

APPENDIX D: HERITAGE SIGNIFICANCE REPORT

D



IRISH DISTILLERS BOTTLING PLANT, NORTH MALL

UNIVERSITY COLLEGE CORK / TYNDALL NATIONAL INSTITUTE

HERITAGE SIGNIFICANCE REPORT

AUGUST 2021



CITYDESIGNER

TN12-CD-04-XX-RP-Y-00001



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APPENDIX E: TRANSPORT ASSESSMENT

E

University College Cork (UCC) /
Mercy University Hospital (MUH)
North Mall Masterplan
Masterplan Transport Assessment

First Issue | 21 September 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 266872-00

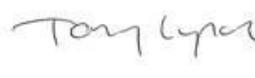
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Document Verification

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1 Introduction

Arup has been commissioned by University College Cork (UCC) and Mercy University Hospital (MUH) to undertake a Transport Assessment as part of a proposed Masterplan at North Mall Distillery Fields, Cork City, Co. Cork. The masterplan site is located within a land bank adjacent to the River Lee to the west of Cork City Centre. The proposed development will have a Gross Floor Area (GFA) of 110,378.8m² over a number of buildings as well as public realm and landscape enhancements, and a pedestrian bridge over the River Lee. A parking structure for 900 spaces is also proposed.

This report describes the existing environment and current site accessibility, presents the proposed development and assesses the impact of the anticipated traffic on the surrounding road network.

2 Report Structure

A brief description of the report structure of this assessment is presented below:

- **Section 3** of this chapter describes the Existing Receiving Environment. It describes the location of the proposed development in its context with Cork City Centre and gives a detailed description of the surrounding transport networks. It also sets out the existing traffic patterns on the surrounding road network.
- **Section 4** sets out the Proposed Development. Within this section, the nature of the proposed development is set out, in terms of the proposed use and scale of development. It also details the transport-related elements such as the projected trip generation and distribution on the local road network.
- **Section 5** sets out the Impact of the Proposed Development. This section details the expected background traffic as compared to existing traffic flows in the surrounding road network. The projected traffic generated by the proposed development (which is calculated in **Section 4**) is assigned to the local road network. The final part of this section and provides an assessment of the critical junctions with a summary of the findings in terms of the 'Ratio of Flow to Capacity' and mean maximum queues.

3 Existing Receiving Environment

3.1 Site Location

The proposed development consists of a mix of education and health facilities located within a land bank adjacent to the River Lee in Cork City Centre. The site is bounded by Sunday’s Well Road to the north, residential units on North Mall to the east, the River Lee to the south and residential units to the west.

Figure 1 below shows the site location on a city-wide context, while a map showing the location of the proposed development in the context of the local road network is presented in **Figure 2**.

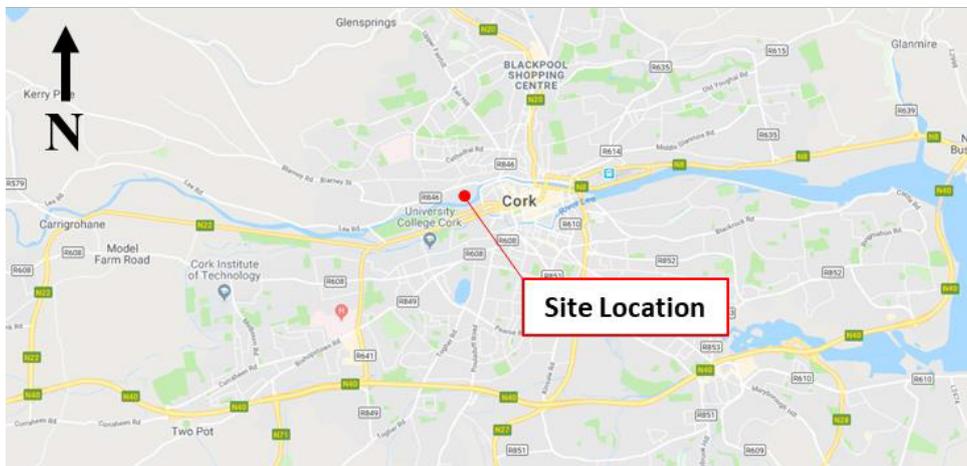


Figure 1: Site Location – City-wide Context [source: (c) Google Maps]

3.2 Local Road Network

A brief description of the local road network is provided below. The layout of the local road network is presented in **Figure 2** below.

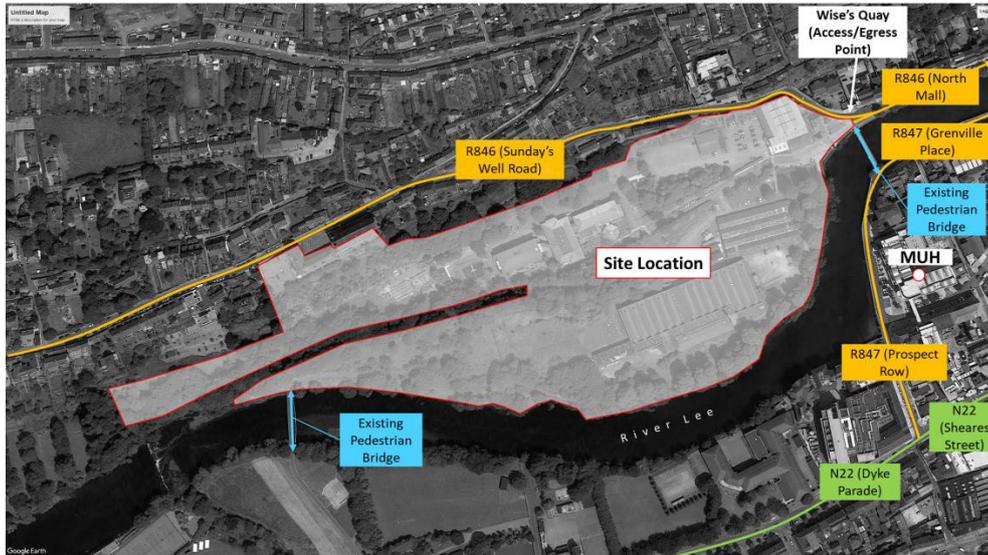


Figure 2: Site Location– Local Context [source: (c) Google Maps]

R846 (Sunday's Well Road): Sunday's Well Road is a single-lane two-way road. It runs for about 1.6km parallel to the northern boundary of the development and continues to the junction with Thomas Davis Bridge to the west. The road has a narrow carriageway, ranging from 5.4m in some sections to 6.9m elsewhere. Along the section to the east of Sunday's Well Avenue, there is only one footpath provided, located on the northern side of the road. To the west of this junction, footways are present on both sides of the road, albeit narrow in some cases.

R846 (North Mall): North Mall is a single-lane two-way road that runs parallel to the River Lee connecting Sunday's Well Road with the Griffith Bridge/Shandon Street junction. The carriageway is approximately 6.7m wide and on-street parking is permitted on the northern side of the road. There are footpaths present on both sides of the carriageway.

R847 (Grenville Place/Bachelor's Quay): Grenville Place/Bachelors Quay runs from its junction with Henry Street/Prospect Row until the junction with Griffith Bridge/Kyrl's Quay. The section between Grattan St and Griffith Bridge is two-way and traffic approaching North Mall from the south west will travel one-way northbound/eastbound between Prospect Row and Grattan Street. A footpath is present on the eastern/southern side of the road, with an at-grade shared footway and cycle track present on the western/northern side which is separated from the carriageway by flexible bollards.

Grattan Street: Grattan Street runs between its junction with Bachelor's Quay and its junction with Fenn's Quay/Sheares Street. The section between Peter's Street and Bachelor's Quay is two-way, and traffic departing North Mall heading south/south-west will travel one-way southbound on Grattan Street between Peter's

Street and Fenn's Quay/Sheares Street. A footpath is present on both sides of Grattan Street.

Wise's Quay/Upper Winters Hill (Access/Egress Point): This existing site access point will provide access and egress to and from the North Mall masterplan lands, acting as a direct connection to the entire site with multiple internal streets feeding into it from the different buildings.

