

- Dublin Bus city services on O'Connell Street Upper (31 No routes).
- Private interurban and airport services on O'Connell Street Upper.

There is an extensive provision of bus stops on O'Connell Street Upper and Parnell Square serving these routes. The locations of the stops on O'Connell Street Upper along the eastern frontage of the subject site are shown in Figure 13.5.

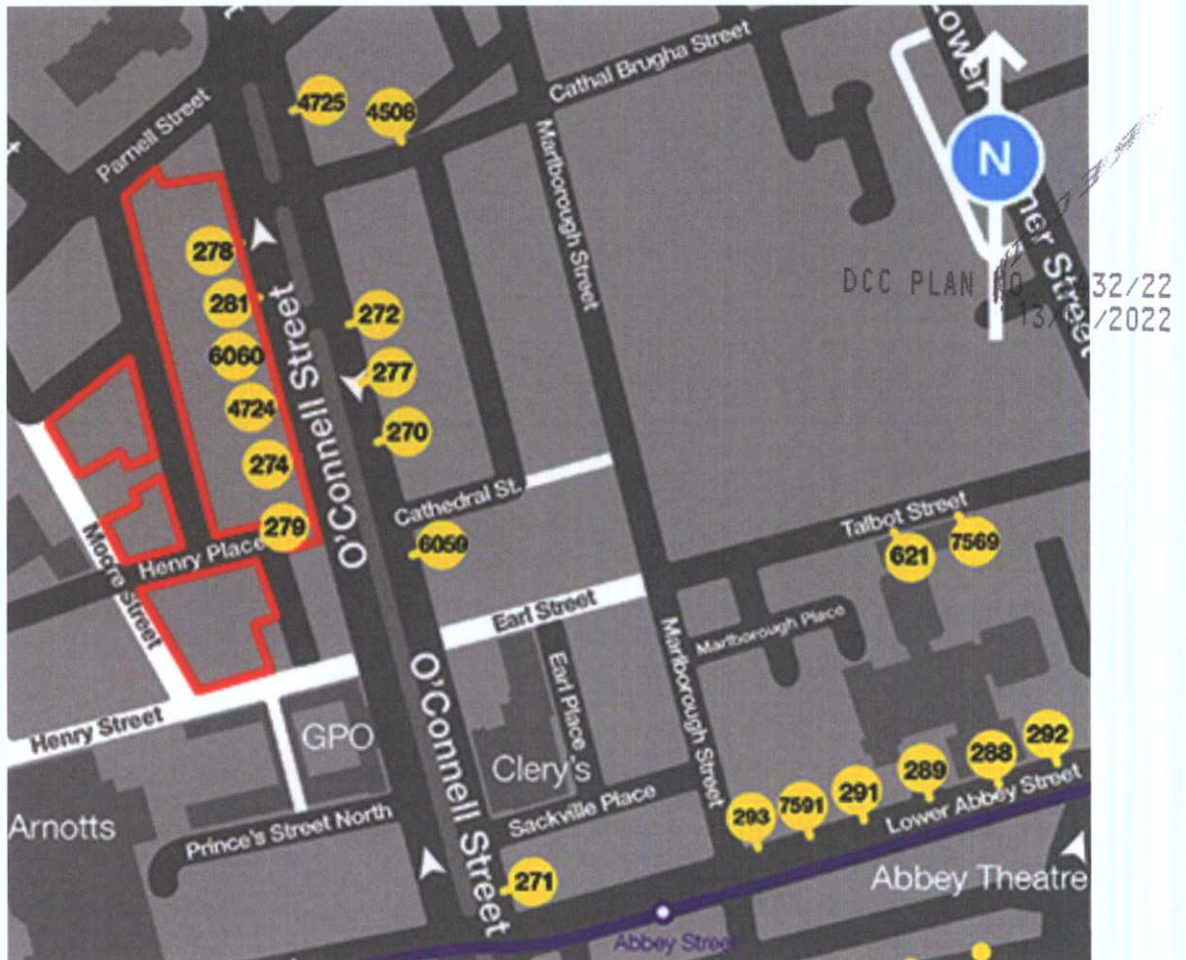


Figure 13.5: Bus Stops on O'Connell Street Upper.

13.3.1.10 Interurban Bus Services – Existing

Bus Eireann

The major station in Dublin for interurban services to all parts of Ireland including Northern Ireland is located in Busaras adjacent to the LUAS stop at Store Street. LUAS services link Abbey Street with Store Street at 10-minute intervals in both directions. Busaras is an 8 – 10-minute walk from the Proposed Development.

Aircoach

Aircoach operate a 24-hour service at 10 – 20-minute intervals to Dublin Airport through O'Connell Street Upper from Sandyford, Greystones Cork, and Belfast. O'Connell Street Upper is a 2 – 3-minute walk from the Proposed Development.

City Link

City Link provides an hourly service in each direction from Dublin Airport to Galway via Bachelors Quay (eastbound) and Aston Quay (westbound). City Link also provides seven return services per day from Dublin Airport to Limerick also via Bachelors Quay (northbound) and Aston Quay (southbound). Both quays are a 6 - 7-minute walk from the subject site.

Wexford Bus

Wexford Bus provides 13 return services between Wexford and Dublin Airport via Custom House Quay (northbound) and Georges Quay (southbound). Both quays are a 9 - 10-minute walk from the subject site.

13.3.1.11 Loading Bays – Existing

No dedicated loading bays were noted in the area of the subject site other than the shared taxi and loading bay located on the south side of Parnell Street between Moore Lane and Moore Street. The operational hours for the loading bay are 06h00 – 11h00 Monday – Sunday.

Extensive on-street deliveries take place on Henry Street prior to 11h00.

On-street deliveries take place all day on Moore Lane, O'Rahilly Parade and Henry Place.

13.3.1.12 Taxi Facilities – Existing

A taxi rank is located in front of the Gate Theatre on Parnell Square East.

A shared taxi and loading bay are located on the south side of Parnell Street between Moore Lane and Moore Street. The operational hours for taxis are 11h00 – 06h00 Monday – Sunday.

No other taxi facilities were noted in the area of the subject site following removal of the taxi rank from O'Connell Street Upper opposite the Carlton Cinema as part of the works for the Luas Green Line extension to Broombridge in 2017.

13.3.1.13 Road Traffic – Existing

Historic Traffic Surveys

Background

Due to the restrictions imposed by Covid-19, it was not possible to carry out a traffic survey for this EIAR. However, between 2008 and 2020, a number of traffic surveys were carried out in the area of the subject site including: -

- Traffic Impact Assessment (TIA), Dublin Central, ILTP Consulting, October 2008.
- Environmental Impact Study (EIS), Luas St Stephen's Green to Broombridge, RPA, 2011.

Dublin Central 2008

A series of Classified Traffic Counts were carried out on Wednesday, 31 May 2006, Thursday, 15 June 2006, and Thursday, 26 October 2006.

The surveys were carried out at three junctions at the following locations on Parnell Street during the AM and PM Peak Hours: -

- **Location 1:** Junction Parnell Street, Parnell Square East, and O'Connell Street Upper.
- **Location 8:** Junction Parnell Street and Moore Street.
- **Location 9:** Junction Parnell Street, Parnell Square West, and Moore Lane.

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The primary movement recorded was 1,100 – 1, 200 vehicles per hour westbound on Parnell Street between O'Connell Street Upper and Parnell Square West.

Luas 2011

Traffic surveys were undertaken in October 2008 at a total of 41no. junctions including: -

- **Junction 22:** O'Connell Street Upper / Cathal Brugha Street.
- **Junction 26:** O'Connell Street Upper / Parnell Street.
- **Junction 27:** Parnell Street / Parnell Square West.
- **Junction 30:** Parnell Street / Dominick Street.

The results of the survey were incorporated into the *LUAS BXD Local Area Model (LAM)* but not reproduced in the EIS.

Canal Cordon Survey

Each November, traffic counts have been carried out by DCC, DTO and NTA at 33 locations on a canal-based cordon around Dublin. The counts cover the AM peak period 07h00 – 10h00.

An annual report is published by DCC in May of each year. The results of the canal cordon survey since 2006 would indicate an ongoing reduction in the number of private cars and goods balanced by increases in public transport, cycling and walking.

TII Traffic Survey 2018

Background

As part of the preparation of a planning application for Metrolink, traffic surveys were carried out by TII on Thursday 17th May 2018 at the locations shown in Figure 13.6.

Junction 9 at the intersection of O'Connell Street Upper and Parnell Street is located to the northeast of the subject site.

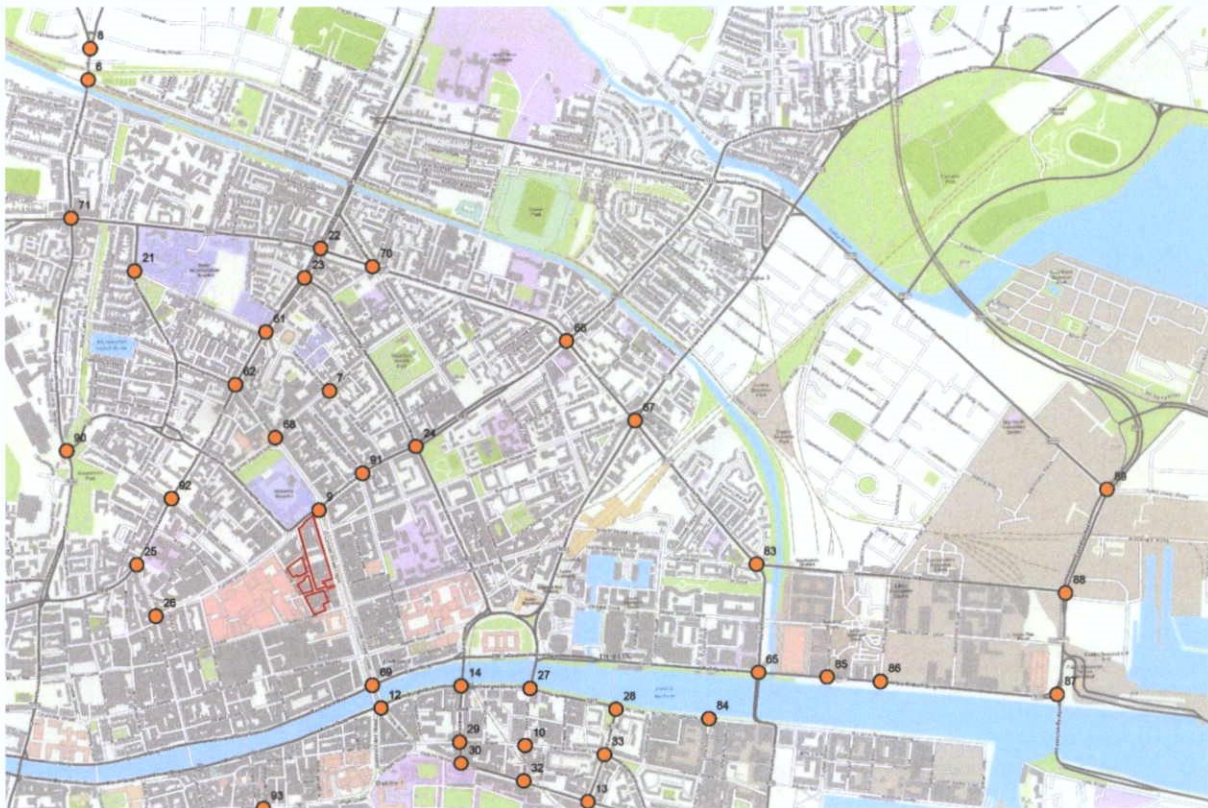


Figure 13.6: TII Traffic Survey Locations May 2018.

Results of Survey

A summary of the survey results from the count at nine of the junctions for a period of 24 hours from 00h00 to is presented in Table 13.2.

These junctions are located on the emerging preferred haul routes for construction traffic described in Section 13.5.1.1.5 of this EIAR.

Junction	Location	Approach Flow 00h00 – 23h59 (pcu)
9	O'Connell Street Upper Parnell Street Cavendish Row	26,826
22	Dorset Street N Circular Road	56,640
24	Summerhill Gardiner Street Parnell Street	29,030
25	Bolton Street Capel Street	28,649
62	Dorset Frederick Street Blessington St	36,197
66	Summerhill Portland Row N Circular Road	35,200
83	Seville Place Guild Street	18,987
88	East Wall Road Sherriff Street	39,780
92	Dorset Street Dominick Street	26,862

Table 13.2: Summary of Traffic Survey May 2018 (pcu).

Dublin City Council Traffic Survey 2020

A classified traffic survey was carried out by Dublin City Council on Tuesday, 4 February 2020. The results of the survey for Parnell Street in the AM Peak Hour are presented in Figure 13.7.

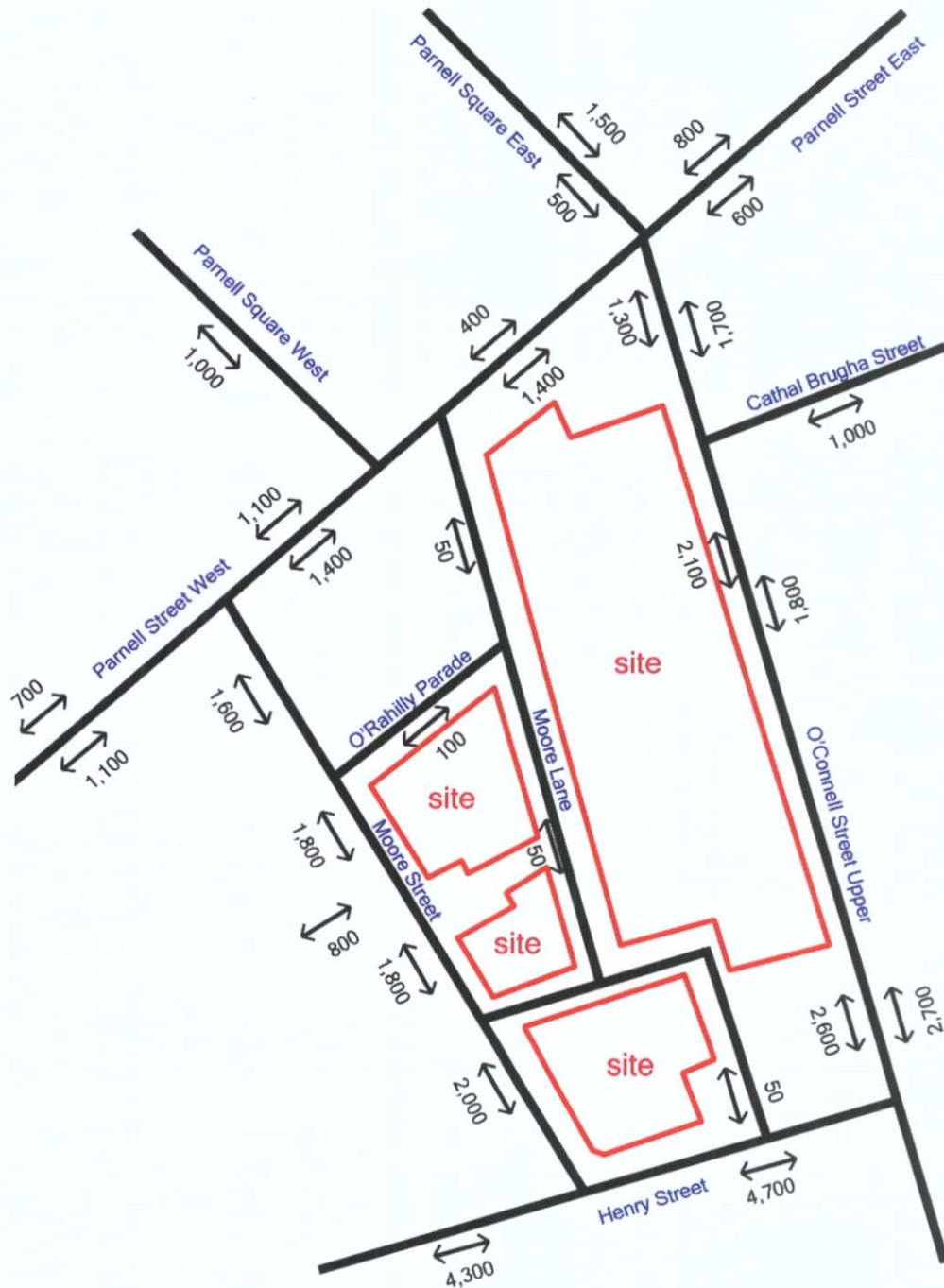


Figure 13.7: Traffic Survey AM Peak Hour February 2020.

13.3.1.14 Cycle Traffic – Existing

The City Centre Cycle and Pedestrian Counts are carried out by Dublin City Council each May at a number of locations along The Quays between Heuston Station and the East Link Bridge.

For the purpose of this EIAR, only the survey results for Location 25 at Parnell Street / Dominick Street were interrogated.

The total number of cyclists and pedestrians recorded travelling in any direction at Location 25 during the 12-hour period between 07h00 and 19h00 are set out in Table 13.3.

Year	2015	2016	2017
Cycles	1,685	1,659	1,686
Pedestrians	16,878	15,615	15,593

Table 13.3: Cycle and Pedestrian Survey Parnell Street 2015 - 2017 (12 hour).

13.3.1.15 Pedestrian Traffic – Existing

Due to Covid-19 restrictions, it was not possible to carry out a pedestrian movement survey for this EIAR.

