61.2	3.6	47.1
Prince's Street	3.1	0.0	-
City Quay	36.0	0.3	-
With Development			
Talbot Memorial Bridge	69.9	6.6	28.7
Moss Street/Gloucester Street South	13.6	0.1	-
Moss Street/Townsend Street	61.3	3.6	46.8
Prince's Street	4.2	0.0	-
City Quay	36.1	0.3	-

Table 13.27: Summary of Junction Capacity Analysis Results (+5, pm)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	42.8	4.0	110.2
Moss Street/Gloucester Street South	6.1	0.0	-
Moss Street/Townsend Street	31.5	1.8	185.6
Prince's Street	1.4	0.0	-
City Quay	22.1	0.2	-
With Development			
Talbot Memorial Bridge	43.2	4.3	108.1
Moss Street/Gloucester Street South	6.2	0.0	-
Moss Street/Townsend Street	33.4	2.2	169.8
Prince's Street	5.8	0.0	-
City Quay	22.3	0.3	-

Table 13.28: Summary of Junction Capacity Analysis Results (+15, am)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	73.9	7.3	21.8
Moss Street/Gloucester Street South	13.8	0.1	-
Moss Street/Townsend Street	65.5	4.0	37.4
Prince's Street	3.3	0.0	-
City Quay	38.1	0.3	-
With Development			
Talbot Memorial Bridge	73.9	7.3	21.7
Moss Street/Gloucester Street South	14.5	0.1	-
Moss Street/Townsend Street	65.7	4.1	37.1
Prince's Street	4.4	0.0	-
City Quay	38.1	0.4	-

Table 13.29: Summary of Junction Capacity Analysis Results (+15, pm)

Junction	Degree of Saturation (%)	Total Delay (pcu/Hr)	PRC (%)
	Without Development		
Talbot Memorial Bridge	45.3	4.2	98.7
Moss Street/Gloucester Street South	6.4	0.0	-
Moss Street/Townsend Street	33.2	2.0	170.9
Prince's Street	1.4	0.0	-
City Quay	23.4	0.2	-
With Development			
Talbot Memorial Bridge	45.7	4.6	96.8
Moss Street/Gloucester Street South	6.5	0.0	-
Moss Street/Townsend Street	35.1	2.4	156.7
Prince's Street	5.8	0.0	-
City Quay	23.6	0.3	-

Cycling Level of Service (BLOS)

- 13.109 The Cycling Level of Service (BLOS) was calculated on City Quay, Matt Talbot Memorial Bridge, and George's Quay where a cycle track or an advisory cycle lane is provided within the vicinity of the proposed development with reference to the Transportation Research Record 1502 'Method to Determine Level of Service for Bicycle Paths and Pedestrian-Bicycle Paths' which assesses the bicycle level of service (BLOS) by assigning a grade A through F to a portion of the roadway. This grade corresponds to the perceived Level of Service that the roadway provides to bicycles. It was determined that all bicycle facilities will continue to operate within capacity. The development will therefore have an imperceptible impact on cycle movement at, or near, the proposed development.

Table 13.30: Bicycle Level of Service (am)

Cycle Lane/ Cycletrack	Peak Hour (Background Traffic)	BLOS	Peak Hour (Background+ Development Traffic)	BLOS
Matt Talbott Bridge	222	B	428	C
City Quay	146	B	492	C
George's Quay	96	A	236	B

Table 13.31: Bicycle Level of Service (pm)

Cycle Lane/ Cycletrack	Peak Hour (Background Traffic)	BLOS	Peak Hour (Background+ Development Traffic)	BLOS
Matt Talbott Bridge	244	B	450	C
City Quay	241	B	587	D
George's Quay	234	B	374	C

Pedestrian Level of Service (PLOS)

13.110 The pedestrian Level of Service (PLOS) was calculated on the pedestrian crossings across City Quay, Moss Street and Gloucester Street, within the vicinity of the proposed development, with reference to the 2010 Highway Capacity Manual, which assesses the pedestrian level of service (PLOS) by assigning a grade A through F to a portion of the roadway. This grade corresponds to the perceived Level of Service that roadway provides to pedestrians. It was determined that all pedestrian crossings will continue to operate within capacity. The development will therefore have an imperceptible impact on pedestrian movement at, or near, the proposed development.

Table 13.32: Pedestrian Level of Service (am)

Pedestrian Crossing	Peak Hour (Background Traffic)	PLOS	Peak Hour (Background+ Development Traffic)	PLOS
City Quay	208	A	1,070	A
Moss Street	228	A	1,082	A
Gloucester Street	87	A	484	A

Table 13.33: Pedestrian Level of Service (pm)

Pedestrian Crossing	Peak Hour (Background Traffic)	PLOS	Peak Hour (Background+ Development Traffic)	PLOS
City Quay	573	A	1,436	A
Moss Street	576	A	1,430	A
Gloucester Street	137	A	534	A

Public Transport

- 13.111 The site’s city centre location affords extensive opportunities for travel by public transport. In the immediate vicinity of the proposed development site are bus, Luas, and DART stations.
- 13.112 As the demand for public transport travel grows, the public transport capacity would evolve to meet the changing demand by the provision of additional public transport capacity, infrastructure and services.

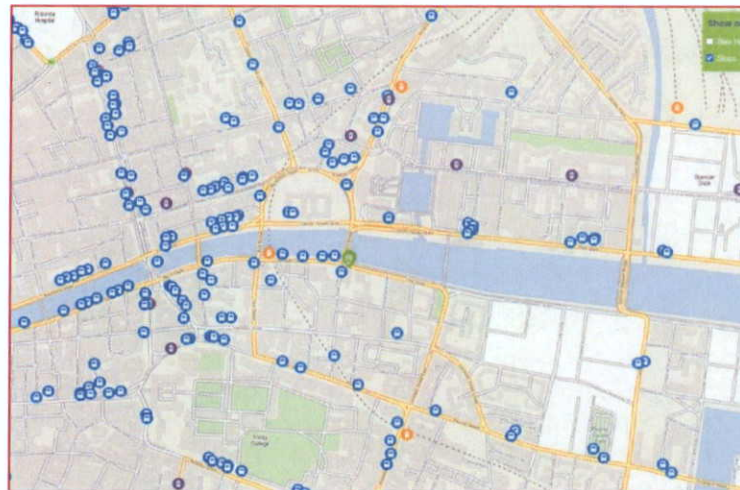


Figure 13.15: Public Transport Stops

- 13.113 The proposed development location is well served by public transport, with the George’s Dock Luas Stop, on the Luas Red Line, located approximately 500m northeast from the proposed development access making it an attractive mode of transport to/from the proposed development. The Luas Red Line extends from Tallaght in the west of the city, to the Point in the east.
- 13.114 The Trinity Luas Stop on the Luas Green Line, is located approximately 500m southwest from the proposed development, and extends from Broombridge in the north of the city, to the Bride’s Glen in the south.

