



Public Transport Capacity Assessment

Proposed Strategic Housing Development at Fosterstown North,
Dublin Road / R132, Swords, Co. Dublin

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1. Introduction

1.1 Introduction

Waterman Moylan has been appointed by J. Murphy (Developments) Limited to provide Engineering services on the development of lands at Fosterstown North, Dublin Road / R132 Swords, Co. Dublin.

This report has been prepared as part of a Strategic Housing Development planning submission to An Bord Pleanála, for the proposed development which will consist of 645no. residential units (comprising of 208no. 1-bedroom units, 410no. 2-bedroom units, and 27no. 3-bedroom units), in 10no. apartment blocks, with heights ranging from 4no. storeys to 10no. storeys, including undercroft / basement levels (for 6no. blocks). The proposals include 1no. community facility in Block 1, 1no. childcare facility in Block 3, and 5no. commercial units (for Class 1-Shop, or Class 2- Office / Professional Services or Class 11- Gym or Restaurant / Café use, including ancillary takeaway use) in Blocks 4 and 8. The proposal includes all associated and ancillary development.

With reference to the Traffic Impact Assessment prepared by OCSC and the Car Parking Rationale and Mobility Management Plan prepared by Waterman Moylan, the subject site is located within a 'Central and/or Accessible Urban location' having regard to the Apartment Guidelines 2020, having regard to the site's location '*within easy walking distance (i.e. up to 5 minutes or 400-500m) to/from high frequency (i.e. min 10 minute peak hour frequency) urban bus services*'.

The purpose of the report is to review the frequency and capacity of the existing public transport network in the area to accommodate passenger trips generated by the proposed development and to confirm that such services remain within capacity once all of the committed and proposed developments contributing to the service have been completed.

This capacity assessment also demonstrates that the subject site meets the criteria set out in Section 3.2 of the Building Height Guidelines 2018, in respect of demonstrating '*the site is well served by public transport with high capacity, frequent service and good links to other modes of public transport*'.

The methodology used is set out below.

- Determination of the resident population based on the size and number of residential units proposed.
- Determination of the modal split for the proposed development
- Calculation of the future passenger demand from the proposed development
- Determination of future passenger demand from committed/future developments
- Determination of bus capacity for the time and direction of peak demand
- Determination of passenger loadings from the bus capacity survey
- Determination of spare bus capacity available, if any, to serve the proposed and contiguous developments.

For the purpose of this report and based on experience from a number of surveys, the peak travel time and direction of travel in the Swords area has been assumed to be southbound towards Dublin City Centre during the AM Peak Hour between 07:30 and 08:30 on the weekday

1.2 Background

The subject site is extremely well-located on the main bus routes serving the Swords to Dublin market. The public service obligation (PSO) routes operated under contract to the NTA that directly serve the Fosterstown site are operated by Dublin Bus, Go Ahead, Bus Eireann and Swords Express. Together they offer a variety of alignments to Dublin City centre and beyond to UCD as well as catering for more local trips to Swords and Dublin Airport.

1.3 Location of Proposed Development

The site is located in lands at Fosterstown North, Dublin Road / R132 Swords, Co. Dublin and is bound to the north by the Gaybrook Stream and a greenfield site, (which forms the northern portion of the Fosterstown Masterplan), to the east by the R132 and to the south and west by the Boromhe residential development. The subject site is located 2km north of Dublin Airport and 1km south of Swords Main Street.



Figure 1: Location Map

The subject site will also benefit from future public transport enhancements proposed adjacent to the site including BusConnects and Metrolink and further details are set out in the Traffic Impact Assessment prepared by OCSC and the Engineering Assessment Report, and the Car Parking Rationale and Mobility Management Plan prepared by Waterman Moylan.

1.4 References

The figures and illustrations in this report have been based or reproduced from a number of sources including:

- Dublin Bus Website operated by Dublin Bus (dublinbus.ie).
- Swords Express Website operated by Eirebus (swordsexpress.ie)
- TII Journey Planner

2. Bus Service Frequency

2.1 Background

The 4 No. bus operators (Dublin Bus, Go Ahead, Bus Eireann and Swords Express) offer a variety of alignments to Dublin City centre and beyond to UCD as well as catering for more local trips to Swords and Dublin Airport. The range and frequency of these services are set out in Section 2.2-2.4 below.

