Fortfield Road LRD – Public Transport Capacity Study

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Author(s)	Dilip Kumar, Tom Fitzgerald
Reviewer	Ciaran McKeon
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1. Introduction

1.1. Overview

Transport Insights has been appointed by 1 Celbridge West Land Limited to undertake a public transport capacity study in relation to a Large-Scale Residential Development (LRD) planning application for a site at Fortfield Road, Terenure, Dublin 6 (hereafter referred to as the application site).

The information outlined within this Note has been informed by a review of the following documents, furnished to Transport Insights by Punch Consulting Engineers:

- 222102 – Residential Development, Fortfield Road, Terenure: Residential Travel Plan (RTP), January 2024; and
- 222102 – Residential Development, Fortfield Road, Terenure: Traffic and Transport Assessment (TTA), January 2024.

1.2. Expertise and Qualifications

The public transport capacity study was undertaken by Ciaran McKeon as Project Director, Dilip Kumar as Project Manager and Narendra Jillelamudi as Consultant Transport Planner (all of Transport Insights Limited). Details of their experience and qualifications are provided within the following Table 1.1.

Table 1.1 Competency of Study Team

Reviewer	**Ciaran McKeon**
Title	**Director (Project Director)**
Relevant Experience and Qualifications	Experience: Over 25 years' transport experience in Ireland, UK and continental Europe, with a track record of supporting the planning, design and delivery of public transport schemes ranging from urban bus services, to metro, suburban rail and inter-urban high-speed rail systems. His current and past clients in relation to public transport planning and design projects include Cluj-Napoca Municipality (Romania), Cork City and County Councils, European Investment Bank, Galway City Council, HS2 Limited (UK), Nottingham City Council (UK) and S.C. Metrorex S.A. (Romania). His particular area of expertise relates to demand forecasting, and economic and financial appraisal of transport projects and programmes. Qualifications: • P Grad Dip, Project Management, Trinity College Dublin (2000-2001) • B Eng. (Civil) Hons, University College Dublin (1994-1998)
Professional Membership	• Chartered Member of the Institute of Logistics and Transport (CMILT) • Member, Transport Planning Society
Principal Author	**Dilip Kumar**
Title	**Senior Consultant (Project Manager)**
Relevant Experience and Qualifications	Experience: Over 8 years' transport planning and engineering experience, including a variety of public transport projects. Recent public transport planning and design projects include a Public Transport Network Assessment of the Sport Ireland Campus in Dublin 15, Transit Oriented Development for Lucknow Metro study, and public transport capacity assessments for various private sector development projects. Qualifications: • B. Tech in Civil Engineering, JNTU University (2009-2013) • M. Tech in Transportation Engineering, NIT Surathkal (2013-2015)
Professional Membership	• Member, Transport Planning Society
Second Author	**Tom Fitzgerald**
Title	**Graduate**

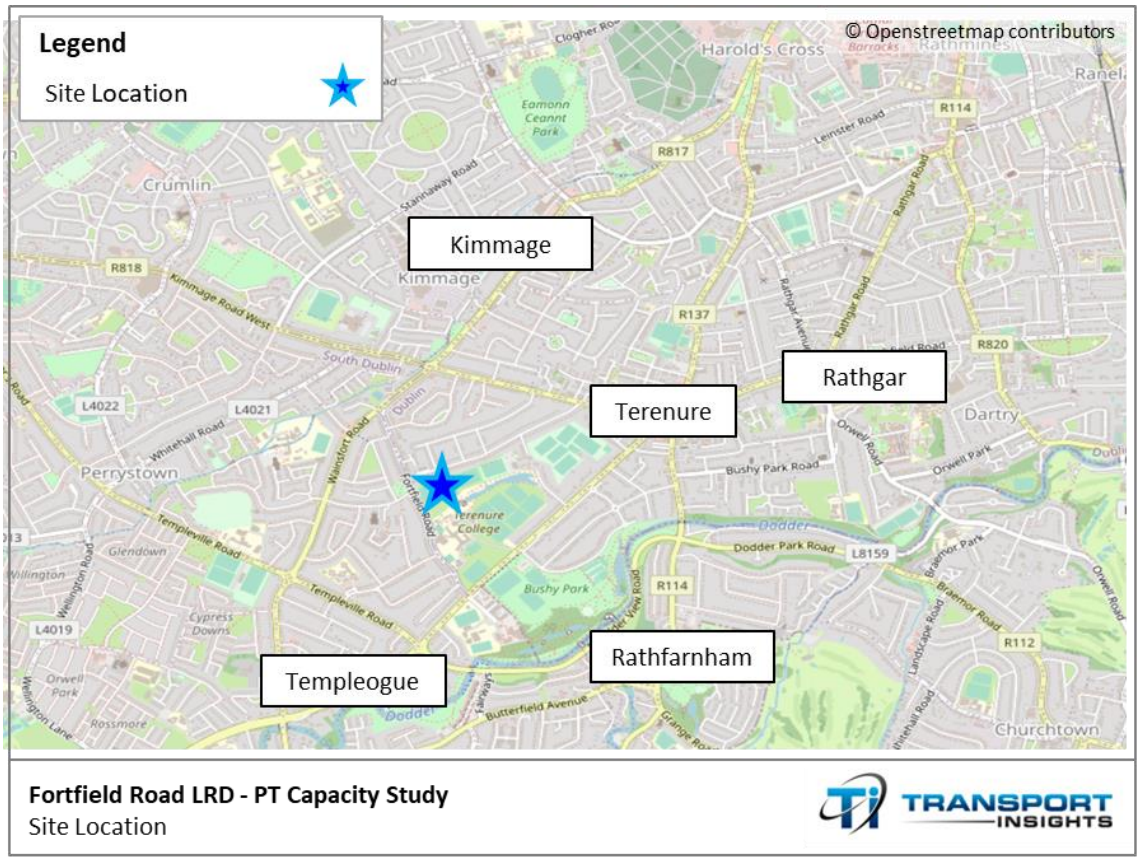
Relevant Experience and Qualifications	Experience: Graduate with over 1 years' transport planning experience on a variety of public and private sector projects including providing analytical support for a various residential and commercial developments. Qualifications: • BA, Urban Planning, Geography and Environmental Policy, 2021 • MSc Spatial Planning, Land and Real Estate Development, Radboud Universiteit, 2023

1.3. Proposed Development Location and Overview

Site Location

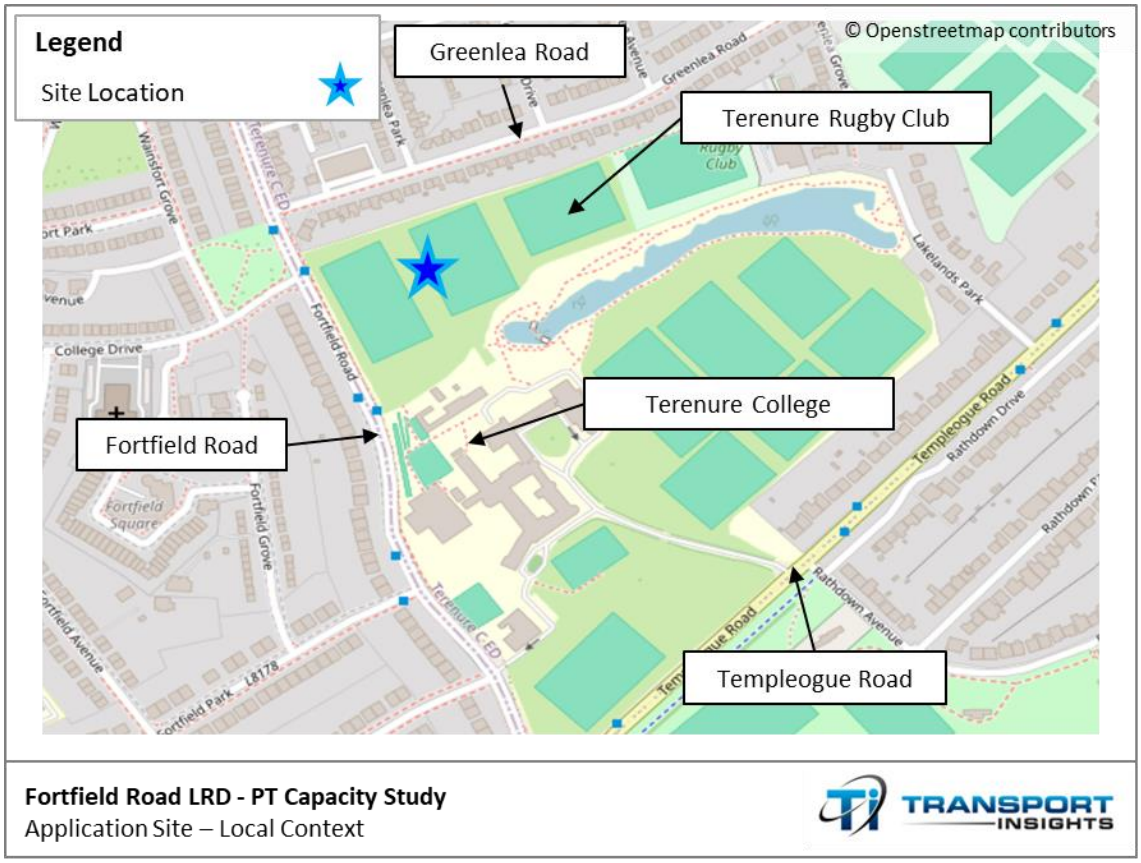
The proposed development site, as illustrated in the following Figure 1.1, is located at Fortfield Road, Terenure, Dublin 6.

