

**Phase 1 - Corrib Causeway - Dyke
Road**

Public Transport Capacity Assessment

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1 Introduction

This report was prepared on behalf of Galway City Council (GCC) and has been completed by PUNCH Consulting Engineers for a proposed residential development at Dyke Road, Terryland, Galway City.

The purpose of the report is to review the frequency and capacity of the existing public transport within the vicinity of the proposed development site. The report will then assess if the existing public transport infrastructure can accommodate additional trips generated from the proposed development, while ensuring that all services remain within capacity.

1.1 Site Location

The subject lands are located to the north of Galway City Centre and are bounded by Dyke Road to the west, an existing public carpark to the south, Galway Retail Park to the east and the Black Box Theatre and Terryland Park to the north. The site is currently a public car park and vehicular access to the site.

The site is located approximately 650m north of Eyre Square, 800m north of Ceannt Train & Bus Station. All of this makes the site highly accessible to pedestrians, cyclists, public and private transport and is considered a Sustainable Location. Figure 1-1 indicates the location of the subject lands.

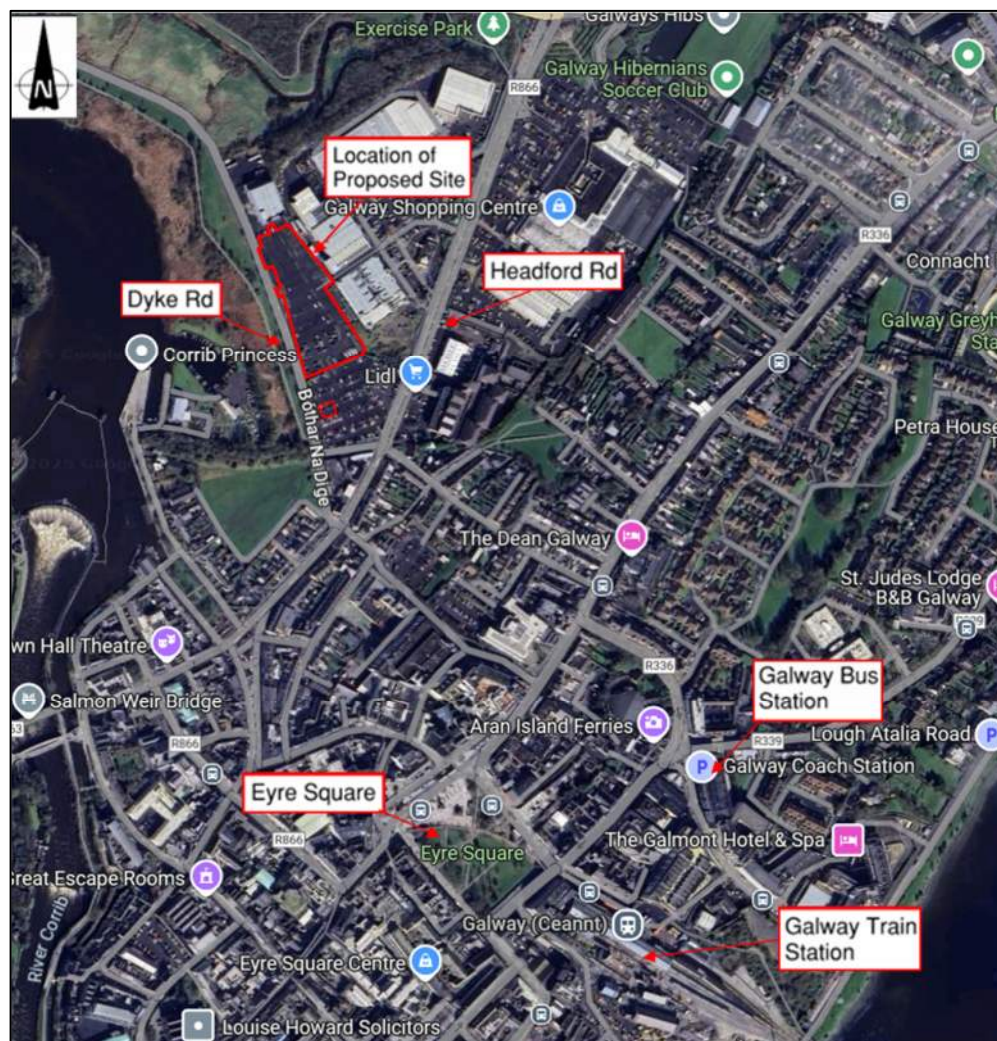


Figure 1-1: Location Map of the Site and Surrounding Road Network (Ref Google Maps)

1.2 Proposed Development

The proposed development will consist of the construction of a new residential development of 219 no. apartment units and a childcare facility (approx. 241 sq m) in the form of 1 no. new residential block (5 - 9 storeys over lower ground floor level) with associated car parking, bicycle parking, public and communal open spaces, and all ancillary works on a site area of 1.144 ha. The proposed development forms part of an overall three phase masterplan development, the Corrib Causeway 'Site Development Framework'. The current proposal is phase 1 with phases 2 and 3 to follow subject to separate development consent.

The proposed layout for the development is detailed in the series of drawings by MOLA Architects accompanying this report and an extract is included in Figure 1-2.

