

PUBLIC TRANSPORT CAPACITY  
ASSESSMENT  
BELCAMP SITE, MALAHIDE ROAD,  
Co DUBLIN.

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<b>1. Introduction.</b>	3
<b>2. Background to Dublin’s Public Transport Network</b>	4
<b>3. Bus Market Opening (BMO)</b>	5
<b>4. Bus Connects Project Overview</b>	6
<b>5. Existing Public Transport Network Serving the Belcamp Site</b>	8
<b>6. Public Transport Capacity Assessment</b>	11
<b>7. Bus Connects Network in Belcamp area</b>	17
<b>8. Conclusions and Recommendations</b>	23

## **1. Introduction.**

Gerard Gannon Properties intend to apply to An Bord Pleanála for planning permission for a strategic housing development (SHD) at Belcamp, Malahide Road, Dublin 17. This report, by Derry O’Leary, Transport Consultant, has been commissioned by Gerard Gannon Properties to provide an overview of the adjacent existing bus network, assess the available spare capacity in the current public transport network and review the implications for the proposed National Transport Authority’s BusConnects network in the area. The author, a Civil Engineer, qualified as a Traffic Engineer and has over 40 years experience in both the public and private sectors. He has spent nearly 30 years in both planning and operations in Dublin Bus. This report supplements the Traffic and Transport Assessment (TTA) undertaken by Waterman-Moylan (WM) and the Sustainable Transport Strategy (STS) prepared by SYSTRA on the subject site.

### **Site Description**

The Belcamp lands are located centrally in the Dublin Fringe area, north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107). The IDA lands are zoned “High Technology” (HT), to provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment. The total site area of the subject lands is c.67.2 hectares.

The subject site is bounded to the north and west by agricultural lands, to the south by the R139 Regional Road and to the east by an existing mixed-use development, by Phase 1 of the Belcamp development, which is currently under construction by the Applicant, and by the Malahide Road (R107).

The Mayne River flows from west to east through the site. The northern portion of the subject site is within Fingal County Council’s jurisdiction, while the southern portion of the site is within Dublin City Council’s jurisdiction, with the Mayne River forming the border between the two Local Authorities.

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67.2 Ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units

proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within the administrative area of Dublin City Council.



Figure 1. Site Location Map (Source: Google Maps).

## **2. Background to Dublin's Public Transport Network**

2.1 While the customer-facing bus network serving the Greater Dublin Area has been relatively stable in recent years, the organisation of these operations has undergone significant structural change in the last decade or so. The National Transport Authority (NTA), established in 2009, has a wide number of roles in the transport sector. One of these remits is its role as public transport Regulator. Under this relatively new regime, the overall planning of bus and rail services nationwide has moved from the CIE Group of companies to the NTA. Responsibility for the network and individual route designs, frequencies, fares and timetable details, etc. now lies solely with the Regulator. All operators providing services under Public Service Obligation (PSO) or State subvention do so under contract to the NTA. Under this new arrangement even the smallest modification to any bus route or timetable must be agreed with the NTA in advance of implementation. The NTA also approves and allocates licences to commercial bus operators, subject to agreed routes, timetables and conditions. Irish Rail services, including the DART in this instance, also come within the ambit of the NTA.

2.2 In 2015, the NTA commenced a comprehensive review of the efficiency and effectiveness of the Greater Dublin Area's (GDA) bus network, branded as Bus Connects. In parallel, it also began a Bus Market Opening (BMO) process to open up much of the Irish bus market to competition. These are now briefly outlined below.

### **3. Bus Market Opening (BMO)**

3.1 In order to open the Irish bus market to private sector rivals to the incumbent State-owned operators (Dublin Bus and Bus Eireann) the NTA first tendered a package of orbital bus routes previously operated by Dublin Bus in 2016. The group of 24 orbital routes, and total fleet of 125 buses, represented roughly 10% of the bus market in the Greater Dublin Area (GDA). Following the competitive tendering process, the Go-Ahead Group (a largely UK-based bus and rail operator with large overseas businesses) was selected to operate these routes. The seamless transfer of routes, in stages, from Dublin Bus to Go-Ahead Ireland (GAI) took place over a 12-month period in 2018/2019. The switch was barely noticed by the general public and passengers alike, as the new operations were introduced under the NTA's Transport for Ireland (TFI) brand. At this point in time all of the key PSO routes operating on the Malahide Road near the subject site are radial in nature and therefore are still operated by Dublin Bus.

3.2 All PSO operators, whether commercially or State-owned, operate bus services under contract to the NTA and must meet a set of key performance indicators (KPIs) covering reliability, timekeeping and vehicle maintenance. Similar standards are expected of all contracted operators and failure to meet the targets will result in fines or contract cessation. Both the performance standards expected of contractors and the level of fines exacted for not meeting those standards are in the public domain.

3.3 The NTA entirely owns the current fleet deployed by GAI to operate its routes in the GDA. It appears that, over time, the entire publicly-owned public transport fleet will be owned by the NTA as the fleet is renewed and the Authority obtains the capital funding to buy and replace buses for use in the PSO networks across Ireland. The next batch of buses ordered by the NTA for the Dublin urban market are fully-electric traction. The delivery of the first of these EV buses is expected in 2024, commencing operation in 2025.