Figure 1.1 Site Location



The application site's location with respect to its local context is illustrated in Figure 1.2 (overleaf). As can be seen from this figure, the application site is bounded by Terenure College to the south, residential properties along Greenlea Road to the north, Fortfield Road to the west, and rugby pitches maintained by Terenure College Rugby Football Club to the east.

Figure 1.2 Application Site – Local Context



Proposed Development Overview

The development comprises a Large-Scale Residential Development (LRD) on a site at Fortfield Road, Terenure of 284 no. units delivering 19 no. houses and 265 no. apartments made up of studios; 1 beds; 2 beds; 3 beds; and 4 beds. The development will also provide community, cultural and arts space and a creche. Communal internal space for residents will also be delivered. Provision of car, cycle and motorbike parking will be provided throughout the development, including at basement and surface level. Vehicular/ pedestrian/ cyclist access shall be from Fortfield Road. Proposed upgrade works to the surrounding road network is also included. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping (both public and communal) and boundary treatments. The following associated parking facilities are to be provided:

- 165 no. car parking spaces (157 no. residential [incl. car share, disabled and visitor] and 8 no. non-residential [incl. creche drop-off and delivery/service bay]); and
- 629 no. cycle parking spaces (611 no. residential and 18 no. non-residential).

The proposed development is noted to also include community, cultural, and art space, in addition to a crèche. Such facilities shall predominantly serve local residents, and as a result trips

to/ from these facilities were not included in the public transport demand assessment documented within this note.

As per the TTA which accompanies the LRD planning application, the proposed development's year of opening is assumed to be 2028.

2. Public Transport Provision

2.1. Existing Public Transport Provision

The proposed development site is directly served by the 54a bus route utilising stops located on Fortfield Road. This bus route typically operates at 30 minutes headways throughout the day.

In addition to the above, bus routes 15, 49, 65 and 65b operate along Templeogue Road, within ca. 500 metres (ca. 6 minutes' walk) from the application site. It should be noted that the 15 bus service is deemed to be a high-frequency bus route, i.e. it operates at a peak frequency of 8-10 minutes. Currently available services are presented in Figure 2.1 (overleaf), with details in relation to their peak and off-peak frequencies set out in Table 2.1[1] (also overleaf).

Other bus services within the general vicinity of the site include the 15a, 74, and S4 routes which operate on Terenure Road West ca. 1,100 metres to the north of the site. While further enhancing the application site's public transport accessibility, their capacity has not been reviewed, with the scope of analysis within this Note focusing on high frequency and more proximate bus services. Due to its low frequency, the 54a service has also been excluded from the capacity analysis.

[1] Bus details and schedules are sourced from https://www.transportforireland.ie/plan-a-journey/timetables