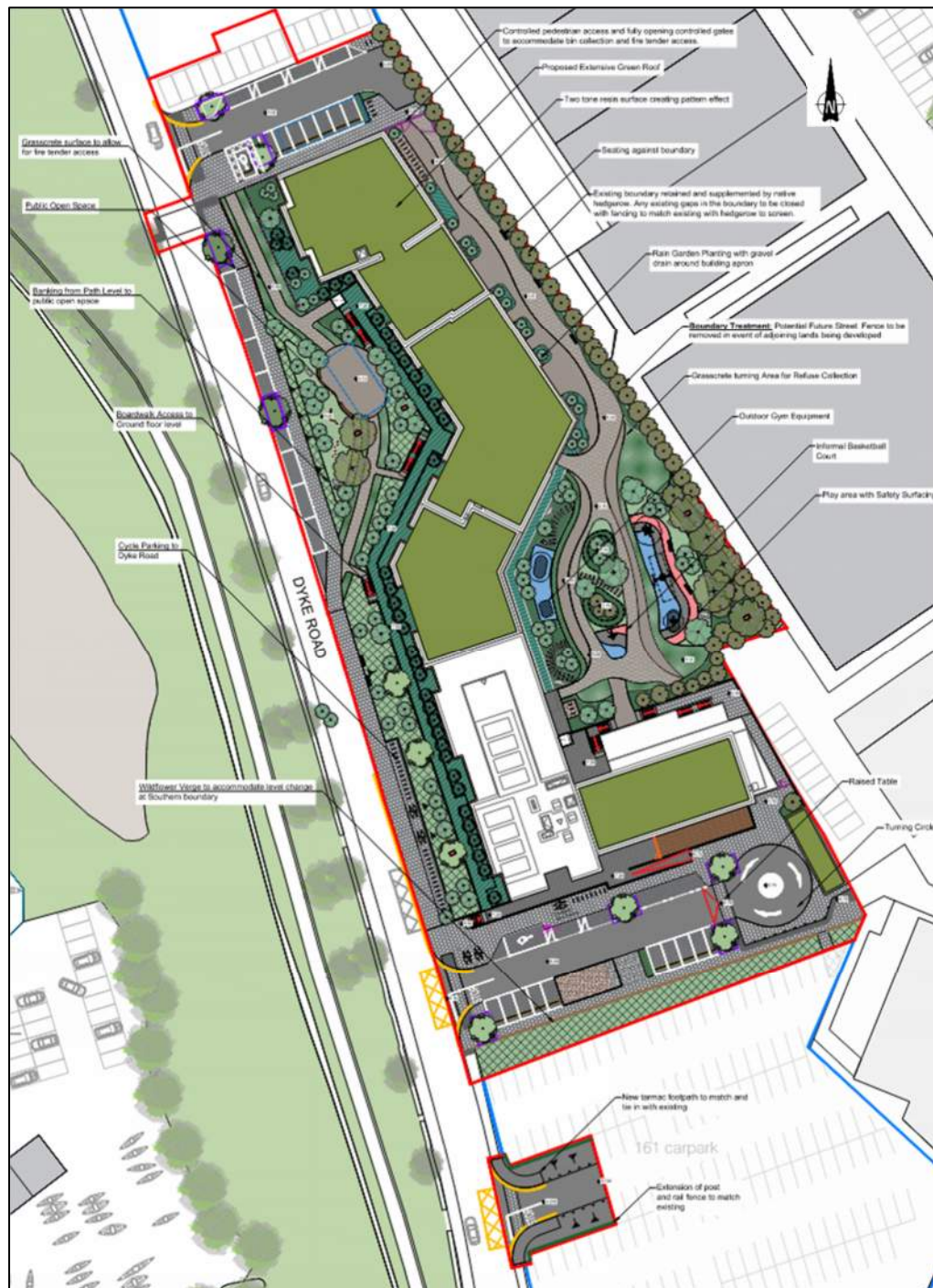


Figure 1-2: Proposed Development Layout

2 Existing Public Transport Network

2.1 Bus Services

The site is well served by the existing bus network with 9 no. routes passing within 1km of the proposed development. These routes connect the development with Eyre Square, Oranmore town centre, University of Galway and the local surrounding area. The bus service operators are Bus Éireann and City Direct. These services are all operated under the National Transport Authority's Public Service Obligation (PSO). Refer to Table 2-2 below for bus routes which serve the area surrounding the site.

2.1.1 Bus Stops

Figure 2-1 shows the location of existing local bus stops in relation to the proposed development. There are several bus stops within a 500m radius of the proposed development. Table 2-1 shows the walking time that each of these bus stops are from the proposed development.