3.3 Pedestrians and Cyclists

Since the implementation of the City Centre Movement Strategy (CCMS) proposals, the pedestrian and cycling environment in the area has improved significantly, allowing greater access for pedestrian and cyclists around the city centre and the development.

Footpaths are provided on both sides of the majority of streets in the vicinity of the proposed development. There is one pedestrian bridge (St. Vincent's Bridge) connecting the site entrance directly to Cork City Centre and another connecting UCC to the development at the western end.

Cyclist-priority infrastructure is also provided on many of the surrounding streets, including a facility on Grenville Place. The masterplan also proposes a new pedestrian bridge from Grenville Place/Prospect Row that will provide direct access from the development to the Mercy University Hospital and the City Centre.

Figure 3 below shows the proposed cycling network for the surroundings of the masterplan lands as part of the Cork Cycle Network Plan (2017). A primary Greenway cycling route has been implemented in the area (CCC-GW2), travelling from UCC via the pedestrian bridge over the northern channel of the River Lee into the site and ultimately reaching North Mall. A primary cycle route is proposed on North Mall (CCC-U7) and a secondary route is proposed on Sunday's Well Road (CCC-U43), both of which connect the development with the city centre.

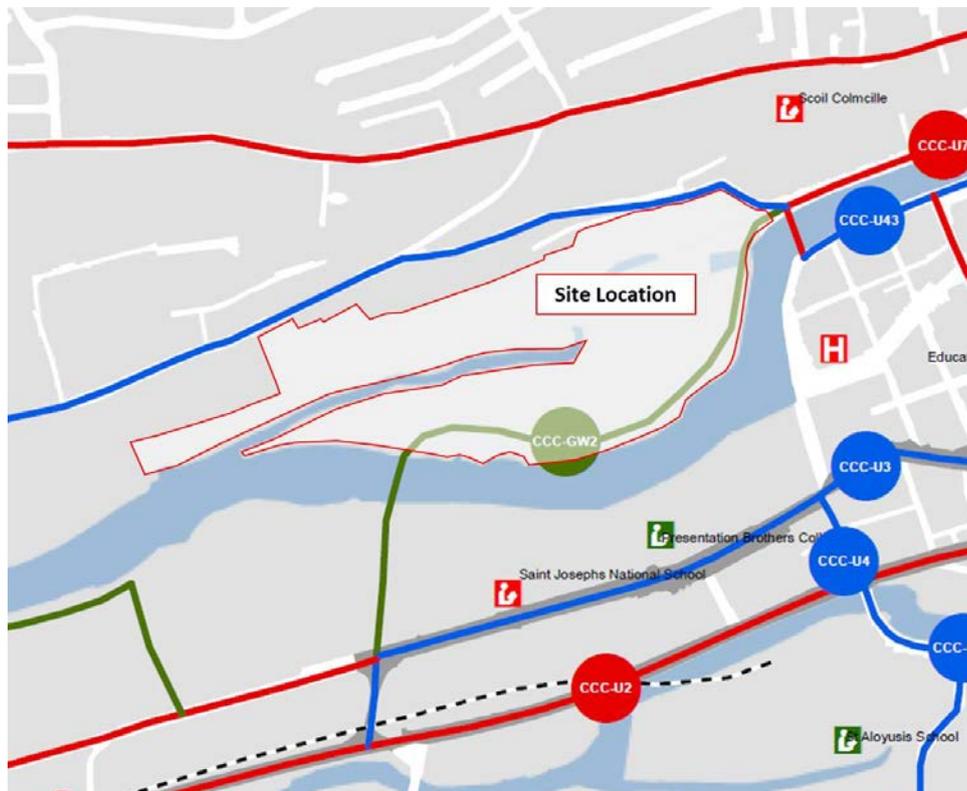


Figure 3: Cycle Network Planning Map in the vicinity of the proposed site location

3.3.1 Walking Accessibility

The site is well served by existing pedestrian facilities. **Figure 4** shows walking catchments to and from the proposed development. It can be seen in the accessibility maps that much of Cork City Centre is within a 20-minute walk from the North Mall Masterplan lands.

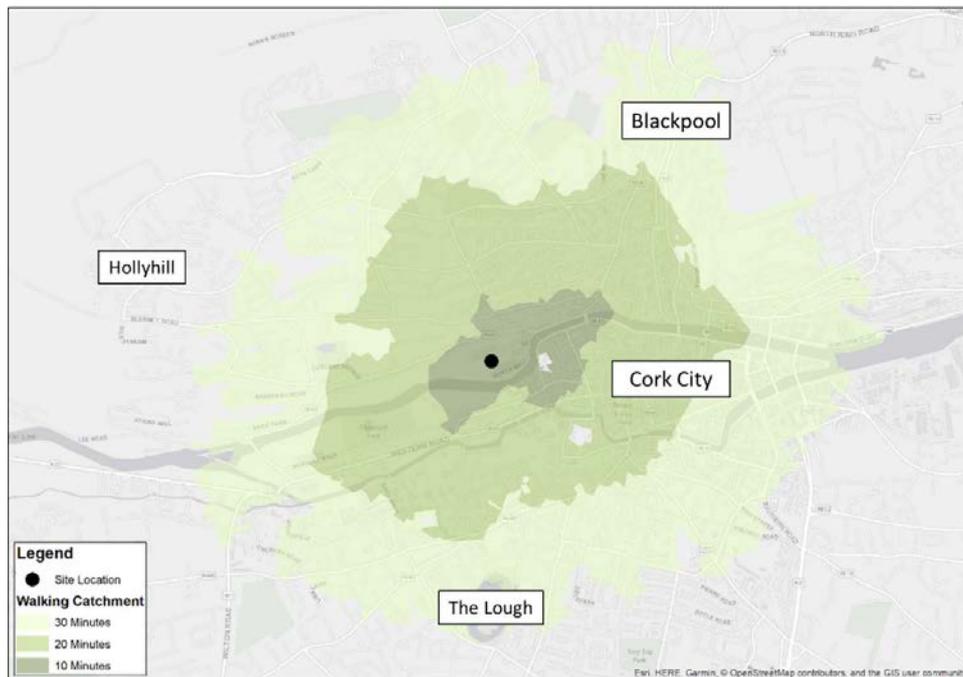


Figure 4: Walking Catchments to and from the Proposed Development

3.3.2 Cycling Accessibility

There is some provision of dedicated cycle infrastructure in the vicinity of the site at present. **Figure 5** shows a cycling catchment to and from the site. It can be seen in the accessibility maps that much of Cork City is within a 10-minute cycle to the masterplan lands and many suburbs and residential areas such as Bishopstown, Wilton, Togher, Douglas, Ballintemple, Mayfield and Hollyhill are within a 20-minute cycle of the masterplan lands.

