Public Transport Capacity Assessment North Wall Quay

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October, 2023.

1. Introduction.

1.1 Public Transport Capacity Assessment

Ronan Group Real Estate is submitting a planning application to redevelop the existing building at North Wall Quay to Dublin City Council.

This report, by Derry O'Leary, B.E, MSc, MBA, Transport Consultant, has been commissioned to estimate the available spare capacity in the existing public transport network adjacent to the subject site. Its location, adjacent to the core of Dublin's bus and rail network, offers many opportunities for potential users of the site. The ability of the existing public transport networks to cater for the anticipated level of generated trips from the development is also addressed.

The author is a Traffic Engineer with over 40 years transport experience in both public and private sectors with 30 years in planning and operations in Dublin Bus. This report should be read with the Traffic and Transport Assessment (TTA) prepared by CS Consulting Group.

1.2 Site Location and Development Description.

The North Wall Quay site location and development descriptions are as follows.

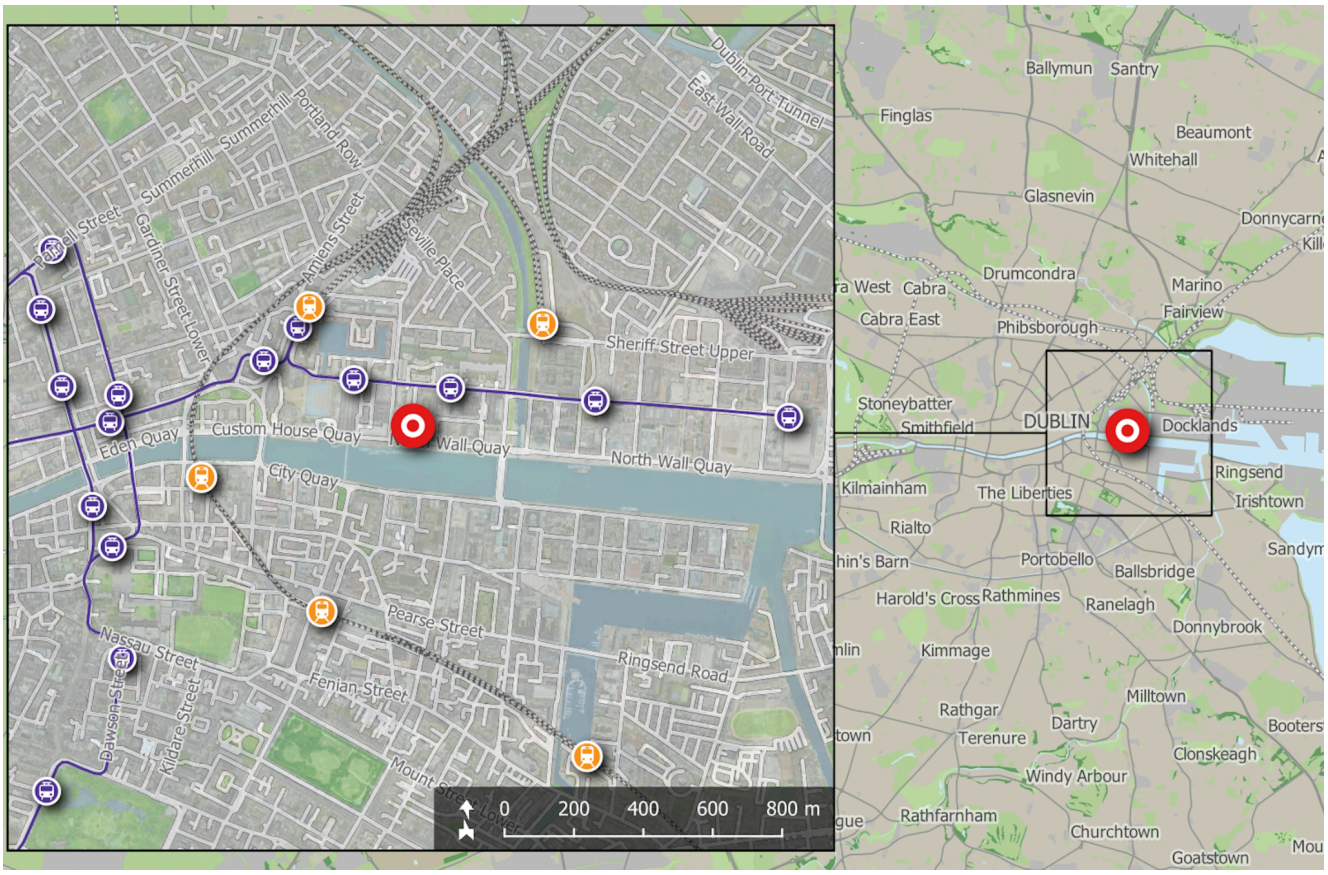

Figure 1. North Wall Quay site location, shown in red. Source, CS Consulting TTA.

Development Description

The proposed development provides for the demolition of the existing building and construction of a new building ranging in height from 9 no. to 17 no. storeys over lower ground floor and double basement comprising of office accommodation, arts/community/cultural uses and a retail/café/restaurant unit. Office accommodation is provided from lower ground floor to 15th floor level, arts/community/cultural uses are provided at lower ground, ground, 1st and 16th floor level with a retail/café/restaurant unit at ground floor level. Landscaped terraces are located at 8th, 9th, 10th, 11th, 15th, 16th floor level with winter terraces located at 4th, 6th 9th floor level. Provision of a new landscaped street to the east of the building to include external arts/community/cultural uses. The double basement comprises 30 no. car parking spaces, 923 no. bicycle parking spaces and 6 no. motorbike spaces as well as shower/changing facilities and plantroom.