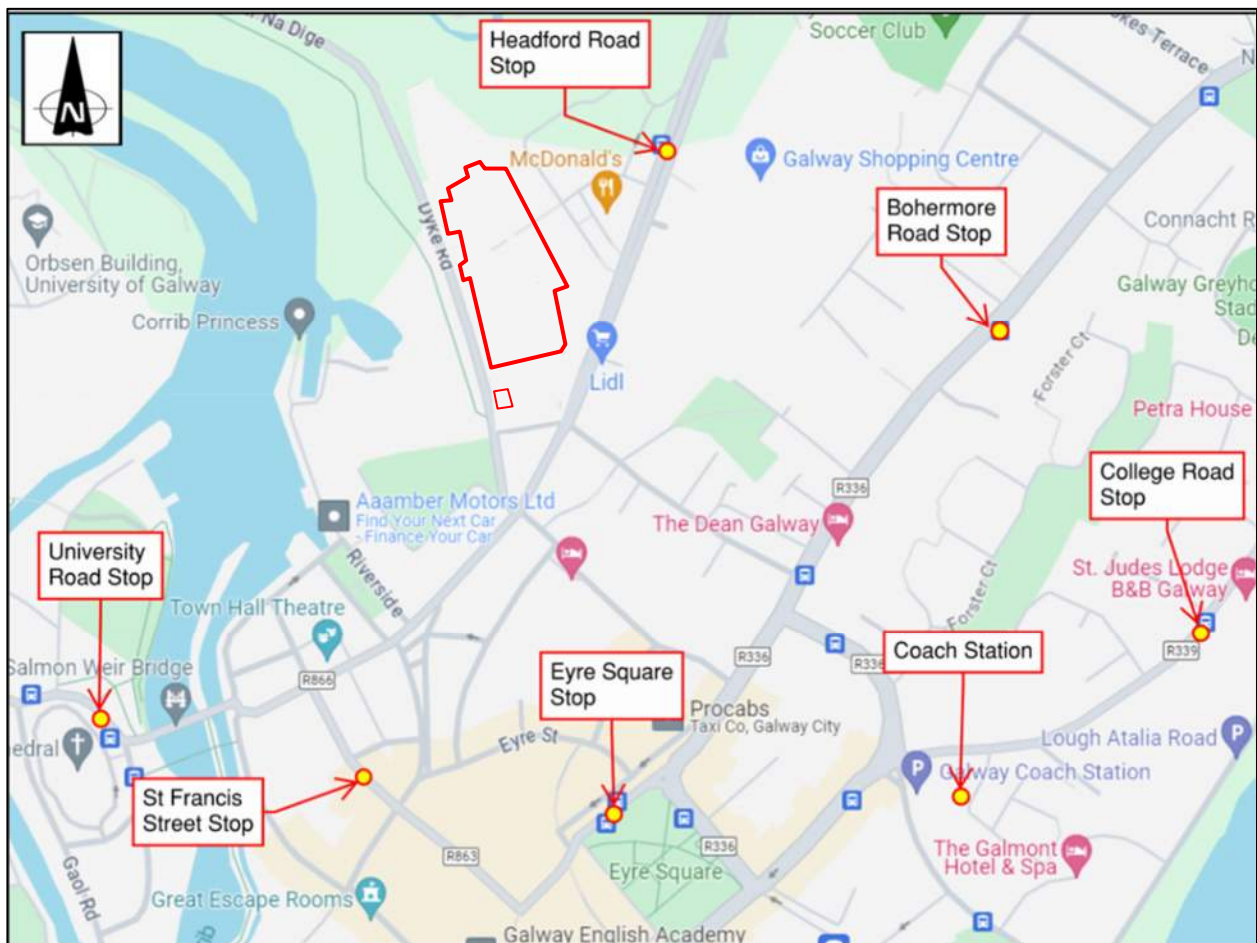


Figure 2-1: Location Map Showing Nearby Bus Stops (Ref Google Maps)

Table 2-1: Local Bus Stops and Routes

Bus Stop ID	Name	Routes	Walking Distance	Average Walking time
523721	Headford Rd	407	300m	4 min
523021	Francis Street	402, 404, 405, 407, 411	550m	7 min
522571	University Rd	402, 404, 405, 410, 411, 412	750m	10 mins
522331	Eyre Square	401, 402, 404, 405, 407, 409, 410, 411, 412	650m	9 mins
N/A	Fairgreen Bus Station	401, 404, 409	550m	9 mins
N/A	Ceannt Bus Station	401, 404, 409	800m	11 mins
523691	College Rd	401, 404, 409	850m	13 mins

It is noted that there are additional bus stops within 500m to those listed, however the above represents the closest bus stop serving each route.

Figure 2-2 on the next page, shows the location of all the Bus Stops within 500m and 1km of the proposed development. Table 2-2 below includes the frequency of bus routes in close proximity to the proposed development.

Table 2-2: Existing Local Bus Routes

Route No.	Operator	Origin	Destination	Weekday Frequency (Peak Hours)
401	Bus Éireann	Parkmore	Salthill	20 mins
402	Bus Éireann	Shangort Road (Seacrest)	Merlin Park	30 mins
404	Bus Éireann	Newcastle	Oranmore	30 mins
405	Bus Éireann	Rahoon	Ballybane	20 mins
407	Bus Éireann	Eyre Square	Bòthar an Chòiste	30 mins
409	Bus Éireann	Eyre Square	Parkmore Industrial Estate	10 mins
410	City Direct	Eyre Square	Knocknacarra	60 mins
411	City Direct	Eyre Square	Cappagh Road	30 mins
412	City Direct	Eyre Square	Western Distributer Road	30 mins

The Transport for Ireland (TFI) Real Time Ireland App allows public transport users to access real time information on the bus stop or route of their choosing.