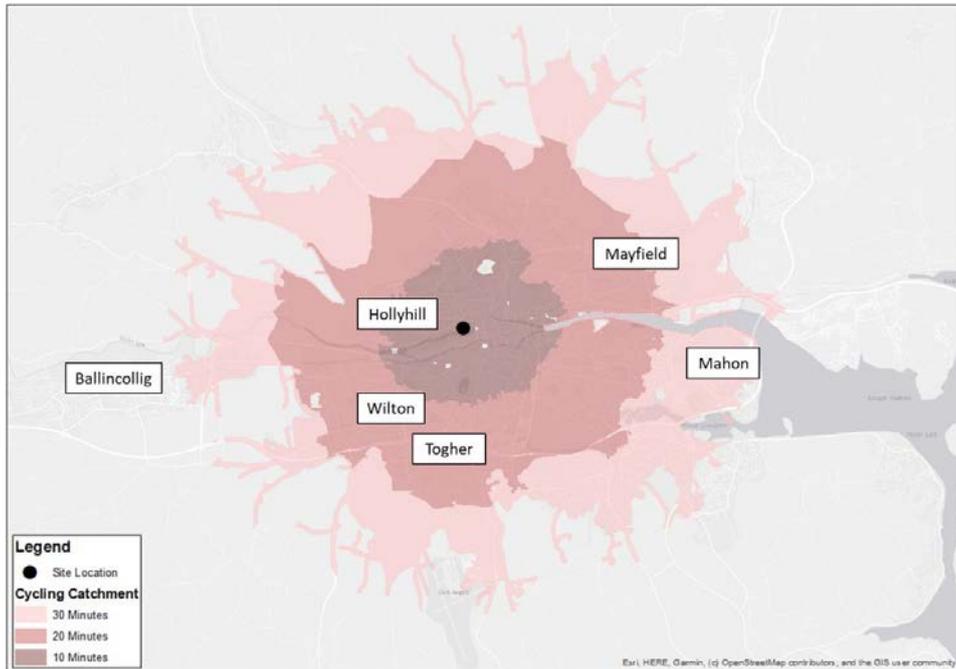


Figure 5: Cycling Catchments to and from the Proposed Development

3.4 Public Transport

3.4.1 Existing Public Transport Provision

The site is well served by public transport. The closest bus stops are located on Sheares Street and Dyke Parade, approximately 650m away to the south and accessible using two different pedestrian bridges as shown below in **Figure 6**. A bus shelter is provided at the Sheares Street stop.

The bus stops are served by the 205, 208, 220 and 220X city services. They are also served by the number 233 Cork-Ballincollig-Ballingeary regional bus service and the number 40 Tralee to Rosslare Europort regional Expressway service, in a drop-off service only at these stops. The approximate frequency of these services is presented in **Table 1**.

The 220 service has recently been extended to operate on a 24-hour basis with increased frequency during the day. Bus Éireann has confirmed that a 60% increase in customer journeys has been observed since these changes were implemented.

This is the first 24-hour service in Cork City and will provide excellent connectivity from the proposed development to Cork City and its surrounding suburban areas.

Table 1: Public Transport Service Frequencies

Bus Service	Approximate Frequency
Bus No. 205 Kent Station – Munster Technical University (CIT)	Every 15 minutes for most of the day and every 30 minutes in evening time
Bus No. 208 Lotabeg - Mayfield - City Centre - Bishopstown - Curraheen	Every 10 minutes for most of the day and every 20 minutes in the evening
Bus No. 220/220X Carrigaline – Cork – Ballincollig	24-hour service operating every 15 mins from 06.15-23.30; every 30 mins outside of these times
Bus No. 233 Cork – Ballincollig – Ballingeary	Drop-off stop: 07.10, 08.23, 08.28, 09.52, 10.46, 14.06, 17.12, 17.21, 19.35
Bus No. 40 Tralee – Rosslare Europort	Drop-off stop: Every hour until 22.45

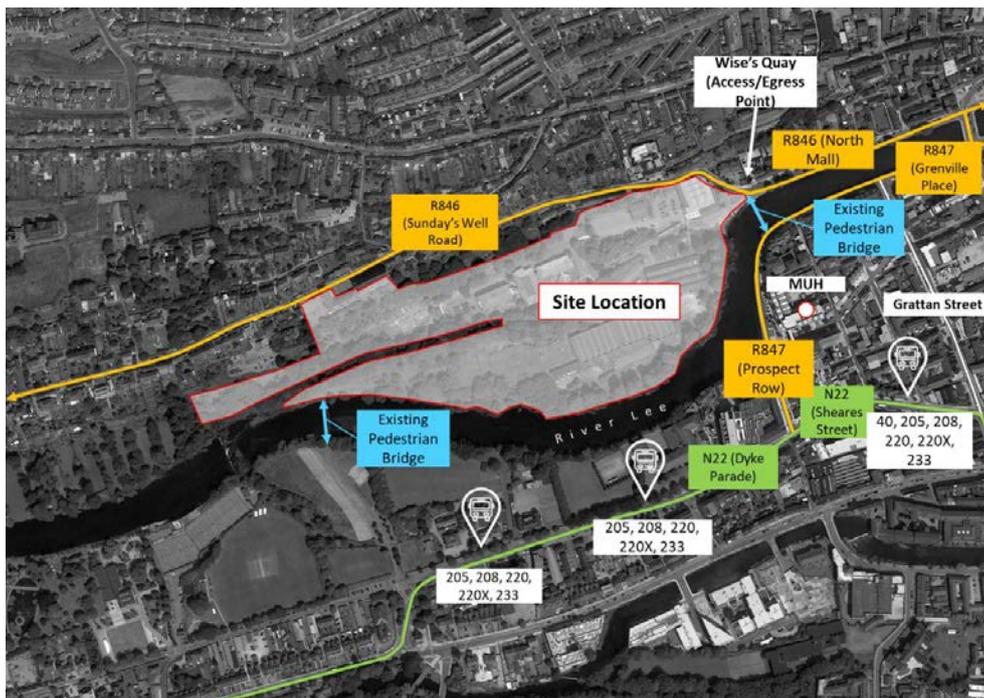


Figure 6: Public Transport Map in the vicinity of the proposed site location

3.4.2 Public Transport Accessibility

Figure 7 and **Figure 8** below present illustrative Commuter Accessibility Maps, giving an indication of how accessible the proposed site is in terms of public transport. The maps illustrate 15-minute journey time contours to and from the site (for walking to a public transport stop and the subsequent journey by rail or bus), with a catchment area of up to 60 minutes for the morning and evening peak periods.

This infographic has been produced using GIS Network Analyst, which is a multi-modal transport accessibility tool utilising nationwide general transit feed specification (GTFS) data.

The model identifies the accessibility and integration of transport facilities from the perspective of pedestrian users. The model calculates how accessible every transport facility is from each part of the street network (i.e. each bus stop or train station). The resultant time interval contours give an indication of how accessible a particular location is by public transport, and allows for a portion of walking time to the stop to be included. From the accessibility maps it can be seen that the majority of Cork City Centre and suburbs, including large residential areas such as Wilton, Bishopstown, Ballyphehane, Douglas, Togher, Ballinlough, Blackrock, Mahon, Mayfield, Sunday’s Well, Knocknaheeny, and Blackpool, are within a 45-minute commute by public transport (including walking). Some of the major suburban settlements in Cork, including Ballincollig, Blarney, Glanmire, Carrigtwohill, Carrigtohill, Middleton and Carrigaline are within a 1-hour commute of the proposed development by public transport.