## 4. Bus Connects Project Overview.

4.1 This comprehensive re-design of the urban bus network in the Greater Dublin Area (GDA) was commenced by the NTA in 2015. In tandem with the service re-designs, the bus route alignments, including the successful Malahide QBC, under the NTA proposals, will be upgraded to radically enhance bus priority measures. This capital investment on the QBC alignment is required to further protect the enhanced operation from the adverse impacts on reliability caused by traffic congestion and improve average bus speeds significantly. These Core Bus Corridors (CBCs), along which the high-frequent “Spine routes” will run, and the revised routes themselves have been through a series of extensive consultation phases with the general public and key stakeholders. Local Authorities have been directly involved in both the bus route and CBC design process. The route network consultation process, which concluded in 2020, modified the proposals following the review of thousands of submissions by members of the public and key stakeholders. The final network has now been agreed.

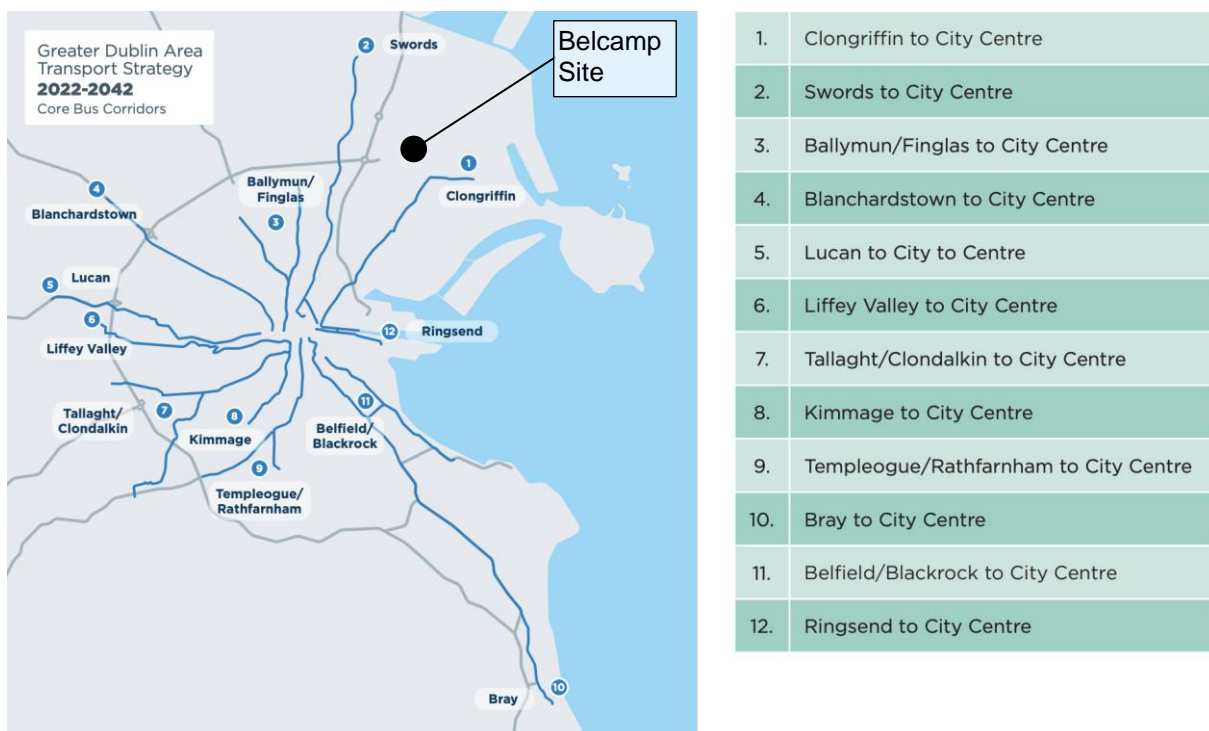


Figure 2. NTA’s Core Bus Corridors (CBCs). The Malahide Road is on corridor 1 (Clongriffin to City Centre).

4.2 Phased implementation of new Spine routes has already started. To date, only two of the phases required to modify the bus network in the Greater Dublin Area have been introduced. The C-Spine and H-Spine changes have been introduced in parts of the west and north suburbs of Dublin. While new route H1 of H-Spine routes now operates relatively close to the Gerard Gannon Properties site under review here it is still too far away to have a significant impact. All the existing routes in the Belcamp area are discussed in detail in section 5.

4.3 Further Bus Connects phases, including routes of more direct relevance here, have been designed and planned but will take a number of years to implement. The whole network of services, though somewhat delayed to date, is expected to be implemented in phases by 2024. The future BusConnects bus network serving the wider Belcamp area is addressed in section 7. The Core Bus Corridors, effectively QBC upgrades, will shortly be the subject of a formal planning application.



## **5. Existing Public Transport Network Serving the Belcamp Site.**

5.1 The Belcamp site is well-located immediately adjacent to the very successful Malahide Road Quality Bus Corridor (QBC) to the east. The key bus routes in the area are identified in Table 1 below, together with their advertised timetabled frequencies.

<b>Route</b>	<b>Origin</b>	<b>Destination</b>	<b>Peak Frequency (mins)</b>
<b>15</b>	Clongriffin	Ballycullen	10
<b>27</b>	Clare Hall	Jobstown	10
<b>42</b>	Portmarnock	City Centre	20
<b>43</b>	Bray Station	Ballymun (IKEA)	20
<b>27X</b>	Clare Hall	UCD Belfield	2 trips only

Table 1. Routes on Malahide Road, Clare Hall. Southbound AM Peak.