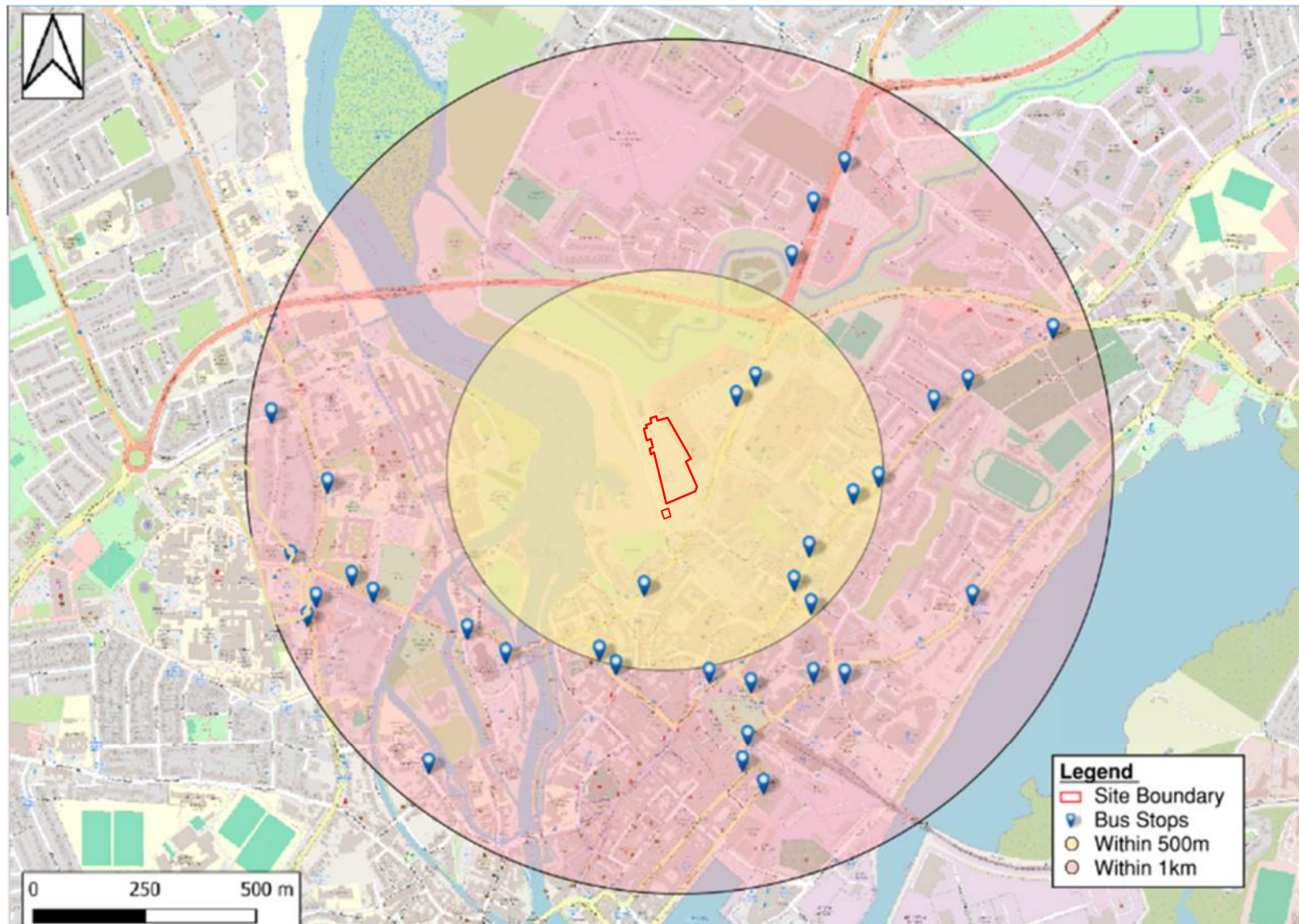


Figure 2-2: Bus Stop Locations

3 Proposed Public Transport Provision

Bus Connects

BusConnects is a key part of the Government's policies to improve public transport and address climate change in Galway. The aim of BusConnects is to "deliver an enhanced bus system that is better for the city, its people and the environment" (busconnects.ie).

The NTA's final BusConnects Galway network redesign was published in December 2023. Some of the key points from the new BusConnects Galway network include:

- An approximate increase of 50% of Bus Services
- An increase in areas served by Buses
- A new 24 hour bus route
- More frequent buses

Other aspects of BusConnects Galway include a simplified fare system allowing easier interchanging between buses and a cross city Bus priority route.

The main impacts on the proposed development will be the increased availability of buses. Route 7 of the proposed new network runs along Headford Road near the development which will see an increase of frequency from every 30mins (Mon-Sat) or 60mins(Sun) to every 20mins (Mon-Sun), the closest bus stop on this route is Woodquay St. approx. 300m walk from the development. The Bus Stops surveyed on Francis Street, 500m from the development, will serve all routes of the proposed network.

The new BusConnects network will allow residents of the proposed development to be able to access all areas of the city by public transport with ease.