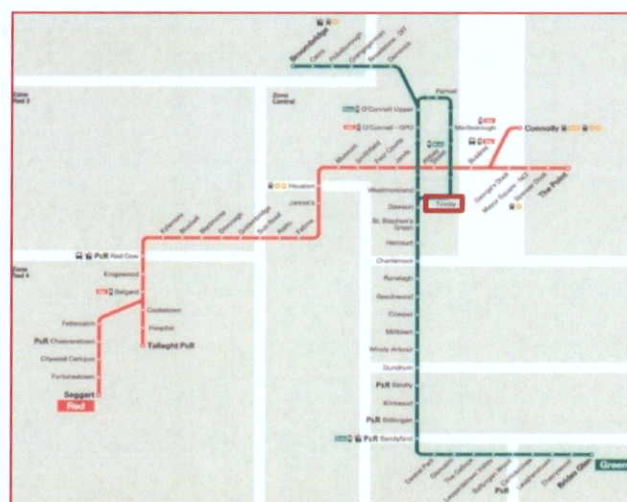


Figure 13.16: Luas Red & Green Line

- 13.115 The development is located approximately 180m from Tara Street to the east, 400m southeast from Pearse railway station and 350m from Connolly station offering connections with the commuter routes (DART) and national network (Irish rail).
- 13.116 The DART service runs a high frequency service between Dublin City to Bray/Greystones and Howth to Malahide. The Connolly station includes rail services to Sligo, Belfast, Rosslare, Drogheda, Dundalk, Maynooth and Longford.
- 13.117 Bus stops are also located in close proximity to the proposed development, to the west at Moss Street, and to the southeast at Townsend Street, connecting the development through multiple bus routes with the city extents. Pedestrian access to the bus stops is well served by footways on both sides of Moss Street, and Townsend Street.
- 13.118 Pedestrian crossings are provided, which supports crossing movements for pedestrians wishing to access the existing bus stops.

Table 13.34: Bus Routes near the Proposed Development

Bus Stop (Name)	Bus Stop (Number)	Proximity to the development	Bus Route	Destinations
Dublin City South, Lower Sandwith Street	350	230m	15A	Greenhills College to Merrion Square South
			15B	Dalriada Estate (Knocklyon) to Merrion Square South
			15C	Ballycullen Road to Clongriffin Station
			44	Enniskery Village to the Helix (Santry)
			47	Belarmine Plaza to Poolberg Street
			52	Intel Campus (Leixlip) to Ringsend Road
			56A	Tallaght to Ringsend Road
			61	Rockbrook to Eden Quay
			77A	Bianconi Avenue (Citywest) to Ringsend Road
			C1	Saint John's Church (Blackrock) to Adamstown Station
			C2	Saint John's Church (Blackrock) to Adamstown
			C3	Ringsend Road to Maynooth
			C4	Ringsend Road to Maynooth
			C5	Ringsend Road to Hayfield (Maynooth)
C6	Ringsend Road to Straffan Road (Maynooth0			
P29	Ringsend Road to Adamstown Train Station			
Moss Street	7733	80m	P29	Ringsend Road to Adamstown Train Station

- 13.119 There are also many private bus companies running express services that travel along the north quays serving commuter towns such as Swords, Balbriggan, Drogheda, Dundalk and Newry. The Bus Eireann terminus at Busaras is also approximately 500m from the site which is served by national bus routes.
- 13.120 Access to the existing Public Transport options noted above will not be impacted by development's constriction or operational phases.

13.5.7.5 Parking

- 13.121 The proposed development will be accessible by vehicles via Gloucester Street South. At this access there will be a loading bay for service/maintenance vehicles and a car lift to allow private vehicles to access basement parking. It is proposed that 16 EV car parking spaces will be provided on the basement -2 level of the development. It is also proposed that 22 Motorcycle, 36 Scooters (EV), 424 bicycle parking stations will be provided in the basement levels of the development. The development is located in Zone 1 of Map J of the Dublin City Development Plan (2016-2022).
- 13.122 The Dublin City Development Plan (2016-2022) requires a maximum of 1 parking space for 400m² land use of Enterprise and Employment/Offices/ General Industry at Zone 1, which shall be generally regarded as the maximum parking provision and parking provision in excess of these maximum standards shall only be permitted in exceptional circumstances. It further suggests that given the high accessibility by public transport to Zone 1 there shall be no minimum requirement for car parking in that zone.
- 13.123 The Draft Dublin City Development Plan (2022 -2028) suggests that parking policies seek to limit car parking at destination while the need to travel generally is minimised by designing mixed-used layouts where people can live close to where they work and have access to a range of community facilities and services in short walking and cycling times or accessed by high quality public transport links i.e. the 15-minute city.
- 13.124 Policies to discourage commuter car parking are further strengthened in the draft Plan, particularly those relating to office developments in the city centre. It states that Dublin City Council will continue to promote accessible parking, car share schemes and electrical vehicle charging parking in all developments through the development management process (page 297). Parking for Car Share and Accessible Parking only should be provided with its quantum to be determined in consultation with Dublin City Council.
- 13.125 The proposed development proposes up to 11 parking spaces within the site. The number of parking spaces available per hour was calculated by subtracting the hourly arrivals from the available spaces and adding the hourly departures. The results of the parking review indicate that the estimated daily arrivals and departures result in a maximum occupancy of 29 parking spaces. **Table 13.35** indicates the daily arrivals and departures per hour and the occupied, and unoccupied, parking spaces at the end of each hour.

Table 13.35: *Parking Requirements including the results of the trip rate analysis for the Proposed Development*

Hour Beginning	Trips In	Trips Out	Spaces Available	Spaces Occupied
06:00	-	-	11	0
07:00	4	1	8	3
08:00	14	2	-4	15
09:00	14	2	-16	27
10:00	6	4	-18	29
11:00	3	3	-18	29
12:00	4	5	-17	28
13:00	5	6	-16	27

Hour Beginning	Trips In	Trips Out	Spaces Available	Spaces Occupied
14:00	4	4	-16	27
15:00	2	4	-14	25
16:00	1	5	-10	21
17:00	1	13	2	9
18:00	1	10	11	0

13.126 The number of commuter car parking spaces proposed would contribute to discouraging commuter car parking and promote a shift from private car use towards more sustainable forms of transport.

13.127 Where parking demand exceeds car parking spaces offered, it should be balanced with public off-site or private parking facilities in the vicinity of the site. Parking facilities offer ample opportunities in the vicinity of the site as shown in Table 13.36.

Table 13.36: *Parking Facilities near the Proposed Development*

Parking Facility	Proximity to the development
IFSC Multi-Storey	11min Northeast
Clarion Quay	13min Northeast
NCI (National College of Ireland)	17min Northeast
Connoly Train Station	16min Northeast
Irish Life	8min Northeast
Setanta	18min Southwest
Fleet Street	17min West
Grand Canal	23min East
Grand Canal Square	24min East
Dawson Street	22min South
Grafton	22min Southwest

13.128 In relation to bicycle parking, the “Standards for Cycle Parking and associated Cycling Facilities for New Developments” outlines the bicycle parking requirements for apartments, flats and sheltered housing developments as follows:

- short stay (visitor) parking spaces should be determined by the planning authority on case by case basis and
- 1 long stay parking space per 1 per 75 sq. m. gross floor area

13.129 Therefore, the proposed development must have a minimum of 302 bicycle parking stands.

13.130 The proposed development proposes up to 424 bicycle parking spaces within the site. The number of bicycle parking spaces available per hour was also calculated by subtracting the hourly arrivals from the available spaces and adding the hourly departures. The results of the parking review indicate that the estimated daily arrivals and departures result in a maximum occupancy of 229 parking spaces. Table 13.35 indicates the daily arrivals and departures per hour and the occupied, and unoccupied, parking spaces at the end of each hour.