However, between 2008 and 2020, a number of pedestrian movement surveys were carried out in the area of the subject site including: -

- Pedestrian Benefits Report, Atkins, October 2008.
- City Centre Cycle and Pedestrian Counts, Dublin City Council, 2010 – 2020.
- Urban Baseline Study, Space Syntax, 2018.
- Dublin City Centre Footfall, Dublin City Council, 2019.

Based on the results of these surveys, baseline traffic flows for a weekday in 2020 are presented in Figure 13.8 for the off-peak hours between 10h00 and 16h00.

These movements exclude the reductive impact of the Covid-19 restrictions.

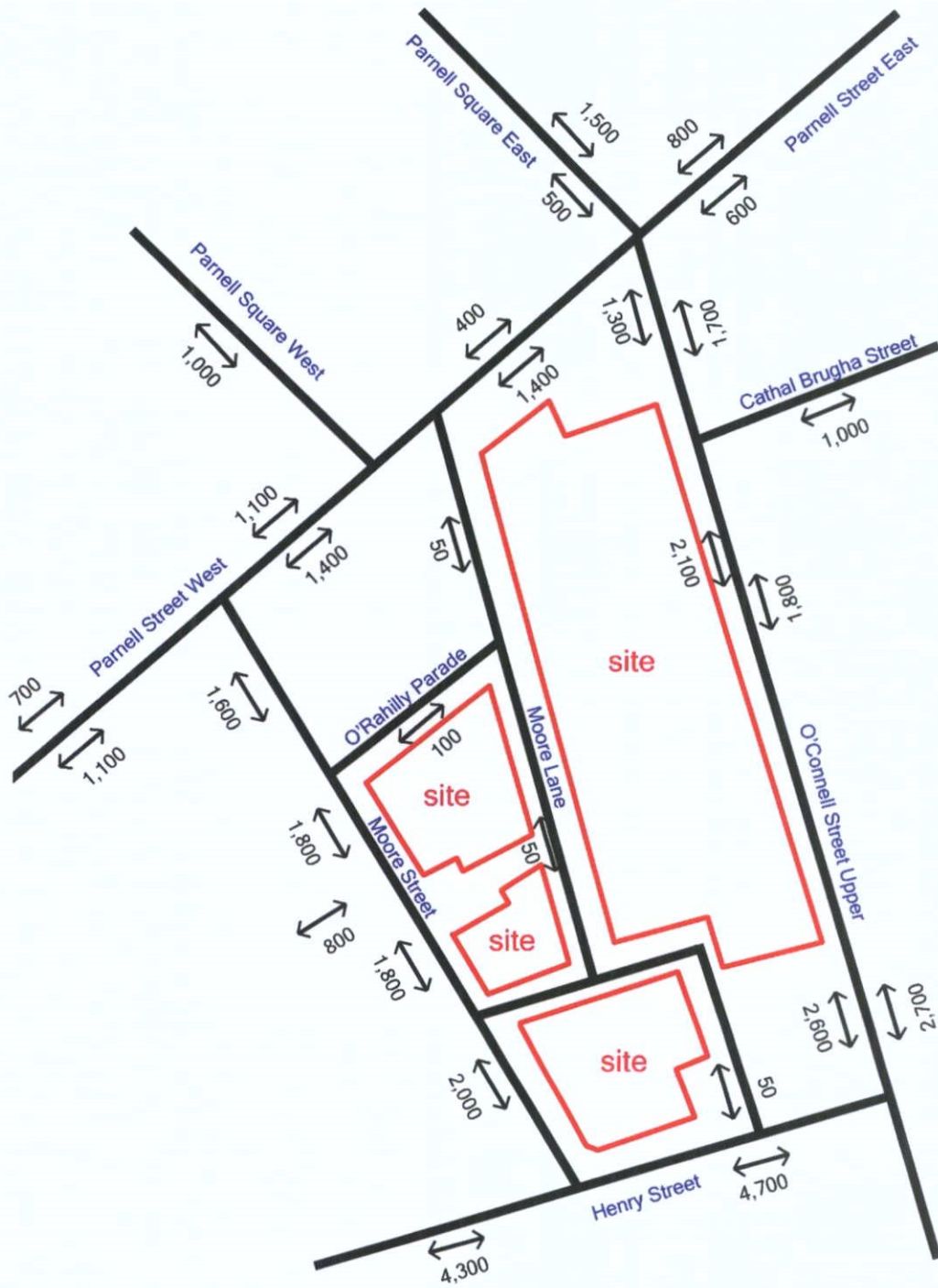


Figure 13.8: Base Pedestrian Movements (pph) 10h00 – 16h00 (Numbers rounded for clarity)

13.3.1.16 Deliveries to Adjoining Premises – Existing

Due to the restrictions imposed by Covid-19, it was not possible to undertake a survey of deliveries to adjacent premises for this EIAR.

13.3.1.17 Traffic Conditions – Existing

Operating conditions on the street network around the site are generally reasonable. However, short term congestion occurs regularly on Parnell Street between O'Connell Street Upper and Parnell Square West.

Dublin City Council's approach to traffic management in the city seeks to restrict through traffic and calm traffic generally within the City Centre giving increased levels of priority for pedestrians, achieve modal share targets crossing the canal of 55% for public transport, 15% for cycling, 10% for walking and 20% for private car use by 2017.

Although none of the roads within the city centre are designated as national primary roads, the major roads carry significant volumes of traffic and provide important links to the local, regional, and national road network. The existing road network is running at or close to capacity during peak hours.

13.3.1.18 Public Transport Improvements – Bus

Bus Connects is an ongoing project by the National Transport Authority (NTA) to deliver a more efficient, reliable, and better bus system for the Greater Dublin Area (GDA). This will be achieved by redesigning the bus network to provide a more efficient network with high frequency spines, new orbital routes, and increased services.

The H-spine became operational in June 2021 with the C-spine due to follow in October 2021.

The remainder of the project was programmed for delivery during the period 2021 – 2023. However, the impact of the Covid-19 could affect this timescale.

O'Connell Street Upper, Parnell Square East, Parnell Street and Parnell Square West are four of the essential primary links in the proposed network. See Figure 13.10.

No information on the proposed works to O'Connell Street Upper or Parnell Street to accommodate Bus Connects or the timing for their implementation has become available up to the time of writing. Current proposals available to the public just stop short of O'Connell Street Upper at the junction with Parnell Street. See Figure 13.9 below.

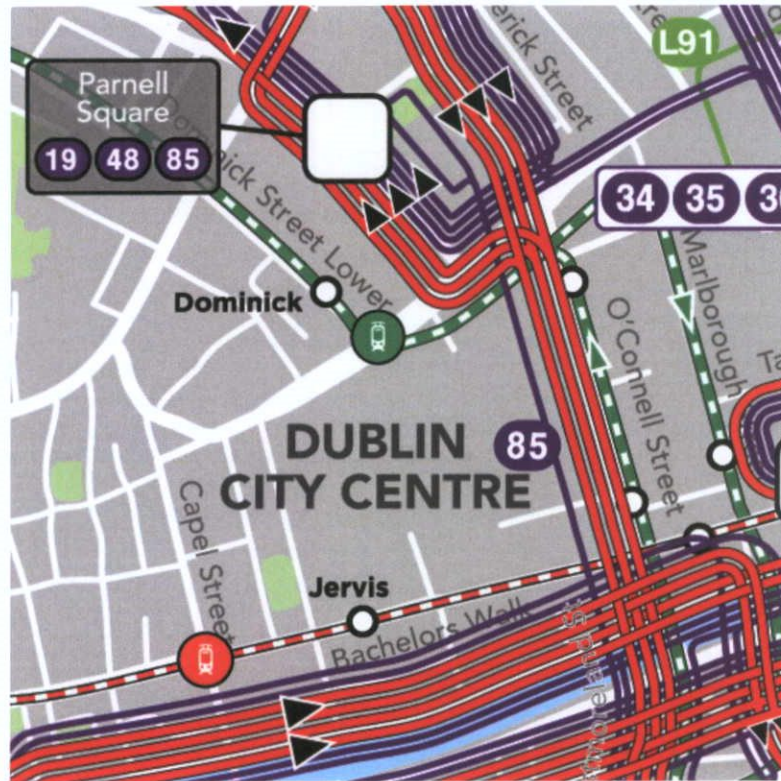


Figure 13.9: Bus Connects – Revised Bus Network 2020 (Site boundary omitted for clarity).

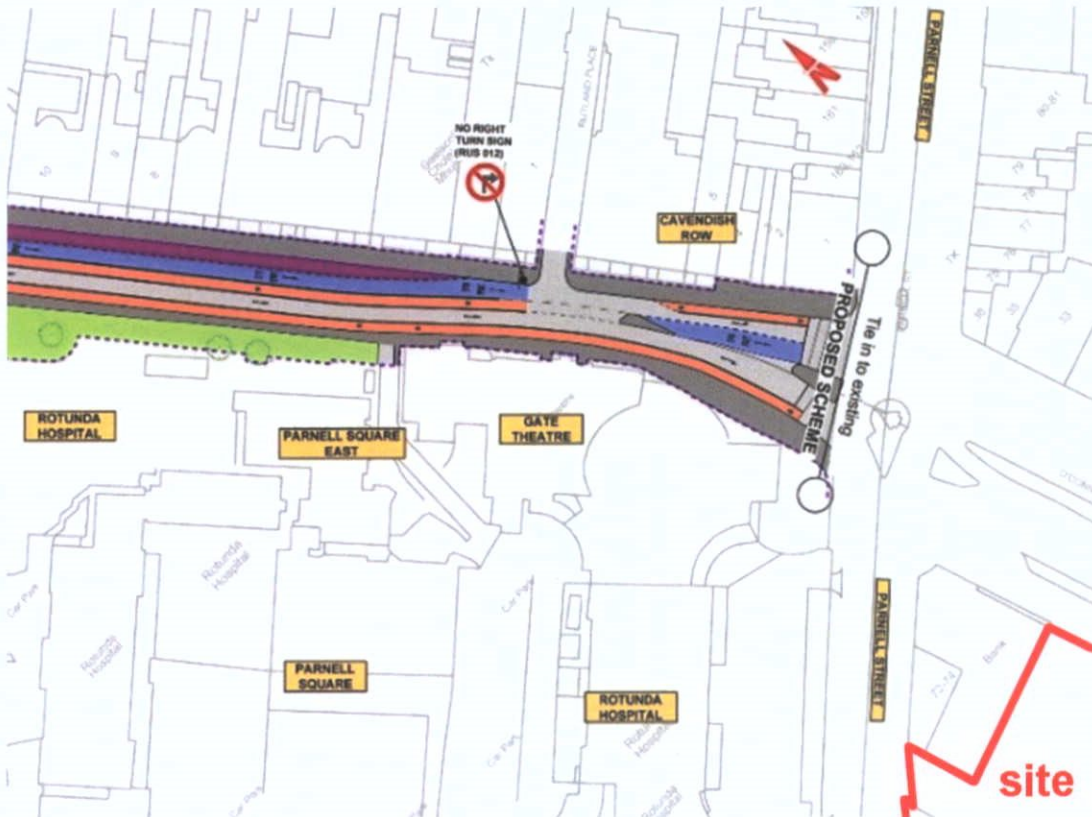


Figure 13.10: Bus Connects Proposals at Parnell Square.

13.3.1.19 Public Transport Improvements – Rail

Background to MetroLink

The MetroLink Project, currently being promoted under the auspices of the National Transport Authority (NTA) and Transport Infrastructure Ireland (TII), provides for a high-capacity, high-frequency rail service between Swords and the LUAS Green Line at Charlemont.

The line will be some 19 km long and carry up to 50 million passengers per year.

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O'Connell Street Station

Within the City Centre, it is proposed that the line be located underground with one of the stations at O'Connell Street Upper. The Preferred Route announced in 2018 provided for this station to be located directly under O'Connell Street Upper.

The National Transport Agency (NTA) and Transport Infrastructure Ireland (TII) approached the Applicant in 2018 with a view to locating a MetroLink Station serving O'Connell Street Upper within the Dublin Central site, in an effort to avoid locating the Station within the central median of O'Connell Street Upper. TII is in the process of finalizing the design of the MetroLink project. TII is expected to make an Application for a Railway Order for the MetroLink project, including the O'Connell Street Upper Station, in Q3 2022.

The Applicant has agreed a Memorandum of Understanding with the NTA/TII to complete the enabling works that would accommodate the station, but which would also ensure that the Applicant's project was structurally independent of, and not prejudicial to, the MetroLink project. These enabling works comprise the provision of a structural 'box' positioned below ground, within which the MetroLink project can be positioned and above which the Applicant's project can be constructed. The provision of this structural box (sometimes referred to as the "Station Box") and its ancillary works below ground are known collectively as the Metro Enabling Works (MEW) in the context of the Applicant's overall Dublin Central project.

The provision of the MetroLink O'Connell Street Upper Station and its associated tunnel works would be completed by the NTA/TII once ready to do so and subject to the required consents being in place. It is envisaged that the MEW works would be completed in advance of the NTA/TII tunnel boring machines reaching the area.

MetroLink Enabling Works (MEW)

The Applicant has agreed a Memorandum of Understanding with the NTA/TII to complete the enabling works that would accommodate the planned future MetroLink O'Connell Street station under Dublin Central Site 2AB and Site 2C. This would also ensure that the Applicant's project is structurally independent of, and not prejudicial to, the TII MetroLink Project. It should be noted that no metro enabling works will be undertaken by the Applicant until the NTA / TII have secured an enforceable railway order.

The Site 2 proposals accommodate a structural box beneath ground floor level that has been designed to accommodate the independent construction and operation of the planned O'Connell Street MetroLink Station by Transport Infrastructure Ireland (TII), including provision of the structural envelope and co-ordinated voids to accommodate station entrances, ventilation and fire escape shafts through this part of the proposed development. These MetroLink Enabling Works (MEW) ensure that the Dublin Central proposed development is structurally independent of, and not prejudicial to, the MetroLink project. This application does not include any request for permission for railway works, the use of railway works or the operation of a railway. The MetroLink project will be the subject of a separate application for Railway Order to be made by TII. In the event that MetroLink project is delayed or does not proceed, the Dublin Central proposed development can be completed, occupied and used regardless. The Dublin Central proposed development is not dependent on the MetroLink project in any way, whether functionally or otherwise. The MetroLink project is not, therefore, part of the project the subject of this application or its accompanying EIAR.

This EIAR describes, in outline, the likely evolution of the current state of the environment (the baseline scenario), both with and without the MetroLink project. This outline has been completed with reasonable effort on the basis of available information, at the date of this application. For this purpose, the potential for the Dublin Central Proposed Development to impact on a future environment that includes the MetroLink project has been carefully considered, by the Applicant and TII. The MEW has been designed and incorporated to the Dublin Central Proposed Development to ensure that it is structurally independent of, and not prejudicial to, the MetroLink project. It follows that the Dublin Central Proposed Development is not likely to have any significant impact on the MetroLink project to report within this EIAR, or any different effect on the environment, after its evolution to include the MetroLink project.

Material Assets (Transportation)

This EIAR describes, in outline, the likely evolution of the current with and without the MetroLink project. This outline has been completed with reasonable effort on the basis of available information, at the date of this application.

The likely evolution of the current state of the environment (the baseline scenario) with the MetroLink project involves, during construction, the excavation of 133,565 cubic metres of material (comprising 25,242 cubic metres for the basement and 108,323 cubic metres for the station box) for the construction of the intended station and railway line and, during operation, a peak frequency of 24 trains per hour through the intended station assuming a 5-minute frequency in both directions.

The Dublin Central Proposed Development is not likely to have any significant impact on the MetroLink project to report within this EIAR, or any different effect on the environment, after its evolution to include the MetroLink project.

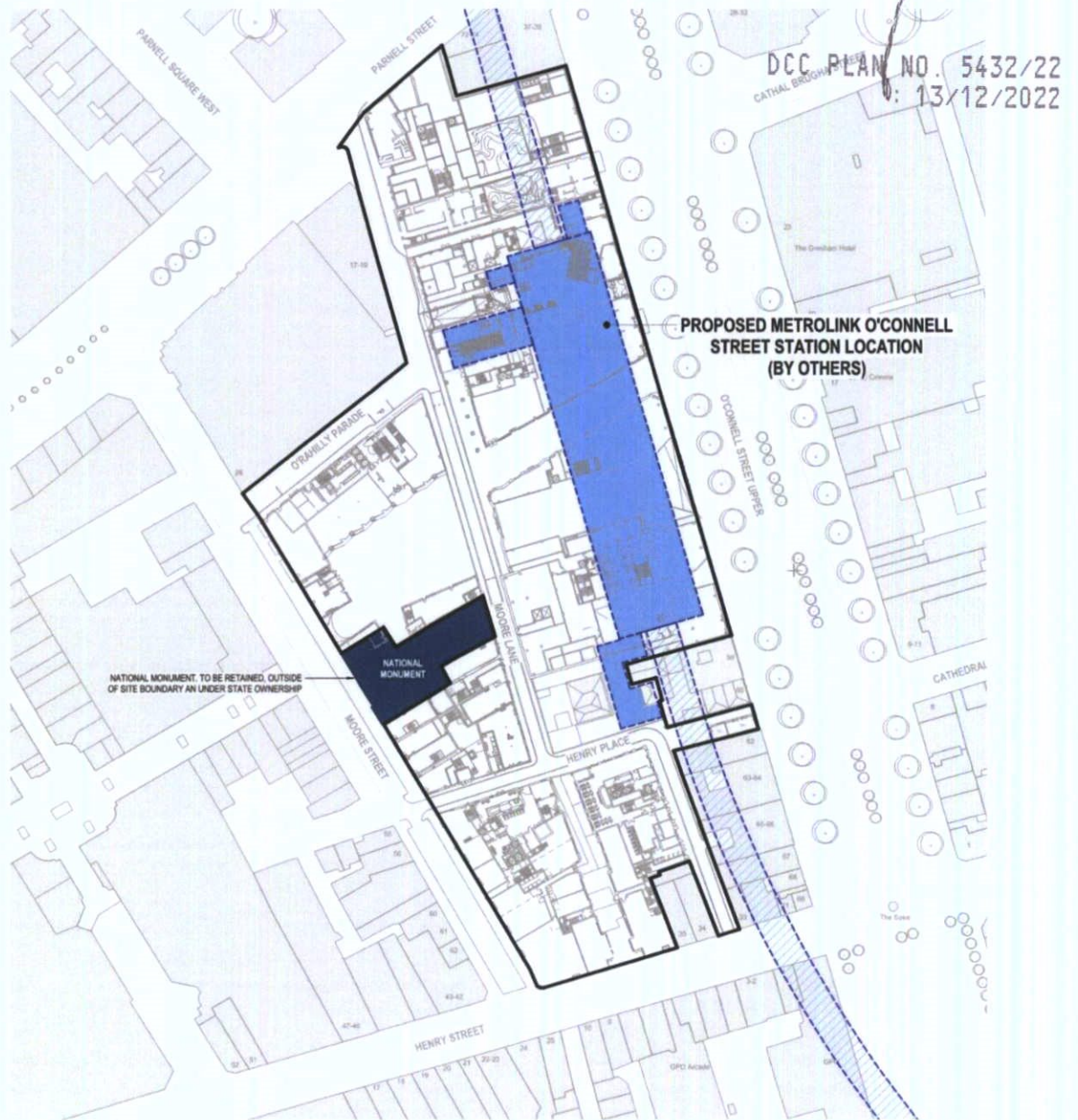


Figure 13.11: Location Plan for Metrolink Station at O'Connell Street Upper.