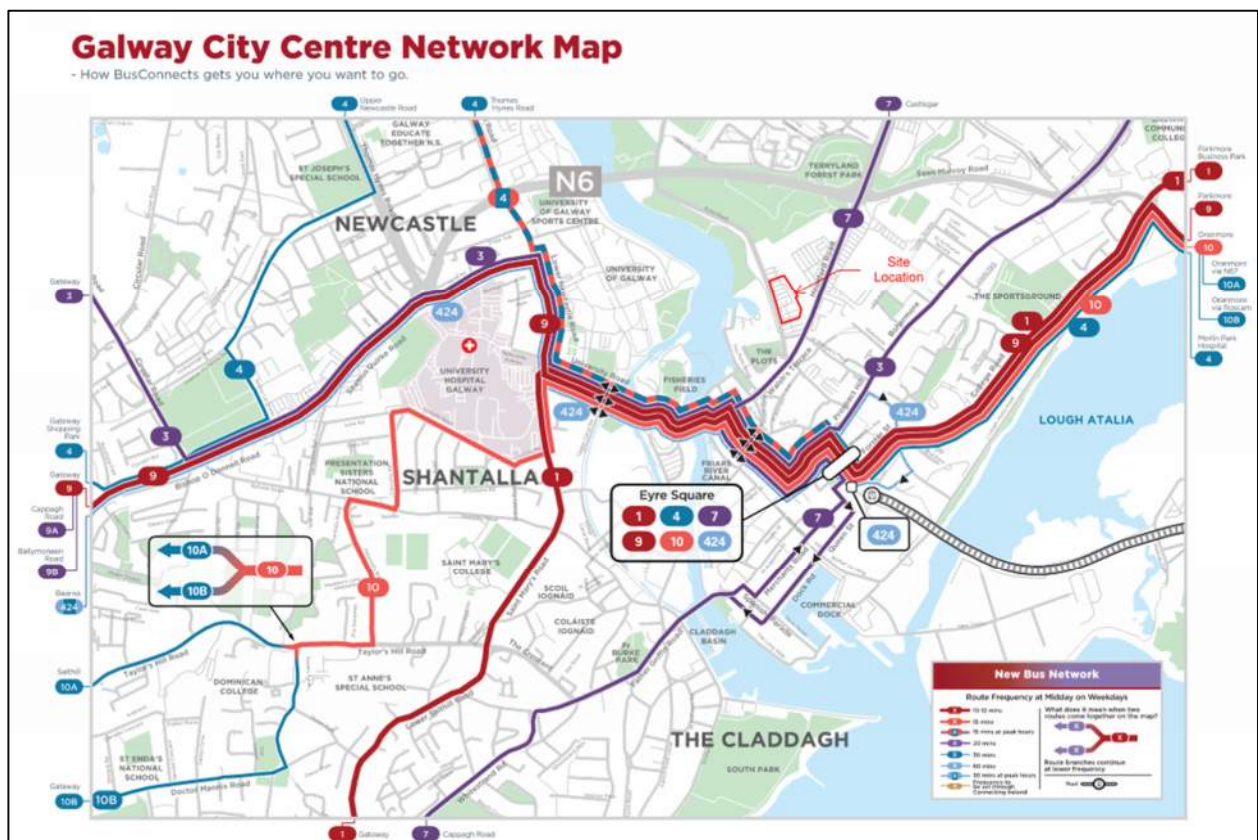


Figure 3-1: BusConnects Galway City Centre Map

4 Passenger Capacity

In order to determine the baseline public transport capacity, an occupancy survey was undertaken at 2 no. bus stops in close proximity to the site. The survey location was chosen due to the multiple bus services that operate through these stops. In addition to the surveyed bus stops being located in close proximity (~500m) to the proposed development, they are also situated close to the centre of Galway City and are both outbound and inbound directions.

These surveys were undertaken on Thursday 11th April 2024. This is deemed to be a representative day of typical bus operations and loadings throughout the year as it falls within the academic year of both primary and secondary schools in the area.

The surveys sought to collect the following information:

1. Time of each bus passing/stopping
2. Bus service route number
3. Number of persons alighting/boarding
4. Bus occupancy count (total passengers seated and standing)

The surveys were undertaken at expected peak hours between 07:00 - 10:00 and 16:00 - 19:00.