Figure 2.1 Current Public Transport Network

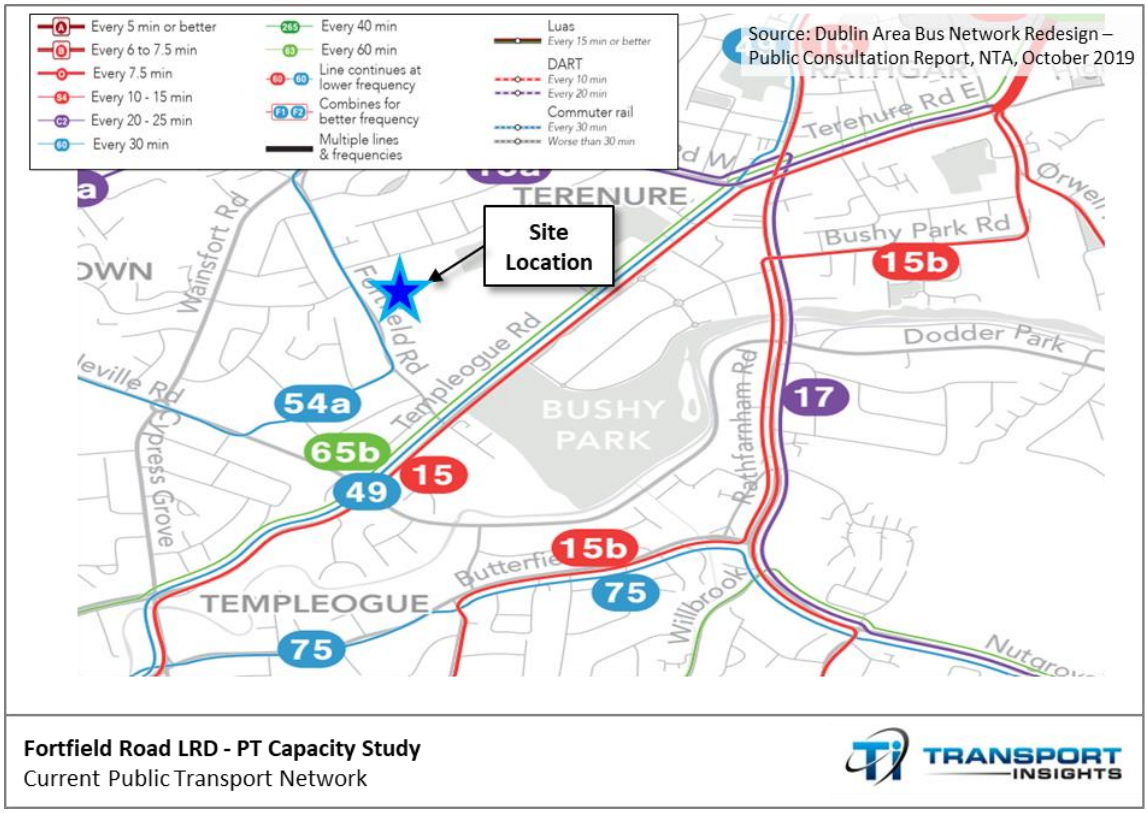


Table 2.1 Current Public Transport Services in Application Site's Vicinity

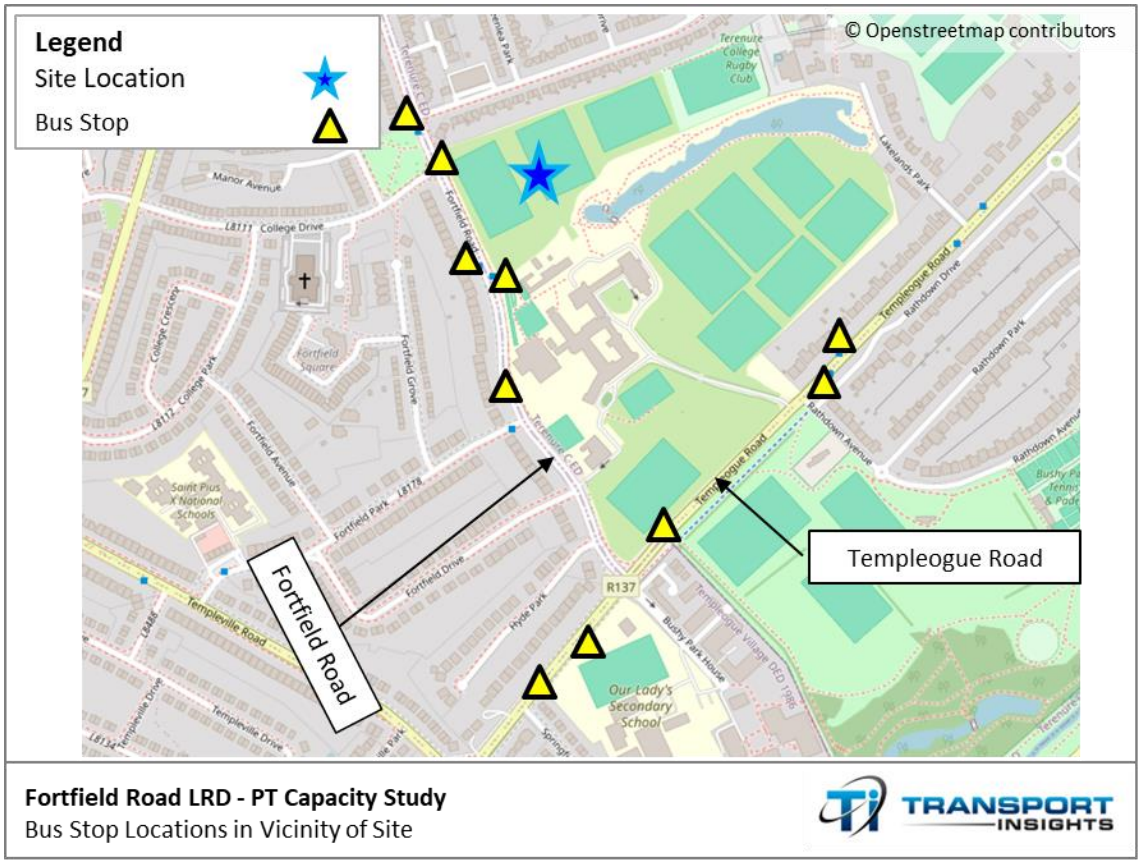
Route No.	Route	Weekday Off-Peak Frequency	Weekday Peak Frequency
54a	Pearse Street – Ellensborough / Kiltipper Way	30 minutes	30 minutes
15	Clongriffin – Ballycullen	10 minutes	8-10 minutes
49	Pearse Street – Tallaght (The Square)	30 minutes	15 minutes
65	Poolbeg St – Blessington / Ballymore	90-120 minutes	60 minutes
65b	Poolbeg St – Citywest	60 minutes	60 minutes

As outlined in the preceding Figure 2.1 and Table 2.1, the subject site is well served by frequent bus routes operating within its vicinity. Together, these bus routes offer a cumulative peak frequency[2] of one bus every ca. 4 minutes.

[2] Cumulative peak frequency is calculated based on total no. of scheduled buses in the weekday peak hour based on information set out in Table 2.1.

Bus stops in the vicinity of the subject site are illustrated in the following Figure 2.2, with 5 no. on Fortfield Road to the west of the application site, 5 no. on Templeogue Road to the south of site.

Figure 2.2 Bus Stop Locations in Vicinity of Site

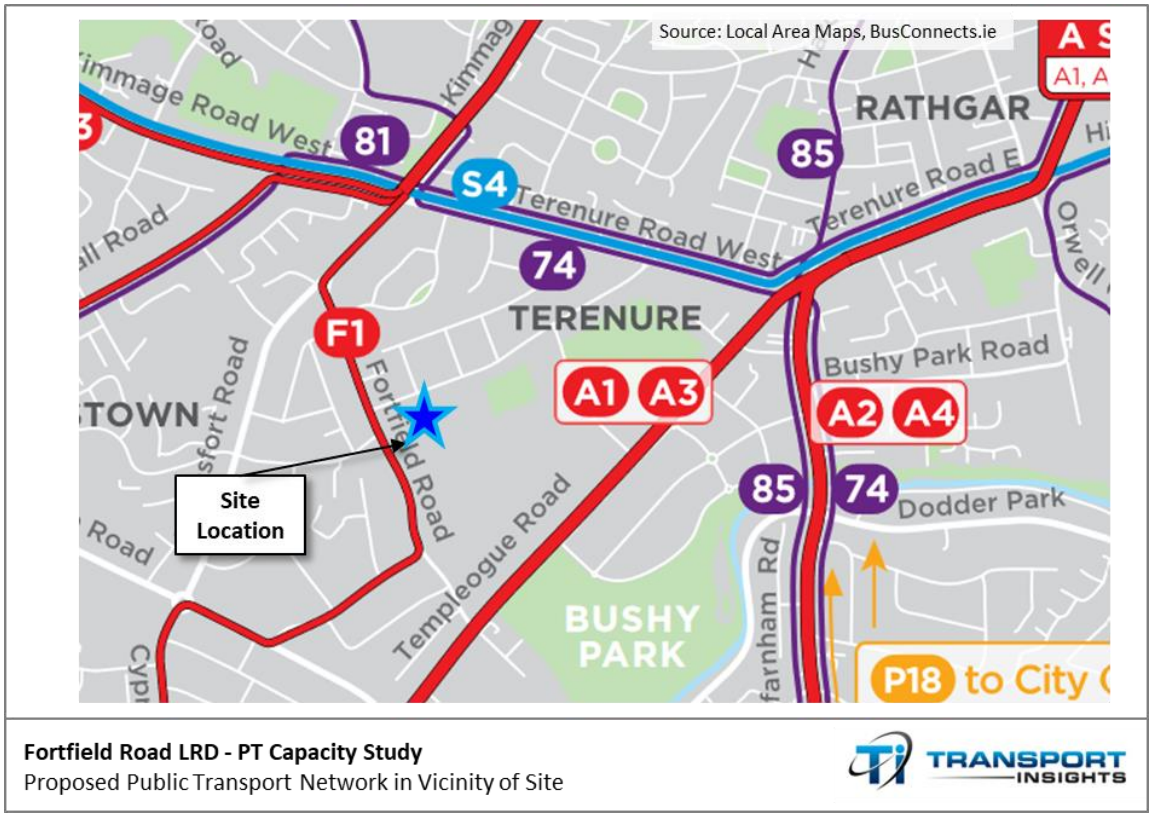


2.2. Proposed Public Transport Provision

New Dublin Area Bus Network Project

The final proposals from the New Dublin Area Bus Network Project, developed as part of the broader BusConnects programme, were published by the National Transport Authority in September 2020 following extensive prior public consultation. The revised network includes substantial changes in the bus network within the application site's vicinity, as illustrated in Figure 2.3 (overleaf).

Figure 2.3 Proposed Public Transport Network in Vicinity of Site



As can be seen from the preceding Figure 2.3, within the application site's vicinity, route F1 forming part of the high-frequency 'F-Spine', will operate on Fortfield Road immediately to the west of the application site and routes A1 and A3 forming part of the high-frequency 'A-Spine', will operate on Templeogue Road within ca. 500 metres to the south.

Details of the proposed routes within the application site's immediate vicinity are presented within the following Table 2.2[3].