Table 13.37: Parking Requirements including the results of the trip rate analysis for the Proposed Development

Hour Beginning	Trips In	Trips Out	Spaces Available	Spaces Occupied
06:00	-	-	424	0
07:00	25	5	404	20
08:00	111	12	305	119
09:00	107	16	214	210
10:00	41	26	199	225
11:00	24	20	195	229
12:00	32	40	203	221
13:00	39	46	210	214
14:00	27	25	208	216
15:00	12	27	223	201
16:00	8	36	251	173
17:00	8	103	346	78
18:00	4	74	416	8

13.131 With 424 bicycle parking stands proposed, sufficient bicycle parking is provided in relation to the standard requirements and the bicycle parking demand.

13.132 The proposed bicycle parking facilities, and the location of the development near good public transport corridors, will promote sustainable modes of transport to reduce car use.

13.6 MITIGATION MEASURES

13.133 Following a traffic assessment of the development's impact on the local road network, during both the Demolition/Construction and Operational phases, it has been determined that the development will have an imperceptible impact on road and public transport users. However, a Construction Management Plan shall be prepared in consultation with Dublin City Council to ensure adequate traffic management is in place

during construction, and key stakeholder engagement is undertaken to communicate site activities and programme expectations.

13.7 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

13.134 The following predicted impacts associated with the proposed development were assessed as part of this Traffic Assessment:

- **Link Capacity** – to determine if the development will lead to congestion on local streets during demolition/construction and operational phases.
- **Junction Capacity** – to determine if the development will lead to congestion at key junctions within the local road network during demolition/construction and operational phases.
- **Pedestrians and Cyclists** – to determine if pedestrians and cyclist mobility will be impacted by the proposed development during demolition/construction and operational phases.
- **Public Transport** – to determine if existing Public Transport infrastructure can accommodate the increase in passenger numbers during demolition/construction and operational phases.
- **Parking** – to determine if the development can accommodate the required parking demands of the development.

13.135 Following assessment, it was determined that the proposed development will have an imperceptible impact on link and junction capacity in each of the assessment years; will have an imperceptible impact on pedestrians, cyclists, and public transport passengers; and can accommodate parking demands as outlined in the Dublin City Development Plan (2016-2022).

13.8 MONITORING

13.136 The Construction Management Plan is a live document, and will be maintained throughout the Demolition/Construction phase. This will include monitoring of site activities, and regular engagement with stakeholders.

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CHAPTER 14

MATERIAL ASSETS



14.0 MATERIAL ASSETS

14.1 INTRODUCTION

14.1 This chapter prepared evaluates the potential impacts, from the proposed development on Material Assets as defined in the EPA Guidelines ‘*Guidelines on the information to be contained in Environmental Impact Assessment Reports*’ (EPA, 2022), *Advice Notes Draft Advice Notes for Preparing Environmental Impact Statements* (EPA, 2015), and *European Commission Guidance on Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report* (2017).

14.2 METHODOLOGY

14.2 The Directive 2011/92/EU defined Material Assets as ‘*resources that are valued and that are intrinsic to specific places; they may be of either human or natural origin*’ this included architectural and archaeological heritage. The Directive 2014/52/EU included architectural and archaeological heritage as components of cultural heritage; this EIA report has also done so within Chapter 12 Archaeological, Architectural and Cultural Heritage.

14.3 The EPA Guidelines (2022) state that material assets are taken to mean “*built services and infrastructure, roads and traffic and waste management*”. The EPA Advice Notes (2015) also gives examples of material assets including assimilative capacity of air and water; ownership and access; and tourism and recreational infrastructure. The European Commission Guidance (2017) refers to several examples of material assets including buildings, other structures, mineral resources and water resources.

14.4 In this EIA Report, the impacts on some of the material assets described in the above guidance have already been considered in the following chapters and therefore these aspects will not be addressed in specific detail within this chapter.

- Chapter 5, Population and Human Health
- Chapter 7, Land, Soils, Geology & Hydrogeology
- Chapter 8, Hydrology
- Chapter 9, Air Quality & Climate
- Chapter 12, Cultural Heritage
- Chapter 13, Traffic & Transportation
- Chapter 15, Waste Management

14.5 This chapter assesses ownership and access, built services and infrastructure, which have not already been addressed elsewhere in this EIA Report. The subsequent sections address built services and infrastructure. The potential impacts on built services and infrastructure, if any, are assessed in under the following subheadings:

- Land Use, Property, and Access
- Power and Electrical Supply
- Surface water infrastructure
- Foul drainage infrastructure
- Water supply
- Telecommunications

- 14.6 The associated built services and infrastructure in the vicinity of the site are summarised in the following sections.

14.3 RECEIVING ENVIRONMENT AND CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

14.3.1 Land Use

- 14.7 The site of the proposed development extends to c. 0.22 hectares. It is a rectangular plot of land, situated on City Quay on the southern side of the banks of the River Liffey, with the western boundary defined by Moss Street and the southern boundary by Gloucester Street South. City Quay National School and a Covid testing centre are located along the eastern boundary. The Church of the Immaculate Heart of Mary and the associated presbytery are situated to the east of the City Quay National School and the Covid testing centre.
- 14.8 The subject lands are characterised as brownfield, 100% hard cover, developed lands. The north-western corner of the site contains the former City Arts building; an abandoned cluster of three storey, over basement derelict buildings which cover c. one-third of the subject lands. The remainder of the lands are hard paved and currently in use as surface car parking which is accessed via an entrance along the eastern perimeter from City Quay.
- 14.9 The proposed development site is zoned as 'Z5 – City Centre' in the Dublin City Council Development Plan 2016-2022 and in the draft DCC Development Plan 2022-2028, for which the zoning objective is to "*consolidate and facilitate the development of the central area, and to identify, reinforce, strength and protect its civic design character an dignity*". The context of the site is described further in Chapter 2 (Description of Development) and Chapter 4 (Planning and Development Context), and the "Planning Report in respect of Office Development at 23-35 Moss St., 2-6 Gloucester St. & 1-6 City Quay, Dublin 2" by John Spain and Associates submitted as part of this planning application.

14.3.2 Power and Electrical Supply

- 14.10 During construction, contractors will require power for onsite accommodation, and construction equipment/plant. A construction compound and temporary power supply will be established in consultation with the utility supplier. The power requirements for the construction phase will be relatively minor.
- 14.11 Once in operation, electricity will be provided to the site via the national grid and the on-site PV panels, tying in with existing infrastructure in neighbouring areas. New electricity and telecommunications services infrastructure will be put in place to serve the proposed building. This will be carried out in accordance with the requirements of the various service providers. There will be no impact to existing ESB, Gas and Telecommunication networks during the construction and operational phases.
- 14.12 The proposed development will not require any gas connections.

14.3.3 Surface Water Infrastructure

- 14.13 Based on preliminary surveys all surface water currently drains unrestricted from the subject lands to the combined foul and surface sewers on City quay, Moss Street and

Gloucester Street South. This public sewerage ultimately discharges to the Irish Sea via Ringsend Wastewater Treatment Plant (WWTP).