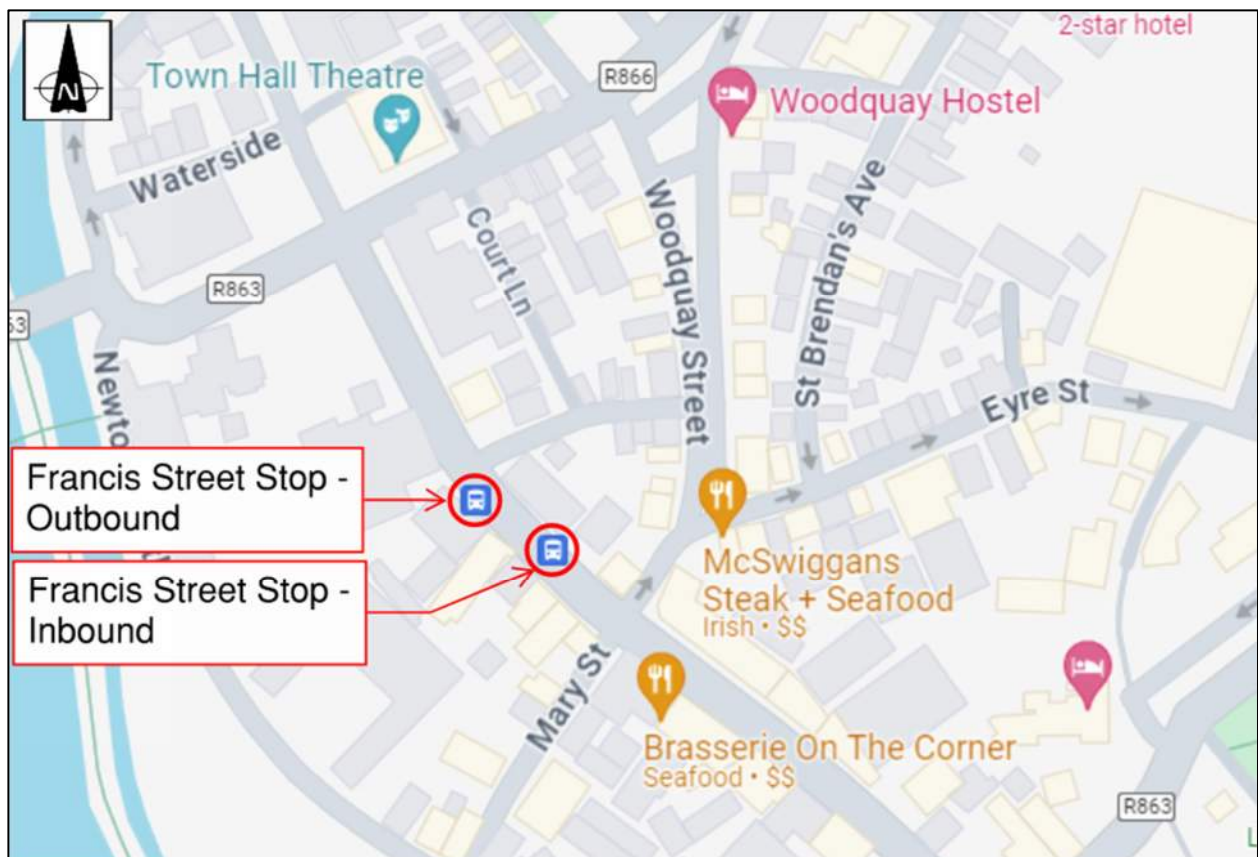


Figure 4-1: Public Transport Stop Surveyed

4.1 Bus Capacity

For the purpose of this report, the average capacity of the double decker buses operated by Bus Éireann and City Link has been taken as 90 no. passengers including standing.

Table 4-1 shows the total daily passenger capacity of the bus routes in the local area.

Table 4-1: Local Bus Route Capacity

Route No.	Daily Trips	Bus Passenger Capacity	Estimated daily Capacity
401	36	90	3240
402	24	90	2160
404	24	90	2160
405	36	90	3240
407	24	90	2160
409	72	90	6480
410	12	90	1080
411	24	90	2160
412	24	90	2160
Total			24,840

4.1.1 Surveyed Bus Capacity

The tables below present an extract of the results of the bus capacity survey completed in April 2024. The full results are included in Appendix A.

Table 4-2: Bus Stop 523021 Survey Results (Inbound)

Time	Bus No.	No. of Persons Boarding	No. of Persons Alighting	Bus Occupancy Level	Spare Capacity (%)
07:10	405	0	1	25%	75%
07:20	402	0	1	25%	75%
07:24	404	0	1	25%	75%
07:33	405	1	1	25%	75%
07:36	407	0	2	25%	75%

Table 4-3: Bus Stop 523021 Survey Results (Outbound)

Time	Bus No.	No. of Persons Boarding	No. of Persons Alighting	Bus Occupancy Level	Spare Capacity (%)
07:07	405	0	0	25%	75%
07:08	404	0	0	25%	75%
07:18	407	0	1	25%	75%
07:23	402	0	0	50%	50%
07:28	405	0	0	25%	75%

The survey found that the bus routes that serve these stops are high frequency routes bus also have a high rate of available capacity.

4.1.2 Peak hour Capacity

The recorded bus capacity at the surveyed bus stops during the AM peak hour (08:00- 09:00) was 18 no. unique buses with approximately 46% capacity or equivalent to approximately 752 no. available seats.

The recorded bus capacity at the surveyed bus stops during the PM peak hour (17:00 and 18:00) was found to be 13 no. unique buses at the 1 no. stops with approximately 40% capacity or equivalent to approximately 490 no. available seats.

In summary, while there are many buses on the bus routes serving the local area around the proposed development, they generally run at medium occupancy levels when they pass the stops located to the southwest of the site with a high level of available capacity for future commuters.

Table 4-8 below shows the total results across the surveyed bus stops during the Peak AM and Peak PM periods.

Table 4-4: All Bus Stops Peak AM & PM Survey Results

Time	No. Buses	Bus Capacity	No. Passengers	Spare Capacity	Spare Capacity (%)
8:00 - 9:00	18*	1620	869	752	46%
17:00 - 18:00	13**	1170	680	549	40%

*8 of which are inbound and 10 are outbound.

**7 of which are inbound and 6 are outbound.

5 Future Passenger Demand

5.1 Resident Population

The proposed development consists of 219 no. residential units and is predicted to have a population of approximately 558 no. persons based on the assumed occupancy of:

- 2 persons per each of the 109 no. 1-bed units
- 3 persons per each of the 100 no. 2-bed units
- 4 persons per each of the 10 no. 3-bed units

5.2 Modal Split

The modal split for the proposed development can be estimated based on census data released by the Central Statistics Office (CSO).

5.2.1 National Transport Surveys

Table 5-1 shows the Modal share for the Regional Cities from the previous Two National Transport Surveys.

Table 5-1: Regional Cities Modal Share from the National Transport Surveys

Mode	2017	2022
Car	62%	57%
Walk	27%	31%
Bus/Coach	5%	5%
Cycle	5%	3%
Truck/Van	1%	2%
Other	-	2%
Total	100%	100%

The above results show that there has been a shift in modal share with the percentage of people walking increasing and the percentage of those traveling by car decreasing. It should be noted that those traveling by cycling have decreased and those traveling by bus have remained the same.

This modal share breakdown shows capacity for improvement should facilities and services improve to become more favourable.

Further improvements to public transport such as the BusConnects proposals discussed in Section 3 would likely lead to a further reduction in private car use from the latest survey data.