The Malahide Road QBC is one of the original Quality Bus Corridors in Dublin. It is a major axis for a wide variety of bus routes that serve the north eastern suburbs of Dublin. It has a combination of high bus flows, strong bus patronage and significant peak traffic congestion, even if the level of each has diminished somewhat post Covid-19. Two high frequency cross-city routes, 15 and 27, dominate bus flows here as Table 1 above and survey data in section 5 below show. They both join the Malahide Road at Clare Hall. Route 15 commences at Clongriffin Station and offers an existing link to the DART service. Route 15 is one of the few routes to operate a 24-hour bus service. The two other routes with significant bus patronage, routes 42 and 43, pass immediately to the east of the site, on the Malahide Road (R107). The combined strength of these four routes is reflected in the surveys. They are the backbone of the bus service along the entire length of this QBC. The peak bus service from the area is supplemented, according to the timetable, by two peak buses on express route 27X which terminates in UCD, Belfield.

5.2 The future occupants of the Belcamp site, as of now, would have the attractive option of boarding routes 42 and 43 at stop 1217 (Malahide Road, Balgriffin Road) close to their residences adjacent to the subject site. But many, if not most, will likely board buses at stop 4563 (Malahide Road, Clare Hall) with the existing route configuration. The latter stop opens up significantly more options for commuters. The basis for this assertion is addressed in section 5.3 below. Both stops 1217 and 4563 are within acceptable walking distance of the site. Stop 1217, the closest southbound to the development, is only 75m from the planned site entrance.

The Clare Hall stop, while almost 740m away from the site entrance, has roughly three times the number of current bus services available to future residents at this location which shortens the perceived walking distance.

5.3 In modelling the behaviour of travellers, whether by car, bus or rail, traffic engineers and transport economists use the concept of “generalised cost” which uses the “value of time” in broadly determining modal split (or between competing routes). The modellers break down the components of alternative possible trips into their constituent parts. Simplistically, in this example, it breaks down the bus trip into four basic time components. In this instance,

- Firstly, the walk time to the target bus stop(s).
- Secondly, the wait time for the bus.
- Thirdly, the duration of the bus journey itself and,
- Finally, the walk time to the work or school destination.

The impacts of fares, etc. are ignored in this brief outline. Each element of the bus trip is assigned different weightings, depending on their relative attractiveness.

While there is some debate over the values of these weightings, extensive research has shown that travellers generally dislike both the walking and waiting elements of the journey more than the in-vehicle journey time. On this basis, the walk element is usually assigned a value greater than 1. The weighting assigned to waiting for buses typically has a higher value, normally 2 or greater. This reflects the degree of relative discomfort or uncertainty associated with the unknown arrival time of the bus. The weighting value of the actual bus trip itself is closer to 1 if it has a very predictable and repetitive journey time. The value of any equivalent rail weightings for both the waiting component and journey time are typically somewhat lower due to their greater general predictability, though not directly relevant here.

5.4 One outcome of this modelling based on behavioural research conducted over decades is that the trade-offs that travellers use in determining what mode they use can be assessed. In practice this suggests that the likelihood of city-bound commuters from the Belcamp area walking to the key Clare Hall stop is extremely high for one outstanding reason. Much higher bus frequencies are available at this stop towards Dublin city centre. The strong frequency results in a much lower weighting for the “wait element” of the journey. At the same time, the good bus speeds lower the “journey time” weightings. Collectively they reduce or overcome any possible negatives associated with longer walks at the start of the journey. The outcome here is

a “generalised cost” of travel that is much reduced by a combination of high bus frequency and fast, predictable QBC bus speeds. If a future bus route were to commence within the new development, the “best case scenario”, then generalised cost would be materially reduced still further. The relative benefits of bus travel on QBC corridors is also enhanced if high levels of congestion are present, making travel by car less attractive, and increasing public transports’ modal share. In the long term, the planned NTA upgrade to the QBC to CBC standard (see 4.1 above) would further enhance average bus speeds, thereby again lowering the “cost” of travel by bus.

## **6. Public Transport Capacity Assessment.**

6.1 The purpose of this analysis is to determine whether or not the demand for public transport generated by further developing the Belcamp site will put the existing bus services under undue pressure. Surveys of bus patronage have been undertaken to demonstrate that the additional demand will not burden the existing levels of public transport services.

6.2 The demand profile for public transport services, like road traffic, is quite seasonal in nature.

- Demand for bus and rail services, in general, is materially lower in the Summer and school holiday periods.
- Demand tends to be somewhat higher in the late Autumn and in the run up to the busy Christmas holiday. Surveying in the none-holiday weeks in the opening four months of the year, and early Autumn, represent a reliable indication of base-level pre-development expressed demand for transport.
- Demand also varies by day of the week, with traffic demand generally lower on Mondays and Fridays, with some exceptions. Public transport usage on Saturdays and Sundays (in particular) are materially lower than mid-week demand.
- Demand for travel varies throughout the standard weekday but morning peak- hour levels are shorter but higher than the corresponding evening peak flows.

6.3 In determining whether spare capacity is available to meet increasing demand from any development site it is best to undertake surveys and test the midweek morning peaks prior to the Summer period when schools are open. This advice was strictly followed in the surveys undertaken for this report.

### **Bus Survey on Malahide QBC**

6.4 As we have seen above in section 5.2, the walk distance to the closest city bound bus stop (1217) is 75m or only a 1 minute walk from the site entrance on the Malahide Road. However, only current routes 42 and 43 pass this point in the bus network. While stop 4563 at Clare Hall is somewhat further away, roughly 740m or 9 minutes walk, it made sense to survey the latter as one captures a wide variety of city-bound buses at this point, including the routes cited above.