Table 2.2 BusConnects: Proposed Bus Services in Application Site's Vicinity

Route No.	Route	Weekday Peak Frequency
F1	Charlestown – Finglas Bypass – City Centre – Tallaght	10 minutes
A1	Beaumount – City Centre – Knocklyon	12 minutes
A3	DCU – City Centre – Tallaght	12 minutes

3 Proposed bus details and schedules are sourced from https://busconnects.ie/cities/dublin/new- dublin-area-bus-network/

Together, the planned bus routes set out above offer a cumulative peak frequency[4] of one bus every ca. 3.75 minutes, thereby representing an improvement in frequency and capacity relative to the existing local service offer. It should be noted that the BusConnects network redesign is being delivered on a phased basis. Timelines for the delivery of future phases is somewhat unclear, however at the time of writing it is understood that 'F' spine (F1) service which comprise high-frequency services within the applications site's immediate vicinity are expected to be delivered in 2025-2026, and the 'A' spine which comprises 2 no. high-frequency services (A1, A3) to the south of the site is expected to be delivered by 2025-2026. As such, the enhanced bus network is likely to operational before the subject development's expected completion.

Templeogue/ Rathfarnham to City Centre Core Bus Corridor Project

The National Transport Authority has applied under section 51(2) of the Roads Act 1993 (as amended) to An Bord Pleanála for approval in relation the construction of the Templeogue/ Rathfarnham to City Centre Core Bus Corridor (CBC) Scheme. The proposed scheme, which is ca. 10 kilometres in length will include enhanced bus priority measures along the corridor which includes Templeogue Road, which is less than 500 metres from the application site.

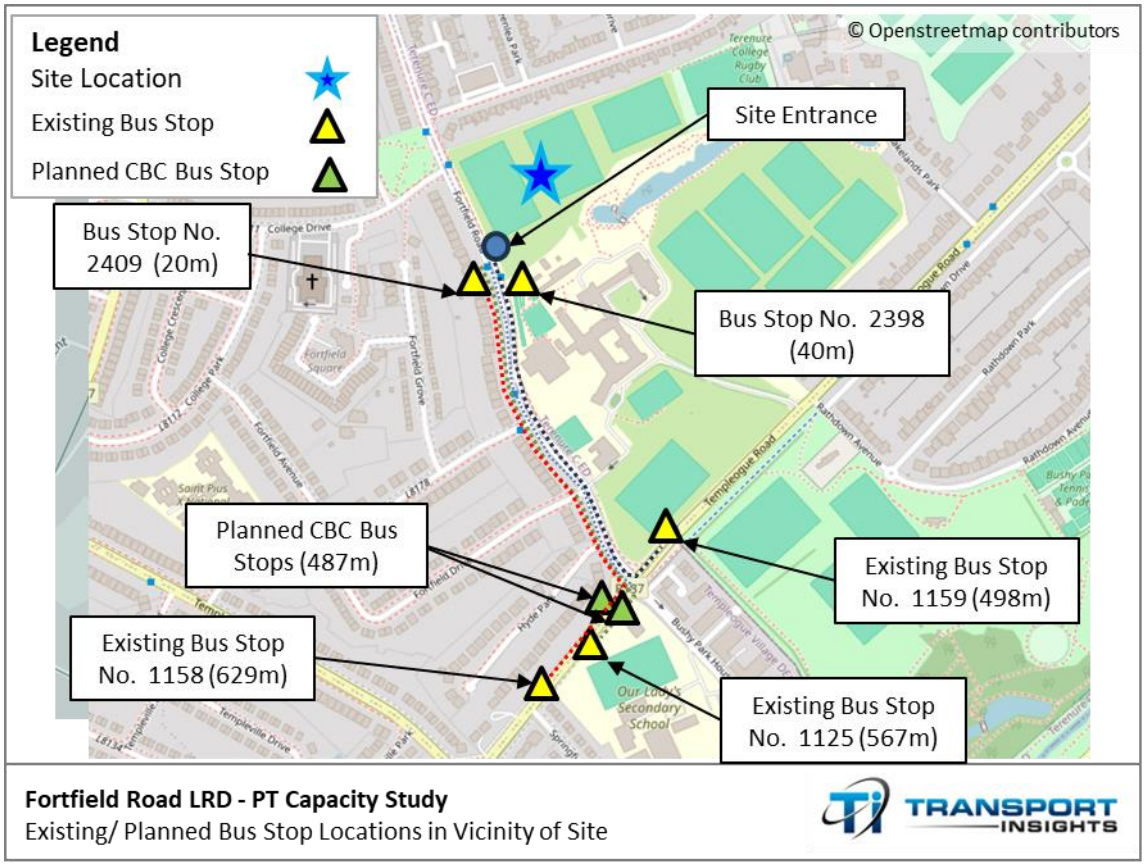
As part of these works, it is noted that the inbound bus stop currently located outside no. 237/ 239 Templeogue Road (bus stop no. 1158, ca. 629 metres from the application site) will be relocated to outside 217/ 219 Templeogue Road (ca. 487 metres from the application site). The existing inbound bus stop no. 1159 on Templogue Road to the east of the Fortfield Road junction will be removed as part of the planned CBC scheme. Furthermore, the outbound bus stop currently located opposite no. 223/ 225 Templeogue Road (bus stop no. 1125, ca. 567 metres from the application site) will be relocated to opposite 215/ 217 Templeogue Road which is a similar distance as the new inbound bus stop to the application site).

The location of the most relevant existing and planned bus stops to the application site is shown in Figure 2.4 (overleaf).

At the time of drafting this Note, a decision in relation to the proposed scheme from An Bord Pleanála was pending.

4 Cumulative peak frequency is calculated based on total no. of scheduled buses in the weekday peak hour based on information set out in Table 2.2.

Figure 2.4 Existing and Planned Local Bus Stops



2.3. Existing Commuting Patterns in the Vicinity of the Subject Site

An assessment of Central Statistics Office (CSO) Census 2022 data was undertaken to inform potential commuting patterns associated with the proposed development site. This assessment was undertaken using the CSO Small Area Population Statistics tool and was based on characteristics of Small Area 'A267150005' (to the immediate west of the proposed development site) presented in Figure 2.5 (overleaf), which is deemed to represent an appropriate baseline for establishing peak travel departure times from the proposed development.

Table 2.3 (overleaf) presents the identified travel times of the population within the analysed small area aged 5 years and over by time leaving home to travel to work, school or college. As shown within this table, 24% and 32% of the population within the analysed Small Area aged 5 years and over commence their trip during the periods 07:31-08:00hrs and 08:01–08:30hrs respectively. Together this one-hour time period represents 56% of all commuting trips undertaken by those resident in the Small Area assessed.