- 14.14 The existing surface water networks and their connections to the private surface water network will be decommissioned. It is estimated in the “Engineering Assessment” report prepared by Byrne Looby which is submitted as part of this planning application that the current surface water run-off rate from the subject lands is 22.69l/s/ha.
- 14.15 For the proposed development surface water run-off from the proposed roof areas, including green roof, will discharge by gravity via siphonic drainage within the building to the attenuation tank within the basement. Surface water will then be pumped to the last foul manhole, which it will then travel by gravity to the existing public combined system at Moss Street or Gloucester Street South
- 14.16 Sustainable drainage systems (SuDS) measures will be incorporated into the stormwater drainage network to improve the quality of stormwater leaving the site. SuDS are drainage systems that are environmentally beneficial, causing minimal or no long-term detrimental damage.
- 14.17 These measures will include green roofs for 50% of the roof area, attenuation, a hydrobrake and rainwater harvesting for re-use as irrigation water and grey water. Petrol interceptors will also be provided for any surface water collected from the underground parking area.
- 14.18 The stormwater drainage network has been designed and modelled for the 100-year storm event and will reduce the surface water flow rate existing the site to 2l/s/ha. Further information in relation to surface water drainage and flood risk is provided in Chapter 8 (Hydrology), and the Flood Risk Assessment undertaken by Byrne Looby (2022) and the Engineering Assessment Report undertaken by Byrne Looby (2022) both of which are submitted as part of this planning application.

14.3.4 Foul Drainage Infrastructure

- 14.19 Consultation with Irish Water shows that the existing wastewater network in the streets surrounding the subject lands is a combined wastewater network conveying both storm and foul discharge.
- 14.20 Welfare facilities will be provided for the contractors via portable sanitary facilities within the construction compound site during the demolition/construction works. It is anticipated that initially, waste will be collected by tanker and disposed of appropriately, and that temporary connections to the existing services will be established to provide service and utilities subject to relevant applications and approvals.
- 14.21 All foul effluent generated at the proposed development site during the operational phase shall be collected in a new foul drainage network for the proposed development designed in accordance with Irish Water Code of Practice for Wastewater Infrastructure.
- 14.22 Flow design loading calculations for the proposed development provide a worst case maximum peak flow rate of 10.71 l/s. The proposed development shows water closets and sanitary provision at basement level -01. As basement level -01 will be at a level below the nearest combined sewer invert level, there will be a requirement to pump foul waste from the basement levels to the last manhole prior to discharging to the existing combined network.

- 14.23 A Pre-connection Enquiry (PCE) has been submitted to Irish Water on the basis of the foul water flows for the proposed development site and they replied by a Confirmation of feasibility (COF) letter dated 10 February 2022 (see Appendix D of Engineering Assessment Report) stating “*that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.*” Further reference is made to foul water drainage in Chapter 7 (Hydrology) and the Engineering Assessment Report undertaken by Byrne Looby (2022) submitted as part of this planning application.

14.3.5 Water Supply

- 14.24 The proposed water supply network will be designed and installed to the requirements and specifications set out in the Irish Water Code of Practice for Water. Measures are proposed to minimise water use during the operational phase, including low consumption sanitary fittings, and leak detection systems and reuse of rainwater.
- 14.25 The estimated water demand for the proposed development is 186m³/day. The peak demand will be 10.78l/s in accordance with Irish Water code of Practice Water infrastructure
- 14.26 A pre-connection enquiry was submitted to Irish Water and they replied by a COF letter dated 10 February 2022 (see Appendix D of Engineering Assessment Report) stating “*that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.*”

14.3.6 Telecommunications

- 14.27 There are telecommunication lines in existence for telephone and broadband services in the area. A fibre optic cable distribution network will be installed with an incoming fibre infrastructure provided to the building via underground fibre ducts. There are existing underground carrier ducts adjacent to the site that will be utilised for the development.

14.4 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

14.4.1 Land Use, Property, and Access

- 14.28 During the construction phase there are potential short-term nuisances such as dust, noise, as well as the potential for pollution of groundwater or surface water associated with demolition, excavations and construction. In advance of work starting on site, the works contractor will finalise a detailed Construction Environmental Management Plan (CEMP) to manage potential nuisance impacts on nearby residential receptors. The potential impact associated with land use and property for the construction phase will be **localised, negative, not significant** and **short term**.
- 14.29 During the operational phase the proposed development is not anticipated to generate significant air, noise or water emissions during normal operating conditions; these have been discussed further in the respective EIAR chapters, Chapter 8 (Hydrology), Chapter 9 (Air Quality & Climate) and Chapter 10 (Noise and Vibration).
- 14.30 The proposed development represents a loss of light-industrial land however in the overall context of Ireland’s available industrial land the loss is negligible. Due to the zoning of these lands, the overall potential impact associated with land use and property for the operational phase will be a localised **neutral, slight**, and **long term**.

14.4.2 Power and Electrical Supply

- 14.31 Any excavations within the vicinity of existing electrical services will be carried out in consultation with ESB Networks to ensure there is no impact on existing users. The electrical connection should have no disruptions to the national grid during connection works. The potential impact associated with power and electrical supply for the construction phase will be a **neutral, imperceptible** and **short term**.
- 14.32 All utilities work shall be carried out in accordance with the relevant requirements of the respective service providers. These works will be carried out in a manner that is safe, and which minimises interruptions of service which might affect local residents and businesses, and adjacent development.
- 14.33 During the operational phase, maintenance of utilities infrastructure on the Site will be carried out in accordance with the relevant requirements of the various utilities providers / authorities. As such, no significant impacts on services or utilities themselves are predicted to occur as a result of the operational phase.
- 14.34 As detailed in Chapter 2 (Description of the Proposed Development) sustainable energy measures have been considered and incorporated into the design of the proposed development. There is a potential impact on material assets during the operational phase of the proposed development which is **neutral, imperceptible** and **long term**.

14.4.3 Surface Water Infrastructure

- 14.35 During the construction phase, there is potential for an increase in run-off due to the removal of existing impermeable surfaces and the excavation of soils. The potential impact of this is a possible increase in the sediment loading from surface water run off which could potentially impact local drainage. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.
- 14.36 With appropriate and standard mitigation in place, as outlined in the CMP, the potential impact on surface water for the construction phase is **neutral, imperceptible**, and **short term**.
- 14.37 The proposed new storm water drainage arrangements will be designed and carried out in accordance with:
- The Greater Dublin Strategic Drainage Study Volume 2
 - The Greater Dublin Regional Code of Practice for Drainage Works
 - BS EN – 752:2008, Drains & Sewer Systems Outside Buildings
 - The requirements and specifications of Dublin County Council (FCC)
 - Part H (Building Drainage) of the Building Regulations
- 14.38 SuDS measures will be incorporated into the stormwater drainage network to improve the quality of stormwater leaving the Site. These will include green roofs, attenuation, a hydrobrake and rainwater collection. Petrol interceptors will also be provided in car parking areas.
- 14.39 The new network will result in a significant reduction in surface water entering the public combined sewerage network. The potential impact associated with surface water for the operational phase is **positive, moderate, and long term**.

14.4.4 Foul Drainage Infrastructure

14.40 Welfare facilities will be provided for the construction workers on site during the construction works and wastewater will be of domestic origin only. The works contractor will be required to apply to Irish Water for connection to discharge any contaminated surface water which collects in excavations, if it is required. The works contractor will be obliged to comply with any conditions of the discharge license to control discharge quality and rate of flow. The potential impact on foul drainage for the construction phase is **negative, imperceptible, and short term**.