Surveys of existing bus usage were undertaken on Thursday, 7th April, 2022 between 06.45 and 08.45 am to establish the current level of bus patronage at stop 4563. These have been undertaken at a suitably representative time of the year, as identified in 6.2 above. Details of the survey are now outlined.

6.5 Bus capacity for the purposes of this analysis is taken, conservatively, as the seated capacity only, which, at 67 seats, understates the ultimate true capacity of buses by roughly 20%. Table 2 below shows the passenger demand profile by time band of the survey data for the morning peak in question.

Timeband	Bus Numbers	Passengers	Passengers/Bus
06.45 - 07.00	4	83	21
07.01 - 07.15	5	75	15
07.16 - 07.30	5	125	25
07.31 - 07.45	4	70	18
07.46 - 08.00	7	201	29
08.01 - 08.15	6	181	30
08.16 - 08.30	4	160	40
08.31 - 08.45	6	165	28
<b>Total</b>	<b>41</b>	<b>1,060</b>	<b>26</b>

Table 2. Malahide Road at Clare Hall (STOP 4563).

This summary in Table 2 of bus passengers per 15 minute time band indicates that the busiest period at stop 4563 (Clare Hall), occurs between 07.45 and 08.15. but the peak is not very pronounced. Note the increase in buses during these time bands.

Demand remains relatively strong up to the end of the survey period at 08.45. After this time scheduled bus numbers fall away appreciably. In summary, the survey showed that

- In excess of 1,000 passengers in total were on buses at this point over the survey period. The demand was well spread over the survey period.
- A total of 41 buses scheduled to stop at this stop were recorded.

- The bus appeared, in their pattern of arrival, to operate largely to schedule throughout the survey period
- The average number of passengers per bus was quite low at 26 over the entire period, peaking at just 40 in the 08.16 - 08.30 time band. It must be noted that route 27 just starts, literally, around the corner from stop 4563, two stops earlier, on Clare Hall Avenue (R135) at stop 4595 (Clare Hall Avenue, Clare Hall) and low passenger loading in the initial stops served to bring down the overall bus average.
- The regularity of the service was good, with buses evenly spread over the survey period and passengers were comfortably carried to their destinations.
- Standing customers on the buses were observed on only two buses at the survey location.
- On a number of occasions buses passed the stop, when not hailed, when another bus was loading. The routes are nearly identical in nature from this stop to the city centre, except for an early deviation into Darndale on route 27.
- Schoolchildren boarding at this stop was a feature of the survey at this stop location.

6.6 The busiest period, in terms of passengers loadings on departing buses from this stop, only exceeded 200 passengers and occurred between 07.46 and 08.00. Buses leaving this stop in this time band still have plenty of spare capacity with 29 passengers per bus (see table 2) and will have delivered their customers to city centre destinations well in advance of any 09.00 start. Table 3 below presents the same survey data, but on a route basis. On the assumption of 67 seats per double deck bus, this table identifies the actual spare capacity by route.

Route Number	Bus Numbers	Passengers	Passengers/Bus	Spare Capacity %
15	14	584	42	37
27	12	98	8	88
42	6	159	27	60
43	6	205	34	49
27X	3	14	5	93
<b>Total</b>	<b>41</b>	<b>1,060</b>	<b>26</b>	<b>61</b>

Table 3. Passenger Numbers and Spare Capacity by Route (STOP 4563, Clare Hall )

There are a total of 5 routes that passengers can board at this stop, as indicated earlier in Table 1, and seen in Table 3 immediately above. In addition to routes 42 and 43 passing immediately adjacent

to the Belcamp site, passengers from here that choose to walk to this stop at Clare Hall benefit additionally from two major Dublin Bus routes, services 15 and 27. The latter route is supplemented by the express route 27X that operates to UCD. The two large routes each have a daytime frequency of a bus every 10 minutes. Route 15 is one of the few city bus routes to operate on a 24-hour basis. It has a bus every 30 minutes between midnight and 06.00 hours. Passengers on route 27 (and 27X) would be expected to be low at this point as the route has only just commenced two stops earlier on Clare Hall Avenue. The data bear this out.

6.7 The impact of Covid-19 is very visible to anyone familiar with this part of the bus network with volumes below “normal” levels experienced before March 2020. This is generally true of the whole Dublin bus network. The Malahide Road QBC is one of the primary bus axes in the city. It has continued to perform well since its introductory launch as the original QBC in the late 1990’s. The near-continuity of southbound bus lanes from beyond the Clare Hall junction to Amien Street and across the Liffey insulates bus operations against normally high levels of congestion. From Table 3 it is obvious that there are abnormal levels of spare capacity currently here and elsewhere along the Malahide Road QBC. The average spare capacity of routes serving the city over the survey period from Table 3 above exceeds 60%. This is admittedly driven higher by the very low patronage (in single figures) on route 27 at this point. Route 15, the other key route, has materially fewer seats available to passengers at this point with an average 42 passengers per bus and spare (seated) capacity of 37% from Table 3. A few route 15 buses were full at the Clare Hall stop during the busiest periods. Passenger volumes on this route are quite high, given that the route has only commenced at Clongriffin Station. Routes 15 and 27 (together with the 27X to UCD) operate cross-city and draw extra patronage on this basis as they open up additional destinations for their customers. While only two route 27X peak buses are advertised (as indicated in Table 1), three were surveyed at this stop. From a bus operator’s perspective many of these buses would be viewed as under-utilised at this point in the peak but it must be recognised that they still have to operate over the bulk of the QBC. While route 15 is more direct in its alignment, route 27 operates along the entire QBC after the Greencastle Road junction having diverted off the QBC to serve the Darndale area.