There are primarily three bus corridors serving the Fosterstown North / south Swords area are indicated in Figure 2 below and are:

- Eastwards to the M1 motorway via Holywell and on to Dublin City via the Port Access Tunnel
- Southwards via the R132 regional road to Dublin City and Dublin Airport
- Southwestwards via Forest Road to Dublin Airport

2.2 Swords-City Centre via M1

There are some 20 No. services between Swords and the City Centre via the M1 during the AM peak hour. See Table 1.

Route	Operator	Origin	Destination	Via	Frequency (Peak) Mins
41X	Dublin Bus	Knocksedan/ Swords manor	UCD Belfield	Port Tunnel	7 peak trips
42D	Dublin Bus	Portmarnock	DCU	Port Tunnel	1 peak trip
142	Dublin Bus	Portmarnock	UCD Belfield	Port Tunnel	5 peak trips
500/X	Swords Express	Abbeyvale/ Swords Manor	Dublin City Centre	Port Tunnel	3 peak trips
504	Swords Express	Rathingle, Swords	Dublin City Centre	Port Tunnel	1 only (0 peak)
505	Swords Express	Forest Road	Dublin City Centre	Port Tunnel	2 peak trips
506X	Swords Express	Miller's Glen	Dublin City Centre	Port Tunnel	1 peak trip
507	Swords Express	Abbeyvale/ Swords Manor	Dublin City Centre	Port Tunnel	1 peak trip

Table 1: Services between Swords and City Centre via M1

These services combine to provide 20 No. peak hour services (730-830) along this route towards Dublin City Centre. This has been verified by a review of the real-time schedule for Stop No. 6310 along the Swords-City Centre via M1 route, set out below in Figure 2.

← Holywell Crescent, stop 6310 ×		
142	UCD	7:33 AM
505	Eden Quay, stop 301	7:34 AM
500	Eden Quay, stop 301	7:37 AM
506X	Eden Quay, stop 301	7:39 AM
41X	UCD	7:41 AM
41X	UCD	7:46 AM
41X	UCD	7:48 AM
142	UCD	7:55 AM
41X	UCD	7:56 AM
42d	DCU	7:56 AM
500	Eden Quay, stop 301	7:57 AM
507	Eden Quay, stop 301	7:58 AM
41X	UCD	8:04 AM
142	UCD	8:05 AM
41X	UCD	8:06 AM
505	Eden Quay, stop 301	8:09 AM
41X	UCD	8:09 AM
142	UCD	8:15 AM
142	UCD	8:25 AM
500	Eden Quay, stop 301	8:27 AM

Figure 2: AM Peak hour services Swords to City Centre via M1

2.3 Swords-City Centre/Dublin Airport via R132

There are some 14 peak hour services per day between Swords and the City Centre/Dublin Airport via the R132, in the AM peak hour. See Table 2.

Route	Operator	Origin	Destination	Via	Frequency (Peak) Mins
33	Dublin Bus	Balbriggan/ Skerries	Dublin City Centre	R132	3 peak trips
33A	Go Ahead	Balbriggan	Dublin Airport	R132	1 peak trip
41	Dublin Bus	Swords Manor	Dublin City Centre	R132	3 peak trips
41B	Dublin Bus	Rolestown	Dublin City Centre	R132	1 peak trip
41C	Dublin Bus	Swords Manor	Dublin City Centre	R132	3 peak trips
500X	Swords Express	Miller's Glen	Dublin City Centre	R132	2 peak trip
501X	Swords Express	Abbeyvale/ Swords Manor	Dublin City Centre	R132	1 peak trips
506X	Swords Express	Abbeyvale/ Swords Manor	Dublin City Centre	R132	1 peak trip

Table 2: Services between Swords and City Centre / Dublin Airport via R132

These services combine to provide 14 No. peak hour services (730-830) along this route towards Dublin City Centre / Dublin Airport. This has been verified by a review of the real-time schedule for Stop No. 6396 along the Swords-City Centre/Dublin Airport via R132 route, set out below in Figure 3.

← Dublin Road (near junction ... ×		
41	Abbey St	7:39 AM
41C	Abbey St	7:39 AM
41B	Abbey St	7:48 AM
33	Abbey St	7:50 AM
41	Abbey St	7:59 AM
501X	Eden Quay, stop 301	8:01 AM
41C	Abbey St	8:04 AM
33	Abbey St	8:15 AM
500X	Eden Quay, stop 301	8:16 AM
506X	Eden Quay, stop 301	8:19 AM
500X	Eden Quay, stop 301	8:21 AM
41	Abbey St	8:23 AM
41C	Abbey St	8:24 AM
33	Abbey St	8:26 AM

Figure 3: AM Peak hour services Swords to City Centre / Dublin Airport via R132

2.4 Swords-Dublin Airport via Forest Road

There are some 3 No. services between Swords and Dublin Airport via Forest Road. See Table 3.