14.41 During the operational phase the wastewater discharged from the site will ultimately discharge to the Ringsend wastewater treatment plant. Irish water have confirmed via a COF (Appendix D of the Engineering Assessment Report) that there is available capacity in the network. The potential impact on foul drainage for the operational phase is **neutral, imperceptible, and long term**.

14.4.5 Water Supply

14.42 Irish Water have confirmed via a COF that there is available supply within the network (Appendix D of the Engineering Assessment Report). Irish Water is the National Authority for water management and should therefore have an adequate supply which has been confirmed to the developer during consultation. The proposed development has considered the sustainable use of water within its design. Measures are proposed to minimise water use during the operational phase, including low consumption sanitary fittings, leak detection systems and rainwater harvesting. The potential impact on potable water infrastructure for the operational phase is **neutral, imperceptible, and long term**.

14.4.6 Telecommunications

14.43 The locations of existing services will be confirmed prior to the commencement of on-site works. The potential impact on telecommunications infrastructure for the construction phase is **neutral, imperceptible, and short term**.

14.44 New electricity supply, telecommunications and broadband infrastructure will be put in place at the site, tying in with existing infrastructure in neighbouring areas. The installation of a new fibre optic cable network on the site will be carried out in accordance with best practice standards. The connection into the wider telecommunications network will be undertaken by a statutory telecommunications operator. The potential impact on telecommunications infrastructure for the operational phase is **neutral, imperceptible, and long term**.

14.5 REMEDIAL AND MITIGATION MEASURES

14.5.1 Construction Phase

14.45 No significant impacts are predicted to occur as a result of the construction or operation of the proposed development. However, in order to minimise impacts insofar as practicable, the following mitigation measures shall be implemented during the construction phase:

- The exact locations of all existing on-site services (underground and overhead, where applicable) will be confirmed, e.g., using slit trenches at key areas, prior to the commencement of on-site works.

- In planning and executing the proposed works, due reference shall be had to the Gas Networks Ireland (GNI) Guidelines for Designers and Builders – Industrial and Commercial (Non-Domestic) Sites (2018) and the Health & Safety Authority (HSA) Code of Practice for Avoiding Danger from Underground Services (2016).
- All possible precautions shall be taken to avoid unplanned disruptions to any services / utilities during the proposed works.
- Consultation with all relevant service providers shall be undertaken in advance of works, ensuring all works are carried out to the relevant standards and in a safe manner.
- There will be an interface established between the Contractor and the relevant utilities service providers / authorities during the construction phase of the proposed development. This interface will be managed to ensure a smooth construction schedule with no / minimal disruption to the local residential and business community.
- All new infrastructure will be installed in accordance with the applicable standards, guidelines and codes of practice.
- All mitigation measures in relation to Site access / egress and construction traffic management set out in Chapter 13 of this EIAR (Traffic & Transportation) and in the finalised Construction Traffic Management Plan to be finalised by the contractor in agreement with DCC, as stipulated in the outline Construction Management Plan (submitted under separate cover as part of the planning application) shall be fully implemented by the site contractors.
- Prior to the operational phase of the proposed development, utilities infrastructure connections will be tested by a suitably qualified person using an appropriate methodology, approved by the relevant service provide, and under the supervision of DCC. The proposed development water supply will be tested to the satisfaction of DCC and Irish Water prior to the connection to the public potable water.
- The successful contractor will ensure that the drainage and water supply networks are kept clear and free from materials which could cause diminished capacity or blockages. Routine visual inspections shall be carried out to this end.

14.5.2 Operational Phase

14.46 No significant impacts are predicted to occur as a result of the construction or operation of the proposed development. However, in order to minimise impacts insofar as practicable, any necessary maintenance or upgrades of on-site utilities infrastructure during the operational phase of the proposed development, will be carried out in accordance with the specifications of the relevant service providers and facilitated by the estate manager.

14.6 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

14.6.1 Construction Phase

14.47 The works contractor will be obliged to put best practice measures in place and work in accordance with the CEMP. The implementation of mitigation measures within each chapter and detailed in Section 14.5.1 will ensure that the predicted impacts on the material assets during the construction phase will be **neutral, imperceptible** and **short-term**.

14.6.2 Operational Phase

14.48 The implementation of mitigation measures within each chapter and detailed in Section 14.5.2 will ensure that the predicted impacts on the material assets during the operational phase will be **neutral, imperceptible** and **long-term**.

14.7 DO NOTHING SCENARIO

14.49 For the do nothing scenario the subject lands will remain as they are until such time as the site is developed with a similar development to that which is proposed by the proposed development.

14.8 MONITORING AND/OR REINSTATEMENT

14.50 No additional monitoring or reinstatement is required.

14.9 DIFFICULTIES ENCOUNTERED

14.51 No notable difficulties were encountered in the preparation of this chapter



CHAPTER 15
WASTE MANAGEMENT



15.0 WASTE MANAGEMENT

15.1 INTRODUCTION

- 15.1 This chapter of the EIAR comprises an assessment of the likely impact of the proposed development on the waste generated from the development as well as identifying proposed mitigation measures to minimize any associated impacts.
- 15.2 A site-specific Resource and Waste Management Plan (RWMP) has been prepared by Bakkala Consulting Engineers to deal with waste generation during the excavation and construction phases of the proposed development and has been included in Appendix 15.1. The RWMP was prepared in accordance with the 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' document produced by the Environmental Protection Agency (EPA) in November 2021.
- 15.3 A separate Operational Waste Management Plan (OWMP) has been prepared by AWN Consulting Limited for the operational phase of the proposed development and is included in Appendix 15.2 of this chapter.
- 15.4 The Chapter has been prepared in accordance with European Commission's Guidelines, 'Guidance on the preparation of the Environmental Impact Assessment Report (2017)', the EPA 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022)' and the EU Commission Notice on changes and extensions to projects, 2021.
- 15.5 These documents will ensure the management of wastes arising at the development site is in accordance with legislative requirements and best practice standards.

15.1.1 Legislation and Guidance

- 15.6 Waste management in Ireland is subject to EU, national and regional waste legislation, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the 'Waste Framework Directive (2008/98/EC)' which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the 'Waste Management Act 1996 (as amended)'. European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for re-use > recycling > recovery > disposal) (Figure 15.1).



Figure 15.1 Waste Hierarchy (Source: European Commission)

15.7 EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 15.2).

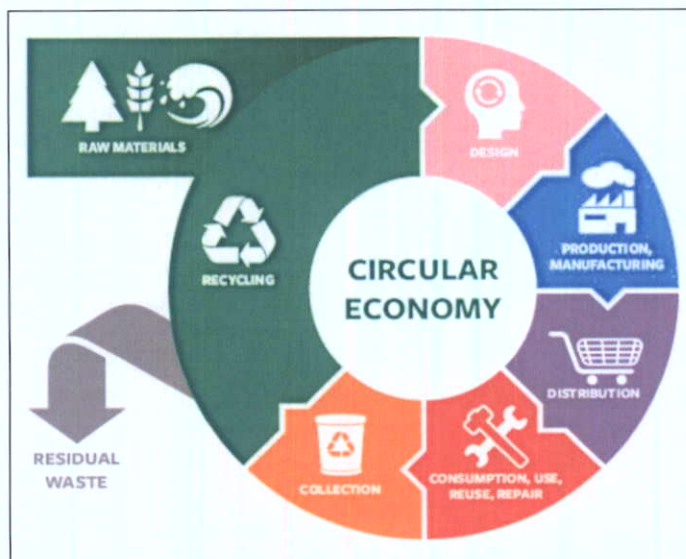


Figure 15.2 Circular Economy (Source: Repak)

15.8 The Irish Government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, 'Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland' (WAPCE), was published in 2020 and shifts focus away from waste disposal and moves it back up the production chain. The move away from targeting national targets is due to Irish and international waste context changing in the years since the launch of the previous waste management plan, 'A Resource Opportunity', in 2012.