6.8 There was little evidence of any bus passenger failing to board a bus because it was full. While some passengers were observed leaving specific buses pass by in order to board other buses following behind, this practice more likely relates to their ultimate final destination (not all routes suit them) than any lack of capacity. Routes 42 and 43 do not operate cross-city while the remainder of the services do. The level of information now available to potential bus passengers, due to travel Apps and the increasingly reliable real-time passenger information (RTPI) units at the surveyed stop, facilitate active trip management by commuters and increases satisfaction and customer confidence in the services generally. Some passengers were seen alighting one bus and then boarding another shortly afterwards. Interchange of this nature shows a high degree of confidence in the bus service.

The latest ticketing options available to Leap card holders do facilitate and encourage inter-bus and intermodal interchange.

6.9 Prior to Covid-19, a certain level of overcrowding along the busiest sections of the Malahide Road QBC was commonplace in peak periods. But the high frequency nature of the service here meant that few regular bus passengers either anticipated or experienced material delays. This was because any short-term overcrowding in the form of queues at stops, lasting a minute or two, were quickly eliminated by the frequency of the buses. Regular bus users on most QBCs are not overly concerned given that more buses follow on relatively quickly, and are “visible” on the RTPI screens. The significantly higher levels of spare capacity on route 27 at this point offers additional certainty of securing a seat for potential passengers from the subject site. The average spare capacity of route 27 is 88%. It is even higher for its sister route 27X but both, it must be noted again, have only just commenced operation prior to the survey stop. Additional bus surveys undertaken by Waterman Moylan, at stops 1217, closest to the subject site (on the R107), and 4596 on Clare Hall Avenue, served, as expected, to confirm the data from Clare Hall stop 4563 in terms of the high levels of spare capacity.

6.10 Buses in the opposite, northbound, direction also have solid frequencies (such as on the key routes identified here). The equivalent northbound bus services have much lower patronage levels, except in the evening peak. The evening peak around Dublin is relatively well spread as most returning schoolchildren head home well ahead of the commuter peak. The morning peak operations are where loading problems will first manifest themselves.

#### Spare Capacity after Generated Trips

6.11 In assessing the impact of estimated generated trips from the proposed Belcamp SHD development on the public transport network this report has drawn on the work done by both Waterman-Moylan in their Transport and Travel Assessment (TTA) and by Systra in their modelling work for the South Fingal Transport Study (SFTS) and the Sustainable Transport Strategy (STS) for the Belcamp site. The detailed TRICS assessment and modal share analysis, when combined, suggests that

- An AM Peak trip rate of 0.606 per unit from TRICS represents a reasonable expectation
- 16% of Belcamp residents will likely use public transport (buses) to journey to work, school and college in the AM peak hour (see section 6.2, Table 5 and 6.3 of the Belcamp TTA for details)
- This modal split for buses is in respect of all distance bands but that a higher figure would apply for Dublin City bound commuters.



6.12 For the purpose of this broad bus capacity analysis it is assumed that Phase 1, which includes the first 1,504 units are to be completed and occupied by 2028 and that Belcamp’s full build out of 2,527 units, is completed by 2032. Table 4 below summarises the impact on current bus patronage of the modal split assumptions when combined with the timelines above. In the April 2022 survey the peak hour in terms of bus patronage was between 07.45 and 08.45, as seen in Table 2 above. In this hour a total of 707 passengers boarded at the Clare Hall stop (4563).

Year	Additional Units	Generated Trips (TRICS of 0.606)	Generated Bus Trips (16%)	Peak Hour BusTrips	Increase in Peak Hour Trips %
2022	-	-		707	-
2028	1504	911	146	853	20.7
2032	1023	620	99	952	34.7

Table 4. Impact of generated trips on current peak volumes.

In Table 4 the surveyed AM peak hour passenger numbers on buses at Clare Hall are increased incrementally with the anticipated generated trips using modal split assumptions based on Systra’s modelling work. The generated AM peak hour trips for Phase 1 of Belcamp up to 2028 results in 146 additional bus passengers. While this represents a 20.7% increase on current peak hour surveyed passengers of 707, the existing average level of spare capacity at 61% (from Table 3) is not challenged. Even in the busiest 15-minute period (the peak within the peak) the average passengers per bus did not exceed 40. This equates to spare seated capacity of 40% for a 67-seater bus. With the full build out of the Belcamp SHD scheme by 2032 the level of generated trips attributed to buses increases by nearly 35% with an additional 99 passengers. The current level of spare seated capacity would cater for this increase even during the busiest period in the AM peak hour. While other scheme build-outs will occur over this period, the 20% extra capacity associated with a full bus, including standees, is also available to commuters. The NTA, under its Measure Bus5 process, will also continue to monitor and enhance bus services as required to meet demand (see 7.4 below).

6.13 The analysis above demonstrates that there are significant levels of spare capacity on the current bus network in the immediate area of the subject site as shown by the bus stop survey undertaken for this report. It should be noted that the public transport modal split volumes in Table 4 above are based on the current network of bus services. As can be seen in section 7 below a whole series of new opportunities will soon arise for public transport users to access many other areas of the city network. The BusConnects project, as it directly applies to the Belcamp area, is now described.

## 7. Bus Connects Network in Belcamp area

7.1 Figure 2 below shows the proposed Bus Connects network for the subject area. It is extracted from the NTA's most recently revised "Big Picture Network" following rounds of public consultation and revision. The NTA proposals, in summary, are for the "D-Spine" with an upgraded QBC to Core Bus Corridor (CBC) status with even higher levels of bus priority.