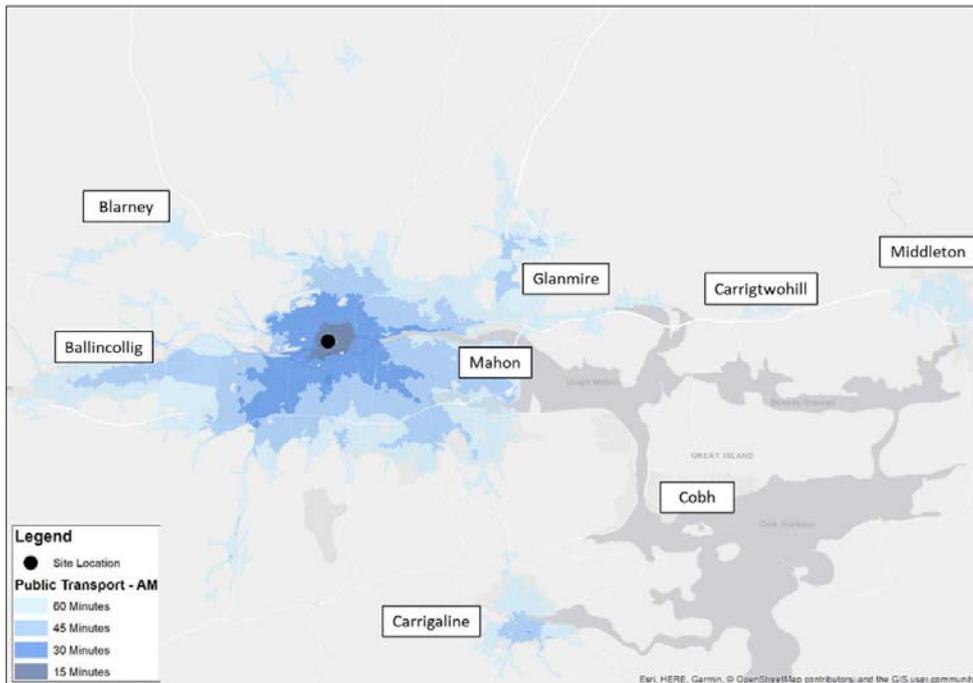


Figure 7: Public Transport Catchment - Am Arrival at Proposed Development

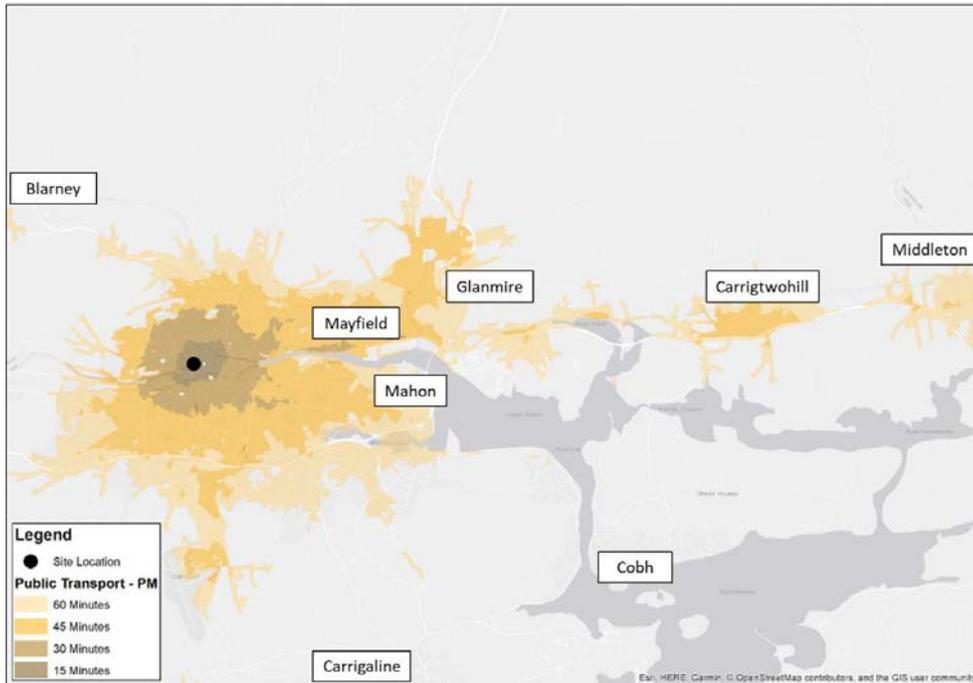


Figure 8: Public Transport Catchment - PM Departure from Proposed Development

3.4.3 Future Public Transport Provision

The Cork Metropolitan Area Transport Strategy (CMATS) includes significant plans for the improvement of the transportation network of Cork City. A key aspect of this is the proposed implementation of ‘BusConnects’, a series of high priority, high frequency bus corridors throughout the city. These corridors are to be delivered by 2027 and the planned routes are displayed in **Figure 9** below. These BusConnects routes will increase public transport access to the site as they include the proposal for a new route on Sunday’s Well Road and the North Mall, which will directly serve the site area.

3.5 Existing Traffic Patterns

In order to assess the impact of the proposed development on the local road network, an examination of the existing traffic flows in the area was deemed necessary, and traffic surveys were carried out on Tuesday 26th of February 2019 between the hours of 07:00-10:00 and 16:00-19:00, at the junctions shown below in **Figure 10**.

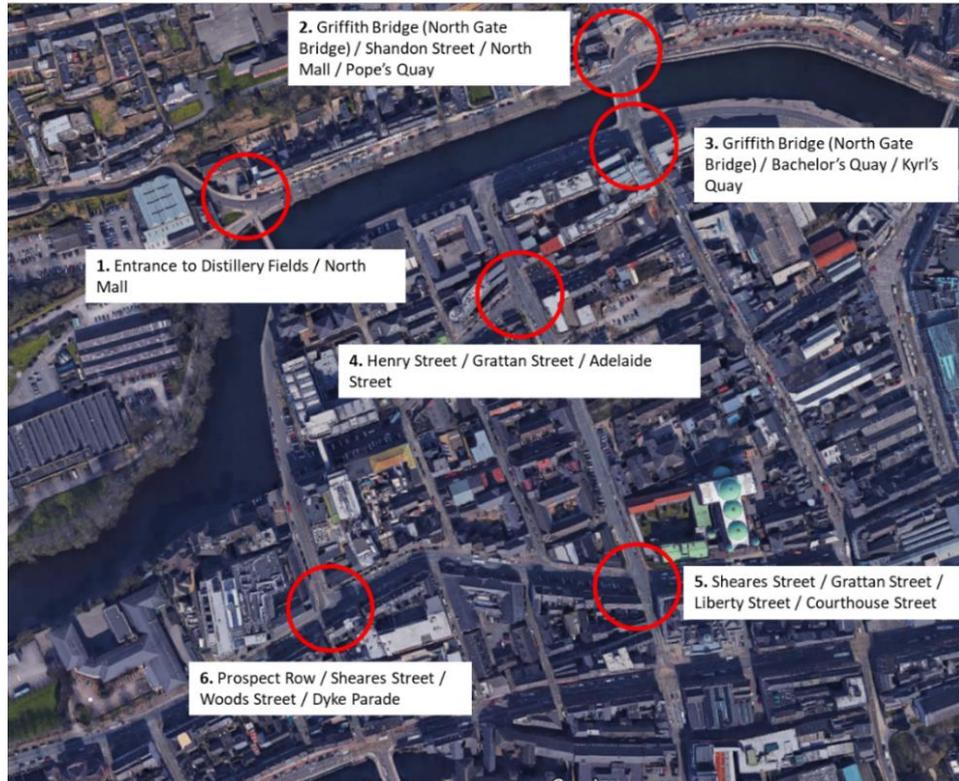


Figure 10: Locations of 2019 traffic surveys

3.5.1 Traffic Volumes

Examination of the traffic count data concluded that the peak morning traffic flows occurred between 07:30 and 08:30, while the evening peak period was observed to occur between 16:45 and 17:45. The two-way traffic flows recorded during these time periods are presented in **Table 2**.

Table 2: 2019 Two-Way Link Flows (PCUs), AM peak (07:30-08:30) and PM peak (16:45-17:45)

Junction	2019	
	AM Peak (07:30-08:30)	PM Peak (16:45-17:45)
1. Sunday's Well Road	360	415
2. North Mall	401	411
3. Griffith/North Gate Bridge	936	1167
4. R847 (Bachelor's Quay)	1072	1219
5. R847 (Kyl's Quay)	671	811
6. Grattan Street	546	711

4 Proposed Masterplan

4.1 Nature of the Proposed Masterplan

The proposed North Mall Masterplan will be a large-scale development of education and health uses, including postgraduate and undergraduate learning, teaching and research, office space, as well as clinics. The total Gross Floor Area (GFA) will be 110,378.8m². **Figure 11** below shows the indicative building configuration. The development will be permeable for pedestrians with numerous pedestrian access points.



Figure 11: Proposed Masterplan Layout

4.2 Projected Trip Generation

The potential traffic generated by the proposed development has been calculated by examining the TRICS 7.6.1 online database. The TRICS database contains trip generation rates for various land uses across the UK and Ireland.

The proposed location and floor area for each of the different uses of the proposed development was used to establish a ‘best fit’ in terms of trip generation rates for the proposed development. Person trip generation rates are calculated throughout the day as rates vary depending on time of day for different land uses. The trip rates calculated for the proposed development at peak hours are presented in **Table 3** below. Clinics, Office and College/University trip rates are calculated per 100m² GFA.