15.9 One of the first actions to be taken from the WAPCE was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021)

to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021.

15.10 The strategy for the management of waste from the construction phase is in line with the requirements of the 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects' document, produced by the EPA in November 2021. The guidance document 'Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers (FÁS & Construction Industry Federation 2002) was also consulted in the preparation of this assessment.

15.11 There are currently no Irish guidelines on the assessment of operational waste generation and guidance is taken from industry guidelines, plans, and reports including the 'EMR Waste Management Plan 2015-2021', 'BS 5906:2005 Waste Management in Building – Code of Practice', the Dublin City Council Segregation, Storage and Presentation of Household and Commercial Waste) Bye-laws (2019), the EPA National Waste Database Reports 1998-2019 and the EPA National Waste Statistics Web Resource.

15.1.2 Terminology

15.12 Note that the terminology used herein is consistent with the definitions set out in Article 3 of the Waste Framework Directive. Key terms are defined as follows:

Waste - Any substance or object which the holder discards or intends or is required to discard.

Prevention - Measures taken before a substance, material or product has become waste, that reduce:

- a) the quantity of waste, including through the re-use of products or the extension of the life span of products;
- b) the adverse impacts of the generated waste on the environment and human health; or
- c) the content of harmful substances in materials and products.

Reuse - Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Preparing for Reuse - Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

Treatment - Recovery or disposal operations, including preparation prior to recovery or disposal.

Recovery - Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of the Waste Framework Directive sets out a non-exhaustive list of recovery operations.

Recycling - Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Disposal - Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I sets out a non-exhaustive list of disposal operations.

15.2 METHODOLOGY

15.13 The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management, including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

15.14 This chapter is based on the proposed project, as described in Chapter 2 (Description of the Proposed Development) and considers the following aspects:

- Legislative context;
- Construction Phase (including demolition excavation and site preparation); and
- Operational Phase

15.15 A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the construction and operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

15.16 Estimates of waste generation during the construction and operational phases of the proposed development have been calculated and are included in section 15.3. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research as well as other available research sources.

15.17 Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation, and to reduce the quantity of waste requiring disposal. This information is presented in Section 15.5.

15.18 A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Chapter 8 (Land, Soils, Geology & Hydrogeology). Chapter 8 also discusses the environmental quality of any soils which will have to be excavated to facilitate construction of the proposed development.

15.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

15.19 The proposed development will consist of a new mixed-use scheme to include office units and an arts centre. A full project description can be found in Chapter 2 (Description of the Proposed Development).

15.3.1 Demolition and Site Remediation Phase

15.20 There will be a quantity of waste materials generated from the demolition of existing structures on site, including foundations, demolition of boundary walls, including foundations and entrance archway, the removal of slab and foundations of previously demolished structures that are present on site, as well as from the excavation of the building foundations (subject to testing under archaeological license).

15.21 Further detail on the waste materials likely to be generated during the demolition works are presented in the project-specific RWMP in Appendix 15.1. The RWMP provides an estimate of the main waste types likely to be generated during the C&D phase of the proposed development. The reuse, recycling/recovery and disposal rates have been estimated using the EPA National Waste Reports and these are summarised in Table 15.1.

Table 15.1 Estimated off-site reuse, recovery and disposal rates for demolition waste (Source: RWMP, Bakkala Consulting Engineers)

Waste Type	Tonnes	Reuse / Recycle		Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1277.1	10	127.7	80	1021.7	10	127.7
Timber	1083.6	40	433.4	55	596.0	5	54.2
Plasterboard	387.0	30	116.1	60	232.2	10	38.7
Metals	309.6	5	15.5	90	278.6	5	15.5
Concrete	232.2	30	69.7	65	150.9	5	11.6
Other	580.5	20	116.1	60	348.3	20	116.1
Asbestos	3.1	0	0.0	0	0.0	100	3.1
Total	3873.1		878.4		2627.7		366.9

15.3.2 Construction Phase

15.22 During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste arising from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

15.23 In addition, topsoil, sub soil and made ground will require excavation to facilitate the proposed basement, site levelling, construction of foundations, along with the installation of underground services. The project engineers, Bakkala Consulting Engineers, have estimated that 25,0000 m³ of material will require excavation. Any suitable excavated material will be temporarily stockpiled for reuse as fill (although this is considered minimal due to the extents of the proposed development across the site footprint), where possible, with remaining soil to be removed off-site for appropriate

reuse, recovery and / or disposal. These estimates will be refined prior to commencement of construction. If the material that requires removal from site is deemed to be a waste, removal and reuse/recycling/recovery/disposal of the material will be carried out in accordance with the 'Waste Management Act 1996' (as amended), the 'Waste Management (Collection Permit) Regulations 2007' as amended, and the 'Waste Management (Facility Permit & Registration) Regulations 2007' as amended. The volume of waste requiring recovery/disposal will dictate whether a Certificate of Registration (COR), permit or license is required for the receiving facility. Alternatively, the material may be classed as by-product under 'Article 27 classification (European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011)'.

- 15.24 In order to establish the appropriate reuse, recovery and/or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication 'Waste Classification – List of Waste and Determining If Waste is Hazardous or Non-Hazardous'. Environmental soil analysis will be carried out prior to removal of the material on a number of the soil samples in accordance with the requirements for the acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria). This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste including potential pollutant concentrations and leachability. It is likely that the surplus of material will be suitable for acceptance at either inert or non-hazardous soil recovery facilities/landfills in Ireland or, in the unlikely event of hazardous material being encountered, be transported for treatment/recovery or exported abroad for disposal in suitable facilities.
- 15.25 Waste will also be generated from construction phase workers e.g. organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins, Tetra Pak cartons), mixed non-recyclables, and potentially sewage sludge from temporary welfare facilities provided on-site during the construction phases. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.
- 15.26 Further details on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP. The RWMP provides an estimate of the main waste types likely to be generated during the construction phase of the proposed project and these are summarized in Table 15.2.

Table 15.2 *Estimated off-site reuse, recovery and disposal rates for construction waste (Source: RWMP, Bakkala Consulting Engineers)*

Waste Type	Tonnes	Reuse / Recycle		Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	888.8	10	88.9	80	711.0	10	88.9
Timber	754.1	40	301.6	55	414.8	5	37.7
Plasterboard	269.3	30	80.8	60	161.6	10	26.9
Metals	215.5	5	10.8	90	193.9	5	10.8
Concrete	161.6	30	48.5	65	105.0	5	8.1
Other	404.0	20	80.8	60	242.4	20	80.8
Total	2693.3		611.4		1828.7		253.2

15.3.3 Operational Phase

- 15.27 As noted in Section 15.1, and OWMP has been prepared for the proposed project and is included in Appendix 15.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the development during the operation phase, including dry mixed recyclables, organic waste and mixed non-recyclable waste as well as providing a strategy for the management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture.
- 15.28 The total estimated waste generation for the proposed project for the main waste types based on the AWN Waste Generation Model (WGM) is presented in Tables 15.3, below, and is based on the uses and areas as advised by the project architects (Mahony Architecture).