5.2.2 Census Data

In addition to the above, data for the greater Galway City area taken from the Census Mapping for small areas, was examined to provide a more site-specific modal share. Based on CSO data, persons living in the area were significantly less likely to drive than those in the rest of the country. In 2022, over half of all journeys by people from Galway (54.4%) were by car as drivers compared with over three quarters of journeys taken by those living in the rest of the country (76.2%).

The existing mode share by trip purpose, was obtained from 2022 CSO census data, Small Area Population Statistics (SAPS) data and Small Area Population Maps (SAPMAP). Census data was selected for the location of the proposed development.

Census Data for the Galway City and Suburbs shows that of the stated population of 85,910, 58% of those surveyed regularly commuted to work, school or college (i.e. did not answer: work from home or Not Stated). In general, commuting by car (either driving, passenger or van) is the most popular mode of transport at 46% of respondents opting for this mode. Walking is also a common mode of transport within the city and suburbs with 19% of respondents opting for that as their primary means of travel.

However, when the census data for the city and suburbs is compared with the more local Small Area Map (Dyke Road Area, A068020002) the primary means of travel shifts towards walking/cycling at (43%) of respondents opting for this mode and only 16% opting for commuting by car (either driving, passenger or van). There is a very positive existing trend of low car usage in the area. The area being represented by the data is shown in Figure 5-1 and the data is shown in Table 5-2 below.



Figure 5-1: Central Statistics Office - Census 2022 Small Area Map

The difference between the local small area map data for Dyke Road and the Galway City and Suburbs data can be attributed to the proximity to the city centre.

Table 5-2: CSO Data for 2022 (A068020002, Dyke Road Area)

Population aged 5 years and over by means of travel to work, school, or college						
	Work		School or College		Total	
Means of travel	No.	%	No.	%	No.	%
On foot	56	32%	41	77%	97	43%
Bicycle	4		3		7	
Bus, minibus or coach	26	14%	6	11%	32	13%
Train, DART or LUAS	0		0		0	
Motorcycle or scooter	0	0	0	0	0	0
Car driver	28	19%	2	5%	30	16%
Car passenger	6		1		7	
Van	1		0		1	
Other (incl. lorry)	0	35%	1	7%	1	28%
Work mainly at or from home	24		0		24	
Not stated	40		3		43	
Total	185	100	57	100	242	100

The development site has the potential for a significant modal shift towards increased public transport, with a number of existing and proposed bus services in close proximity to the site.

5.2.3 Galway Metropolitan Area Walking and Cycling Index 2023

The Walking and Cycling Index (formerly Bike Life) is the biggest assessment of walking, wheeling and cycling in urban areas in the UK and Ireland. The below data has been taken from the Galway Metropolitan Area Walking and Cycling Index.

Table 4-3: Residents Travel Mode - five or more days a week - Galway Metropolitan Area

Mode	2023
Walking or wheeling	60%
Driving	55%
Public Transport	7%
Cycling	8%

From the study a large portion of those surveyed wished to cycle more (42%), use public transport more (32%) and walk or wheel more (53%). Those surveyed also wished to see more funding in these areas.

5.3 Development Generated Public Transport Trips

To determine the proposed development's impact on public transport previous national census data was analysed. Of the current local population 58% commute to work, school or college regularly.

It was assumed that the population of the proposed development would follow similar patterns to the local population surveyed during the 2022 Census. Based on the above anticipated population of the proposed development of 558 persons it would then be expected that 324 residents (58%) would commute regularly.

Of the 324 residents commuting, 42 (13%) would be expected to avail of public transport based on SAPS Data or 23 (7%) based on Walking and Cycling Index data. This is shown below in Table 4-5.

Table 4-5: Proposed Development Predicted Commuting Population

Anticipated Population	Anticipated Commuters (58%)	Public Transport Users		
		SAPS Data (13%)	Walking and Cycling Index Data (7%)	Conservative Estimate (50%)
558	324	42	23	162

Due to the nature of the proposed development and proposed low number of car parking spaces to be provided for residents (33 no. car parking spaces) it is likely that the SAPS census data and the Walking and Cycling Index data may be under representative of the actual number of public transport users.

It is anticipated that a higher proportion of residents will travel by foot, by bicycle or use public transport rather than by private vehicle as per the Census estimates given the low provision of car parking and the central/highly accessible location of the site.

As such a more conservative estimate has been taken, which assumes that 50% of residents who commute regularly would use public transport. This is a significantly higher predicted value than the Census rate in order to present a robust test on the existing capacity of the public transport in the area. This puts the figure at 162 residents from the development predicted to use public transport at peak hours. It has also been conservatively assumed that most residents will be departing via public transport in the AM and arriving by public transport in the PM.

6 Demand vs Capacity

Within this section the assumed total peak demand during the peak hours is compared against the capacity of the available transport services within the vicinity of the proposed development site.

AM departures at peak hour (08:00 - 09:00) and the PM arrivals at peak hours (17:00 - 18:00) have been reviewed. A conservative approach to the total development predicted public transport commuters (162 persons) has been assumed to commute during both peak hours.

The relevant demand vs capacity data for bus services is summarised below.