Figure 2.5 CSO Census 2022 Small Area Map

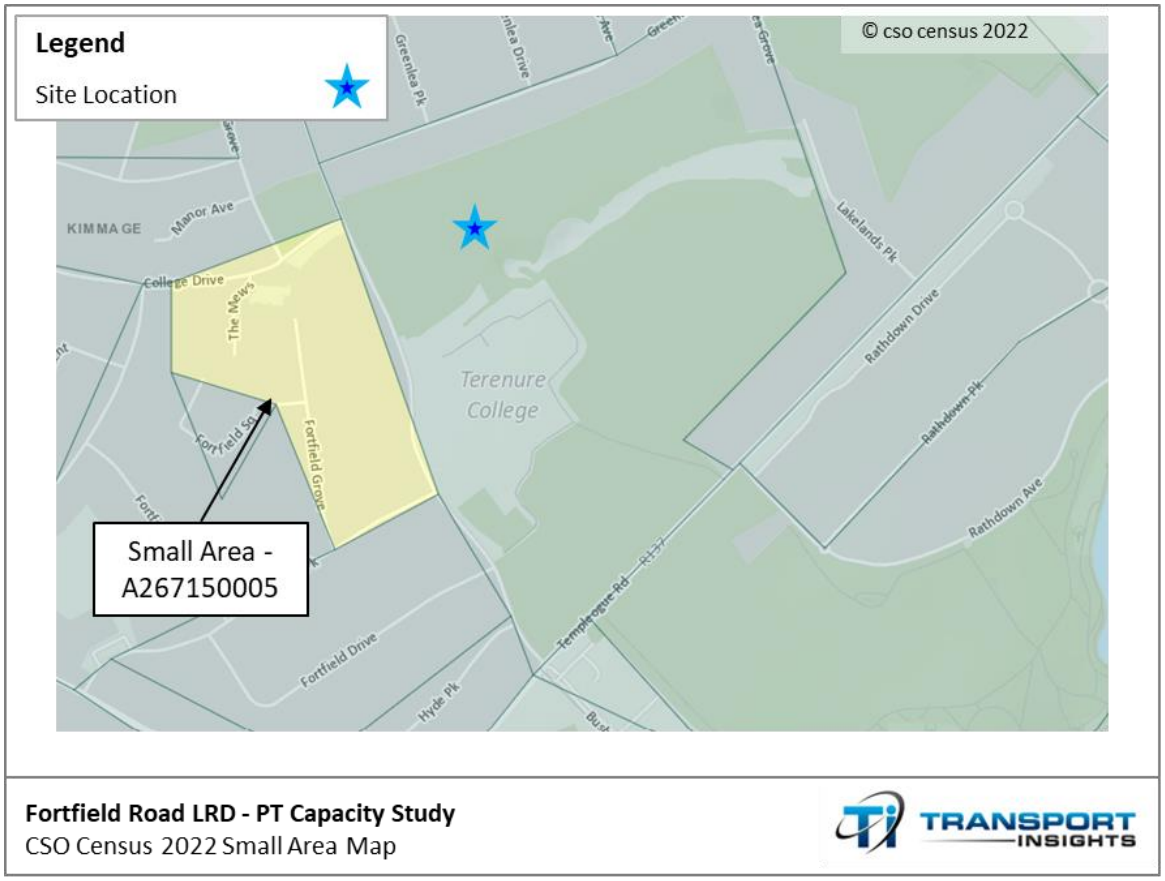


Table 2.3 Population Aged 5 Years and Over by Time Leaving Home To Travel To Work, School Or College

Time Period	CSO 2022 Small Area (A267150005) Total	% Share
Before 06:30hrs	0	0%
06:30-07:00hrs	10	7%
07:01-07:30hrs	11	8%
07:31-08:00hrs	**33**	**24%**
08:01-08:30hrs	**44**	**32%**
08:31-09:00hrs	14	10%
09:01-09:30hrs	4	3%
After 09:30hrs	9	7%
Not Stated	11	8%
Total	**136**	**100%**

3. Public Transport Survey Data Collection and Analysis

3.1. Survey Overview

Survey Scheduling

In order to determine baseline public transport capacity, a bus occupancy survey was undertaken at 2 no. bus stops within the vicinity to the application site. Surveys were undertaken on separate dates in 2024, as follows:

- Tuesday 20 February 2024; and
- Wednesday 27 November 2024.

Both survey dates are deemed to be representative as they were during the peak midweek period (Tuesday to Thursday) and fall within the academic year of both primary and secondary schools.

Survey data presented within the subsequent Section 3.2 relates to the most recent (November 2024) survey, with a comparison of data from both surveys set out in Section 3.3 (and data from the February 2024 survey also included as Appendix A).

The November 2024 survey were undertaken during both the AM peak period (07:00-09:00hrs) and PM peak period (16:30-18:30hrs) at the above-mentioned bus stops[5].

Survey Locations and Data Collected

The surveys were undertaken at the following bus stops, illustrated in Figure 2.4 (Section 2.2 of Note):

- Bus stop no. 1125, Templeogue Road Dublin 6W – buses heading southbound; and
- Bus stop no. 1158, Templeogue Road Dublin 6W – buses heading northbound.

Both bus stops, are located on Templeogue Road within ca. 630 metres from the application site, and are serviced by routes 15, 49, 65 and 65B.

The surveys sought to collect the following information:

- time of each bus passing;
- bus service number;
- estimated capacity (seating and standing); and
- bus occupancy count (total passengers seating and standing).

[5] The February 2024 AM peak survey was noted to run from 07:30-09:30hrs, which included the identified peak hour (07:30-08:30hrs) as per date in Table 2.3, whereas the November 2024 survey included the identified peak hour and the 30-minute period either side of it.

It is noted that the 54a bus route operates from bus stops in the application site's immediate vicinity, however due to that service operating at lower frequency, and therefore offering more limited capacity it was excluded from the survey. Furthermore, bus routes operating along Terenure Road West (15a, 74 and S4) ca. 1,100 metres from application site have also been excluded from survey. Notwithstanding the exclusion of these bus services from the survey and subsequent analysis, they are noted to further enhance the application site's public transport accessibility.

Survey Methodology

The survey was guided by the National Transport Authority survey specification, with the Bus Occupancy Surveys (BO) / Boarding & Alighting Surveys (B&A) presented in Appendix B. Data relevant to the specific characteristics of the study was captured, namely estimated no. of occupants on arrival, no. of alighting bus passengers, no. of boarding bus passengers, and estimated no. of occupants on departure.

Excess capacity available within each bus has been calculated by subtracting the no. of occupants on departure from the total bus capacity[6].

3.2. Survey Results

Northbound AM Peak

Within the following Table 3.1, the survey results for the AM peak period (07:00-09:00hrs) at bus stop no. 1158 (Templeogue Road northbound, i.e. in direction of peak travel towards Dublin City Centre) on are shown. It should be noted that all buses identified by the survey were found to be double-decker buses with a capacity of 64 no. seats passengers and 30 no. standing passengers, giving a total capacity of 94 no. passengers.

Table 3.1 Survey Results – AM Period (07:00-09:00hrs), Bus Stop No. 1158, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
65	07:09	60	0	0	60	34	36%
49	07:12	50	0	0	50	44	47%
15	07:20	90	0	0	90	4	4%

[6] Dublin double-decker buses with a capacity of 64 no. seats passengers and 30 no. standing passengers, giving a total capacity of 94 no. passengers.

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
49	07:28	62	0	0	62	32	34%
65B	07:28	70	0	2	72	22	23%
15	07:31	86	2	0	84	10	11%
15	07:40	90	2	2	90	4	4%
65	07:43	61	0	1	62	32	34%
15	07:52	45	4	0	41	53	56%
15	07:52	50	3	0	47	47	50%
49	07:52	58	0	0	58	36	38%
15	07:57	70	2	0	68	26	28%
49	07:59	58	5	0	53	41	44%
15	08:01	70	5	0	65	29	31%
15	08:05	55	1	4	58	36	38%
15	08:11	20	0	1	21	73	78%
65B	08:13	40	1	1	40	54	57%
65	08:15	43	2	1	42	52	55%
15	08:21	90	0	1	91	3	3%
15	08:27	61	1	2	62	32	34%
65B	08:29	30	0	0	30	64	68%
49	08:29	51	3	0	48	46	49%
65	08:36	60	0	1	61	33	35%
15	08:43	45	0	1	46	48	51%
15	08:48	55	0	2	57	37	39%
15	08:50	14	0	1	15	79	84%
15	08:56	63	0	1	64	30	32%
49	08:56	30	0	0	30	64	68%
15	08:59	20	0	0	20	74	79%
Total		**1,597**	**31**	**21**	**1,587**	**1,139**	**42%**

As can be seen from the preceding Table 3.1, during the AM peak survey period all buses in the northbound direction were found to have excess capacity. During the survey period (07:00-

09:00hrs), the average occupancy of the buses surveyed was found to be 55 no. passengers. Average excess capacity across the 2-hour survey period was found to be 39 no. passengers (42%).

As set out in Section 2.3, an analysis of Census data demonstrated that the peak hour for those commuting to their place of work or education was found to be 07:31-08:30hrs. During this time period, the average occupancy of northbound buses surveyed was found to be 56 no. passengers and average excess capacity was found to be 38 no. passengers (40%).

Southbound AM Peak

Within the following Table 3.2, the survey results for the AM peak period (07:00-09:00hrs) at bus stop no. 1125 (Templeogue Road southbound, i.e. in direction of non-peak travel from Dublin City Centre) are shown. As per the northbound direction, all buses were found to be double-decker buses with a capacity of 64 no. seats passengers and 30 no. standing passengers, giving a total capacity of 94 no. passengers.