13.3.1.20 Parnell Square Contraflow Cycle Facility

Dublin City Council in conjunction with the National Transport Authority are introducing a new cycling link that will provide a direct route for cyclists on O'Connell Street Upper wishing to access Dorset Street. The works will involve introducing a contraflow cycle lane on Cavendish Row/Parnell Square East and improving the cycling facilities on North Frederick Street for both northbound and southbound cyclists.

The main elements of the proposed work include: -

- Re-allocating a section of the carriageway at the northern end of O'Connell Street Upper to allow for the introduction of a protected cycle lane and stacking area for northbound cyclists.
- Introduction of dedicated cycle signals to allow cyclists access the contraflow on Cavendish Row.

At the time of writing in March 2021, the Parnell Square Contraflow Cycle Facility was under construction along the O'Connell Street Upper frontage of the Dublin Central site. See Figure 13.12.

When finished, the traffic provision on O'Connell Street Upper over the 100 metres between 43 O'Connell Street Upper and the Parnell Monument, will be reduced to: -

- The existing footpath.
- A two-way cycle lane with a width of 2.5 metres.
- A traffic island with a width of 1.0 metres.
- A single one-way all-purpose northbound traffic lane with a width of 3.5 metres.
- A single one-way northbound Luas line.

This area will also include an inset coach set down area for one coach with a length of 15.0 metres and a depth of 2.5 metres. A dedicated cycle signal will be provided at the junction of O'Connell Street Upper and Parnell Street. Accordingly, the traffic signals at this junction will in the future cater for four groups of movements being general traffic including buses, LUAS, cyclists, and pedestrians.

The Parnell Square Contraflow Cycle Facility has been incorporated into the traffic modelling described in Section 13.5.1.1.10 of this EIAR.



Figure 13.12: Parnell Square Contraflow Cycle Facility.

13.3.2 Proposed Development – Site 2 & No. 61 O'Connell Street Upper

The Receiving Environment for the Proposed Development will be the same as that for the Dublin Central Masterplan Site and described in Section 13.3.1 of this chapter.

13.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

13.4.1 Dublin Central Masterplan

The Dublin Central Masterplan will include a number of land uses in a series of blocks on an overall site of 2.2 ha off O'Connell Street Upper.

The Proposed Development which is illustrated in Figures 13.13 and 13.14 will comprise the following land uses in a series of multi-storey buildings of varying heights: -

- | | |
|-----------------------|---------------------|
| • Offices | 43,418 sq. m |
| • Hotel | 15,270 sq. m |
| • Residential | 8,200 sq. m |
| • Retail | 5,193 sq. m |
| • Café / Restaurant | 3,876 sq. m |
| • Gym | 206 sq. m |
| • Cultural | 123 sq. m |
| • National Monument | 60 sq. m |
| • Site Enabling Works | 9,812 sq. m |
| Total | 86,157 sq. m |
- Car Parking (32 spaces).
 - Cycle parking (694 spaces).
 - Access to the Metrolink underground station below the development.
 - Public open space.

The development includes Metro Enabling Works for the underground station at O'Connell Street Upper envisaged or planned at Sites 2AB and 2C as part of the Dublin Central Master Plan and to be undertaken by DCGP Ltd on behalf of TII / NTA in advance of tunnelling and station construction works.

In addition, the Proposed Development will include resurfacing works to O'Rahilly Parade, Moore Lane and Henry Place, reversal of traffic flow on Moore Lane from southbound to northbound and pedestrianisation on Moore Lane and Henry Place after 11h00.

The Proposed Development will also include the retention of a number of protected buildings and facades.

Full details in relation to the Proposed Development can be found in Chapter 3: Description of Proposed Development of this EIAR.



Figure 13.13: Site Layout – Ground Level 00.

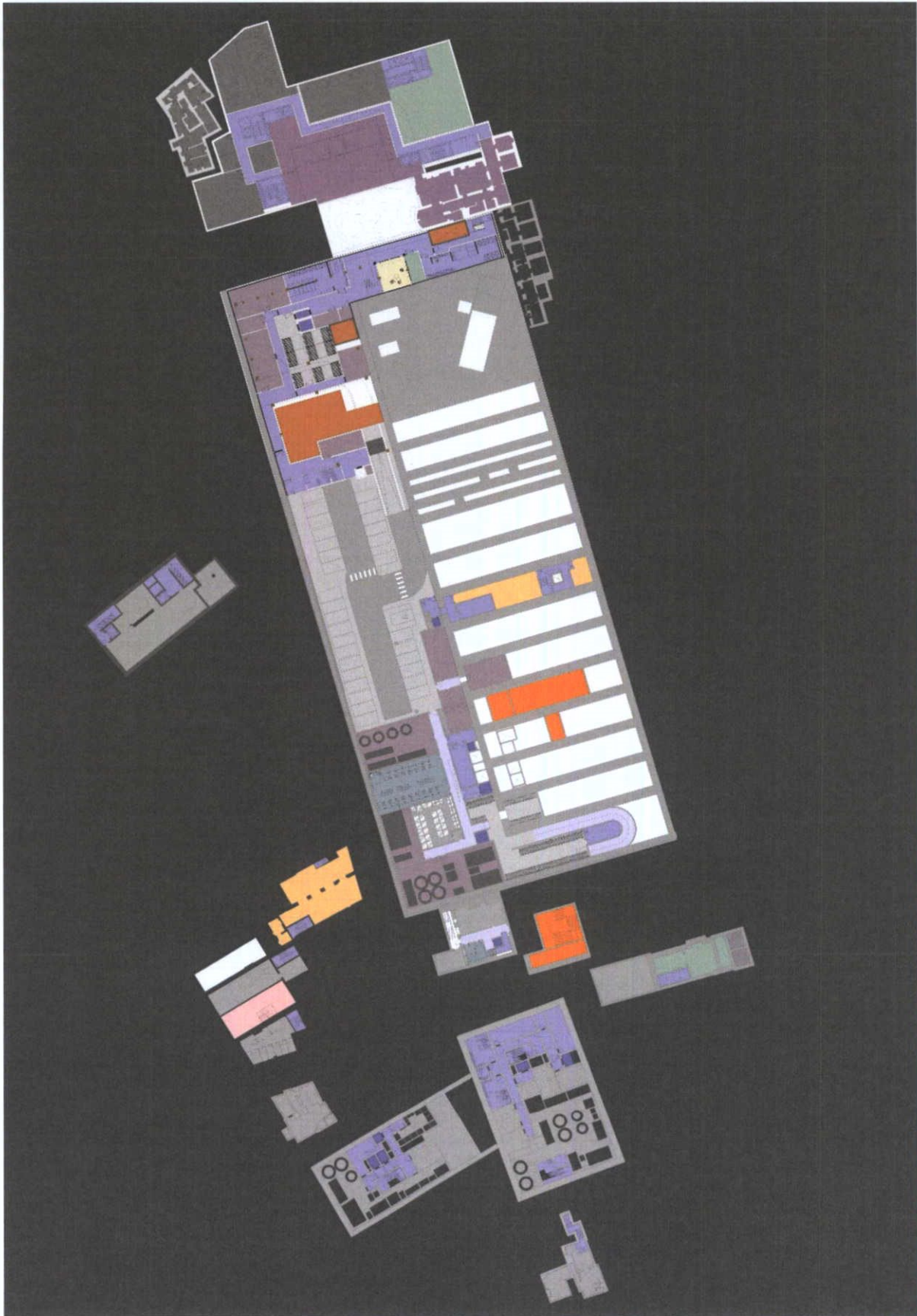


Figure 13.14: Site Layout – Basement Level.

13.4.1.1 Summary of Land Use and Gross Floor Areas

The land uses and gross floor areas proposed for the various sites are set out in Table 13.4.

	Site 1	Site 2AB	Site 2C	Site 3	Site 4	Site 5	No. 61	Total
	sq. m	sq. m	sq. m	sq. m	sq. m	sq. m	sq. m	sq. m
Office	3,610	16,804	16,910	-	295	5,799	-	43,418
Hotel	8,094	-	-	7,175	-	-	-	15,270
Residential	-	-	-	6,452	1,454	-	294	8,200
Retail	-	1,810	812	1,954	617	-	-	5,193
Café / Restaurant	-	1,705	473	138	864	679	52	3,876
Cultural / Gallery / Cafe	-	-	-	123	-	-	-	123
Leisure (Gym / Studio)	-	-	-	-	-	-	206	206
Extension to National Monument for ancillary use to National Monument – a cultural facility	-	-	-	-	60	-	-	60
Metro Enabling Works	-	2,388	7,424	-	-	-	-	9,812
Total	11,704	22,707	25,583	15,842	3,290	6,478	552	86,157

Table 13.4: Summary of Land Use and Gross Floor Areas (sq. m).

13.4.1.2 Access

Pedestrian access to the Proposed Development will be from the surrounding streets and lanes. Pedestrian access to the future Metrolink Station will be from the public open space between O'Connell Street Upper and Moore Lane.

Vehicular access to the car parking at basement level will be from Moore Lane via a traffic-controlled ramp at the location shown in Figure 13.15.

Cycle access to the cycle parking will also be from the surrounding streets and lanes at the locations shown in Figure 13.15.

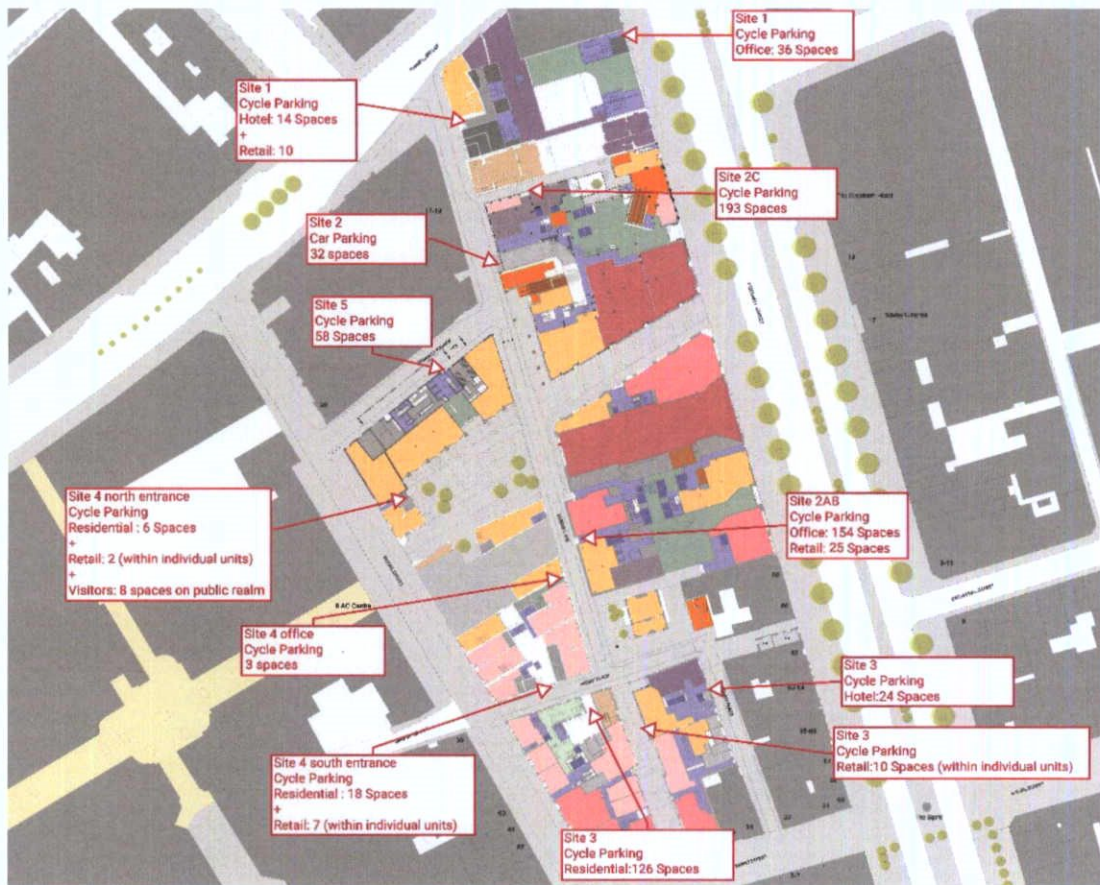


Figure 13.15: Access to Car and Cycle Parking.

13.4.1.3 Public Streets

Subject to the approval of Dublin City Council, it is proposed to reorder the existing streets in the area of the subject site as illustrated in Figure 13.16 and described below.

- **O'Rahilly Parade** (Moore Street – Moore Lane)
One-way eastbound at all times with a loading bay on the south side (48m).
- **Moore Lane** (Parnell Street – O'Rahilly Parade).
One-way northbound at all times with a loading bay on the east side (24m)
- **Moore Lane** (O'Rahilly Parade – Henry Place).
Two-way as existing 06h00 – 11h00 with pedestrian zone after 11h00.
- **Henry Place**
Two-way as existing 06h00 – 11h00 with pedestrian zone after 11h00.

There are no proposals for the provision of traffic signals or cycle lanes on Moore Lane, O'Rahilly Parade or Henry Place.



Figure 13.16: Street Layout – Proposed.

13.4.1.4 Servicing and Deliveries

Servicing and deliveries will be managed during the Operational Stage under the Servicing Strategy for Dublin Central.

Servicing and deliveries will take place on Moore Lane south of O'Rahilly Parade and on Henry Place between the hours of 06h00 and 11h00 Monday – Sunday. After 11h00, both Moore Lane and Henry Place will become pedestrian priority areas similar to Henry Street.

Servicing and deliveries will take place on O'Rahilly Parade and Moore Lane north of O'Rahilly Parade Place on a 24-hour basis Monday – Sunday.

Deliveries will be undertaken in rigid trucks and vans. Loading bays will be provided on Moore Lane (24m) and O'Rahilly Parade (48m) as shown on Figure 13.16. Other deliveries will be on-street.

Deliveries will also be made through a new entrance off O'Connell Street Upper prior to 11h00. This entrance will also function as an emergency access.

Waste collection will also take place using the same facilities and access.

13.4.1.5 Car Parking

13.4.1.5.1 Dublin City Development Plan 2016 – 2022

Standards for car parking in new developments are set out in Table 16.1 of the Dublin City Development Plan 2016 – 2022 and the Parking Areas are delineated on Map J.

As shown on Map J, Dublin Central is located within Parking Area 1.

The maximum car parking standards for Dublin Central based on a location in Zone 1 are reproduced in Table 13.5.

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Land Use	Standard
Retail	1 space per 350 sq. m GFA
Offices	1 space per 400 sq. m GFA
Restaurant / Cafe	None
Cultural	1 space per 400 sq. m
Hotel	1 space per 4 bedrooms
Residential – Apartments	1 space per dwelling

Table 13.5: Maximum Car Parking Standards, Dublin City Development Plan 2016 – 2022.

13.4.1.5.2 Car Parking – Development Plan

Based on the car parking standards set out in the Dublin City Development Plan, the maximum quantum of car parking for Dublin Central would be 275 spaces as calculated in Table 13.6.

Land Use	Size	Standard	Spaces
Retail	5,194 sq. m	1 per 350 sq. m GFA	15
Offices	43,418 sq. m	1 per 400 sq. m GFA	109
Restaurant / Cafe	3,876 sq. m	None	-
Cultural	183 sq. m	1 per 400 sq. m GFA	1
Hotel	210no. rooms	1 per 4 rooms	53
Residential	97no. apartments	1 space per apartment	97
Metro Enabling	9,812 sq. m	-	-
		Total	275

Table 13.6: Maximum Car Parking for Dublin Central.