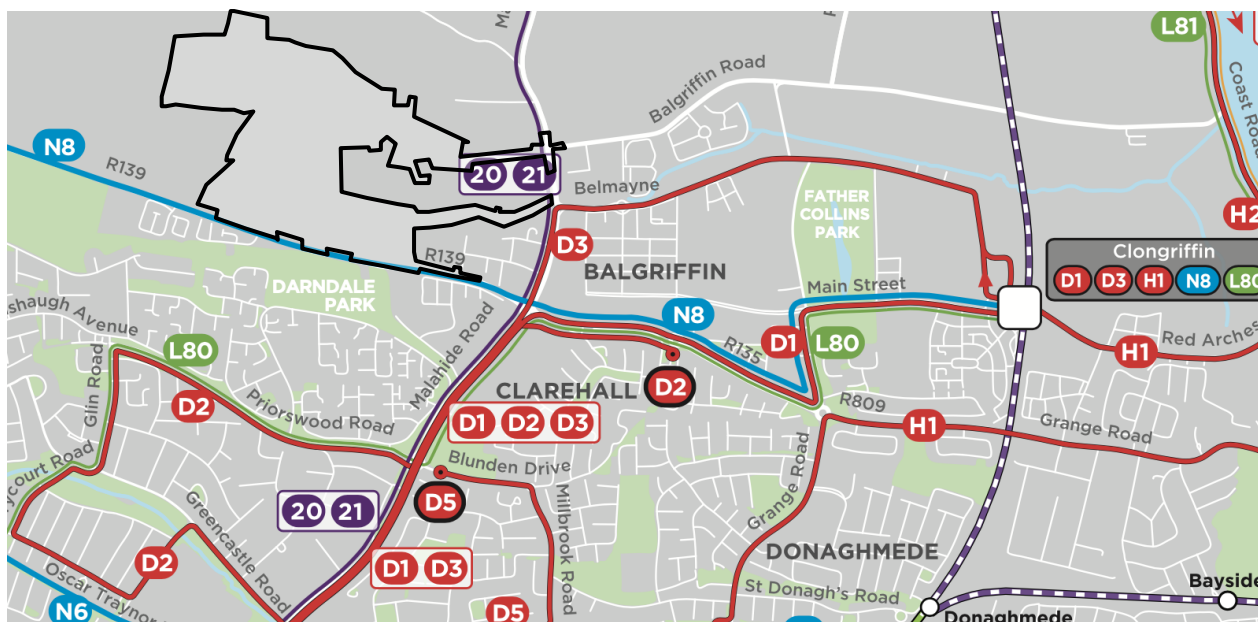


Figure 3. Extract from the NTA's Big Picture Network (latest version).

7.2 The NTA proposals for this area are for some of the key "D-Spine" routes running on an upgraded QBC to Core Bus Corridor (CBC) status, with even higher levels of bus priority and significantly faster average bus speeds. The route proposals together with the latest NTA Bus Connects Frequency Table that accompany the route network shows three major routes forming the backbone of this key cross-city spine of services supplemented by a series of other radial, orbital and local routes.

The comparison of existing versus proposed routes is best summarised in Table 5 below.

Existing Route	Current Frequency (mins)	Bus Connects Replacement	Frequency (mins)
15	10	D1	15
27	10	D2	15
-		D3	15
42	20	20	30
43	20	21	30
27X	2/3 trips only	-	-
-		<b>N8</b>	30
-		L80	20

Table 5. Comparison of existing and proposed Bus Connects routes for Belcamp/Clare Hall area.

The highlights in Table 5 are the addition of two new routes into the bus network. Route N8, an entirely new north city orbital that is currently planned to operate westwards from Clongriffin Station, along the adjacent R139 via Dublin Airport to Blanchardstown Shopping Centre, will plug a significant existing gap in the northern orbital bus network. Route L80, a local route also providing orbital connections, via Beaumont Hospital, to DCU is also a welcome development and opens up novel network connections for this area. However, in keeping with the Bus Connects masterplan elsewhere in Dublin, the "Spine routes" dominate the level of service here.

- **The D1 Spine route**, from Clongriffin Station, via the Malahide Road to the City Centre and west along the Crumlin Road to Grange Castle, effectively replicates the northern section of existing route 15.
- **The D2 Spine route**, from the Clare Hall Avenue (adjacent to Clare Hall) via the Malahide Road to the City Centre and Citywest mirrors virtually all of the existing 27 route.
- **The D3 Spine route**, also operates from Clongriffin Station (but on a different alignment to D1 in the Clongriffin SDZ area), via the Malahide Road to the City Centre and west along the Crumlin Road to Clondalkin and again overlaps much of the northern section of existing route 15.
- **Route 20**, from Malahide via Kinsealy to the City Centre, is a radial route and essentially a direct replacement for existing route 42
- **Route 21**, also a radial service, from Swords Business Park via Kinsealy to the City Centre replicates the routing of existing route 43.

- The proposed **N8 is a northern orbital route** and represents, arguably, BusConnects' most significant addition to the public transport network. It is the most northern of the northern orbital group N2, N4, N6 and N8. It is unusual in being a completely new route, operating along much of the northern boundary of the city. It will run from the DART station in Clongriffin, via Dublin Airport, to Blanchardstown Shopping Centre. It is of particular interest to future residents of the subject site. The precise alignment of route N8 in the area of the Belcamp is discussed further below.
- **Local route L80** also represents a departure from the existing bus network and operates diagonally in a south western direction across much of the city's northern suburbs with valuable links to Beaumont Hospital and DCU.