Table 3.2 Survey Results – AM Period (07:00-09:00hrs), Bus Stop No. 1125, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
65	07:06	17	0	1	18	76	81%
15	07:09	60	0	0	60	34	36%
65B	07:17	30	0	3	33	61	65%
15	07:20	15	1	0	14	80	85%
49	07:22	15	0	0	15	79	84%
15	07:43	18	2	0	16	78	83%
49	07:43	34	5	0	29	65	69%
15	07:52	12	5	0	7	87	93%
15	08:06	15	3	0	12	82	87%
65	08:27	52	1	0	51	43	46%
15	08:29	15	1	3	17	77	82%
15	08:29	2	0	0	2	92	98%
15	08:38	7	0	2	9	85	90%
49	08:45	6	3	0	3	91	97%

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
Total		**298**	**21**	**9**	**286**	**1,030**	**78%**

As can be seen from the preceding Table 3.2, during the AM peak survey period all buses in the southbound direction were found to have excess capacity. Average occupancy of buses surveyed was found to be 20 no. passengers, and average excess capacity was found to be 74 no. passengers (78%).

During the busiest AM peak hour, i.e. 07:31-08:30hrs, the average occupancy of southbound buses surveyed was found to be 19 no. passengers and average excess capacity was found to be 75 no. passengers (80%).

Northbound PM Peak

Within the following Table 3.3, the survey results for the PM peak period (16:30-18:30hrs) at bus stop no. 1158 (Templeogue Road northbound, i.e. in direction of non-peak travel towards Dublin City Centre) are shown.

Table 3.3 Survey Results – PM Period (16:30-18:30hrs), Bus Stop No. 1158, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	16:34	29	1	0	28	66	70%
49	16:36	40	0	0	40	54	57%
65	16:39	40	0	0	40	54	57%
15	16:39	20	0	1	20	74	79%
15	16:50	53	0	0	53	41	44%
15	16:56	6	0	0	6	88	94%
49	16:58	1	0	0	1	93	99%
15	17:07	57	0	1	57	37	39%
15	17:21	48	0	3	48	46	49%
65B	17:24	20	0	0	20	74	79%
15	17:30	25	0	0	25	69	73%

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	17:42	70	6	1	70	24	26%
65	17:47	45	0	1	45	49	52%
49	17:48	11	2	0	11	83	88%
15	18:03	36	0	0	36	58	62%
49	18:21	30	0	0	30	64	68%
15C	18:21	30	0	0	30	64	68%
65B	18:26	30	0	1	30	64	68%
65	18:29	40	0	0	40	54	57%
Total		**631**	**9**	**8**	**630**	**1,156**	**65%**

As can be seen from the preceding Table 3.3, during the PM peak survey period all buses in the northbound direction were found to have excess capacity. During the survey period (16:30-18:30hrs), the average occupancy of the buses surveyed was found to be 33 no. passengers. Average excess capacity across the 2-hour survey period on the buses surveyed was found to be 61 no. passengers (65%).

The busiest hour in the northbound direction during the PM peak survey was found to be 17:31-18:30hrs. During this time period, the average occupancy of the buses surveyed was found to be 37 no. passengers and average excess capacity was found to be 57 no. passengers (61%).

Southbound PM Peak

Within the following Table 3.4, the survey results for the PM peak period (16:30-18:30hrs) at bus stop no. 1125 (Templeogue Road southbound, i.e. in direction of peak travel from Dublin City Centre) are shown.

Table 3.4 Survey Results – PM Period (16:30-18:30hrs), Bus Stop No. 1125, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
65B	16:37	16	0	1	77	77	82%

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	16:39	69	0	1	24	24	26%
15	16:41	24	0	1	69	69	73%
49	16:50	57	1	0	38	38	40%
15	17:05	11	0	1	82	82	87%
15	17:07	56	0	1	37	37	39%
65	17:19	59	0	4	31	31	33%
49	17:19	62	2	0	34	34	36%
49	17:32	33	1	0	62	62	66%
15	17:32	53	3	0	44	44	47%
65B	17:42	75	6	1	24	24	26%
15	17:44	74	9	0	29	29	31%
49	17:46	45	2	2	49	49	52%
65	17:47	64	1	0	31	31	33%
15	17:50	51	1	0	44	44	47%
49	17:57	22	1	0	73	73	78%
15	17:57	60	5	0	39	39	41%
15	18:03	36	0	0	58	58	62%
15	18:08	24	2	6	66	66	70%
65	18:08	59	3	0	38	38	40%
49	18:16	68	3	0	29	29	31%
15	18:20	64	4	0	34	34	36%
65	18:25	75	5	0	24	24	26%
15	18:28	58	8	0	44	44	47%
15	18:28	45	3	0	52	52	55%
Total		**1,260**	**60**	**18**	**1,218**	**1,132**	**48%**

As can be seen from the preceding Table 3.4, during the PM peak survey period all buses in the southbound direction were found to have excess capacity, with average occupancy of buses surveyed found to be 49 no. passengers. Average excess capacity on the buses surveyed was found to be 45 no. passengers (48%).

The busiest hour in the southbound direction during the PM peak survey was found to be 17:31-18:30hrs. During this time period, the average occupancy of the buses surveyed was found to be 50 no. passengers and average excess capacity was found to be 44 no. passengers (46%).

3.3. Previous Survey Results and Comparsion

A previous bus occupancy survey was undertaken at same bus stop locations as mentioned in Section 3.1. The surveys were undertaken on Tuesday 20 February 2024. A comparison of excess bus occupancy and number of buses served during busiest hour between two survey dates is presented in Table 3.5.

Table 3.5 Comparsion of Survey Data

	February 2024 Survey Data	November 2024 Survey Data
AM Peak Hour (07:31-08:30hrs)		
No. Services (Northbound)	14	17
Excess Capacity (Northbound)	42%	40%
No. Services (Southbound)	9	7
Excess Capacity (Southbound)	85%	80%
PM Peak Hour (17:31-8:30hrs)		
No. Services (Northbound)	9	8
Excess Capacity (Northbound)	79%	61%
No. Services (Southbound)	11	17
Excess Capacity (Southbound)	43%	46%

As per data presented in the preceding Table 3.5, it has been observed that the overall number of services recorded and the number in the direction of peak travel (northbound to Dublin City Centre in the AM peak hour and southbound from Dublin City Centre in the PM peak hour) has increased in November 2024 compared to February 2024.

In AM peak hour, the average excess capacity in both directions has slightly reduced by 2-5% November 2024 survey compared to February 2024. In the PM peak hour, the average excess capacity in the southbound direction has increased by 3% in November 2024 compared to February 2024 whereas in the northbound direction it has reduced by 18%. Notwithstanding this change, there is ample excess capacity in both the AM and PM peak hours, with no less than 40% reserve capacity identified to be available in any direction.

Survey data collected from the February 2024 survey is provided in Appendix A.

3.4. AM and PM Peak Hour Direction of Peak Demand Overview

Based on a survey analysis, it has been established that during the weekday AM and PM peak hours surveyed, buses serving the application site have at least than 40% excess capacity:

- In the northbound direction during the AM peak hour (direction of peak travel), available excess capacity was determined to be 42% in the February 2024 and 40% in the November 2024 surveys
- In the southbound during the PM peak hour (direction of peak travel), available excess capacity was determined to be 43% in the February 2024 and 46% in the November 2024 surveys.

While bus passenger demand may vary from day to day, such variations are small and therefore the survey results can be deemed to provide a robust basis for assessing the impact of additional demand generated by the Fortfield LRD. Furthermore, in assessing the adequacy of public transport capacity in accommodating the needs of the proposed development, the November 2024 survey data has been considered to represent a robust basis for analysis.

3.5. Existing Peak Hour Bus Service Capacity

The AM and PM peak hours have been identified through CSO and bus occupancy survey data to be 07:31-08:30hrs and 17:31-18:30hrs respectively. The following Table 3.6 details the number of local bus services, i.e. 15, 15C, 49 and 65B observed to operate from the surveyed bus stops along with the capacity (passengers per hour per direction [pphpd]) of these bus services for both the AM and PM peak hours.