13.4.1.5.3 Car Parking for Apartments

Guidelines for the provision of car parking in new apartments are set out in Sustainable Urban Housing: Design Standards for New Apartments issued by the Department of Housing, Heritage and Local Government in December 2020. Section 4.18 – 4.27 of the Standards addresses the issue of car parking.

Qualifications in the standards for reduced parking for new apartments include: -

- Location within 10 minutes walking distance of DART and/or commuter rail.

- Location within 5 minutes walking distance of bus service with minimum 10-minute peak hour frequency.

The subject site is well within these walk time criteria. In addition, it is located within the City Centre and will enjoy easy access to high frequency public transport.

Having regard to these standards, the availability of public transport together, the location of the development and the modest number of apartments, no car parking is included within Dublin Central for the residential units.

13.4.1.5.4 Proposed Car Parking

Having regard to its City Centre location and the high availability of public transport in the surrounding area, the proposed provision of car parking has been reduced to 32no. spaces to be located in Site 2.

13.4.1.6 Cycle Parking

13.4.1.6.1 Dublin City Development Plan 2016 – 2022

Standards for cycle parking in new developments are set out in Table 16.2 of the Dublin City Development Plan 2016 – 2022. As shown on Map J, Dublin Central is located within Parking Area 1.

The cycle parking standards for the Proposed Development at Dublin Central are reproduced in Table 13.7.

Land Uses	DCC Standards
Retail	1 space per 150 sq. m
Offices	1 space per 100 sq. m
Restaurant / Cafe	1 space per 150 sq. m
Cultural	1 space per 100 sq. m
Hotel	None
Residential	1 space per unit
Residential Visitors	To be decided on a case by case basis
Train Stations	7 spaces per number of trains in 2-hour period AM (min. of 100)

Table 13.7: Cycle Parking Standards Dublin City Development Plan 2016 – 2022.

13.4.1.6.2 Cycle Parking Required

Based on the cycle parking standards set out in the Dublin City Development Plan, the quantum of cycle parking required for the Proposed Development is 611 spaces as calculated in Table 13.8 below.

Land Use	Size	Standard	Spaces
Retail	5,194 sq. m	1 per 150 sq. m GFA	35
Offices	43,418 sq. m	1 per 400 sq. m GFA	434
Restaurant / Cafe	3,876 sq. m	1 per 150 sq. m GFA	26
Cultural	183 sq. m	1 per 100 sq. m GFA	2
Hotel	210no. rooms	None	-

Residential	97no. apartments	1 space per apartment	97
Residential Visitors	97no. apartments	1 space per 5no. apartments	19
Train Stations	48 trains	7 per train	To be provided by TII
		Total	613

Table 13.8: Cycle Parking Required.

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13.4.1.6.3 Proposed Cycle Parking

The proposed provision of cycle parking at Dublin Central Masterplan is 689no. spaces located as shown below. Access to these spaces is shown on Figure 13.15.

- **Site 1:** 60no. spaces.
- **Site 2:** 372no. spaces.
- **Site 3:** 160no. spaces.
- **Site 4:** 44no. spaces.
- **Site 5:** 58no. spaces.
- **Total:** 694no. spaces.

This total does not include spaces to be provided by NTA / TII for the future Metrolink Station.

13.4.1.6.4 Future Cycle Parking for Metrolink Station

Assuming a 5-minute frequency in both directions, the number of trains passing through the O'Connell Street Upper Station would be 48 in 2-hours.

This level of service would generate a cycle parking requirement of 336 spaces which are expected to be included by TII in their future planning application for Metrolink.

13.4.1.7 Cumulative Development

The Characteristics of the Cumulative Development are the same as the Characteristics of the Proposed Development described in Section 13.4.1.

13.4.2 The Proposed Development – Site 2 & No. 61 O'Connell Street Upper

The Proposed Development will include a number of land uses in a series of blocks to the west of O'Connell Street Upper between Moore Street and Moore Lane:

The Proposed Development which is illustrated in Figure 13.17 will comprise the following land uses in a series of multi-storey buildings of varying heights: -

- Offices 33,714 sq. m
- Residential 3no. apartments
- Retail 2,623 sq. m
- Café / Restaurant 2,195 sq. m
- Metro Enabling Works 9,812 sqm
- Car Parking 32no. spaces
- Cycle parking 372no. spaces

In addition, the Proposed Development will include resurfacing works to O'Rahilly Parade, Moore Lane and Henry Place, reversal of traffic flow on Moore Lane from southbound to northbound and pedestrianisation on Moore Lane and Henry Place after 11h00.

The Proposed Development will also include the retention of a number of protected buildings and facades.



Figure 13.17: Site 2AB, Site 2C and No. 61 O'Connell Street Upper Layout – Ground Level 00.

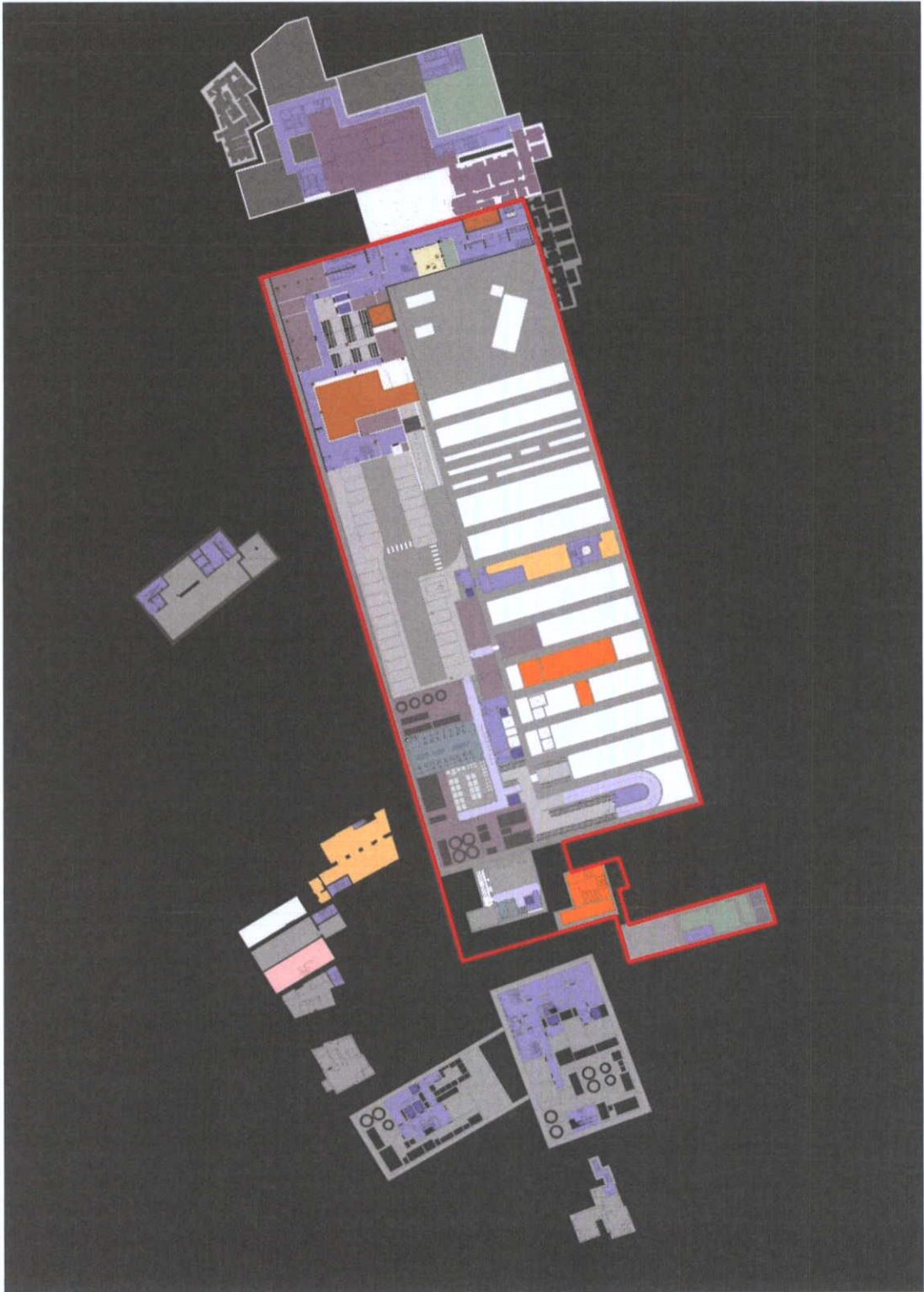


Figure 13.18: Site 2AB, Site 2C and No. 61 O'Connell Street Upper Layout – Basement Level.

13.4.2.1 Access

Pedestrian access to the Proposed Development will be from the surrounding streets and lanes.

Pedestrian access to the MetroLink Station will be from the public open space between O'Connell Street and Moore Lane.

Vehicular access to the 32no. space basement car park under Site 2 will be by ramp from Moore Lane.

Access to the 179no. cycle parking spaces for Site 2AB will be from Moore Lane.

Access to the 193no. cycle parking spaces for Site 2C will be from a lane off Moore Lane.

13.4.2.2 Public Streets

Subject to the approval of Dublin City Council, it is proposed to reorder the existing streets in the area of the subject site as illustrated in Figure 13.19 and described below.

- O'Rahilly Parade (Moore Street – Moore Lane)
One-way eastbound at all times with loading bay on south side (48m)
- Moore Lane (Parnell Street – O'Rahilly Parade)
One-way northbound at all times with loading bay on east side (24m)
- Moore Lane (O'Rahilly Parade – Henry Place)
Two-way as existing 06h00 – 11h00 with pedestrian zone after 11h00.
- Henry Place
Two-way as existing 06h00 – 11h00 with pedestrian zone after 11h00.

There are no proposals for the provision of traffic signals or cycle lanes on Moore Lane, O'Rahilly Parade or Henry Place.

13.4.2.3 Servicing and Deliveries

This EIAR is accompanied by a detailed The Dublin Central Master Plan Servicing Strategy developed by Sweco for Dublin Central GP Limited. This EIAR should be read in conjunction with that Strategy.

Servicing and deliveries will take place on Moore Lane south of O'Rahilly Parade and on Henry Place between the hours of 06h00 and 11h00 Monday – Sunday. After 11h00, both Moore Lane and Henry Place will be pedestrian priority areas similar to Henry Street.

Servicing and deliveries will take place on O'Rahilly Parade and Moore Lane north of O'Rahilly Parade Place on a 24-hour basis Monday – Sunday.

Deliveries will be undertaken in rigid trucks and vans. Loading bays will be provided on Moore Lane (24m) and O'Rahilly Parade (48m) as shown on Figure 15. Other deliveries will be on-street.

Waste collection will also take place using the same facilities and access.

A detailed Servicing Strategy has been prepared by SWECO UK Ltd for Site 2 and accompanies this planning submission. This transport assessment should be read in conjunction with the SWECO Servicing Strategy.

13.4.2.4 Car Parking

13.4.2.4.1 Dublin City Development Plan 2016 – 2022

Standards for car parking in new developments are set out in Table 16.1 of the Dublin City Development Plan 2016 – 2022 and Parking Areas are illustrated on Map J. As shown on Map J, Dublin Central is located within Parking Area 1.

The maximum car parking standards for Dublin Central based on a location in Zone 1 are reproduced in Table 13.9.

Land Use	Standard
Retail	1 space per 350 sq. m GFA

Offices	1 space per 400 sq. m GFA
Restaurant / Cafe	None
Residential – Apartments	1 space per dwelling

Table 13.9: Maximum Car Parking Standards, Dublin City Development Plan 2016 – 2022.

13.4.2.4.2 Car Parking – Development Plan

Based on the car parking standards set out in the Dublin City Development Plan, the maximum quantum of car parking for Sites 3, 4 and 5 at Dublin Central would be 155 spaces as calculated in Table 13.10.

Land Use	Size	Standard	Spaces
Retail	2,623 sq. m	1 per 350 sq. m GFA	7
Offices	33,714 sq. m	1 per 400 sq. m GFA	84
Restaurant / Cafe	2,195 sq. m	None	-
Residential	3no. apartments	1 space per apartment	3
Metro Enabling Works	9,812 sq. m	None	-
		Total	94

Table 13.10: Maximum Car Parking required for Dublin Central – Site 2 & No. 61 O'Connell Street Upper.

13.4.2.4.3 Proposed Car Parking

Having regard to its City Centre location and the high availability of public transport in the surrounding area, the proposed provision of car parking has been reduced to 32 spaces to be located at basement level under Site 2.

13.4.2.5 Cycle Parking

13.4.2.5.1 Dublin City Development Plan 2016 – 2022

Standards for cycle parking in new developments are set out in Table 16.2 of the Dublin City Development Plan 2016 – 2022.

As shown on Map J, Dublin Central is located within Parking Area 1.

The cycle parking standards for the Proposed Development at Dublin Central are reproduced in Table 13.11.

Land Uses	DCC Standards
Retail	1 space per 150 sq. m
Offices	1 space per 100 sq. m
Restaurant / Cafe	1 space per 150s q. m
Residential	1 space per unit Visitor spaces to be determined on a case by case basis

Table 13.11: Cycle Parking Standards, Dublin City Development Plan 2016 – 2022.

13.4.2.5.2 Cycle Parking Required

Based on the cycle parking standards set out in the Dublin City Development Plan, the quantum of cycle parking required for Site 2AB, Site 2C and No. 61 O'Connell Street Upper is 373no. spaces as calculated in Table 13.12 below.

Land Uses	No. Units/GFA	DCC Standards	Parking Required
Retail	2,623 sq. m	1 per 150 sq. m	17
Offices	33,714 sq. m	1 per 100 sq. m	337
Restaurant / Café	2,195 sq. m	1 per 150 sq. m	15
Residential	94no. apartments	1 per unit	3
Residential Visitor	94no. apartments	1 per 5 units	1
Metro Enabling Works (Train Station)	48 trains	7 per train	To be provided by TII
		Total	373

Table 13.12: Cycle Parking required for Dublin Central – Site 2 & No. 61 O'Connell Street Upper.

13.4.2.5.3 Proposed Cycle Parking

The proposed provision of cycle parking for Site 2 is 372no. spaces will be provided with 179no. spaces for Site 2AB and 193no. spaces for Site 2C.

Access to the cycle parking for Site 2AB will be from Moore Lane.

Access to the cycle parking in Site 2C will be from a lane off Moore Lane.

The total of 372no. spaces does not include spaces for the MetroLink Station.

Assuming a 5-minute frequency in both directions, the number of trains passing through the O'Connell Street Station would be 48 in 2-hours.

This level of service would generate a cycle parking requirement of 336 spaces which are expected to be included by TII in their planning application for MetroLink.

13.4.2.6 Cumulative Development

The Characteristics of the Cumulative Development are the same as the Characteristics of the Proposed Development described in Section 13.4.1.

13.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

13.5.1 Dublin Central Masterplan

13.5.1.1 Construction Stage

13.5.1.1.1 Construction Phasing

Due to its location and size together, it is proposed to construct the Dublin Central development on a number of sites over a period of ten years between 2023 and 2034.

The locations of the various sites are shown in Figure 13.20.

DCC PLAN NO. 5432/22
 DATED: 13/12/2022



Figure 13.20: Construction Phasing

13.5.1.1.2 Construction Program

The construction program for the various construction sites of the Dublin Central development between 2023 and 203 is presented in Figure 13.21.

The construction activities on each site can be broadly sub-divided into three categories, demolition / excavation, construction and fit-out.

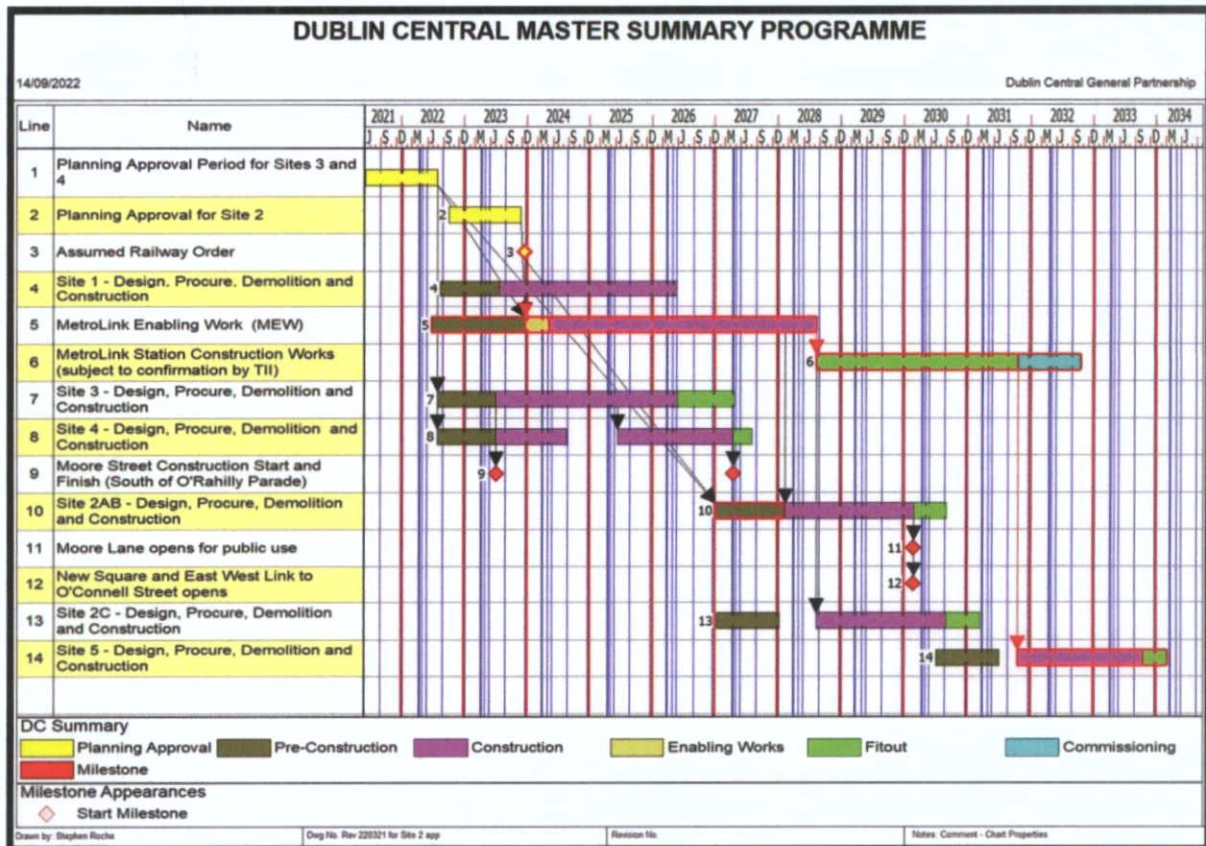


Figure 13.21: Construction Program.