Table 3: Person Trip Generation Rates (trips per 100m² GFA)

Mixed Use (Size)	AM (07:30-08:30)		PM (16:45-17:45)	
	Arrival	Departure	Arrival	Departure
Clinics (17,808 m ²)	0.933	0.000	1.658	0.622
Total (Two-way trips)	0.933		2.28	
Office (17,548 m ²)	0.851	0.114	0.085	0.726
Total (Two-way trips)	0.965		0.811	
College/University (36,944 m ²)	1.828	0.337	0.314	1.014
Total (Two-way trips)	2.165		1.328	

Total traffic expected to be generated by the development is then calculated based on the person trip rates above, the proposed gross floor areas for different uses, and the vehicular modal split for the area, as shown in **Figure 12**. The expected volume of traffic generated by the proposed development can be seen in **Table 4**, expressed in passenger car units (PCUs).

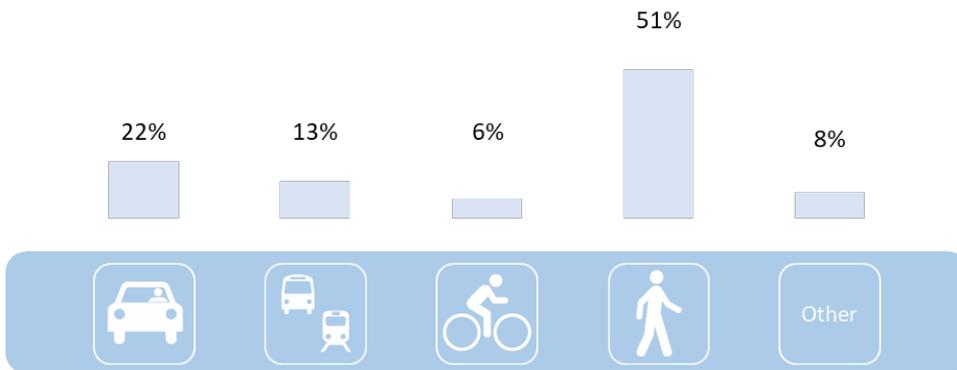


Figure 12: Modal Split (based on Census data for the local area)

PCUs are used as the unit of measurement rather than vehicles in order to examine and measure the relative effect on traffic networks by a variety of vehicles. Essentially, a passenger car is assumed to be the standard vehicle for the network and is therefore given a PCU value of 1. A factor is then applied to vehicles other than a standard car in order to convert their relative effects in terms of volume, speed, delay etc. to that of a car. A Heavy Goods Vehicle, for example, would have an equivalent PCU value of 2.3.

Table 4: Trip Generation (PCUs)

	AM (07:30-08:30)		PM (16:45-17:45)	
	Arrival	Departure	Arrival	Departure
Total	215	31	93	133

Note: figures in the above table have been rounded for clarity

The existing AM and PM peak traffic hours were determined based on the traffic counts undertaken at the six junctions outlined above and were used as the ‘base’ scenario for the assessment of additional traffic arising from the proposed development.

The proposed vehicle trip generation shows that there will be 246 new two-way movements in the AM peak traffic hour (07:30-08:30) and 226 new two-way movements in the PM peak traffic hour (16:45-17:45) to and from the proposed development.

4.3 Traffic Distribution

On the basis of the traffic survey undertaken for this assessment, the majority of arriving and departing traffic accessing the proposed site will do so via North Mall, with the remainder using Sunday’s Well Road. The existing trip distribution for the AM and PM peak hours is shown in **Table 5** below.

Table 5: Existing Trip Distribution Profile

Access Route	AM (07:30-08:30)		PM (16:45-17:45)	
	Arrivals	Departures	Arrivals	Departures
Sunday’s Well Road	20%	20%	20%	20%
North Mall	80%	80%	80%	80%

Using the traffic distribution profile outlined in **Table 5**, traffic generated by the proposed development was assigned to the surrounding road network. **Table 6** presents the traffic assignment to and from the proposed development.

Table 6: Proposed Trip Distribution (PCUs)

Access Route	AM (07:30-08:30)		PM (16:45-17:45)	
	Arrivals	Departures	Arrivals	Departures
Sunday’s Well Road	43	6	19	27
North Mall	172	25	74	106

All vehicular traffic generated by the proposed development will enter and exit the site via Wise’s Quay. This is the only vehicular access to the site, which concentrates the distribution of traffic to one side of the proposed development. An increase in traffic is therefore expected to be more noticeable in the surrounding network to the immediate east of the site.

5 Impact on Local Road Network

5.1 General

The impact on the local road network has been assessed by examining the projected traffic flows on links in the vicinity of the proposed development, and at the following six junctions both without and with the proposed development:

1. Wise's Quay/Wise's Quay/Sunday's Well Road/North Mall - Site Access/Egress;
2. Griffith Bridge/Pope's Quay/North Mall/Shandon Street Signalised Junction;
3. Griffith Bridge/Kyrl's Quay/North Main Street/Bachelor's Quay Signalised Junction;
4. Grattan Street/Henry Street/Adelaide Street Signalised Junction;
5. Sheares Street/Grattan Street/Liberty Street Signalised Junction; and
6. Grenville Place/Sheares Street/Woods Street/Dyke Parade Signalised Junction.

The morning peak period (07:30-08:30) and evening peak period (16:45-17:45) have been examined to assess the busiest case in terms of local traffic on the road network and traffic generated by the proposed development.

For this assessment it has been assumed that phase 1 the proposed masterplan will be constructed by the year 2024. The impact on the local road network has been assessed for this opening year (2024), five years after opening (2029) and 15 years after opening at full occupancy (2039) in accordance with 'Traffic and Transport Assessment Guidelines (May 2014)'. Traffic volumes gathered in 2019 on the surrounding road network have been increased to account for the expected growth in background traffic to the years 2024, 2029 and 2039 respectively.

Table 7: Link-Based Growth Rates: Annual Growth Factors for Cork City/County

Medium Growth Scenario		
Years	Light Vehicles	Heavy Vehicles
2013-2030	1.0169	1.0294
2030-2050	1.009	1.0149

5.2 Link Flow Assessment

The projected link traffic flows for both the ‘With’ and ‘Without’ masterplan scenarios are presented for each of the assessment years in the following tables. The figures in brackets relate to the percentage increase in link traffic volumes as a result of the masterplan. **Figure 13** below shows the analysed links.

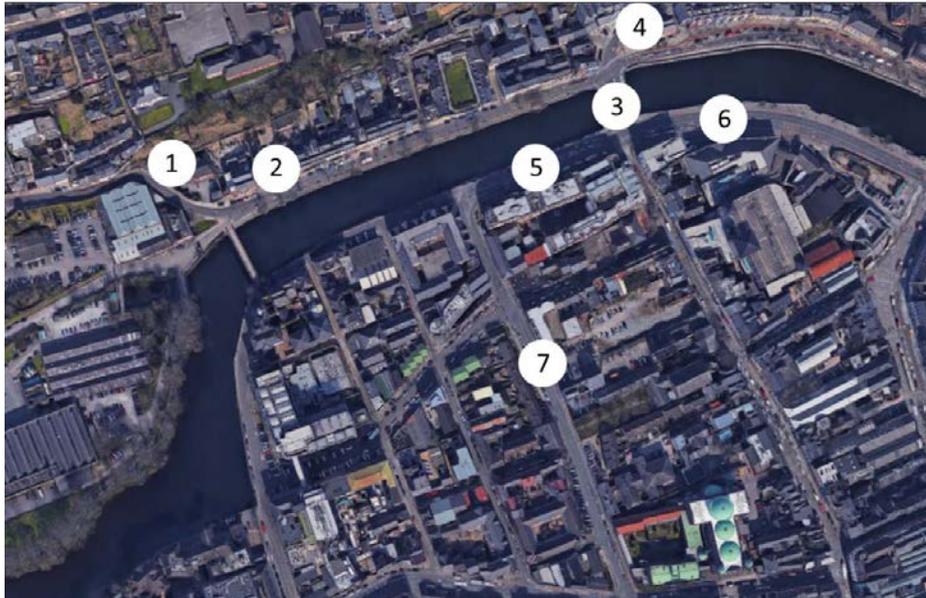


Figure 13: Road links in the vicinity of the proposed masterplan

The two-way traffic volumes on links in the vicinity of the proposed masterplan in 2024, for scenarios ‘with’ and ‘without’ the proposed masterplan in place, are shown in **Table 8** below.