Table 3.6 Existing AM and PM Peak Hour Bus Service Capacity

	AM Peak Hour (07:31-08:30hrs)	PM Peak Hour (17:31-18:30hrs)
Northbound		
No. Services	17	8
Capacity (pphpd)	1,598	752
Southbound		
No. Services	7	17
Capacity (pphpd)	658	1,598

As shown in the preceding table, based on the capacity of buses operating on these routes, i.e. 94 no. passengers per vehicle, bus service capacity in the northbound direction has been estimated as 1,598 and 752 pphpd in the AM and PM peak hours respectively. Similarly, in the

southbound direction, bus service capacity has been estimated as 658 and 1,598 pphpd in the AM and PM peak hours respectively.

4. Public Transport Demand

4.1. Proposed Development Modal Splits

In support of the LRD application for the application site, a RTP has been produced by PUNCH Consulting Engineers, with modal split targets contained therein. These modal splits are outlined in the following Table 4.1.

Table 4.1 Proposed Modal Splits as per RTP

Mode						
Walk	Cycle	Public Transport	Motorcycle	Car (Driver)	Car (Pass.)	Work Mainly At Or From Home
28%	14%	21%	2%	15%	5%	15%

4.2. Proposed Development Public Transport Demand

In support of the LRD application, a TTA has been produced by PUNCH Consulting Engineers, with TRICS People Trip rates contained therein. In order to determine whether the modal splits outlined in the preceding Section 4.1 are achievable in relation to existing public transport (i.e. bus services) provision in the vicinity of the application site, an analysis of the daily residential public transport demand has been undertaken. This analysis is based on the modal splits set out above and TRICS People Trip rates, and the public transport capacities determined in the preceding Section 3.

The following Table 4.2 provides an overview of estimated residential travel demand based on the proposed no. of units within the development.

Table 4.2 Peak Hour Residential Public Transport Demand

Time Period		TRICS 'People' Trip Rate per Dwells	% Public Transport	No. Units Proposed	Additional Number of PT Trips
AM Peak	AM Arrival	0.093	21%	284	6
	AM Departure	0.510			30
PM Peak	PM Arrival	0.371			22
	PM Departure	0.173			10

As demonstrated within the preceding Table 4.2, the AM peak hour departure trips (30 trips) from the proposed development and PM peak hour arrival trips (22 trips) to the proposed development represent the peak demand as regards the public transport capacity assessment.

Within the following Table 4.3, estimated peak hour public transport trips are detailed. It should also be noted that it has been assumed that 80% of public transport resident trips will take place in the direction of peak demand, i.e. northbound in the AM peak period and southbound in the PM peak period. The assumed 'worst case' 80% directional demand is deemed conservative on the basis of assessing the impact of the majority of residents of the LRD boarding buses in the direction of peak demand, where more limited excess capacity exists compared to the opposing direction.

Table 4.3 Peak Hour Residential Public Transport Directional Demand

Time Period	Total No. Peak Hour Trips To/ From Development	No. of Peak Hour PT Trips in Direction of Peak Demand To/ From Development (80%)
AM Peak	30	24
PM Peak	22	18

4.3. Impact of Proposed Development on Existing Services

Within the following Table 4.4, the number of trips to and from the development in the AM and PM peak hours in the direction of peak demand are calculated. The percentage of new users with respect to existing bus capacity in the AM and PM peak hours has also been estimated. It should be noted that it has been assumed that there will be no change in the capacity of existing bus services in order to provide a robust assessment.

Table 4.4 Existing Bus Service Capacity – Peak Demand Direction

AM Peak Hour PT Trips Depart in Direction of Peak Demand	Northbound AM Peak Hour Bus Service Capacity (pphpd)	% New PT Users/ AM Peak Hour Capacity	No. of PM Peak Hour PT Trips Arrive in Direction of Peak Demand	Southbound PM Peak Hour Bus Service Capacity (pphpd)	% New PT Users/ PM Peak Hour Capacity
24	1,598	**1.5%**	18	1,598	**1.1%**

As set out in the preceding Table 4.4, 24 and 18 no. trips are expected to be undertaken by public transport in the direction of peak demand between 07:31-08:30hrs and 17:31-18:30hrs respectively. These numbers represent ca. 1.5% and 1.1% of the total capacity of existing AM and PM peak hour bus services respectively. As set out in Section 3.2, excess bus service capacities on surveyed bus services were found to be 40% in the northbound direction during the AM peak hour and 46% in the southbound direction during the PM peak hour. As such, it is apparent that current public transport capacity within the vicinity of the LRD site is sufficient to accommodate the small additional demand generated by the proposed development.

A review of recently granted residential developments within the application site's vicinity (1km distance) has been undertaken by McGill Planning. Arising from this review, 3 no. proposed developments have been granted within this area within the last 12 months. These developments, each comprising fewer than five units, are small in scale and would not result in a significant increase in the local population or demand for public transport.

It should also be noted with the improvements in bus services being implemented as part of the BusConnects network redesign of the Dublin bus network as set out in Section 2.2, public transport capacity will further improve in the short-medium term. At the time of writing, it is understood that 'F' spine services and the 'A' spine which comprises 2 no. high-frequency services (A1, A3) are expected to be delivered by 2025-2026. As such, the enhanced bus network is likely to operational before the subject development's expected completion. It is further noted that scope exists for bus service capacity to be further increased in the future, should future growth in passenger demand warrant same.

5. Conclusion

Transport Insights has been appointed by 1 Celbridge West Land Limited to undertake a public transport capacity study in relation to a Large-Scale Residential Development (LRD) at Fortfield Road, Terenure, Dublin 6W. The study has been informed by a comprehensive bus occupancy survey, and review of a range of planning stage documents furnished to Transport Insights by PUNCH Consulting Engineers.

Based on the findings of the public transport occupancy survey, mode share targets set out within the Residential Travel Plan, and analysis contained within this Note, it was found that residents of the proposed development would utilise ca. 1.5% and 1.1% of the total capacity of existing AM and PM peak hour bus services respectively. During the AM and PM peak hours, bus service excess capacities were found to be 40% and 46% respectively in the direction of maximum demand. As such, it is apparent that current public transport capacity within the application site's

vicinity is sufficient to accommodate additional demand generated by the proposed development.

Appendix A: Public Transport Survey Data February 2024

Survey Results – AM Period (07:30-09:30hrs), Bus Stop No. 1158, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15C	07:34	83	1	2	84	10	11%
15	07:47	81	4	0	77	17	18%
49	07:48	75	1	0	74	20	21%
15	07:56	83	2	3	84	10	11%
49	08:05	75	5	0	70	24	26%
15	08:05	85	15	0	70	24	26%
15	08:05	85	15	0	70	24	26%
15	08:09	29	1	0	28	66	70%
65	08:17	47	4	3	46	48	51%
65B	08:17	21	0	0	21	73	78%
65	08:18	53	4	0	49	45	48%
15	08:18	74	4	0	70	24	26%
49	08:21	21	3	0	18	76	81%
65	08:30	7	1	1	7	87	93%
15	08:31	74	0	0	74	20	21%
49	08:41	54	0	2	56	38	40%
15	08:45	24	0	4	28	66	70%
15	08:45	70	0	0	70	24	26%
15	08:55	52	0	1	53	41	44%
65	08:55	7	0	0	7	87	93%
15C	08:58	2	0	0	2	92	98%
65B	09:02	14	0	0	14	80	85%
15	09:03	14	0	0	14	80	85%
15	09:03	47	0	2	49	45	48%
49	09:06	11	0	0	11	83	88%
49	09:11	6	0	1	7	87	93%
15	09:17	55	0	1	56	38	40%

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	09:27	15	1	0	14	80	85%
Total		**1,261**	**61**	**20**	**1,223**	**1,409**	**54%**

Survey Results – AM Period (07:30-09:30hrs), Bus Stop No. 1125, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	07:34	7	0	0	7	87	93%
49	07:38	15	1	0	14	80	85%
15	07:44	15	1	0	14	80	85%
15	08:03	29	8	0	21	73	78%
15	08:13	9	3	1	7	87	93%
49	08:21	28	11	1	18	76	81%
65	08:28	26	1	0	25	69	73%
15	08:30	18	4	0	14	80	85%
15	08:30	5	1	0	4	90	96%
49	08:43	2	1	1	2	92	98%
15	09:02	2	1	0	1	93	99%
65B	09:09	14	1	1	14	80	85%
49	09:12	6	0	1	7	87	93%
15	09:12	4	0	0	4	90	96%
15	09:23	5	3	0	2	92	98%
15	09:30	3	1	0	2	92	98%
Total		**186**	**37**	**5**	**156**	**1,348**	**89%**