13.5.1.1.3 Preliminary Construction Traffic Management Plan

Construction traffic from this development is addressed in the Preliminary Construction Traffic Management Plan (PCTMP) issued by Waterman Moylan in September 2022.

The purpose of the Plan is to address how construction traffic will access and egress this City Centre development site. It also addresses the impact of construction related traffic on the surrounding road network during the construction stage.

The objectives of the Plan are to ensure that the construction traffic for Dublin Central can be accommodated on the surrounding street network without significant impact on other road users.

It will ultimately be the responsibility of the main appointed Contractor to prepare and submit the detailed Construction Traffic Management Plan to Dublin City Council for approval. The preliminary plan has been discussed with Dublin City Council and will be used to provide guidance to the main Contractor when he commences the preparation of the detailed plan.

The construction of Dublin Central is programmed to extend over a period of 11 years between 2023 and 2034. However, the major heavy construction is expected to be carried out during the first four years from 2023 to 2027.

During the construction period, there will be a number of high activity sites where construction related traffic will be significant.

The most intensive of these sites are likely to be: -

- (a) Demolition of existing buildings and removal of demolition waste off site.
- (b) Excavation of Metro Enabling Works and disposal of the excavated spoil.
- (c) Pouring of the concrete box and frame.

The nature of the construction process is such that the traffic generated will comprise short periods of intense activity interspersed with longer periods with relatively low level of truck movements into and out of the site. In addition, the various activities will occur at multiple locations around the site giving rise to a need for multiple access for construction traffic from the street network.

13.5.1.1.4 Predicted Traffic Movements

The expected traffic movements during the construction period will vary significantly from month to month depending on the activity in progress.

For the purpose of this EIAR and the PCTMP, a worst-case scenario has been assumed based on: -

- A 10-hour day between 08h00 and 18h00 Monday – Friday.
- 20 working days per month.

The single largest activity in terms of truck movements will be the excavation for the Metro Enabling Works (station box). The total volume is expected to be 133,565 cubic metres comprising 25,242 cubic metres for the basement and 108,323 cubic metres for the station box. The excavation will be carried out over a period of 12 months between 2025 and 2026.

The excavated material is expected to be removed in 32 tonne trucks with a self-weight of 12 tonnes and a carrying capacity of 20 tonnes. On the basis of a maximum soil weight of 1.3 - 1.7 tonnes per cubic metre, each truck would have a capacity of 12 – 15 cubic metres per truck.

Based on an average payload of 8 cubic metres per truck, this operation is predicted to generate an average of 67 arrivals and 67 departures per working day equivalent to 7 arrivals and 7 departures in the AM peak hour between 08h00 and 09h00.

Allowing for other on-site activities during the same period particularly completion and fit-out to Sites 3 and 4, the construction related truck movements during the AM peak hour between 08h00 and 09h00 are expected to peak at 12 arrivals and 12 departures per hour.

Overall, the expected HGV movements during the construction stage are predicted to vary from 65 – 95 arrivals per day and 65 – 95 departures per day.

These movements represent some 1% of the existing traffic flow of 1,100 – 1,400no. vehicles per hour each way on Parnell Street during the same period.

13.5.1.1.5 Haul Routes

The Preliminary Construction Traffic Management Plan (PCTMP) for this development requires that all deliveries to and collection from the subject site comply with the DCC requirements for HGV movements including the use of the designated HGV Routes illustrated in Figure 13.22.

Two construction routes to the site have been identified both to Parnell Street. One would be via Summerhill and Parnell Street and the second preferred route via Dorset Street and Dominick Street Lower as shown in Figure 13.23.

Traffic and other movements on the road network during the construction Site will be managed by carrying out the works in a number of stages to a sequence to be prepared in conjunction with Dublin City Council and implemented by the main Contractor.



Figure 13.22: Designated HGV Routes in the City Centre.



Figure 13.23: Emerging Haul Routes for Construction Traffic (Inbound in green and outbound in red).

13.5.1.1.6 Local Traffic Management

The local traffic management for construction vehicles in the area of the site has been based inter alia on the haul routes described above and a series of tracking checks carried out on the local roads and junctions using Autotrack.

Based on these constraints, a series of proposals for a number of differing construction scenarios was prepared. The scenarios were based on the project phasing from Figure 13.20 and the construction program from Figure 13.21.

Two alternative scenarios were developed in detail based on clockwise and anti-clockwise circulation around the block bounded by Moore Street, O'Rahilly Parade and Moore Lane.

The preferred option is the anticlockwise circulation included the local traffic management proposals presented in Figure 13.24. Inbound access for the majority of construction vehicles is proposed from Parnell Street to Moore Street / O'Rahilly Parade and outbound departures from Moore Lane to Parnell Street.

This preferred option was selected on the basis of a number of local constraints including: -

- The lack of a stacking lane on Parnell Street in advance of the left turn into Moore Lane should there be a delay entering Moore Lane for whatever reason.
- The restricted width of the left turn from Parnell Street around Conway's public house into Moore Lane which could cause delays due to the slow deliberate turning for vehicles across a busy restricted area.
- The relatively easy right (and left) turns from Parnell Street to Moore Street.
- The availability of a stacking area for the right (and left) turns from Parnell Street into Moore Street.

Local traffic management on Moore Lane would require the presence of temporary traffic signals and/or flagmen at different locations and at different times to facilitate vehicles passing depending on the movements in progress.

Arrivals are proposed from Parnell Street via Moore Street and O'Rahilly Parade. Some limited departures are proposed to O'Connell Street Upper via Henry Street up to 11h00 after which Henry Street is restricted to pedestrians only. The remaining departures are proposed to Parnell Street via Moore Lane.

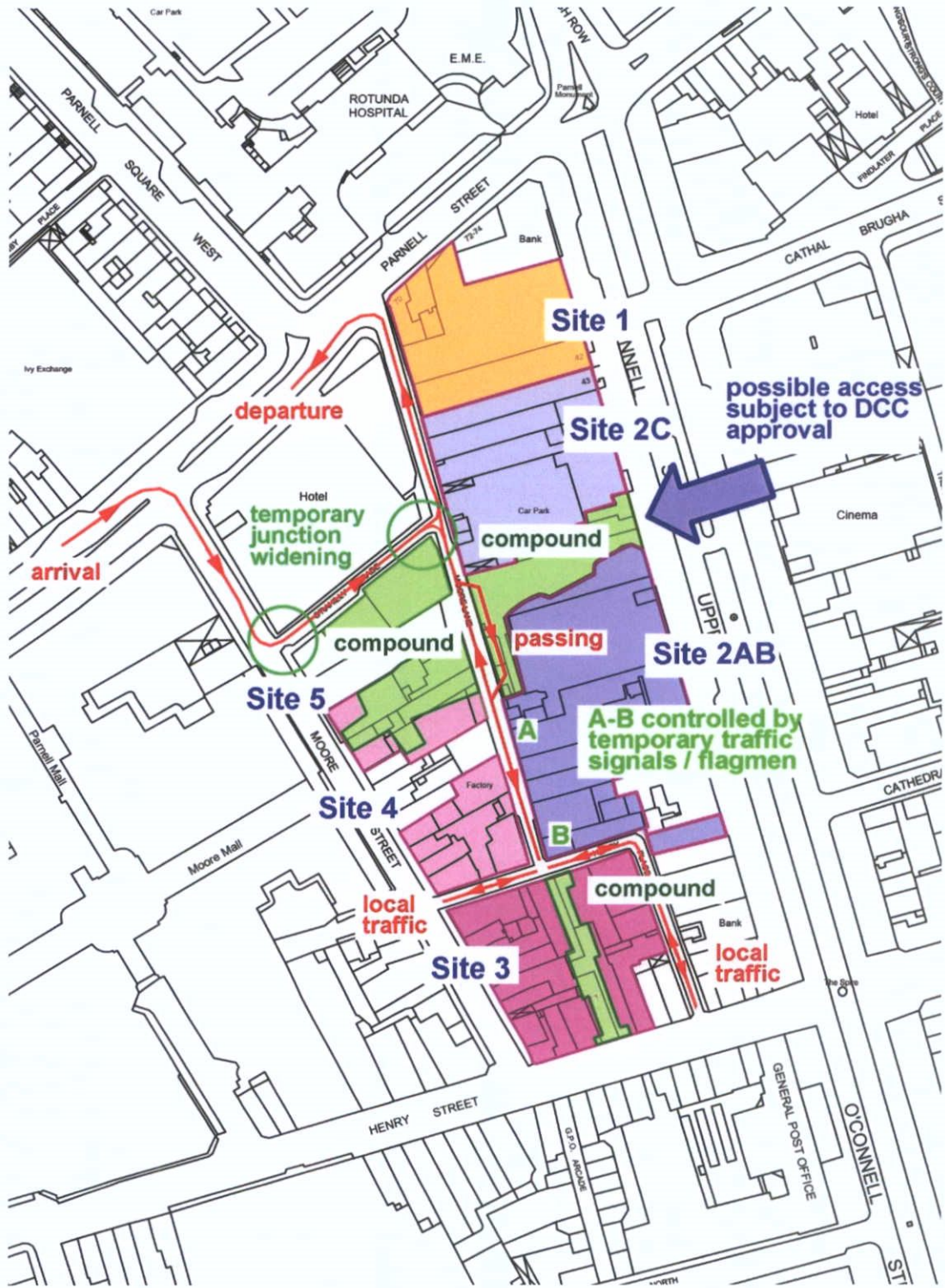


Figure 13.24: Construction Traffic Management.

13.5.1.1.7 Alternative Access for Long Vehicles to Site 3

Arising from the restricted junctions at both ends of O'Rahilly Parade, an alternative part time access to Site 3 from Parnell Street via Moore Lane is also proposed. This access would be for long vehicles only and would operate in the mornings up to 11h00 as illustrated in Figure 13.25.

Long vehicles travelling south on Moore Lane would require the presence of temporary traffic signals and/or flagmen at different locations at different times depending on the movements in progress.

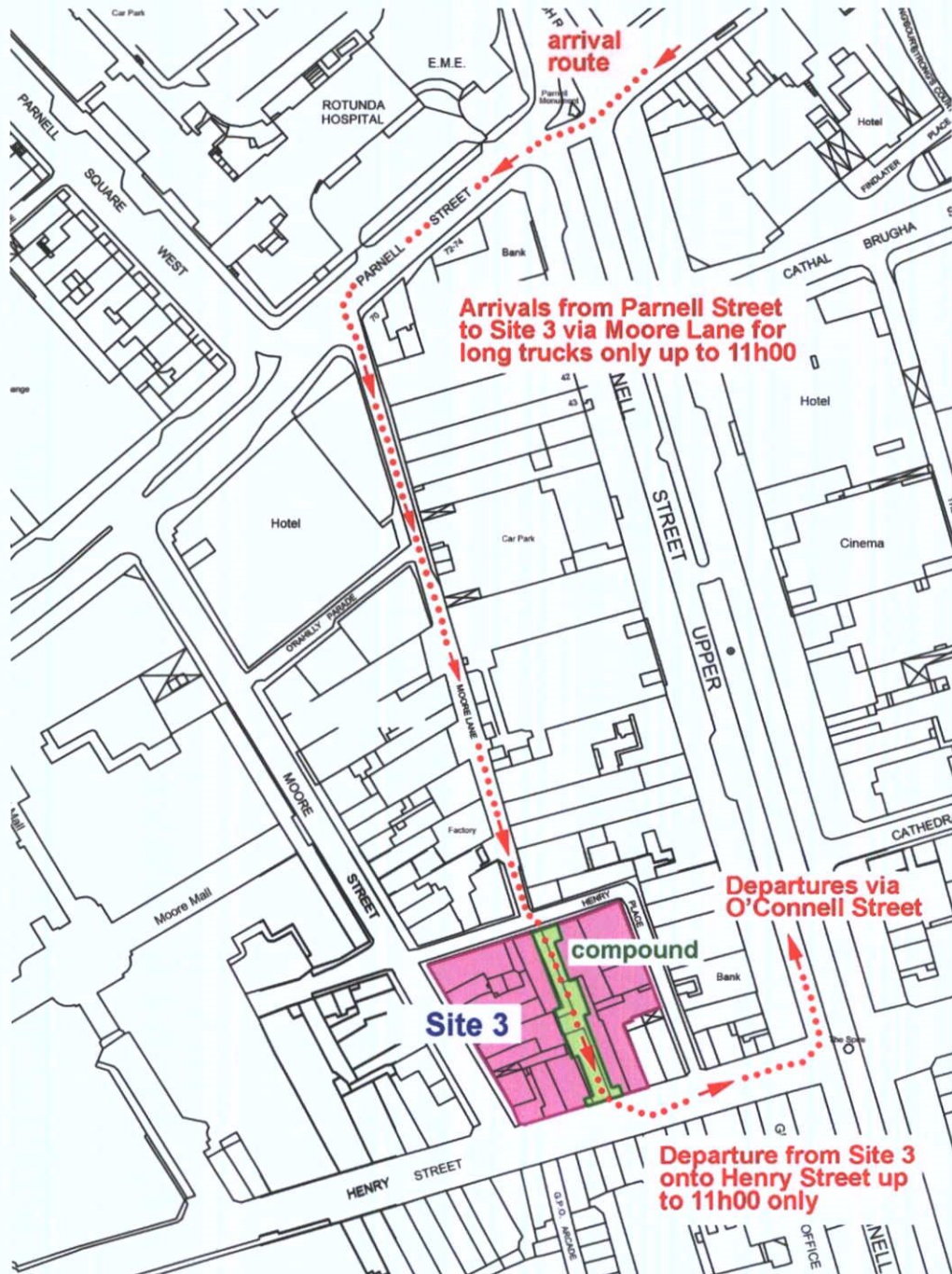


Figure 13.25: Alternative Access for Long Vehicles to Site 3.

13.5.1.1.8 Temporary Street and Junction Upgrade Works

The layout and width of the existing streets and lanes in the area of the subject site is such that the identification of the preferred option has generated a requirement for temporary local upgrades to the network.

The upgrades are required to enable articulated and other large vehicles to access the site as there is insufficient turning width in the roads and laneways as they currently exist. Access for large vehicles, whether articulated, large rigids, muck away, concrete lorries, concrete pumps or specialist cranes and other plant is vital, and without undertaking some street and junction upgrade works to ease the turning areas, access cannot be achieved.

The upgrades will also minimise the risk of construction traffic queuing back on Moore Street and onto Parnell Street. The preferred option achieves this by removing construction traffic from Moore Street at the earliest possible opportunity. The preferred option will also keep construction traffic away from the National Monument and minimise the disruption to the traders on Moore Street, whether market stall holder or shop units.

The upgrades proposed, which are shown on Figure 16, comprise local junction widening at either end of O'Rahilly Parade and local carriageway widening midway along Moore Lane.

The temporary upgrade works required for the construction traffic movements include: -

- (a) Junction Moore Street and O'Rahilly Parade
 - Relocation of existing street furniture.
 - Realignment of existing kerbs.
- (b) Junction O'Rahilly Parade and Moore Lane
 - Removal of existing depot boundary wall.
 - Realignment of existing kerbs.
- (c) Moore Lane
 - Removal of existing boundary wall to create passing area.

Details of the widening works are included on the submitted engineering drawings. Due to the temporary nature of these works, they would be agreed by Dublin City Council as part of a future detailed Construction Traffic Management Plan to be prepared by the appointed contractor together with a future Road Opening Licence application. Removal of boundary walls / fencing to facilitate the temporary street and junction upgrades are included as part of the planning application as such works would require planning permission.