Table 8: Future Two-Way Traffic Flows – Base Year 2024 (PCUs)

Link	2024 AM Peak (07:30 – 08:30)	2024 AM Peak (07:30 – 08:30)	2024 PM Peak (16:45-17:45)	2024 PM Peak (16:45-17:45)
	Without Masterplan	With Masterplan	Without Masterplan	With Masterplan
1. Sunday’s Well Road	392	441 (+11%)	419	464 (+10%)
2. North Mall	436	633 (+31%)	415	596 (+30%)
3. Griffith/North Gate Bridge	837	875 (+4%)	1110	1150 (+4%)
4. Shandon Street	1019	1113 (+8%)	1179	1291 (+9%)
5. R847 (Bachelor’s Quay)	1072	1113 (+4%)	1232	1291 (+5%)
6. R847 (Kyril’s Quay)	732	776 (+6%)	820	887 (+8%)
7. Grattan Street	594	601 (+1%)	718	745 (+4%)

The two-way traffic volumes on links in the vicinity of the proposed masterplan in 2029, for scenarios ‘with’ and ‘without’ the proposed masterplan in place, are shown in **Table 9** below.

Table 9: Future Two-Way Traffic Flows – Year 2029 (PCUs)

Link	2029 AM Peak (07:30 – 08:30) Without Masterplan	2029 AM Peak (07:30 – 08:30) With Masterplan	2029 PM Peak (16:45-17:45) Without Masterplan	2029 PM Peak (16:45-17:45) With Masterplan
1. Sunday’s Well Road	426	475 (+10%)	451	496 (+8%)
2. North Mall	474	672 (+29%)	447	628 (+27%)
3. Griffith/North Gate Bridge	910	949 (+4%)	1195	1235 (+3%)
4. Shandon Street	1110	1204 (+8%)	1269	1382 (+8%)
5. R847 (Bachelor’s Quay)	1272	1322 (+4%)	1327	1372 (+3%)
6. R847 (Kyril’s Quay)	797	842 (+5%)	883	950 (+7%)
7. Grattan Street	647	654 (+1%)	774	800 (+3%)

The two-way traffic volumes on links in the vicinity of the proposed masterplan in 2039, for scenarios ‘with’ and ‘without’ the proposed masterplan in place, are shown in **Table 10** Error! Reference source not found. below.

Table 10: Future Two-Way Traffic Flows – Year 2039 (PCUs)

Link	2039 AM Peak (07:30 – 08:30) Without Masterplan	2039 AM Peak (07:30 – 08:30) With Masterplan	2039 PM Peak (16:45-17:45) Without Masterplan	2039 PM Peak (16:45-17:45) With Masterplan
1. Sunday’s Well Road	470	519 (+9%)	491	536 (+8%)
2. North Mall	523	721 (+27%)	486	667 (+27%)
3. Griffith/North Gate Bridge	1004	1043 (+4%)	1300	1340 (+3%)
4. Shandon Street	1225	1319 (+7%)	1379	1493 (+8%)
5. R847 (Bachelor’s Quay)	1406	1455 (+3%)	1444	1489 (+3%)
6. R847 (Kyril’s Quay)	881	926 (+5%)	961	1028 (+7%)
7. Grattan Street	715	721 (+1%)	842	869 (+3%)

The proposed masterplan shows varying increases of between 1% and 31% in traffic flows on the surrounding road network. It should be noted that higher

percentage increases are generally observed on North Mall, Sunday's Well Road and North Gate Bridge and that the flows in the 'Without' Masterplan scenario are relatively low, hence the large percentage increase.

5.3 Junction Assessment

The background traffic flows recorded in February 2019 were applied to the seven junctions outlined above, as follows:

1. Wise's Quay/Sunday's Well Road/North Mall - Site Access/Egress;
2. Griffith Bridge/Pope's Quay/North Mall/Shandon Street Signalised Junction;
3. Griffith Bridge/Kyrl's Quay/North Main Street/Bachelor's Quay Signalised Junction;
4. Grattan Street/Henry Street/Adelaide Street Signalised Junction;
5. Sheares Street/Grattan Street/Liberty Street Signalised Junction; and
6. Grenville Place/Sheares Street/Woods Street/Dyke Parade Signalised Junction.
7. Wise's Quay

The signalised junctions were analysed using LinSig V3, a dedicated software package for the analysis of signal-controlled junctions. The priority junction at the proposed masterplan access was analysed using Junctions 9 software, which is a dedicated software package for the analysis of priority junctions (containing the PICADY and ARCADY analysis packages).

5.3.1 Wise's Quay/Sunday's Well Road/North Mall - Site Access/Egress

5.3.1.1 Base Year 2019

The 2019 Base Year AM and PM results for the 'Without' scenario are shown below in **Table 11** indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 11: Junctions 9 Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises' Quay/ North Mall	0	3%	0.5	33%
Sunday's Well Road	0.1	13%	0	0%

It can be seen from the results above that the access/egress point to the masterplan lands operates within capacity during the AM and the PM Peak periods in the 2019 Base Year.

5.3.1.2 Scenario 1: 2024 ‘Without’ & ‘With’ Masterplan

The 2024 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 12** and **Table 13** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 12: Junctions 9 Assessment: 2024 Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises’ Quay/ North Mall	0	3%	0.5	33%
Sunday’s Well Road	0.2	14%	0	0%

Table 13: Junctions 9 Assessment: 2024 Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises’ Quay/ North Mall	0.1	12%	2.1	68%
Sunday’s Well Road	0.3	24%	0	4%

It can be seen from the results above that the access/egress point to the masterplan lands will continue to operate within capacity during the AM and the PM Peak periods in the 2024 Base Year in both ‘Without’ and ‘With’ masterplan scenarios.

5.3.1.3 Scenario 2: 2029 ‘Without’ & ‘With’ Development

The 2029 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 14** and **Table 15** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 14: Junctions 9 Assessment: 2029 Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises' Quay/ North Mall	0	3%	0.6	36%
Sunday's Well Road	0.2	15%	0	0%

Table 15: Junctions 9 Assessment: 2029 Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises' Quay/ North Mall	0.2	12%	2.4	72%
Sunday's Well Road	0.4	26%	0	4%

It can be seen from the results above that the access/egress point to the masterplan lands will continue to operate within capacity during the AM and the PM Peak periods in the 2029 Base Year in both 'Without' and 'With' masterplan scenarios.

5.3.1.4 Scenario 3: 2039 'Without' & 'With' Masterplan

The 2039 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 16** and **Table 17** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 16: Junctions 9 Assessment: 2039 Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises' Quay/ North Mall	0	4%	0.6	40%
Sunday's Well Road	0.2	17%	0	0%

Table 17: Junctions 9 Assessment: 2039 Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Wises' Quay/ North Mall	0.2	13%	3.0	76%
Sunday's Well Road	0.4	28%	0	4%

It can be seen from the results above that the access/egress point to the masterplan lands will continue to operate within capacity during the AM and the PM Peak periods in the 2039 Base Year in both 'Without' and 'With' masterplan scenarios.

5.3.2 Griffith Bridge/Pope's Quay/North Mall/Shandon Street Signalised Junction

5.3.2.1 Base Year 2019

The 2019 Base Year AM and PM results for the 'Without' scenario are shown below in **Table 18** indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 18: LinSig Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	9.9	70%	7.8	68%
North Mall	5.6	76%	8.7	95%
Griffith Bridge	7.9	62%	17.6	92%
Pope's Quay	6.4	75%	4.9	80%

It can be seen from the results above that the signalised junction is not currently operating within capacity during the PM Peak period in the 2019 Base Year. However, the junction is currently operating within capacity during AM Peak period in the 2019 Base Year.