7.3 The key design feature of "Spine routes" in the Bus Connects project is that they generally begin in specific, discreet, suburban areas but quickly merge to form groups along each CBC. The combined frequency of these routes is very strong, post merging. Unusually, in this instance there is a degree of overlap between routes D1 and D2 prior to merging on the QBC/CBC. The former is essentially a longer version of the latter, in the same way that route 27 starts partly along route 15. The planned frequency for each of these three "D-Spine" routes is a bus every 15 minutes each weekday, going to every 20 minutes for much of the weekend. The combined, 5-minute, frequency of routes D1, D2 and D3 from the Clare Hall stop surveyed mirrors the combined frequencies of current routes 15 and 27. (These routes, in turn, merge with the other two "D-Spine" routes D4 and D5 at the Artane roundabout but the impact of D4 and D5 on this review can be set aside.) While the replacement for routes 42 and 43 in BusConnects show a reduced peak frequency this must be seen in the light of the proposed alignment for route D3. In the stretch of Malahide Road immediately east of the site the proposed presence of route D3, when combined with new routes 20 and 21, will represent a small increase on the observed frequency of buses passing bus stop 1217.

7.4 In many respects, the resultant Bus Connects network for the Belcamp site can be viewed as almost a direct replacement of the existing **radial** bus network. The design permits an easy ramp up of services, if required, through increased D-Spine frequencies in the first instance. The modal split objectives of the NTA envisage such changes in time as demand increases. Any examination of the annual cordon count in Dublin - the annual traffic survey last undertaken in 2019 by the key transport agencies - reveals that public transport's share of peak traffic passing the 32 cordon points has trended upwards significantly in the last two decades while the private car share has fallen correspondingly. A combination of both transport and climate policy will continue to drive public transport's share higher. The NTA's Greater Dublin Area Strategy 2022-2042 clearly indicates that "demand for bus services in 2042 would require routes additional to those set out in the network review" (Bus Connects). It proposes that "periodic reviews will be undertaken during the period of the Transport Strategy to evaluate the impacts of changing development and transport patterns, and to implement appropriate additions or adjustments to the overall bus system to accommodate the

changing arrangements”. This forms the basis for what is termed “Measure Bus5” to continually monitor the bus network and enhance or amend it accordingly. The BusConnects project, now underway, together with the assurances of Measure Bus5, when combined with the enhanced QBCs or CBCs as they will now be called represent as good a guarantee of high quality radial bus services to Dublin as anyone could expect.

7.5 The future **orbital** bus network in the Belcamp area is potentially even more exciting. This derives from a variety of sources. Firstly, the new routes themselves. While the N8 route will, rightly, grab many of the orbital headlines when introduced, the proposed L80 (or Local) service is essentially an orbital route in all but name. It will serve key markets like Beaumont Hospital and DCU and create strong linkage to other areas. Secondly, the N8 route offers the prospect of direct access to and through the subject site. While the current planned east/west alignment of this route envisages the N8 running along Clare Hall Avenue and then R139 south of the Belcamp site, discussions are already underway with the NTA with a view to diverting this route directly along much of the East West Link Road, through the subject site, before exiting via a proposed bus gate back to the R139 (in the absence of the completion of the full East West Link Road envisaged in the Systra SFTS). See Figure 3 below.