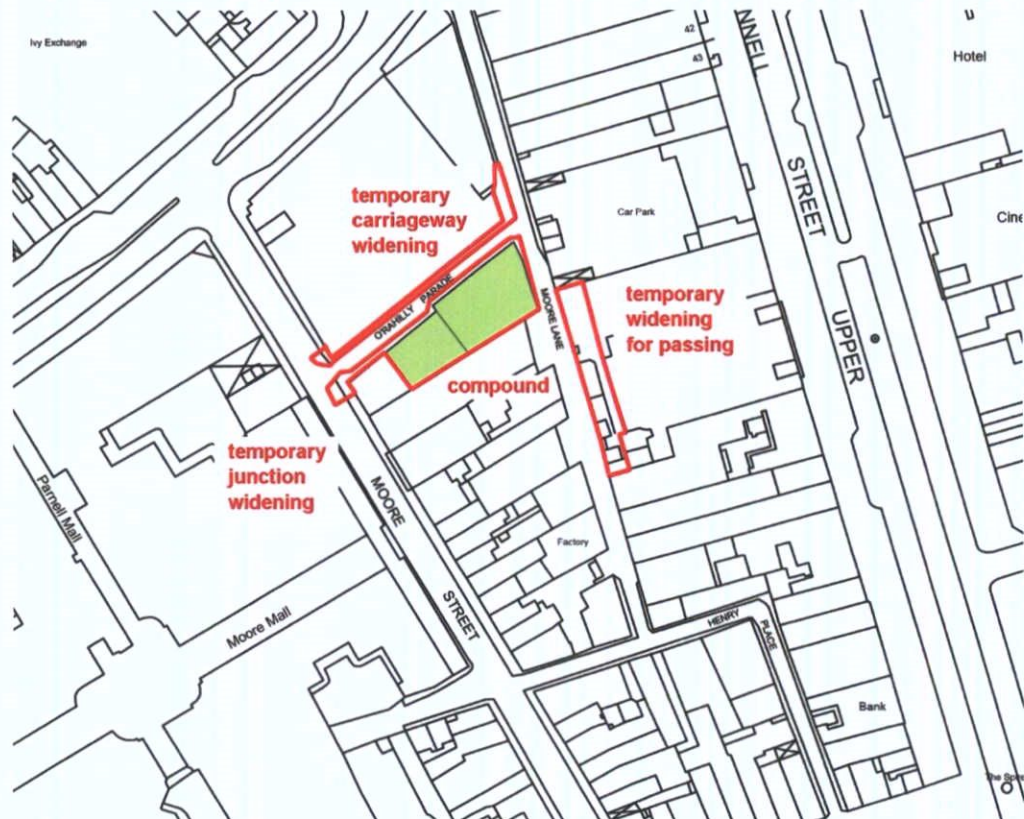


Figure 13.26: Temporary Street and Junction Upgrade Works.

13.5.1.1.9 Parking During Construction

For the purpose of this chapter of the EIAR, it has been assumed that there will be no car parking for construction staff on site.

Construction staff will either travel to site by public transport or park off-site.

13.5.1.1.10 Traffic Modelling

TRANSYT Overview

The traffic modelling described in this EIAR was carried out by Waterman Moylan using the industry standard software package TRANSYT.

TRANSYT is a computer program for studying everything from isolated road junctions to large signal-coordinated networks. It is capable of developing optimum signal settings for representative traffic conditions of a system. Priority intersections (non-signalised junctions) and roundabouts can also be modelled using TRANSYT, however this is only appropriate where these junctions form part of a larger network comprised of signalised junctions.

TRANSYT contains two main components – a traffic model and a signal optimiser. The traffic model predicts a Performance Index (PI) for a network based on a fixed signal timing plan and set of average traffic flows. The PI is a measure of the overall cost associated with congestion and is a weighted combination of total vehicle delay and stops experienced by traffic within the modelled network. The signal optimisation component within TRANSYT modifies signal timings and assesses whether those adjustments have reduced the PI.

The output report of a TRANSYT model also includes a number of other results to evaluate the studied system, such as Degree of Saturation percentage (DOS%) figure, Mean Maximum Queue (MMQ) and Mean Delay per pcu for each link on the road network.

Degree of Saturation (DOS):

DOS, also referred to as Volume to Capacity Ratio (v/c), is a measure of performance which represents the capacity of a junction/traffic lane/link to accommodate the vehicular demand and indicates how near the network is to the maximum capacity available. A DOS less than 85% generally indicates that adequate capacity is available, and vehicles are not expected to experience significant queues and delays. As the DOS approaches 100%, traffic flow may become unstable, and delay and queuing conditions may occur.

Mean Maximum Queue (MMQ):

MMQ is the highest estimated mean number of Passenger Car Units (pcu) queued in any lane of a junction approach link, averaged over the entire analysis period.

Mean Delay per Vehicle (seconds):

Mean Delay per vehicle is the average delay experienced by a vehicle on a junction approach link or traffic stream as a result of having to queue at signals or having to give way at a priority junction.

Description of Modelled Network

Four junctions along the section of Parnell Street between its intersections with O'Connell Street Upper and Dominick Street have been assessed. The junctions modelled were: -

Junction 1: Parnell Street @ O'Connell Street Upper and Parnell Square East

This junction is a signalised crossroads with LUAS line and new northbound cycle phase. Its layout has been recently altered as part of the Parnell Square Contraflow Cycle Scheme to comprise the following configuration: -

- Reduction of O'Connell Street Upper (southern approach) to a single 3.5m wide traffic lane catering for all traffic with no bus priority.
- Inclusion of north-south signal phase on O'Connell Street Upper (southern approach) for cyclists wishing to cross Parnell Street towards Parnell Square East.
- Reduction of Parnell Square East (northern approach) to one lane for right turns onto Parnell Street (western approach).

Junction 2: Parnell Street @ Parnell Square West (Signalised T-junction with LUAS line).**Junction 3: Parnell Street @ Moore Street (Priority-controlled T-junction).****Junction 4: Parnell Street @ Dominick Street (Signalised T-junction with LUAS line).**

Between O'Connell Street Upper and Parnell Square West, Parnell Street is a 24-hour clearway with one traffic lane westbound on the south side of the street, one shared traffic lane/LUAS line westbound in the centre of the street and one eastbound LUAS line on the north side of the street.

Between Parnell Square West and Moore Street, Parnell Street is a 24-hour clearway with one traffic lane westbound on the south side of the street, one traffic lane eastbound in the centre of the street separated by a median from two LUAS lines on the north side of the street.

Between Moore Street and Dominick Street, Parnell Street is a 24-hour clearway with two traffic lanes westbound on the south side, one traffic lane eastbound in the centre of the street separated by a median from two LUAS lines on the north side of the street.

Approach

The approach undertaken for carrying out this TRANSYT analysis consisted of: -

- 1) Inputting local Sydney Coordinated Adaptive Traffic System (SCATS) provided by Dublin City Council (DCC) which include vehicle/tram flows and stage sequences and timings of each signalised junction.
- 2) Setting up TRANSYT models of each junction to establish the base scenario.
- 3) Adding Proposed Development's construction traffic to the base scenario to project the Construction Stage scenario.
- 4) Comparing both assessed scenarios to identify any potential effects that may arise during the Construction Stage of the Proposed Development.

During the Construction Stage, the appointed Contractor will be required to maintain access along Moore Lane and Henry Place to existing properties at the times currently permitted by Dublin City Council or as may otherwise be agreed with the property owners and DCC.

Assessed Scenarios

The performance of the modelled road network as described above has been analysed for the critical AM Peak Hour 09h45 to 10h45 (based on surveyed results by DCC for Tuesday 4th February 2020) for the following scenarios: -

- **Base Scenario:** Road network with baseline flows (including LUAS line and new northbound cycle phase on Junction 1) and without subject development trips.
- **Construction Stage:** Road network with baseline flows (including LUAS line and new northbound cycle phase on Junction 1) with construction traffic added to the baseline flows. In this scenario, a slight change to the road network configuration has been adopted which consists of Moore Lane (from Parnell Street to O'Rahilly Parade) been reversed to northbound traffic only to facilitate construction traffic departing from the subject site.

Construction of TRANSYT Base Network

Having adopted the approach and the extent of the study area, the TRANSYT models have been developed. Typical input data to construct a TRANSYT model include traffic flows (vehicles or pcu per time segment), traffic signal controller phases and stages, intergreen times, saturation flows and lane lengths. Stage sequences and timings, intergreen times, and traffic flows were provided by DCC for all signalised junctions in the form of SCATS.

Baseline Flows – Peak Hour (SCATS Data from DCC)

Baseline Traffic (Normal, Bus and Tram)

As previously described earlier in this TA, due to ongoing travel restrictions that have been implemented to curb the spread of COVID-19, carrying out traffic count survey was not possible for this TA, and in any case would be unlikely yield useful data. Instead, SCATS pre-COVID traffic counts provided by DCC from a survey in February 2020 has been examined to identify the peak hour amongst all assessed junctions surveyed. The Peak Hour for the junctions located in Figure 13.7 was identified at 09h45 to 10h45.

Pedestrian Movements

Again, due to COVID-19 restrictions, carrying out pedestrian movement survey was also not possible for this TA. Instead, historic pedestrian movement surveys from a number of surveys were examined and used to predict existing data (pre COVID-19 restrictions). The pedestrian movements resultant of this exercise, which were used as input data on TRANSYT model, are illustrated in Figure 13.8 of this chapter.

Model Set-Up

Streams Controller, Signal Timings, and Intergreen Periods

The modelled road network incorporates the following four junctions: -

- Parnell Street @ O'Connell Street Upper and Parnell Square East (Signalised Crossroads with LUAS line and new northbound cycle phase).
- Parnell Street @ Parnell Square West (Signalised T-junction with LUAS line).
- Parnell Street @ Moore Street (Priority-controlled T-junction).
- Parnell Street @ Dominick Street (Signalised T-junction with LUAS line).

Each signalised junction (Junctions 1, 2 and 4) is controlled by a Controller Streams which contains all the signal control data associated with the junction it is controlling. A controlled stream includes all signal timing data such as cycle, phases, stages and intergreen values; stage library (phases on each stage) and stage sequence.

Stage Libraries and Sequencies

Details of the existing typical stage libraries and sequencies of each signalised junction have been obtained from DCC in the form of SCATS. This data, which include pedestrian, normal traffic tram and new cycle phases have been input in the TRANSYT models for each signalised junction.

Signal Timings

Average cycle times and minimum/average signal timings for each phase/stage have been provided by DCC. These values were input in the TRANSYT models for each signalised junction.

Intergreens

An intergreen period refers to the period of time between the end of the green signal giving right of way for one phase and the beginning of the green signal for the next phase. The normal minimum value of an intergreen period is 5 seconds (3 seconds amber and 2 seconds all red), but this is very often longer for larger junctions. The 'Traffic Management Guidelines' published by the Stationery Office states the following with regards to intergreen times: -

"The intergreen times can vary between 5 seconds for compact junctions and 10 seconds or more for junctions with a long distance between entries and exits. Particular care is needed when pedestrian phase follows a traffic phase."

Intergreen values for each stage of each signalised junction have been provided by DCC and input to the TRANSYT model.

Saturation Flows

Saturation flow is a common concept in Traffic Engineering and largely used in junction modelling. For a signalised intersection, a Base (or unadjusted) Saturation Flow can be defined as the maximum amount of flow crossing a stop line if the signals were permanently on green, and is given by the following relationship:

$$S = 3600 / h$$

Where: S = Saturation Flow (pcu/hour or Vehicle/hour); h = Saturation headway (sec/pcu or sec/veh); 3600 = number of seconds in one hour.

When developing a model with TRANSYT, the software initially adopts all signalised lanes of the network as having a Base Saturation Flow of 1,800 pcu/hour based on a saturation headway value of 2 seconds per pcu (or vehicle). This value represents a base or unadjusted saturation flow.

In TRANSYT, there is also the option to calculate the saturation flow of each lane using the equations of the UK's RR67 (Research Report 67 – The Prediction of Saturation Flows for Road Junctions Controlled by Traffic Signals). By selecting this option, extra data for each lane needs to be specified such as Site Quality Factor, Road Surface Condition, Gradient, Width, Proportion that turn, Turning Radius and Nearside Lane. These additional data included, provide for a more accurate saturation flow value for each lane, sometimes higher and sometimes lower than the default value of 1,800 pcu/hour per lane as described above. In that case, saturation flows for each lane on the modelled network have been calculated using RR67.

All details of the model set up, including Saturation Flows, are provided within the TRANSYT output reports.

13.5.1.1.11 Construction Traffic (pcu)

Traffic is composed of various types of vehicles. TRANSYT software normally utilises a common unit - known as the Passenger Car Unit (pcu), to represent general mixed-traffic on a road network. The conversion factor assigned to Heavy Goods Vehicles (HGV), so that an equivalent pcu value is generated, is 2.3. This is in line with TII 'Project Appraisal Guidelines for National Roads Uni 5.2 – Data Collection' which references the typical pcu values suggested by Transport for London (TfL).

As earlier in this TA, the construction-related truck movements during the AM peak hour are estimated at 12 arrivals and 12 departures. Based on that, the equivalent pcu value input in TRANSYT to represent the construction traffic was 28 pcu arrivals and 28 pcu departures.

13.5.1.1.12 Construction Trip Distribution

Two construction routes to the site have been identified both to Parnell Street and both complying with the DCC requirements for HGV movements. One would be via Summerhill and Parnell Street and the second preferred route via Dorset Street and Dominick Street Lower. See Figure 13.27.

For this assessment, it has been assumed that 50% of the construction traffic will arrive from Summerhill and 50% from Dorset Street/Dominick Street Lower. The corresponding pcu flows based on the assumed distribution is 13 pcu per route. This assumption can be revised in future analysis if necessary.

With regards to departure route, it was assumed that 100% of construction traffic will leave the site via Moore Lane (reversed during constructing stage from the current layout to accommodate these construction movements), turn left onto Parnell Street and then right onto Bolton Street/Dorset Street. This also complies with the DCC requirements for HGV movements.



Figure 13.27: Construction Traffic Trip Distribution.

13.5.1.1.13 Modelling Results

Base Scenario

A summary of the TRANSYT modelling results for each assessed junction for the Base Scenario is provided below. The assessed junctions were labelled as follows:

- **Junction 1:** Parnell Street @ O'Connell Street Upper and Parnell Square East (signalised Crossroads with LUAS line and new northbound cycle phase). It is worth remembering that the following alterations to Junction 1 has been recently undertaken as part of the Parnell Square East Contraflow Cycle Scheme: -
 - Reduction of O'Connell Street Upper (southern approach) to a single 3.5m wide traffic lane catering for all traffic with no bus priority.
 - Inclusion of north-south signal phase on O'Connell Street Upper (southern approach) for cyclists wishing to cross Parnell Street towards Parnell Square East.
 - Reduction of Parnell Square East (northern approach) to one lane for right turns onto Parnell Street (western approach).
- **Junction 2:** Parnell Street @ Parnell Square West (Signalised T-junction with LUAS line)
- **Junction 3:** Parnell Street @ Moore Street (Priority-controlled T-junction)
- **Junction 4:** Parnell Street @ Dominick Street (Signalised T-junction with LUAS line)

The TRANSYT analysis results as summarised in Table 13.13 below indicate that all modelled junctions are currently operating within capacity during the critical AM peak hour (09h45 – 10h45) with the highest DOS at 85% and a corresponding queue of 10.22 pcu occurring on Parnell Street (E), Junction 1.

Junction (Control Type)	Approach		Number of Lanes or Lane Type	Movement	DOS% or RFC	Mean Max Queue (pcu)	Mean Delay per Vehicle (s)
Junction 1 (Signalised Crossroads)	O'Connell Upper (S)	Street	1	L	73	11.31	39.13
			LUAS	L/R	3	0.34	31.55
	Parnell Street (W)		LUAS	S	2	0.18	40.27
	Parnell Square East (N)		1	R	34	3.58	40.58
			1	S	23	6.15	12.00
			1	S/L	10	1.57	13.60
	Parnell Street (E)		1	S	85	10.22	137.51
			1	S	75	4.75	135.94
Junction 2 (Signalised T-junction)			1 shared w/ LUAS	S/R	68	7.09	42.88
	Parnell Street (E)		1	S/L	28	4.96	5.69
			1	S	27	1.56	1.66
	Parnell Street (W)		LUAS	S	8	0.29	84.48
			1	L	61	4.38	44.27
Junction 3 (Priority T-junction)	Parnell Street (W)		1	S/R	19	0.24	3.30
	Moore Street (S)		1	L/R	15	0.18	4.78
			2	S	22	3.96	5.59
Junction 4 (Signalised T-junction)	Parnell Street (E)		LUAS	R	8	0.31	54.09
	Parnell Street (W)		1	S	18	1.59	5.59
	Dominick Upper (N)	Street	1	L	27	0.83	27.65
			LUAS	L	5	0.19	53.52

Table 13.13: Results for TRANSYT Base Scenario.

Construction Stage

A summary of the TRANSYT modelling results for each assessed junction for the Construction Stage scenario is provided below. It is worth remembering that for this scenario Moore Lane (from Parnell Street to O'Rahilly Parade) was reversed from the current southbound flow to northbound traffic only to accommodate construction traffic departing from the subject site.

The TRANSYT analysis results as summarised in Table 13.14 below indicate that all modelled junctions would continue to operate within capacity for the Construction Stage scenario during the critical AM peak hour (09h45 – 10h45), with the highest DOS of 91% and a corresponding queue of 12.20 pcu at Junction 1 (O'Connell Street Upper / Parnell Street).

Summary

The results of the assessment as summarised in Table 13.14 indicate that the modelled network would continue to operate within capacity for the Construction Stage scenario during the AM Peak Hour.

No significant change in performance of any junctions were recorded due to the inclusion of the construction traffic of the Proposed Development. Details of the predicted impact of the Proposed Development during the construction stages summarised in Table 13.14 below.