5.3.2.2 Scenario 1: 2024 'Without' & 'With' Masterplan

The 2024 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 19** and **Table 20** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 19: LinSig Assessment: 2024 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	11.8	79%	8.0	70%
North Mall	6.1	77%	8.7	95%
Griffith Bridge	8.6	72%	17.9	93%
Pope's Quay	7.5	82%	5.0	80%

Table 20: LinSig Assessment: 2024 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	14.7	89%	12.5	93%
North Mall	9.5	93%	18.0	103%
Griffith Bridge	6.5	75%	48.1	109%
Pope's Quay	10.8	90%	8.8	96%

It can be seen from the results above that the signalised junction is operating within capacity during AM Peak period not operating within capacity during the PM Peak period in the 'Without' scenario and will experience some issues in the 'With' scenario in both AM and PM Peak periods.

5.3.2.3 Scenario 2: 2029 'Without' & 'With' Masterplan

The 2029 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 21** and **Table 22** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 21: LinSig Assessment: 2029 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	14.0	86%	9.7	81%
North Mall	8.4	90%	12.6	102%
Griffith Bridge	9.9	78%	30.2	100%
Pope's Quay	8.1	83%	6.0	86%

Table 22: LinSig Assessment: 2029 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	23.7	100%	16.2	98%
North Mall	13.9	101%	31.7	116%
Griffith Bridge	10.6	78%	63.3	113%
Pope's Quay	19.8	104%	11.7	102%

It can be seen from the results above that the signalised junction is not operating within capacity during AM Peak and PM Peak period in the 'Without' scenario and will be over capacity in the 'With' scenario in both AM and PM Peak periods.

5.3.2.4 Scenario 3: 2039 'Without' & 'With' Masterplan

The 2039 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 23** and **Table 24** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 23: LinSig Assessment: 2039 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	30.0	104%	11.6	88%
North Mall	18.5	107%	12.7	101%
Griffith Bridge	15.9	93%	59.6	111%
Pope's Quay	7.8	75%	7.9	94%

Table 24: LinSig Assessment: 2039 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Shandon Street	49.8	113%	28.4	105%
North Mall	22.4	110%	39.9	123%
Griffith Bridge	13.0	86%	94.4	123%
Pope's Quay	30.9	12%	16.6	109%

It can be seen from the results above that the signalised junction is not operating within capacity during AM Peak and PM Peak period in the 'Without' scenario and will be over capacity in the 'With' scenario in both AM and PM Peak periods.

5.3.3 Griffith Bridge/Kyrl's Quay/North Main Street/Bachelor's Quay Signalised Junction

5.3.3.1 Base Year 2019

The 2019 Base Year AM and PM results for the 'Without' scenario are shown below in **Table 25**, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 25: LinSig Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	13.9	93%	8.6	82%
Bachelor's Quay	9.6	89%	7.1	76%
North Main Street	0.2	4%	2.2	44%
Kyrl's Quay	3.1	59%	6.5	80%

It can be seen from the results above that the signalised junction operates within capacity during the AM and the PM Peak periods in the 2019 Base Year.

5.3.3.2 Scenario 1: 2024 'Without' & 'With' Masterplan

The 2024 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 26** and **Table 27** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 26: LinSig Assessment: 2024 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	13.9	92%	7.6	78%
Bachelor's Quay	9.6	89%	6.6	71%
North Main Street	0.2	4%	2.2	44%
Kyrl's Quay	2.0	40%	5.6	74%

Table 27: LinSig Assessment: 2024 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	13.9	93%	8.6	82%
Bachelor's Quay	9.6	89%	7.1	76%
North Main Street	0.2	4%	2.2	44%
Kyrl's Quay	3.1	59%	6.5	80%

It can be seen from the results above that the signalised junction is operating within capacity during the PM Peak period in both the 'Without' and 'With' scenarios. However, it is not operating within capacity during the AM Peak periods in the 'Without' and 'With' masterplan scenarios.

5.3.3.3 Scenario 2: 2029 'Without' & 'With' Masterplan

The 2029 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 28** and **Table 29** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 28: LinSig Assessment: 2029 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	21.1	101%	8.2	79%
Bachelor's Quay	13.4	97%	7.5	76%
North Main Street	0.2	5%	2.3	47%
Kyrl's Quay	2.3	46%	7.6	88%

Table 29: LinSig Assessment: 2029 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	21.4	101%	10.0	87%
Bachelor's Quay	13.4	97%	8.1	81%
North Main Street	0.2	4%	2.4	47%
Kyrl's Quay	3.4	63%	7.6	86%

It can be seen from the results above that the signalised junction is approaching capacity during the PM Peak period in the 'With' scenario, and is not operating within capacity during the AM Peak periods in the 'Without' and 'With' scenarios.

5.3.3.4 Scenario 3: 2039 ‘Without’ & ‘With’ Masterplan

The 2039 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 30** and **Table 31** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 30: LinSig Assessment: 2039 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	31.0	107%	7.6	78%
Bachelor’s Quay	23.5	107%	7.7	73%
North Main Street	0.2	4%	2.5	50%
Kyrl’s Quay	2.5	50%	16.0	106%

Table 31: LinSig Assessment: 2039 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Griffith Bridge	39.3	111%	11.0	89%
Bachelor’s Quay	23.5	107%	10.1	89%
North Main Street	0.2	4%	2.6	52%
Kyrl’s Quay	3.8	67%	14.0	102%

It can be seen from the results above that the signalised junction is not operating within capacity during AM Peak and PM Peak period in the ‘Without’ scenario and will be over capacity in the ‘With’ scenario in both AM and PM Peak periods.

5.3.4 Grattan Street/Henry Street/Adelaide Street Signalised Junction

5.3.4.1 Base Year 2019

The 2019 Base Year AM and PM results for the ‘Without’ scenario are shown below in **Table 32**, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 32: LinSig Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	7.6	46%	9.1	55%
Henry Street	1.6	36%	6.0	56%
Grattan Street South	0.1	1%	1.8	13%

It can be seen from the results above that the signalised junction operates within capacity during the AM and the PM Peak periods in the 2019 Base Year.

5.3.4.2 Scenario 1: 2024 ‘Without’ & ‘With’ Masterplan

The 2024 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 333** and **Table 34** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 33: LinSig Assessment: 2024 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	8.6	51%	9.2	56%
Henry Street	1.7	38%	6.0	56%
Grattan Street South	0.1	1%	1.8	14%

Table 34: LinSig Assessment: 2024 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	8.7	51%	9.9	59%
Henry Street	1.7	38%	6.0	56%
Grattan Street South	0.1	1%	1.8	14%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ development scenarios respectively.

5.3.4.3 Scenario 2: 2029 ‘Without’ & ‘With’ Masterplan

The 2029 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 35** and **Table 36** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 35: LinSig Assessment: 2029 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	9.8	55%	10.3	60%
Henry Street	1.8	41%	6.6	61%
Grattan Street South	0.1	1%	1.9	15%

Table 36: LinSig Assessment: 2029 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	10.1	56%	11.0	63%
Henry Street	1.8	41%	6.6	61%
Grattan Street South	0.1	1%	1.9	15%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.3.4.4 Scenario 3: 2039 ‘Without’ & ‘With’ Masterplan

The 2039 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 37** and **Table 38** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 37: LinSig Assessment: 2039 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	11.5	61%	11.6	65%
Henry Street	2.1	47%	7.5	66%
Grattan Street South	0.1	1%	2.1	16%

Table 38: LinSig Assessment: 2039 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street North	11.8	62%	12.4	69%
Henry Street	2.1	47%	7.5	66%
Grattan Street South	0.1	1%	2.1	16%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.3.5 Grenville Place/Sheares Street/Woods Street/Dyke Parade Signalised Junction

5.3.5.1 Base Year 2019

The 2019 Base Year AM and PM results for the ‘Without’ scenario are shown below in **Table 39**, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 39: LinSig Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	6.0	40%	7.6	45%
Woods Street	4.3	40%	4.2	44%

It can be seen from the results above that the signalised junction is currently operating within capacity during the AM and the PM Peak periods in the 2019 Base Year.