Route	Operator	Origin	Destination	Via	Frequency (Peak) Mins
102	Dublin Bus	Portmarnock	Dublin Airport	Forest Road	3 peak trips

Table 3: Services between Swords and Dublin Airport via Forest Road

These services combine to provide 3 No. peak hour services (730-830) along this route towards Dublin Airport. This has been verified by a review of the real-time schedule for Stop No. 788 along the Swords-Dublin Airport via Forest Road route, set out below in Figure 4.

102	Dublin Airport	6:39 AM
102	Dublin Airport	7:09 AM
102	Dublin Airport	7:33 AM
102	Dublin Airport	8:06 AM
102	Dublin Airport	8:36 AM
102	Dublin Airport	9:06 AM

Figure 4: AM Peak hour services Swords to Dublin Airport via Forest Road

2.5 Peak Frequency – AM Peak House – Inbound

From Tables 1-3, the peak frequency of Bus services between Swords and City Centre / Dublin Airport is 37 buses per hour equivalent to an average frequency of one bus per c. 1.5-2.0 minutes.

Access to these services are available at the four number bus stops immediately adjacent the site, asset out in Table 4 and Figure 5 below.

Bus Stop No.	Location on Map	Distance to site	Routes served
3694	R132 (Pinnock Hill)	30m	33, 33A, 41, 41B, 41X, 197, 500X, 501, 501X, 506X
3695	R132 (Pinnock Hill)	30m	33, 33A, 41, 41B, 41D, 41X, 197, 500X, 501, 501X, 506X
5028	L2300	450m	41C, 41X, 500, 501, 502, 503, 504, 505
7115	L2305 (Nevinstown Lane)	300m	41X, 197, 500, 500X, 501, 502, 503, 504, 505, 506X

Table 4: Bus Stop Location / Route Plan



Figure 5: Bus Network / Stop Location – Swords South

3. Passenger Capacity

3.1 Bus Capacity

Services on the primary bus routes serving the subject site as set out in Section 2 above are provided by various double deck and single deck buses within the Dublin Bus, Go Ahead and Swords Express fleets. The average capacity of a double decker, based on information from the Dublin Bus website, is 91 passengers as calculated in Table 5 below. The average capacity of buses within the Swords Express fleet is 67 passengers, whilst the single decker services serving the 33A route from Go Ahead have a capacity of 45 passengers.

For the purpose of this report, the average capacity of a double decker bus operated by Dublin Bus has been taken as 90 passengers including standing. The average capacity of a single decker will be assumed to be half this.

Fleet Code	No in Fleet	Capacity	Total Capacity
AV	76	91	6,916
AX	192	91	17,472
EV	97	94	9,118
VG	50	88	4,400
GT	160	78	12,480
SG	369	95	35,055
Total	938	91	85,441

Table 5: Dublin Bus Capacity

4. Recorded Passenger Demand

4.1 Bus Capacity Survey, March 2022

As part of the transport capacity assessment, bus stop 6310 on the M1 / Holywell Road primary bus route was surveyed for the purposes of determining the available capacity of the bus services utilising same. The bus capacity survey was carried out by Waterman Moylan during the AM Peak. The location of the bus capacity study on the 1st March 2022 was as follows:

Bus Stop No. 6310: This bus stop is located east of the proposed development on Glen Ellen Road and serves the bus routes 142, 506x, 41x, 505, 500x, 503, 142, 42D and 507.

Bus Stop No. 6310 was chosen as it is the last stop before the majority of the buses join the M1 motorway for a non-stop journey via the Port Tunnel to the Point Dept, Docklands and onwards to Dublin City Centre/UCD. The purpose of the survey was to determine the spare capacity at this last pick up point in Swords on the basis that the final pick up point is the critical location on the network. All three bus routes are served by stops near the proposed development and allow access to different locations around Dublin.

4.2 Recorded Passenger Demand

The results of the bus survey are presented in Table 6. The results recorded a significant spare capacity of 947 Passengers between 07:30 to 08:30 compared to the predicted demand of 80 passengers from the subject development travelling southbound along this route.

Time	No of Buses	Bus Capacity	No of Passengers	Spare Capacity	Spare Capacity %
07:30 - 07:45	5	383	172	211	55
07:55 - 08:00	8	680	264	416	61
08:00 – 08:15	7	690	245	320	46
08:15 - 08:30	3	225	107	118	52
Total	23	1,628	681	947	58

Table 6: Travel Survey Results (Stop 6310)

5. Future Passenger Demand – Fosterstown North SHD

5.1 Resident Population

The proposed development at Fosterstown North SHD is expected to comprise some 645 residential apartments south of Swords.