Junction (Control Type)	Approach	Number of Lanes or Lane Type	Movement	DOS% or RFC	Mean Max Queue (pcu)	Mean Delay per Vehicle (s)
Junction (Signalised Crossroads)	O'Connell Street Upper (S)	1	L	73	11.31	39.14
		LUAS	L/R	3	0.34	31.55
	Parnell Street (W)	LUAS	S	2	0.18	40.27
		1	R	34	3.58	40.58
	Parnell East (N) Square	1	S	23	6.15	12.00
		1	S/L	10	1.57	14.60
		1	S	91	12.20	163.57
	Parnell Street (E)	1	S/L	82	5.53	164.08
		1 shared w/ LUAS	S/R	68	7.09	42.88
	Junction (Signalised T-junction)	Parnell Street (E)	1	S	29	5.14
1			S	30	4.41	1.95
Parnell Street (W)		LUAS	S	8	0.29	84.48
		1	L	61	4.38	44.27
Moore Lane (S)		1	L	3	0.00	0.05
Junction (Priority T-junction)	Parnell Street (W)	1	S/R	21	0.26	3.48
	Moore Street (S)	1	L/R	16	0.18	4.84
Junction (Signalised T-junction)	Parnell Street (E)	2	S	23	4.18	5.66
		LUAS	R	8	0.31	54.09
	Parnell Street (W)	1	S	18	1.59	5.59
	Dominick Street Upper (N)	1	L	34	1.10	29.25
		LUAS	L	5	0.19	53.52

Table 13.14: Results for TRANSYT Construction Stage Scenario.

13.5.1.1.14 Traffic Impact

Methodology

Two separate methods were used to assess the impact of construction traffic on the operation of the road network. Firstly, the trips generated by the development were compared with the surveyed approach flows at a number of the junctions on the construction haul routes to determine if the construction trips would exceed 5% of the traffic on the adjoining roads. Secondly, the operation of the street network was modelled using industry standard software.

Traffic Threshold

The approach flow for each of the nine junctions surveyed on the construction haul routes for the Dublin Central development are presented in Table 13.15. The approach flows, which are for the weekday period 07h00 – 19h00, were extracted from the traffic survey carried out by TII in May 2018. The flows in the table include motorcycle, car, bus, coach, LGV, OGV1 and OGV2. They do not include cyclists or pedestrians.

The construction traffic trips in Table 13.14 were taken from Section 13.5.1.1.4 of this EIAR.

Three alternative scenarios for trip distribution during the Construction Stage were reviewed during the preparation of Table 13.14. These are described below: -

- All of the construction traffic could use the haul route to the site via Summerhill and Parnell Street.
- All of the construction traffic could use the haul route to the site via Dorset Street and Dominick Street Lower.
- The construction traffic would be divided between the two routes.

Following a review, Table 13.15 was formulated on the basis that a combination of (a) and (b) would represent the worst-case scenario.

From Table 13.14, it will be seen that the traffic generated by the construction stage of the Proposed Development at Dublin Central is significantly below the threshold of 5% of the flow on the adjoining road as set by Section 4.1.3 of Appendix 4 of the Dublin City Development Plan 2016 – 2022.

The location at which the highest increase of 1.48% is predicted to occur is Junction 83 at the intersection of Sherriff Street and Seville Place. This location is well outside the City Centre.

The equivalent increase at Junction 9 O'Connell Street Upper / Parnell Street, the nearest junction to the Proposed Development, would be 1.33%.

Notwithstanding the failure to trigger the 5% threshold and on foot of discussions with DCC and TII, an assessment was carried out on the operation of Parnell Street between O'Connell Street Upper and Dominick Street during the Construction Stage using the computer program TRANSYT.

Junction	Location	Approach Flow 07h00-19h00 vehicles	Construction Traffic 07h00-19h00 vehicles	Ratio
9	O'Connell Street Upper Parnell Street Cavendish Row	13,193	190	1.33%
22	Dorset Street N Circular Road	36,764	190	0.52%
24	Summerhill Gardiner Street Parnell Street	20,402	190	0.93%

25	Bolton Street Capel Street	20,393	95	0.47%
62	Dorset Frederick Street Blessington St	22,978	190	0.82%
66	Summerhill Portland Row N Circular Road	24,818	190	0.77%
83	Seville Place Sherriff Street	12,805	190	1.48%
88	East Wall Road Sherriff Street	26,726	190	0.71%
92	Dorset Street Dominick Street	19,076	190	1.00%

Table 13.15: Junction Approach Flow – Construction Stage.

Traffic Modelling

For the Construction Stage, an assessment was carried out on the operation of Parnell Street between O'Connell Street Upper U and Dominick Street using TRANSYT. The section of Parnell Street modelled included the LUAS Green Line and the Parnell Square Contraflow Cycle Facility under construction at the time of writing in March 2021.

The predicted impact of the Proposed Development on the operation of Parnell Street is summarised in Table 13.16.

From Table 13.16, it will be seen that the highest changes in performance during the Construction Stage occur on Parnell Street (E) – Junction 1 and on Dominick Street Upper (N) – Junction 4. These roads are the two designated access routes for construction traffic to the subject site.

In summary, the results of the traffic modelling confirmed the results of the Traffic Threshold analysis that the construction traffic generated at Dublin Central would not significantly the operation of the surrounding road network.

Junction (Control Type)	Approach	Number of Lanes or Lane Type	Movement	DOS% or RFC	Mean Max Queue (PCU)	Mean Delay per Vehicle (s)	
Junction 1 (Signalised Crossroads)	O'Connell Street Upper (S)	1	L	0	0	0	
		LUAS	L/R	0	0	0	
	Parnell Street (W)		LUAS	S	0	0	0
	Parnell Square East (N)	1	R	0	0	0	
		1	S	0	0	0	
		1	S/L	0	0	0	
	Parnell Street (E)		1	S	6	1.98	26.06
			1	S/L	7	0.78	28.13

		1 shared w/ LUAS	S/R	0	0	0
Junction 2 (Signalised T-junction)	Parnell Street (E)	1	S	1	0.18	0.08
		1	S	3	2.85	0.29
	Parnell Street (W)	LUAS	S	0	0	0
		1	L	0	0	0
	Moore Lane (S)	1	L	3	0	0.05
Junction 3 (Priority T-junction)	Parnell Street (W)	1	S/R	2	0.02	0.18
	Moore Street (S)	1	L/R	1	0	0.06
Junction 4 (Signalised T-junction)		2	S	1	0.22	0.07
	Parnell Street (E)	LUAS	R	0	0	0
	Parnell Street (W)	1	S	0	0	0
	Dominick Street Upper (N)	1	L	7	0.27	1.6
		LUAS	L	0	0	0

Table 13.16: Predicted Impact During the Construction Stage.

13.5.1.1.15 Consultations

An essential element of the planning stage for Dublin Central was a series of consultations with the Transportation Department, Dublin City Council (DCC) and with Transport Infrastructure Ireland (Luas and Metro).

The meetings which were held between September 2020 and February 2021 discussed a number of issues relating to the Construction Stage including: -

- Program and phasing.
- Quantum and timing of construction traffic.
- Excavation and dewatering for the Metro Box.
- Interaction of construction vehicles with Luas on Parnell Street.
- Haul routes.
- Parking for construction workers during construction.
- Construction access from O'Connell Street Upper.

Arising from the meetings, construction traffic was identified as the main traffic related issue to be addressed for the Construction Stage.

13.5.1.1.16 Potential Impacts

The potential impacts during the Construction Stage arising from the proposed redevelopment of Dublin Central are set out below: -

- Non-compliance with the Construction Traffic Management Plan and / or the Construction Management & Waste Management Plan including adherence to the HGV routes designated by Dublin City Council for the City Centre. could lead to traffic delays / congestion and endanger vehicle, cycle, and pedestrian safety.
- The volume of construction traffic on Parnell Street could lead to vehicular delays.
- Reducing the width of the road carriageway on Parnell Street to facilitate hoarding, scaffolding or other construction works could lead to vehicular delays.
- Reducing the width of the road carriageway on Henry Street to facilitate hoarding, scaffolding or other construction works could lead to vehicular delays before 11h00 and pedestrian delays after 11h00.
- Reducing the width of the footpath on Moore Street to facilitate hoarding, scaffolding and other construction works could restrict street trading and cause pedestrian delays after 11h00.
- Reducing the width of the carriageway on O'Rahilly Parade, Moore Lane, and Henry Place to facilitate hoarding, scaffolding and other construction works could lead to vehicular delays for existing users.
- Temporary closure of O'Rahilly Parade, Moore Lane and Henry Place to pedestrians could lead to additional walking time for pedestrians.
- The use of improperly designed access and egress points to the site for the development could endanger vehicle, cycle, and pedestrian safety.
- HGVs waiting on public roads outside the site could lead to traffic delays and congestion.
- No check(s) on each departing vehicle at the exit from site onto the public road could lead to the deposition of demolition material, mud and/or debris onto the public roads.
- Non-compliance with DCC regulations for HGVs could endanger vehicle, cycle, and pedestrian safety.
- The installation of underground services including drainage and watermains particularly on O'Rahilly Parade, Moore Lane and Henry Place could lead to vehicular delays, congestion, or diversion.

The impacts of each or all of (a) –(l) listed above are likely to be **slight negative** and **short term**.

13.5.1.2 Operational Stage

13.5.1.2.1 Methodology

The impact of the Operational Stage was assessed by comparing the trips generated by the completed development with the traffic on the adjoining roads.

13.5.1.2.2 Trip Generation

Arising from the minimal provision of car parking and the high public transport provision, vehicle trip generation from Dublin Central will be extremely low. As a result, the modal split for the private car will be significantly less than for other developments in the Dublin area.

At Dublin Central, trips will be generated the 26 car parking spaces at basement level and the service / delivery vehicles supporting the development. These trips are presented in Table 13.17.

From Table 13.17, it will be seen that the traffic predicted to be generated during the Operational Stage comprises a total of 72 movements during the critical AM peak hour (44 arrivals and 28 departures) and 38 movements during the PM peak hour (10 arrivals and 28 departures).

Time	AM Peak Hour 08h00 -09h00		PM Peak Hour 17h00 -18h00	
	Arrivals	Departures	Arrivals	Departures
Cars	20	4	4	20
Deliveries	17	17	2	2
Local /Other	8	8	4	4
Total	45	29	10	28

Table 13.17 : Summary of Generated Trips for AM and PM Peak Hours – Dublin Central Masterplan Site.

13.5.1.2.3 Trip Distribution

In this EIAR, it has been assumed that 100% of the cars arriving to the 26 car parking spaces at basement level will arrive from Parnell Street via Moore Street, O'Rahilly Parade and Moore Lane. Departure would be via Moore Lane to Parnell Street.

It has also been assumed that 50% of the service vehicles will arrive from O'Connell Street Upper via Henry Street into Henry Place. The remaining 50% would arrive from Parnell Street via Moore Street into O'Rahilly Parade. Departures would be 50% to Henry Street and 50% to Parnell Street from Moore Lane.

The trips generated by the development during the AM Peak Hour 08h00-09h00 are presented in Figure 13.28.

13.5.1.2.5 Consultations

An essential element of the planning stage for Dublin Central was a series of consultations with the Transportation Department, Dublin City Council (DCC) and with Transport Infrastructure Ireland (Luas and Metro).

The meetings which were held between September 2020 and February 2021 discussed a number of issues including: -

- Development mix and quantum
- Basement parking and access (car lifts).
- Cycle parking.
- Servicing.
- Moore Street traders.
- The timeline for making the planning application.

Arising from the meetings, servicing was identified as the main traffic related issue to be addressed for the Operational Stage.

13.5.1.2.6 Potential Impacts

The potential impacts during the Operational Stage arising from the proposed redevelopment of Dublin Central are set out below.

- The development of the O'Connell Street Upper station on the proposed Metrolink line under Dublin Central will lead to a significant increase in public transport capacity for the surrounding area.
- Removal of the existing car parking on Moore Lane could lead to an increased demand for car parking in the surrounding area.
- The existing passenger demand and the future combined provision of Bus Connects, Metrolink, Strategic Green Route, GDA Cycle Network, Strategic Pedestrian Route etc. in the surrounding area when taken together could cause the combined operation of these facilities to exceed the environmental and transportation capacity of the surrounding area. Unless the intensification of future public transport services is limited to its environmental and transportation capacity, any impact is likely to be cumulative negative long term.

The proposed mitigation measures and the predicted impact of these potential impacts are addressed below.

13.5.1.3 Cumulative Development

13.5.1.3.1 Construction Stage

The Potential Impact of the Cumulative Development arising from the Construction Stage is the same as the Potential Impact of the Proposed Development described in Section 13.5.1.1

13.5.1.3.2 Operational Stage

The Potential Impact of the Cumulative Development arising from the Operational Stage is the same as the Potential Impact of the Proposed Development described in Section 13.5.1.2.

13.5.1.3.3 Do Nothing Impact

In the event that the Dublin Central development and the Metrolink Station do not proceed, the transportation environment in the surrounding area will remain as existing.

In this scenario, there will be no Metrolink Station in O'Connell Street Upper nor will there be a public plaza between O'Connell Street Upper and Moore Street.

The existing lanes at O'Rahilly Parade, Moore Lane and Henry Place will remain in their current dilapidated state with inadequate carriageways and no footpaths.

Finally, public transport services including Dublin Bus and the Luas Green Line should continue to operate as at present.

Overall, the do-nothing impact will be to retain the existing poor environment for cyclists and pedestrians between O'Connell Street Upper and Moore Street.

13.5.2 Proposed Development – Site 2 & No. 61 O'Connell Street Upper

13.5.2.1 Construction Stage

The Potential Impacts of the Proposed Development (Sites 2 & No. 61 O'Connell Street Upper) are the same as the Potential Impacts of the Proposed Development (Dublin Central Masterplan Site) described in Section 13.5.1.1.

In the event that Site 2 and No. 61 O'Connell Street Upper are constructed independently of the other four sites, the temporary traffic management measures illustrated in Figures 13.25 and 13.26 will be replaced by the temporary traffic management measures shown in Figure 13.29 below.

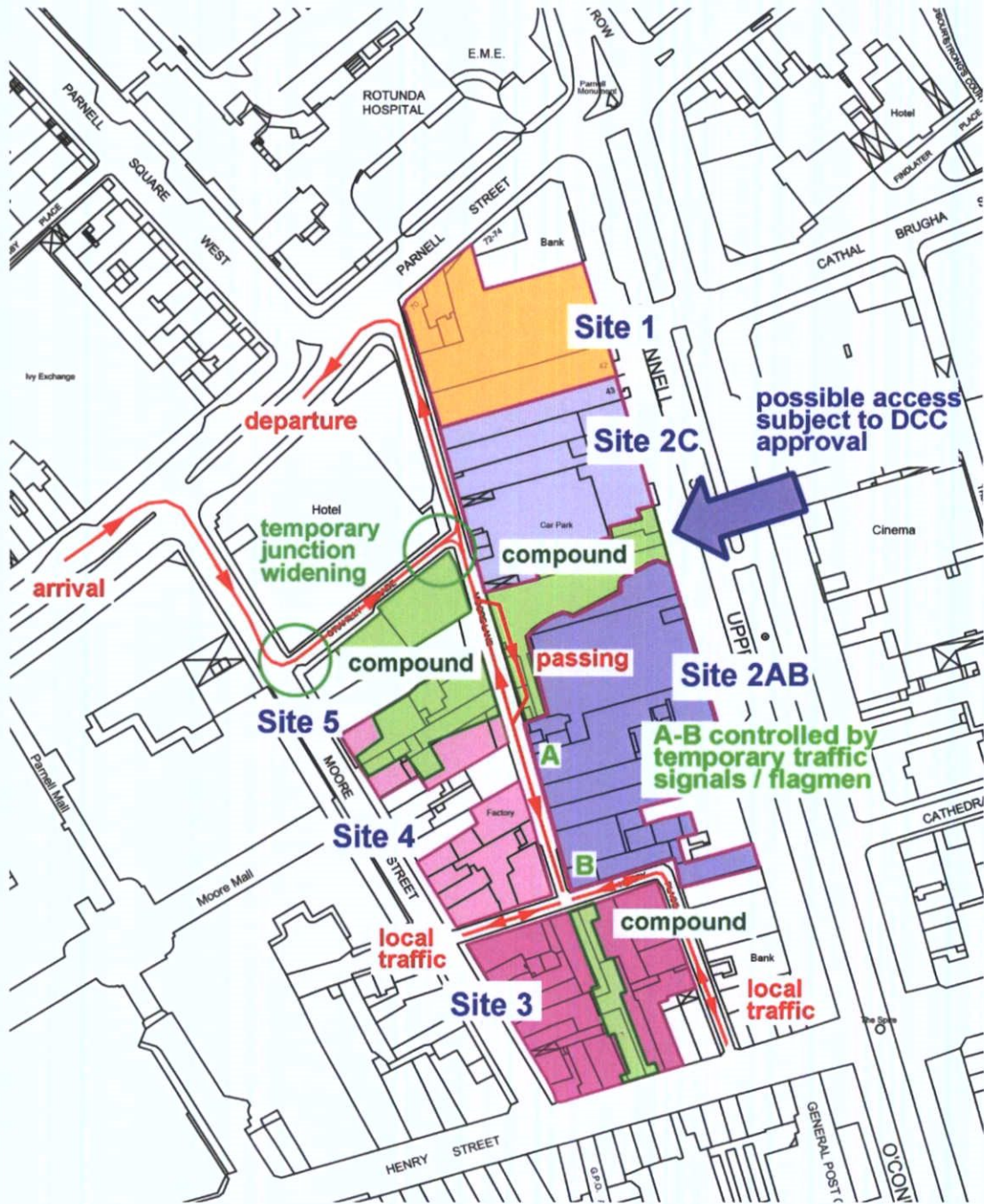


Figure 13.29: Local Traffic Management During Construction of Site 2 and No. 61 O'Connell Street Upper.