Table 15.3 *Estimated waste generation for the development for the main waste types (Source: OWMP, AWN)*

Waste Type	Waste Volume (m ³ /week)	
	Office	Arts Centre
Organic Waste	1.24	0.02
Paper (Confidential)	11.14	-
Paper & Cardboard	18.89	0.41
Plastics	16.13	0.22
Glass	0.45	0.01
Dry Mixed Recyclables	9.09	0.27
Mixed Non-Recyclables	11.85	0.16
Total	68.79	1.09

- 15.29 The office and arts centre tenants will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. The location of bins within the units will be at the discretion of the tenants. As required, the tenants will need to bring these segregated wastes from their units to Waste Storage Areas (WSA).
- 15.30 The OWMP seeks to ensure the proposed project contributes to the targets outlined in the 'EMR Waste Management Plan 2015-2021' and the DCC Waste Bye-Laws (2019)'.
- 15.31 Mitigation measures proposed to manage impacts arising from wastes generated during the operational phase of the development are summarised below (section 15.6).

15.4 RECEIVING ENVIRONMENT

- 15.32 In terms of waste management, the receiving environment is largely defined by Dublin City Council (DCC) as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021. Currently the EMR and other regional waste management plans are under review and the Regional Waste Management Planning Offices expect to publish the final plan in 2022.

- 15.33 The EMR Waste Management Plan sets the following targets for waste management in the region:
- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
 - Achieve a recycling rate of 55% of managed municipal waste by 2025; and
 - Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.
- 15.34 The EMR Waste Management Plan sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of “70% preparing for reuse, recycling and other recovery of construction and demolition waste” (excluding natural soils and stones and hazardous wastes) to be achieved by 2020.
- 15.35 Ireland achieved 84 per cent material recovery of such waste in 2019, and therefore surpassed the 2020 target and is currently surpassing the 2025 target. The National Waste Statistics update published by the EPA in November 2021 identifies that Ireland’s current against “Preparing for reuse and recycling of 50% by weight of household derived paper, metal, plastic & glass (includes metal and plastic estimates from household WEEE)” was met for 2020 at 51% however they are currently not in line with the 2025 target (55%).
- 15.36 The Dublin City Development Plan 2016 – 2022 and the Draft Dublin City Development Plan 2022-2028 (2021) also set out policies and objectives for the DCC area which reflect those set out in the regional waste management plan.
- 15.37 In terms of physical waste infrastructure, DCC no longer operates any municipal waste landfill in the area. There are a number of waste permitted and licensed facilities located in the Eastern-Midlands Waste Region, in the surrounding counties and over Ireland and Northern Ireland, for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, hazardous waste treatment facilities, municipal waste landfills, material recovery facilities, waste transfer stations and two waste-to-energy facilities.
- 15.38 However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.
- 15.39 The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability.

15.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

15.5.1 Construction Phase

- 15.40 The proposed development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction (See Appendix 15.1 for further detail). General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored at a suitable location on-site pending collection by a waste contractor. If waste material is not managed and

- stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.
- 15.41 The use of non-permitted waste contractors or unauthorized waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant** and **negative**.
- 15.42 Wastes arising will need to be taken to suitably registered/permitted/licensed waste facilities for processing and segregation, reuse, recycling, recovery, and/or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the development site would be in line with the daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.
- 15.43 There is a quantity of excavated material which will need to be excavated to facilitate the proposed project. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 8 (Land, Soils, Geology and Hydrogeology). Any suitable excavated material will be temporarily stockpiled for reuse as fill (although this is considered minimal due to the extents of the development across the site footprint), where possible, with remaining soil to be removed off-site for appropriate reuse, recovery and / or disposal. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.

15.5.2 Operational Phase

- 15.44 The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant** and **negative**.
- 15.45 The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).
- 15.46 If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of

mitigation, the effect on the local and regional environment is likely to be **short-term, significant** and **negative**.

15.47 It is anticipated that waste contractors will be required to service the proposed development on a regular basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant** and **negative**.

15.5.3 'Do Nothing' Scenario

15.48 If the Proposed Development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation or construction or operational waste generated at this site. There would, therefore, be a neutral effect on the environment in terms of waste.

15.6 REMEDIAL AND MITIGATION MEASURES

15.49 This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the waste generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

15.50 The concept of the 'waste hierarchy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal.

15.6.1 Construction Phase

15.51 The following mitigation measures will be implemented during the construction phase of the proposed development.

15.52 As previously stated, a project specific RWMP (Bakkala Consulting Engineers 2022) has been prepared in line with the requirements of the 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' (EPA 2021) and is included as Appendix 15.1. The mitigation measures in the RWMP will be implemented in full and form part of mitigation strategy for the site. Adherence to the high-level strategy and the mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 15.1) in agreement with DCC and in compliance with any planning conditions, or submit an addendum to the RWMP to DCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The contractor will be required to fully implement the RWMP throughout the duration of the proposed construction phase.

15.53 A quantity of topsoil, sub soil, clay and made ground will need to be excavated to facilitate the proposed development. The project engineers, Bakkala Consulting Engineers, have estimated that 25,0000 m³ of material will require excavation. Any suitable excavated material will be temporarily stockpiled for reuse as fill (although this is considered minimal due to the extents of the development across the site footprint), where possible, with remaining soil to be removed off-site for appropriate reuse, recovery and / or disposal. Correct classification and segregation of the excavated is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off site.

15.54 In addition, the following mitigation measures will be implemented:

- Building materials will be chosen with an aim to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling, and recovery. The following waste types, at a minimum, will be segregated:
 - Concrete rubble (including ceramics, tiles, and bricks);
 - Plasterboard;
 - Metals;
 - Glass; and
 - Timber
- Left over materials (e.g., timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible (alternatively, the waste will be sorted for recycling, recovery or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Construction and Demolition Resource & Waste Manager (CDRWM) will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled, or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted, or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

15.55 Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Article 27 of the EC (Waste Directive) Regulations (2011). EPA approval should be obtained prior to moving material as a by-product. However, it is not currently anticipated that Article 27 will be used.

15.56 These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996 as amended, associated regulations and the Litter Pollution Act 1997 and the 'EMR Waste Management Plan 2015-2021'. It will ensure

optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

15.6.2 Operational Phase

15.57 As previously stated, a project specific OWMP has been prepared and is included in Appendix 15.2. The mitigation measures outlined in the OWMP will be implemented in full and form part of mitigation strategy for the site.

15.58 The Operator/Facilities Management of the site during the operational phases will be responsible for ensuring – allocating personnel and resources as needed – the ongoing implementation of this OWMP, ensuring a high level of recycling, reuse and recovery at the site of the proposed development.