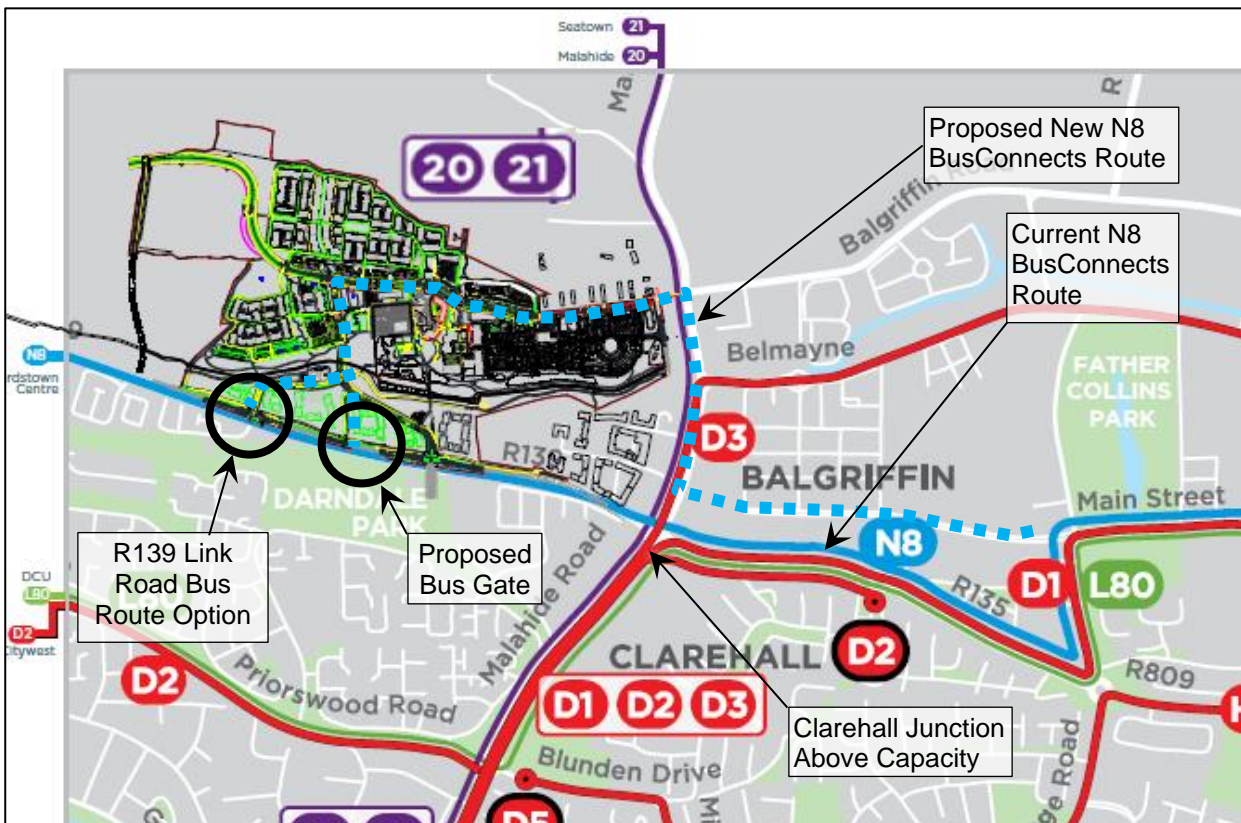


Figure 4. Scheme layout on BusConnects plans. Linkage to R139 includes a bus gate for the N8 route.

The interim arrangement to aid access to the scheme, with an exit to/from the R139 via a dedicated bus-gate, for route N8 is valuable to residents of Belcamp, in the medium term it is not unreasonable to assume that the entire length of route N8 westwards from its Clongriffin terminus to Stockhole Lane will follow via Clongriffin Main St, Belmayne Main St and the bus gate proposed by Dublin City Council for the junction with the R107 to the East West Link Road in the Belcamp SHD scheme. In this way the route will directly serve high density residential areas, have high levels of bus priority throughout, in both directions, and be protected from local traffic congestion. Thirdly, the attraction that such a strong, efficient bus link to the enhanced DART+ frequencies at Clongriffin Station would represent are clear for all to see. Clongriffin, in the BusConnects project, becomes a major transport hub of significance to the entire area. Finally, it is easy to envisage the need for materially higher frequencies on the N8 than the 30 minute frequency currently proposed. Most BusConnects orbital routes of significance have better frequencies, with buses every 10 or 15 minutes throughout the day the norm for most northern (e.g N4, N6) and southern (S2, S4, S6) orbital routes (as outlined in the NTA's BusConnects Frequency Tables). While route N8 will likely attain that type of frequency in time, in the interim it is conceivable that the Belcamp development (and other interested parties in the area) could financially support enhanced frequencies on the N8 from its commencement between the subject site and Clongriffin, if a mechanism for such an arrangement could be agreed with the NTA. The basis for financial contributions need not be unduly complicated.

The strong case for the N8 argued above has been done without even taking into account the enormous employment opportunities that direct linkage with Dublin Airport and beyond open up on route N8 for future residents of the Belcamp area, nor the employment opportunities within the IDA lands, to the west of the subject site, which are zoned "High Technology" (HT), "to provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment". The combined impact of both radial route upgrades and the new orbital routes suggest that the modal split estimates for public transport departing the Belcamp site in the AM peak will, in practice, be revised upwards in the course of time.

7.6 As identified earlier in 7.2 and 7.4, the introduction of the D-Spine routes largely replicate the current network of routes. Equally, we have also seen from Table 3 above the current very low level of patronage on routes 27 and 27X. The NTA current proposal is to commence route D2 from stop 4595, precisely where route 27 now operates from, a short distance east of the Clare Hall junction on the R135. Looking at the detailed design of the Belcamp SHD scheme with its bus priority measures, quality bus stop infrastructure and industry standard turning facilities for buses there is a very strong case to be made to the NTA seeking an alteration to route D2 that sees it commencing its radial journey south from the heart of the Belcamp SHD development. If the proposed development proceeds as planned the NTA would likely agree to the proposal to amend future route D2, given the potential demand from the scheme and the presence of route D1 already on the R135.

The marginally longer D2 would be more than compensated for with the anticipated increase in patronage.

This will encourage early usage of buses by future residents of the development (reducing car ownership in the process) and make for a better allocation of bus resources for the area as a whole. As with the new N8, every effort should be made to improve direct access to the BusConnects network thereby reducing key elements of the “generalised cost” equation, increasing public transport’s modal share and further achieving key climate goals.

## **8. Conclusions and Recommendations**

This assessment of the existing bus network, the spare capacity currently on the network and the review of the proposed BusConnects routings leads to the following key conclusions and recommendations.

### **Conclusions**

1. The Belcamp SHD site is well positioned to both the existing and the proposed, enhanced, Bus Connects and DART+ public transport network.
2. There are significant levels of spare capacity on the current bus network in the immediate area of the subject site, as shown by the bus stop surveys undertaken for this report.
3. The detailed layout of the SHD scheme contains key infrastructure of immense benefit to buses, both in the short and long term.
4. The NTA's BusConnects project proposals include attractive new orbital and radial routes of direct benefit to the development.

### **Recommendations**

1. To increase the public transport mode share of the scheme the Developer should continue the efforts to re-route the new orbital N8 service through the site to the maximum extent possible from inception.
2. There is a case to be made for supporting enhanced frequencies on the new N8 to/from the subject site and Clongriffin Station in its early years.
3. The various parties, public and private, controlling the east/west alignment north of the R139/R135 axis of route N8 must come together to expedite use of this alignment to their mutual benefit.
4. The NTA should be approached with a view to commencing the D2-Spine route from within the development at the earliest opportunity to enhance the route's attractiveness and increase buses' modal share.