13.5.2.2 Operational Stage

13.5.2.2.1 Trip Generation

Arising from the minimal provision of car parking and the high public transport provision, vehicle trip generation from Sites 3, 4 and 5 will be extremely low. As a result, the modal split for the private car will be significantly less than for other developments in the Dublin area. Within Sites 3, 4 and 5, trips will be generated only by the service / delivery vehicles supporting the development. These trips are presented in Table 13.18.

Time	AM Peak Hour 08h00 -09h00		PM Peak Hour 17h00 -18h00	
	Arrivals	Departures	Arrivals	Departures
Cars	20	4	4	20
Deliveries	8	8	1	1
Local /Other	8	8	4	4
Total	36	20	9	25

Table 13.18: Summary of Generated Trips for Am and PM Peak Houses – Site 2 and No. 61 O'Connell Street Upper.

13.5.2.2.2 Trip Distribution

For the purpose of this EIAR, it has been assumed that 50% of the service vehicles will arrive from O'Connell Street Upper via Henry Street into Henry Place before 11h00. The remaining 50% would arrive from Parnell Street via Moore Street into O'Rahilly Parade. Departures would be 50% to Henry Street before 11h00 and 50% to Parnell Street from Moore Lane.

The trips generated by the development during the AM Peak Hour 08h00-09h00 are presented in Figure 13.30.

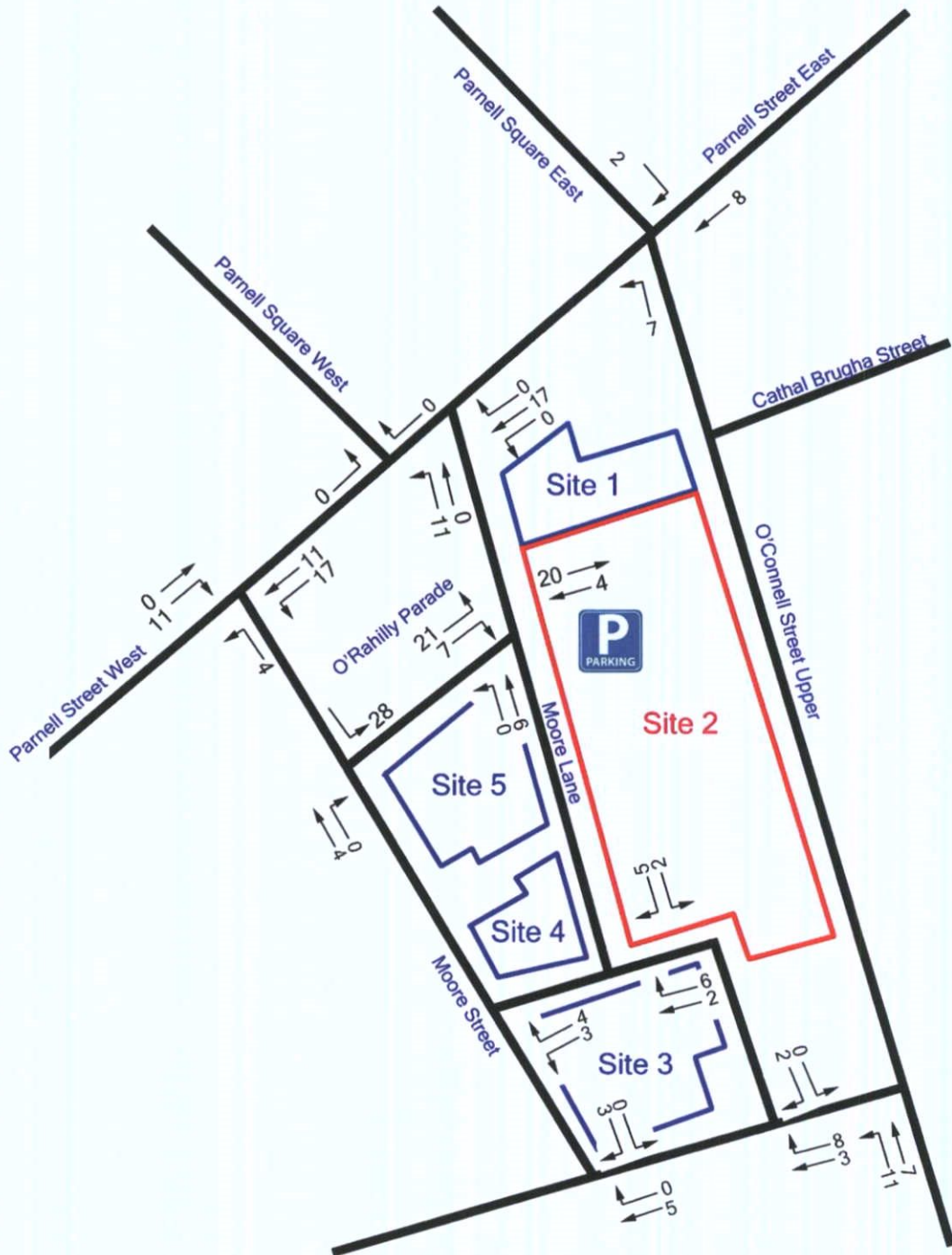


Figure 13.30: Development Trips AM Peak Hour 08h00 – 09h00.

13.5.2.3 Cumulative Development

13.5.2.3.1 Construction Stage

The Potential Impact of the Cumulative Development arising from the Construction Stage of the Proposed Development (Site 2 & No. 61 O'Connell Street Upper) will be the same as the Potential Impact of the Proposed Development (Dublin Central Masterplan Site) described in Section 13.5.1.3.1.

13.5.2.3.2 Operational Stage

The Potential Impact of the Cumulative Development arising from the Operational Stage of the Proposed Development (Site 2 & No. 61 O'Connell Street Upper) will be the same as the Potential Impact of the Dublin Central Masterplan described in Section 13.5.1.3.2.

13.5.2.4 Do Nothing Impact

The Do-Nothing Impact of the Cumulative Development arising from the non-development of the Proposed Development (Site 2 & No. 61 O'Connell Street Upper) will be the same as the Do-Nothing Impact of the Dublin Central Masterplan described in Section 13.5.1.3.3.

13.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

13.6.1.1 Dublin Central Masterplan

13.6.1.1.1 Construction Stage

The primary mitigation measure during the Construction Stage will be the implementation of the Construction Traffic Management Plan and the Construction Management & Waste Management Plan.

This will require all deliveries to and collection from the subject site to comply with the DCC requirements for HGV movements including the use of the Designated HGV Routes illustrated in Figure 13.22.

Two construction routes to the site have been identified both to Parnell Street. One will be from Dorset Street via Dominick Street and one from Summerhill via Parnell Street.

Proposal for local traffic management during the various stages of construction have also been prepared and will be incorporated in the detailed Construction Traffic Management Plan to be prepared by the appointed Contractor in conjunction with Dublin City Council for approval.

Traffic and other movements on the road network during the Construction Stage will be managed by carrying out the works in a number of stages to a sequence to be prepared in conjunction with Dublin City Council and implemented by the main Contractor.

During the Construction Stage, the appointed Contractor will be required to maintain access along Moore Lane and Henry Place to existing properties at the times currently permitted by Dublin City Council or as may otherwise be agreed with the property owners and DCC.

13.6.1.1.2 Operational Stage

The primary mitigation measure during the Operational Stage will be the implementation of the Travel Plan for Dublin Central and in particular the Action Plan section of the Travel Plan which will implement the management of travel demand.

Mitigation measures to limit the impact of the future intensification of public transport services through Bus Connects and Metrolink, are outside the control of the Dublin Central project.

13.6.1.2 Cumulative Development

13.6.1.2.1 Construction Stage

The Mitigation Measures for the Cumulative Development arising from the Construction Stage will be the same as the Mitigation Measures for the Proposed Development described in Section 13.6.1.1.1.

13.6.1.2.2 Operational Stage

The Mitigation Measures for the Cumulative Development arising from the Operational Stage will be the same as the Mitigation Measures for the Proposed Development described in Section 13.6.1.1.2.

13.6.2 Proposed Development – Site 2 & No. 61 O'Connell Street Upper

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13.6.2.1 Construction Stage

The Mitigation Measures for the Proposed Development arising from the Construction Stage of the Proposed Development will be the same as the Mitigation Measures for the Dublin Central Masterplan described in Section 13.6.1.1.1.

13.6.2.2 Operational Stage

The Mitigation Measures for the Cumulative Development arising from the Operational Stage of the Proposed Development will be the same as the Mitigation Measures for the Dublin Central Masterplan described in Section 13.6.1.1.2.

13.6.2.3 Cumulative Development

13.6.2.3.1 Construction Stage

The Mitigation Measures for the Cumulative Development arising from the Construction Stage of the Proposed Development will be the same as the Mitigation Measures for the Dublin Central Masterplan described in Section 13.6.1.2.1.

13.6.2.3.2 Operational Stage

The Mitigation Measures for the Cumulative Development arising from the Operational Stage of the Proposed Development will be the same as the Mitigation Measures for the Dublin Central Masterplan described in Section 13.6.1.2.2.

13.7 RESIDUAL IMPACT

13.7.1 Dublin Central Masterplan

13.7.1.1 Construction Stage

13.7.1.1.1 Car Parking

During the Construction Stage, there will be a permanent loss of 160no. car parking spaces on the subject site currently accessed from O'Rahilly Parade and Moore Lane. The reduction in car parking is predicted to be a **permanent long-term slight** impact which will be ameliorated by the high provision of public transport in the surrounding area.

13.7.1.1.2 Traffic Flow / Speed

The presence of construction traffic on the surrounding streets during the Construction Stage is not expected to lead to significant delays to vehicular traffic including public transport. Construction traffic is predicted to generate a temporary **slight negative, short term** impact during the construction site.

13.7.1.1.3 Diversion of Traffic

No traffic diversions are proposed on Parnell Street or O'Connell Street Upper. Local traffic diversions could occur on O'Rahilly Parade, Moore Lane and Henry Place which could lead to a temporary **slight negative, short term** impact during the Construction Stage.

13.7.1.1.4 Delays to Public Transport

No delays or disruption to bus or Luas services are predicted. Some delays may occur to bus or Luas services on Parnell Street and O'Connell Street Upper northbound due to construction traffic for Dublin Central using Parnell Street to access the development site. This impact is expected to be **temporary, short-term, slight, and negative**.

13.7.1.1.5 Capacity of Public Transport

Due to the proposed non-provision of car parking on-site, there is likely to be an increased demand for public transport from construction workers. The impact of the additional passenger demand is expected to be **temporary, short-term, slight, and negative**.

13.7.1.1.6 Cycle and Pedestrian

During construction works for the installation of underground services on the public streets, temporary facilities will be required to be provided by the main contractor to maintain cycle connectivity and pedestrian access. These facilities will be provided in accordance with the Construction Management & Waste Management Plan and the Construction Traffic Management Plan. The impact is predicted to be **temporary, short-term, slight, and negative**.

13.7.1.1.7 Overall

Overall, the impact of the Construction Stage on the transportation environment in the area of the subject site is predicted to be **temporary, short-term, slight, and negative**.

13.7.1.2 Operational Stage

13.7.1.2.1 Car Parking

The loss of 160no. car parking spaces on Moore Lane will result in the permanent loss of car parking revenue to the operators together with an increased demand on other car parking in the surrounding area, primarily off-street. The loss of car parking is likely to be a **permanent, long-term, slight, and negative impact** which will be ameliorated by the high provision of public transport in the surrounding area.

13.7.1.2.2 Traffic Flow / Speed

No works are proposed to the carriageways or junctions on O'Connell Street Upper, Parnell Street or Moore Street. The results of the traffic modelling undertaken demonstrates that the surrounding street network will operate without any material or significant impact on the road infrastructure. As a result, the Proposed Development is predicted to have a **permanent, neutral, long term slight and impact** on traffic flows and speeds on O'Connell Street Upper and Parnell Street.

13.7.1.2.3 Diversion of Traffic

No traffic diversions are proposed on Parnell Street or O'Connell Street Upper. Permanent reversal of traffic flow from one-way southbound to one-way northbound is proposed on the northern section of Moore Lane. Pedestrianisation is proposed on Henry Place and on the southern section of Moore Lane. These changes are predicted to have a **permanent, long term, moderate** and **positive impact** on the transportation network.

13.7.1.2.4 Delays to Public Transport

No delays or disruption to bus or Luas services are predicted. The impact of the development is predicted to be **permanent, long term, imperceptible** and **neutral**.

13.7.1.2.5 Capacity of Public Transport

The commissioning of Metrolink and the high level of public transport usage by staff, guests, and residents at Dublin Central are predicted to **create a permanent, long term, significant** and **positive impact** on public transport in the City Centre.

13.7.1.2.6 Cycle and Pedestrian

The proposed pedestrian area on Moore Lane and Henry Place in conjunction with the extensive provision of cycle parking are predicted to create a **permanent, long term, significant** and **positive impact** on the pedestrian and cycle environment in the City Centre.

13.7.1.2.7 Overall

Overall, the impact of the Operational Stage on the transportation environment in the area of the subject site is predicted to be permanent, long-term, slight, and positive.

13.7.1.3 Cumulative Development

13.7.1.3.1 Construction Stage

The Residual Impact for the Cumulative Development arising from the Construction Stage will be the same as the Residual Impact for the Proposed Development described in Section 13.7.1.1.

13.7.1.3.2 Operational Stage

The Residual Impact for the Cumulative Development arising from the Operational Stage will be the same as the Residual Impact for the Proposed Development described in Section 13.7.1.2.

13.7.1.4 Worst Case Impact

Where the various mitigation measures (ameliorative, remedial, reductive, and monitoring) described in Section 13.6 are not implemented correctly or fail, the proposal is likely to have to be a **negative short-term moderate impact** on the transportation environment during the Construction Stage and a **negative long term slight impact** on the transportation environment during the Operational Stage.

13.7.2 Proposed Development – Site 2 & No. 61 O'Connell Street Upper

13.7.2.1 Construction Stage

The Residual Impact for the Proposed Development arising from the Construction Stage of the Proposed Development will be the same as the Residual Impact for the Dublin Central Masterplan Site described in Section 13.7.1.1.

13.7.2.2 Operational Stage

The Residual Impact for the Cumulative Development arising from the Operational Stage of the Proposed Development will be the same as the Residual Impact for the Dublin Central Masterplan Site described in Section 13.7.1.2.

13.7.2.3 Cumulative Development

13.7.2.3.1 Construction Stage

The Residual Impact for the Cumulative Development arising from the Construction Stage of the Proposed Development will be the same as the Residual Impact for the Dublin Central Masterplan Site described in Section 13.7.1.3.1.

13.7.2.3.2 Operational Stage

The Residual Impact for the Cumulative Development arising from the Operational Stage of the Proposed Development will be the same as the Residual Impact for the Dublin Central Masterplan Site described in Section 13.7.1.3.1.

13.7.2.4 Worst Case Impact

The Worst-Case Impact for the Proposed Development will be the same as the Worst-Case Impact for the Dublin Central Masterplan described in Section 13.7.1.4

13.8 MONITORING

13.8.1 Dublin Central Masterplan

13.8.1.1 Construction Stage

The project team for Dublin Central will be tasked to monitor the operation of both the Construction and Waste Management Plan and the Construction Traffic Management Plan. In particular, any local congestion and / or delays to public transport services on O'Connell Street Upper or Parnell Street should be monitored and the cause(s) of addressed.

Any issues identified, congestion or delays arising should be addressed arising in conjunction with DCC Roads and Traffic.

13.8.1.2 Operational Stage

The management team at Dublin Central will be tasked to monitor the operation of the Travel Plan including public transport demand from Dublin Central. Any issues arising should be advised to DCC and the public transport operators.

The management team should also monitor the operation of Parnell Street and advise DCC Roads and Traffic in relation to any operational or safety issues noted.

13.8.1.3 Cumulative Development

13.8.1.3.1 Construction Stage

The Monitoring for the Cumulative Development arising from the Construction Stage will be the same as the Monitoring for the Proposed Development described in Section 13.8.1.1.

13.8.1.3.2 Operational Stage

The Monitoring for the Cumulative Development arising from the Operational Stage will be the same as the Monitoring for the Proposed Development described in Section 13.8.1.2.

13.8.2 Proposed Development – Site 2 & No. 61 O'Connell Street Upper

13.8.2.1 Construction Stage

The Monitoring for the Proposed Development arising from the Construction Stage of the Proposed Development will be the same as the Monitoring for the Dublin Central Masterplan described in Section 13.8.1.1.

13.8.2.2 Operational Stage

The Monitoring for the Proposed Development arising from the Operational Stage of the Proposed Development will be the same as the Monitoring for the Dublin Central Masterplan described in Section 13.8.1.2.

13.8.2.3 Cumulative Development

13.8.2.3.1 Construction Stage

The Monitoring for the Cumulative Development arising from the Construction Stage of the Proposed Development will be the same as the Monitoring for the Dublin Central Masterplan described in Section 13.8.1.3.1.

13.8.2.3.2 Operational Stage

The Monitoring for the Cumulative Development arising from the Operational Stage of the Proposed Development will be the same as the Monitoring for the Cumulative Development of the Dublin Central Masterplan described in Section 13.8.1.3.2.

13.9 REINSTATEMENT

13.9.1 Dublin Central Masterplan

13.9.1.1 Construction Stage

Following completion of the Construction Stage, the public streets affected by the development including Parnell Street, O'Rahilly Parade, Henry Place will be reinstated by the appointed Contractor in compliance with the current Code of Practice issued by Dublin City Council and any conditions that may be included in the grant of planning permission for the development.

13.9.1.2 Operational Stage

No reinstatement is proposed during the Operational Stage other than the ongoing maintenance of roads, footpaths, buildings, and services.