6.1 Bus Demand vs Capacity

AM Peak Hour Bus services:

- | | |
|--|--------|
| • Predicted future trips via bus (proposed development): | 162 |
| • Surveyed spare capacity at peak hour (bus): | 752 |
| • Additional bus trips as % of capacity: | 21.5 % |

PM Peak Hour Bus services:

- | | |
|--|-------|
| • Predicted future trips via bus (proposed development): | 162 |
| • Surveyed spare capacity at peak hour (bus): | 446 |
| • Additional bus trips as % of total capacity: | 36.4% |

The above shows there is ample capacity on the existing bus network for bus commuters from the proposed development.

7 Summary and Conclusion

1. The proposed development will consist of residential development of 219 no. apartment units and a childcare facility (approximately 241m²) on the Dyke Road, Terryland, Galway City.
2. Bus Passenger services within 500m of the proposed development provide high frequency and regular connection to the city centre, suburbs and surrounding area. BusConnects is expected to provide an improved level of connectivity with the wider city.
3. The surveyed bus stops in the local area indicated a high rate of available capacity for potential public transport commuters from the proposed development, with most buses running with 75% available capacity.
4. The results of the public transport occupancy survey were compared with a conservative estimate of the predicted public transport commuters which found that the proposed development would not have significant impact on the current available public transport capacity.
5. This Public Transport Capacity Assessment Report demonstrates that the proposed development site is well served by public transport with large capacity, and frequent services. The existing bus network has sufficient capacity to accommodate passenger trips generated from the proposed development site.

Appendix A Public Transport Capacity Survey Results

Time	Bus service number	Number of Persons boarding	Number of Persons Alighting	Bus Occupancy Level	Observations / comments
07:07:44	405	0	0	25%	
07:08:13	404	0	0	25%	
07:10:44	405	0	1	25%	
07:18:06	407	0	0	0%	1 person on bus
07:20:44	402	0	1	25%	
07:23:50	402	0	0	50%	
07:24:44	404	0	1	25%	
07:28:11	405	0	0	25%	
07:33:44	405	1	1	25%	
07:36:44	407	0	2	25%	
07:44:15	407	0	0	25%	
07:47:10	404	2	0	50%	Buggy boarding
07:50:44	405	0	2	50%	
07:51:56	405	0	0	25%	
07:54:44	402	0	1	75%	
07:55:44	411	0	4	50%	
08:00:44	404	0	4	50%	
08:01:23	402	2	2	75%	
08:08:16	405	0	8	75%	
08:08:44	411	0	2	50%	
08:09:44	407	0	9	50%	
08:12:44	405	0	11	75%	
08:16:56	407	3	0	25%	
08:18:23	411	0	0	25%	
08:28:07	404	0	1	90%	
08:28:28	405	3	8	50%	
08:33:47	402	0	0	75%	
08:36:44	404	1	5	50%	Buggy boarding
08:38:44	402	0	3	50%	
08:50:55	407	3	0	25%	
08:52:43	404	0	2	75%	
08:54:44	411	0	7	25%	
08:57:29	411	3	0	25%	
08:58:44	405	1	11	75%	
09:00:12	405	3	2	50%	
09:01:15	405	0	2	50%	
09:18:38	405	0	6	25%	
09:20:29	407	2		25%	
09:20:52	402	1	0	25%	
09:21:33	402	1	7	25%	
09:27:55	405	1	5	25%	
09:30:06	404	1	1	50%	
09:31:13	404	0	2	50%	
09:31:41	412	0	4	25%	
09:31:41	405	5	1	90%	
09:39:59	412	1	0	25%	
09:40:46	407	0	11	25%	
09:41:42	411	0	12	25%	One buggee
09:42:06	407	2	0	25%	
09:47:32	405	0	7	25%	
09:48:54	405	0	0	25%	
09:56:12	402	0	11	25%	
15:52:46	402	8	1	75%	
16:04:38	404	0	5	25%	
16:05:21	407	0	4	25%	
16:07:28	405	6	0	75%	
16:08:58	411	0	4	50%	
16:16:19	407	5	0	50%	
16:28:59	404	9	2	90%	
16:35:43	405	1	5	90%	
16:39:38	923	0	1	50%	
16:42:09	411	0	0	75%	
16:46:06	402	0	5	75%	
16:46:12	405	17	0	75%	
16:46:19	407	2	6	25%	
16:50:36	412	0	6	25%	

Time	Bus service number	Number of Persons boarding	Number of Persons Alighting	Bus Occupancy Level	Observations / comments
16:55:44	405	5	0	75%	
16:56:08	407	6	1	50%	
16:57:01	411	0	2	25%	
16:57:17	404	0	6	50%	
17:01:42	405	1	5	90%	
17:05:25	411	2	0	25%	
17:05:35	402	9	2	75%	
17:05:41	402	2	3	25%	
17:10:17	407	0	1	25%	
17:30:49	419	0	6	50%	
17:33:24	407	5	0	50%	
17:47:16	404	16	0	90%	
17:51:47	402	1	9	75%	
17:56:33	404	2	1	100%	
17:58:08	404	0	10	50%	
17:58:21	411	0	5	50%	
18:04:29	Out of service	0	9	25%	
18:10:15	402	11	2	90%	
18:17:11	407	0	5	0%	
18:19:29	402	0	5	25%	
18:19:39	405	8	0	100%	
18:25:46	923 city link	0	7	25%	
18:25:48	407	6	0	75%	
18:29:08	404	2	16	50%	
18:36:35	405	3	0	25%	
18:39:38	407	0	2	0%	
18:42:59	402	9	0	50%	
18:45:45	404	5	0	50%	