5.3.5.2 Scenario 1: 2024 ‘Without’ & ‘With’ Masterplan

The 2024 AM and PM results for the ‘Without’ and ‘With’ development scenarios are shown below in **Table 40** and **Table 41** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 40: LinSig Assessment: 2024 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	6.8	43%	4.7	32%
Woods Street	4.8	43%	4.3	44%

Table 41: LinSig Assessment: 2024 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	7.5	47%	5.1	33%
Woods Street	5.0	45%	4.4	46%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.3.5.3 Scenario 2: 2029 ‘Without’ & ‘With’ Masterplan

The 2029 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 42** and **Table 43** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 42: LinSig Assessment: 2029 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	7.5	47%	5.2	34%
Woods Street	5.3	47%	4.6	48%

Table 43: LinSig Assessment: 2029 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	8.3	51%	5.4	36%
Woods Street	5.5	49%	5.4	49%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the 'Without' and 'With' masterplan scenarios respectively.

5.3.5.4 Scenario 3: 2039 'Without' & 'With' Masterplan

The 2039 AM and PM results for the 'Without' and 'With' masterplan scenarios are shown below in **Table 44** and **Table 45** respectively, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 44: LinSig Assessment: 2039 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	8.6	52%	5.8	37%
Woods Street	5.9	52%	5.1	52%

Table 45: LinSig Assessment: 2039 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Dyke Parade	9.4	56%	6.0	39%
Woods Street	6.2	54%	5.3	53%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the 'Without' and 'With' masterplan scenarios respectively.

5.3.6 Sheares Street/Grattan Street/Liberty Street Signalised Junction

5.3.6.1 Base Year 2019

The 2019 Base Year AM and PM results for the 'Without' scenario are shown below in **Table 46**, indicating 'Queue' and Ratio of Flow to Capacity 'RFC' values for the respective arms.

Table 46: LinSig Assessment: 2019 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)

Grattan Street	4.0	39%	3.7	39%
Sheares Street	3.4	40%	3.7	40%
Liberty Street	0.4	11%	0.7	18%

It can be seen from the results above that the signalised junction is operates within capacity during the AM and the PM Peak periods in the 2019 Base Year.

5.3.6.2 Scenario 1: 2024 ‘Without’ & ‘With’ Masterplan

The 2024 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 47** and **Table 48** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 47: LinSig Assessment: 2024 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	4.4	43%	3.7	40%
Sheares Street	3.6	43%	3.7	40%
Liberty Street	0.4	12%	0.7	18%

Table 48: LinSig Assessment: 2024 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	4.7	48%	4.1	45%
Sheares Street	3.7	45%	3.9	47%
Liberty Street	0.4	12%	0.7	18%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.3.6.3 Scenario 2: 2029 ‘Without’ & ‘With Masterplan

The 2029 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 49** and **Table 50** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 49: LinSig Assessment: 2029 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	4.9	47%	4.0	43%
Sheares Street	4.0	46%	4.0	43%
Liberty Street	0.5	13%	0.7	20%

Table 50: LinSig Assessment: 2029 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	5.1	50%	4.5	49%
Sheares Street	4.1	51%	4.1	49%
Liberty Street	0.5	13%	4.1	20%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.3.6.4 Scenario 3: 2039 ‘Without’ & ‘With’ Masterplan

The 2039 AM and PM results for the ‘Without’ and ‘With’ masterplan scenarios are shown below in **Table 51** and **Table 52** respectively, indicating ‘Queue’ and Ratio of Flow to Capacity ‘RFC’ values for the respective arms.

Table 51: LinSig Assessment: 2039 Base Year, AM and PM Peaks – Without Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	5.5	52%	4.5	46%
Sheares Street	4.4	50%	4.4	47%
Liberty Street	0.5	15%	0.8	22%

Table 52: LinSig Assessment: 2039 Base Year, AM and PM Peaks – With Masterplan

Approach Arm	AM Peak (07:30-08:30)		PM Peak (16:45-17:45)	
	Queue (PCU)	RFC (%)	Queue (PCU)	RFC (%)
Grattan Street	5.7	55%	5.0	53%
Sheares Street	4.7	57%	4.7	55%
Liberty Street	0.5	15%	0.8	22%

It can be seen from the results above that the signalised junction is operating and will continue to operate within capacity during the AM and the PM Peak periods in the ‘Without’ and ‘With’ masterplan scenarios respectively.

5.4 Assessment Summary

Sections 5.2 and 5.3 above indicate that the majority of the network continues to perform within capacity with the development in place. The maximum increases in link flows on the regional road network with the development is 31% on North Mall. This percentage increase, as well as increases in nearby locations, is largely due to relatively low base traffic flows.

The Griffith Bridge/Shandon Street signalised junction experiences capacity issues during the PM Peak periods for all years in the ‘With Masterplan scenario, in particular on the North Mall, Pope’s Quay and the Griffith Bridge arms. The Griffith Bridge/Kyrl’s Quay junction will also experience an increase in capacity in the AM on the Griffith Bridge and Bachelor’s Quay arms, which are already approaching capacity in the ‘Without’ scenarios, and will experience greater capacity issues in both AM and PM Peak periods of future assessment years in both ‘With’ and ‘Without’ Masterplan scenarios.

6 Conclusion

The proposed development is located to the west of Cork City Centre. The development will have a Gross Floor Area (GFA) of 110,378.8m² over a number of Buildings.

The analysis presented above represents a conservative estimate of traffic generated by the proposed Masterplan. Notwithstanding this, the majority of the network will experience increases in traffic volumes but will continue to operate within capacity with the Masterplan in place. As expected, the two junctions on either side of Griffith Bridge will experience capacity issues due to the additional traffic generated by the proposed Masterplan; however, these junctions are operating at a higher capacity at present and, therefore, the overall impact on the operation of the surrounding road network is not considered to be significant.

APPENDIX F: HERITAGE PHOTOGRAPHIC RECORD

F



Plate A1: View to entrance to subject site from Grenville Place



Plate A3: Southern elevation of Distillery House and warehouses to rear



Plate A2: Front elevation of Building A-Distillery House (RPS ref. no. PS813)



Plate A4: Former distillery warehouses, Building E, to rear of Distillery House



Plate A5: Northern elevation of warehouses, Building E, on Sunday's Well Road with architectural fragment in wall



Plate A7: Western elevation of Building B, former Saint Vincent's Seminary now Department of Music, UCC (RPS ref. no. PS797)



Plate A6: Northern elevation of Building B, Saint Vincent's Church which is no longer in use as a church (RPS ref. no. PS797)



Plate A8: Eastern elevation of Building C-the Cooperage



Plate A9: Western and northern elevations of Building C - The Cooperage



Plate A11: Southern elevation of Building D - The Former Bottling Plant



Plate A10: Southern elevation of Building C- the Cooperage



Plate A12: Northern elevation of Building D - The Former Bottling Plant



Plate A13: View of the southern elevation of Building D- the Bottling Plant



Plate A15: Alderman Reilly's Bridge, Building F, from Granville Place (RPS ref. no. PS814)



Plate A14: Loading-bay on southern elevation of Building D- the Bottling Plant



Plate A16: View to Saint Vincent's Church from Elizabeth's Fort



Plate A17: View to remaining chimneys and retaining wall



Plate A19: Building J-Butler Building



Plate A18: Building I-Cork Enterprise Centre



Plate A20: View to Saint Vincent's Church from Bachelor's Quay



Plate A21: View to Distillery Grounds from Grenville Place



Plate A23: View to Saint Vincent's Church from Mardyke Bridge



Plate A22: View to Elizabeth's Fort from Blair's Hill, Sunday's Well Road



Plate A24: View to Saint Vincent's Church from Mardyke Cricket Grounds



Plate A25: Northern elevation of chimney, Building G, on Sundays Well Road (RPS ref. no. PS813)