15.59 In addition, the following mitigation measures will be implemented:

- The Operator/Facilities Management will ensure on-site segregation of all waste materials into appropriate categories, including (but not limited to):
 - Organic waste;
 - Dry Mixed Recyclables;
 - Mixed Non-Recyclable Waste;
 - Glass;
 - Waste electrical and electronic equipment (WEEE);
 - Batteries (non-hazardous and hazardous);
 - Cooking oil;
 - Light bulbs;
 - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
 - Furniture (and from time-to-time other bulky waste); and
 - Abandoned bicycles
- The Operator/Facilities Management will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The Operator/Facilities Management will ensure that all waste collected from the site of the proposed development will be reused, recycled, or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- The Operator/Facilities Management will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licensed facilities.

15.60 These mitigation measures will ensure the waste arising from the proposed Development during the operational phase is dealt with in compliance with the provisions of the Waste Management Act 1996 as amended, associated regulations, the Litter Pollution Act 1997, the EMR Waste Management Plan 2015 – 2021 and the DCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

15.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

15.61 The implementation of the mitigation measures outlined in Section 15.6 will ensure that high rates of reuse, recovery and recycling are achieved at the site of the Proposed Development during the construction and operational phases. It will also ensure that

European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

15.7.1 Demolition/Construction Phase

- 15.62 A carefully planned approach to waste management as set out in Section 15.6.1 and adherence to the RWMP (which includes mitigation measures) during the construction phase will ensure that the predicted effect on the environment will be **short-term, imperceptible** and **neutral**.

15.7.2 Operational Phase

- 15.63 During the operational phase, a structured approach to waste management as set out in Section 15.6.2 and adherence to the OWMP (which includes mitigation measures) will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be **long-term, imperceptible** and **neutral**.

15.8 MONITORING

- 15.64 The management of waste during the construction phase will be monitored by the Contactor's appointed Waste Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.
- 15.65 The management of waste during the operational phase will be monitored by the Operator / Buildings Manager to ensure effective implementation of the OWMP internally and by the nominated waste contractor(s).

15.8.1 Construction Phase

- 15.66 The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the demolition, excavation and construction works where there is a potential for waste management to become secondary to progress and meeting construction schedule targets. The mitigation measures in the RWMP specifies the need for a Construction and Demolition Resource & Waste Manager (CDRWM) to be appointed who will have responsibility to monitor the actual waste volumes being generated and to ensure that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the waste manager will identify the reasons for targets not being achieved and work to resolve any issues. Recording of waste generation during the project will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future projects.

15.8.2 Operational Phase

- 15.67 During the operational phase, waste generation volumes should be monitored against the predicted waste volumes outlined in the OWMP. There may be opportunities to reduce the number of bins and equipment required in the Waste Storage Area (WSA) where estimates have been too conservative. Reductions in bin and equipment requirements will improve efficiency and reduce waste contactor costs.

15.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

15.68 The following considers the cumulative impacts of the Proposed Development along with planned, permitted and existing facilities in the surrounding area in relation to Material Assets Waste Management.

15.9.1 Construction Phase

15.69 There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap in the construction phase.

15.70 Developments that potentially could overlap during the construction phase:

4014/20

Planning permission was granted on the 7th of October 2021 for a development comprising the refurbishment/alterations and change of use of existing buildings on the site and construction of new buildings to the rear to provide a hotel development (72 bedrooms) with ancillary public restaurant (c. 96 sq.m) and associated ancillary uses.

2582/20 and ABP-308551-20

Planning permission was granted on the 15th of March 2021 for development at a site of approximately 1,791 sq m at the Talbot Mall, Talbot Street, Dublin 1 for a new supermarket.

2588/20

Planning permission was granted on the 2nd of February 2021 for a development at 3 Marlborough Place, Dublin 1. The proposed development comprises the 1) Demolition of existing non-original floors, lift & roof and parts of external facades; 2) The change of use of existing building from factory/light industrial building to apart-hotel & cafe use; 3) Construction of new floor levels including new upper levels to form a 6-storey over basement.

4826/19 and ABP-307623-20

Planning permission was granted on the 11th of December 2020 for a residential development comprising the demolition of existing property known as No. 2 Brunswick Villas, including existing boundary walls and gateway entrance to Shaw Street and the construction of a 12 no. apartment units.

2877/21 - Amendments to Permitted Development under Reg. Ref.: 4778/19

Planning permission was granted on the 11th of November 2020 for amendments to the permitted development under Reg. Ref.: 4778/19. The permitted development includes construction over the rail line which traverses the site and also within the vaulted foundations supporting the rail line.

4778/19

Planning permission was granted on the 12th of October 2020 for a mixed-use development at Brunswick Villas, Shaw Street, Townsend Street and Spring

Garden Lane, Dublin 2. The proposed development comprises the demolition of existing structures on site (excluding railway line) and the construction of an 11 storey (over basement level and plant level at roof) with setbacks at various levels, office, retail and build to rent residential development with associated facilities, terraces and balconies.

2733/20

Outline planning permission was granted on 21st of September 2020 for a development comprising the demolition of an old three storey building and the construction of a new five storey building over basement with penthouse consisting of 12 new apartments.

4485/17

Planning permission was granted on the 11th of October 2018 for a development at 157-164 Townsend Street, Dublin 2. The proposed development consists of the demolition of an existing five storey over basement office building (5087 sq.m) and the construction of a seven storey with 6th floor setback (27.9m) over two-tiered basement office building (8,813 sq.m).

3091/21 - Amendments to Permitted Development under Ref. Ref.: 4485/17

Planning permission was granted on the 9th of December 2021 for amendments to the permitted development under Reg. Ref.: 4485/17. The proposed development consists of the demolition of an existing five storey over basement office building (5087 sq.m) and the construction of a seven storey with 6th floor setback (27.9m) over two-tiered basement office building (8,813 sq.m).

- 15.71 Due to the high number of waste contractors in the Dublin region as provided from the National Waste Collection Permit Office and the Environmental Protection Agency there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all the developments.
- 15.72 Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be **short-term, imperceptible** and **neutral**.

15.9.2 Operational Phase

- 15.73 There are existing residential and commercial developments close by, along with the multiple proposed developments as outlined in 15.9.1 which have been granted permission or are awaiting a decision. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area as higher demand will allow waste contractors to expand their services or new waste contractors may begin to service the area.
- 15.74 Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any

potential cumulative impacts associated with waste generation and waste management. As such the effect will be a **long-term, imperceptible** and **neutral**.

15.10 REINSTATEMENT

- 15.75 In the event that the proposed project is reinstated, there is not likely to be any significant impacts on waste management at the site.
- 15.76 The proposed development may be decommissioned at some stage in the future. At that time, a demolition or refurbishment plan will be formulated for the decommissioning phase of the Proposed Development to ensure no waste nuisance occurs at nearby sensitive receptors.

15.11 REFERENCES

Waste Management Act 1996 as amended.

Environmental Protection Agency Act 1992 (Act No. 7 of 1992) as amended.

Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended.

Eastern-Midlands Region Waste Management Plan 2015 – 2021 (2015).

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Department of Environment, Communities and Local Government (DoECLG), A Resource Opportunity - Waste Management Policy in Ireland (2012).

Environmental Protection Agency (EPA) of Ireland, Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects (November 2021).

FÁS and the Construction Industry Federation (CIF), Construction and Demolition Waste Management – a handbook for Contractors and Site Managers (2002).

Dublin City Council (DCC), Dublin City Development Plan 2016-2022.

Dublin City Council (DCC), Draft Dublin City Development Plan 2022-2028.

Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended.

EPA, Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous (2015).

Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

Environmental Protection Agency (EPA), National Waste Database Reports 1998 – 2012.