Unit Size	Number of Units	Total
1-Bed (1.5 person)	208	312
2-Bed (2.5 persons)	410	1,025
3-Bed (3.5 persons)	27	94
Total	645	1,431 persons

Table 7: Development Proposal and Estimated Population

For the purpose of this report and based on the figures in Table 7, the projected population of the proposed development has been assumed to be 1,431 persons.

5.2 Modal Split

The projected modal split for residents for the journey to work / education at the proposed development during the AM Peak 07h00 – 10h00 is set out in the Traffic Impact Assessment, with an average car usage of 32-62% for private car. This information was based on travel statistics extracted from CSO Reports on Census 2016.

Based on data from TRICS adjusted for the proposed quantum of car parking and the proximity of public transport, some 80% of residents are expected to leave the development in the AM period, with some 50% of residents are expected to travel during the AM Peak Hour 07h30 – 08h30, with some 35% expected to use bus as a means of transport.

5.3 Development Generated Trips

Based on the above, some 250 residents are predicted to use the bus for the journey to work or education during the AM Peak Hour between 07h30 and 08h30 each workday. In addition, the adjacent permitted scheme of 238 No. units would generate 92 peak hour bus trips.

5.4 Direction of Travel

It has been assumed during the AM Peak Hour between 07h30 and 08h30 that some 80% of passengers will travel southbound towards the City Centre and 20% northbound towards Swords Village / north County Dublin. It is further assumed that southbound trips will be equally split between the M1 and R132 routes.

5.5 Projected Boardings

On the basis of the figures above, the projected southbound and northbound bus trip generated by the proposed development during the AM Peak Hour 07h30 – 08h30 on a weekday are presented in Table 8. In addition, the adjacent permitted scheme would generate 37 peak hour bus trips on each of the southbound primary bus routes via the M1 and R132.

Route	Northbound	Southbound	Total
M1/Holywell	25	100	125
R132	25	100	125
Total	50	200	250

Table 8: Projected AM bus trips – AM Peak House 07h30 – 08h30

6. Demand v Capacity

6.1 Swords to Dublin City via M1

On this section, the peak inbound demand during the AM Peak Hour 07h30 – 08h30 occurs at bus stop 6310, Holywell, the last stop before these services join the M1 and travel through the Port Tunnel to Dublin City Centre.

The relevant demand v capacity data is summarised below.

- Peak Inbound Demand (survey) : 681 passengers per hour
- Future trips (subject development) : 100 passengers per hour
- Total Inbound Demand : 781 persons per hour
- Inbound Capacity : 1,600 passengers per hour
- Spare Capacity: : 819 passengers per hour
- % Spare capacity : 51% of 1,600 passengers per hour

In addition, the adjacent 238 No. unit scheme, if developed would generate 37 additional peak hour passenger trips and utilise c. 2.6% of the 51% spare capacity.

6.2 Swords to Dublin City / Dublin Airport via R132

On this section, the peak inbound demand during the AM Peak is expected to occur between the subject site and Dublin Airport.

Based on the undertaken surveys and assessments, this route has the same number of services available to it as the Swords to Dublin City via M1 route, as well as having the same demand as the above route (80 passengers per AM peak hour). On this basis a similar degree of spare capacity is likely to result post development.

7. Summary and Conclusions

Proposed Development

The proposed residential development will be located on lands at Fosterstown North, Dublin Road / R132.

Existing Bus Services

Passenger services within 30m-450m of the subject the site to the City Centre and Dublin Airport comprise some 37 services in the AM Peak Hour, primarily along the R132 and M1 routes.

AM Peak hour capacity is 2,960 passengers per hour towards the city centre based on an average bus capacity of 80 passengers.

Passenger Demand – Proposed Development

The peak passenger demand on southbound services from the subject site is estimated to be 200 passengers per hour. This represents c. 7% of the overall capacity of the bus network.

Demand v Capacity

A demand survey undertaken in March 2022 determined the available capacity of the existing bus service is in excess of 50% compared to the 7% demand generated by the subject development.

Conclusion

This assessment demonstrates the subject site is well served by public transport with high capacity, frequent service. The existing bus network in the area has sufficient capacity to accommodate passenger trips generated by the proposed development and such services remain within capacity once all of the committed and proposed developments contributing to the service have been completed..

UK and Ireland Office Locations