Survey Results – PM Period (16:30-18:30hrs), Bus Stop No. 1158, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	16:30	1	0	1	2	92	98%
49	16:34	7	0	0	7	87	93%
15	16:37	36	0	6	42	52	55%
15	16:49	10	0	1	11	83	89%
15	17:00	41	0	1	42	52	55%
49	17:06	11	0	0	11	83	89%
15	17:13	14	0	0	14	80	85%
65B	17:17	22	1	0	21	73	78%
15	17:22	21	0	0	21	73	78%
15	17:40	0	0	1	1	93	99%
49	17:40	7	0	0	7	87	93%
15	18:00	65	0	2	67	27	29%
15	18:05	33	0	2	35	59	63%
49	18:12	23	0	2	25	69	74%
15	18:18	14	0	0	14	80	85%
65	18:22	14	0	0	14	80	85%
15	18:24	6	0	0	6	88	94%
15	18:29	7	0	0	7	87	93%
Total		**332**	**1**	**16**	**347**	**1,345**	**79%**

Survey Results – PM Period (16:30-18:30hrs), Bus Stop No. 1125, Templeogue Road

Route No.	Time	No. Occupants on Arrival	No. Alighters	No. Boarders	No. Occupants on Departure	Excess Capacity	Excess Capacity (%)
15	16:37	43	2	1	42	52	55%
65B	16:42	57	0	6	63	31	33%
49	16:51	22	1	0	21	73	78%
15	17:00	42	2	2	42	52	55%
15	17:01	36	1	0	35	59	63%
65	17:09	32	4	0	28	66	70%
49	17:15	21	0	0	21	73	78%
49	17:20	11	0	0	11	83	89%
15	17:20	75	5	0	70	24	26%
15	17:26	29	1	0	28	66	70%
65B	17:27	56	0	0	56	38	40%
15	17:33	46	4	0	42	52	55%
49	17:36	53	1	4	56	38	40%
15	17:42	80	5	2	77	17	18%
15	17:44	27	3	1	25	69	74%
15	17:44	20	2	0	18	76	81%
49	17:51	46	7	3	42	52	55%
15	17:54	75	12	0	63	31	33%
65B	18:01	70	3	3	70	24	26%
65	18:07	75	2	1	74	20	22%
49	18:12	51	2	0	49	45	48%
15	18:16	83	7	1	77	17	18%
Total		**1,048**	**24**	**64**	**1,008**	**1,058**	**51%**

Appendix B: Bus Occupancy Survey (National Transport Authority Survey Specification)

Sample Specification for Transport Surveys

The following generic survey specifications can be used as a basis for procuring survey consultancy services for NTA funded sustainable transport projects. Items highlighted in yellow require special attention and input from the Contracting Authority.

Local Authorities should check with their procurement sections; however it is envisioned that most surveys should be under the E-tenders procurement threshold. Services less than €5,000 in value can be purchased on the basis of verbal quotes from one or more competitive competent survey suppliers; and services contracts between €5,000 and €25,000 in value can be awarded on the basis of responses to specifications sent to at least three service providers.

The NTA are currently developing a national database of traffic count data, which will be accessible to Local Authorities. This document outlines specific guidance to deliver surveys in a compatible format so that results can be incorporated into this database and reduce duplication. It is therefore prudent that all guidelines outlined in this document are followed in their entirety. Any guidelines which are not fully observed will result in complications, and consequently delays, during importation to the new standardised database. For clarification samples can be provided by the NTA modelling section.

It is envisaged that in the case of data types that can be included into the database, the traffic surveyor will supply the dataset in the new format streamlined for the new NTA Database. At present the database is only compatible with Junction Turning Counts (JTC), Junction Turning Counts – Pedestrian Counts (JTC – PED) and Automatic Traffic Counts (ATC) and templates have been supplied for these particular survey types. However, it is now necessary for all surveys tendered by the NTA to be carried out in the specified format. Please see the additional guidance documents and templates for further information.

Database support is available at counts@nationaltransport.ie

Vehicle Occupancy Guidelines:

1. For the raw data, the preferred classifications are Occ1, Occ2, Occ3, Occ4, Occ5, Occ6, and Occ7.
2. Separate lines of data should be completed for each vehicle class for each time period.
3. Spreadsheet should include: site number, site location, weather, date, start and end times, coordinates in Latitude/Longitude and Easting/Northing, explanation of occupancy classifications and a site image (photograph of the road where the count was carried out).

12. Bus Occupancy Surveys (BO) / Boarding & Alighting Surveys (B&A)

Data Required:

Bus Occupancy data is required using the following classifications:

- Operator,
- Bus Arrival Time,
- Bus Number/Route Number
- Registration Plate,
- Fleet number,
- Bus Type (double decker, single decker, single deck coach, double deck coach, mini bus/coach),
- Direction (inbound/outbound),
- Bus service type (public, private, school),
- Does bus stop or pass by the stop?,
- Number boarding the bus,
- Number alighting the bus,
- Bus departure time,
- Number of passengers left at the stop,
- Bus occupancy (for stopped and passing buses) (0%, 25%, 50%, 75%, 100%).

Survey Period:

[Contracting authority to decide times dependent on requirements] e.g.

The surveys are to be undertaken for the following periods:

BOs/BAs: 12 hour period from 07:00:00 to 19:00:00 on a neutral weekday (Tuesday-Thursday). Extended time periods up to 24 hours are facilitated by the templates and 12 and/or 24 hour periods are recommended.

All surveys are to be undertaken over the same time period.

Survey Method:

All surveys are to be conducted by camera monitoring or manual enumerator. In each case, the manual enumerator or camera should be a position that as such all data can be collected easily and obstructions are minimized.

Surveys are not to be carried out on a day which coincides with school or public holidays unless with explicit permission from the contracting authority.

Data Format:

All data to be presented as below in Microsoft excel format.

All buses arriving/ departing to be recorded.

Bus Occupancy Guidelines:

1. For the raw data, the preferred classifications are those stated above.
2. Counts should be conducted beside the bus stop, where vehicles are slowing down/stopping and occupancy can be easily captured. If a vehicle is travelling too quickly on approach skip this vehicle and move to the next one.
3. Counts should be done as the buses arrive/depart.
4. Counts should be done for all buses arriving/departing at the designated stop.
5. Separate lines of data should be completed for each arrival.
6. Spreadsheet should include: site number, site location, weather, date, start and end times, coordinates in Latitude/Longitude and Easting/Northing, and a site image (photograph of the road where the count was carried out).
7. The data should be collected for every bus that stops at the stop or passes by the stop.
8. The relevant direction of the bus should be recorded e.g. inbound or outbound.
9. Separate lines of data should be completed for each bus.
10. The full name of the operator should be used. E.g. in the case of Bus Eireann, the full operator name should be used, and not just 'BE'.
11. Registration numbers should be complete and checked to ensure they are in the correct format.
12. The classifications for bus type are as follows:
    a. Double Decker
    b. Single Decker
    c. Single Deck Coach
    d. Double Deck Coach
    e. Midi Coach
    f. Mini Bus
13. The Type of service that should be recorded is:
    a. Public Service Vehicle
    b. Private
    c. School Bus
    d. In the case that other service types exist, please record these.

14. Occupancy of buses should also be recorded where specified and should be categorized as follows
    a. 0% occupancy (empty)
    b. 25% occupancy (small number of people on board)
    c. 50% occupancy (bus is half full)
    d. 75% occupancy (all seats filled)
    e. 100% occupancy (all seats filled and standing space occupied)
15. Arrival time and departure time should be noted down to the second (hh:mm:ss), the same value should not be recorded for arrival and departure.