1.3 Structure of the Report.

In **Chapter Two** the background behind the new structure to the organisation of public transport services is outlined. The National Transport Authority's (NTA) strategic moves to open up Ireland's bus market is described in **Chapter Three**. The key aspects of the innovative BusConnects project for the Greater Dublin Area are presented in **Chapter Four,** while in **Chapter Five** the bus and LUAS tram survey results for the public transport network adjacent to the site are outlined. The survey data form the basis for the public transport capacity assessment in **Chapter Six.** In **Chapter Seven,** the major public transport capital projects such as the proposed DART+ and Metrolink plans set to benefit the site are outlined. Finally, in **Chapter Eight**, the key conclusions of the report on the capacity status of the existing public transport network serving the North Wall Quay site are outlined.

2. Background to Dublin's Public Transport Network.

2.1 While the customer-facing bus, tram and rail network serving the Greater Dublin Area (GDA) 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, established in 2009, is now the public transport Regulator. The overall planning of bus and rail services nationwide has now moved from the CIE Group of companies to within the control of the NTA. Responsibility for the bus network and individual route designs, frequency, fares and timetable details etc. now lies solely with the Regulator. Under this regime, even the smallest modification to any bus route or timetable must be agreed with the NTA in advance of implementation. The NTA also allocates State funding to meet the Public Service Obligation (PSO) benefits provided by the public transport network. In addition, the NTA approves and allocates licences to commercial bus operators, subject to agreed routes, timetables and conditions. Irish Rail and LUAS operations - both operating in proximity to the subject site - also come within the ambit of the NTA, the latter in conjunction with Transport Infrastructure Ireland (TII).

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

3. <u>Bus Market Opening (BMO).</u>

3.1 In order to open the Irish bus market to competition for the incumbent State-owned operators (Dublin Bus and Bus Eireann), the NTA undertook the first BMO process. The NTA first tendered a package of orbital bus routes operated by Dublin Bus in 2016. This group of 24 routes, and total fleet of 125 buses, represented roughly 10% of the bus market in the GDA. Following the competitive tendering process, the Go-Ahead Group (a predominantly 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 new Transport for Ireland brand.

3.2 The bus routes in the bus network near the North Wall Quay site are managed by a diverse group of bus operators, from Dublin Bus to Swords Express and other private enterprises that run both State-subsidised and commercial services. The tender of some Dublin commuter bus routes in 2018 resulted in Go-Ahead winning the contract to operate routes mostly from County Kildare to Dublin. Most of these commuter routes serve areas close to the subject site.

3.3 All PSO operators, whether privately 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 any fines recovered from operators for not meeting those standards are on the record.

3.4 The NTA owns the fleet deployed by GAI to operate its routes in the GDA. The expectation is that, over time, the State's entire 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 on order for the Dublin urban market are fully electric traction. The delivery of the first of these fully electric buses is expected in 2024.

4. Bus Connects Project Overview.

4.1 A comprehensive redesign of the urban bus network in the GDA was commenced by the NTA in 2015. BusConnects is the NTA's masterplan for bus travel in Dublin (and other cities). For a wider review of the BusConnects project, please see more details at: https://busconnects.ie/initiatives/new-dublin-area-bus-network/. It consists of both a major route network redesign and much improved bus priority measures. One of the key initiatives is the Core Bus Corridors (CBC), in which the NTA proposes to build 230km of bus lanes and 200km of segregated cycle track on 16 key routes into the city. See https://busconnects.ie/initiatives/core-bus-corridors/ for more details on the physical infrastructure improvements planned.

4.2 In tandem with the now agreed bus service redesigns, the key bus route alignments, including those that will directly impact buses serving the subject site, will be upgraded. The NTA plan is to enhance the capacity and potential of the public transport system by improving bus speeds, reliability and punctuality through the provision of bus lanes and other measures to provide priority to bus movement over general traffic movements. This investment is required to protect the enhanced bus operations from further adverse impacts on reliability caused by traffic congestion. These CBCs, along which the new high-frequency "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. A series of Spine routes from any given area begin in different locations and merge on their CBC in the suburbs. The new Spine routes are designated by letters. For example, the existing route 15, serving nearby Connolly Station, will form part of the A-Spine that is accessible from the subject site. It will consist of four Spine-routes - routes A1, A2, A3 and A4 - that merge and operate cross-city from Ballycullen and other locations to termini in Dublin Airport, Beaumont and Swords. Spine routes G1 and G2, introduced in an early phase of BusConnects, pass directly outside the North Wall Quay site (see 4.4 below).

4.3 Local authorities have been directly involved in both the bus route and CBC design process. The final route network, modified following the review of thousands of submissions by members of the public and key stakeholders, was finalised in 2020 and implementation has commenced. A number of the CBC proposals, a key part of the NTA strategy, have entered the State's planning process in the last year. The North Wall Quay site, simply by virtue of its central location, will directly benefit from both the service and infrastructure elements of the BusConnects project. The plan for the Ringsend CBC (see Figure 2 below) includes upgrades to bus priority measures on North Wall Quay, immediately outside the subject site.

1.	Clongriffin to City Centre
2.	Swords to City Centre
3.	Ballymun/Finglas to City Centre
4.	Blanchardstown to City Centre
5.	Lucan to City to Centre
6.	Liffey Valley to City Centre
7.	Tallaght/Clondalkin to City Centre
8.	Kimmage to City Centre
9.	Templeogue/Rathfarnham to City Centre
10.	Bray to City Centre
11.	Belfield/Blackrock to City Centre
12.	Ringsend to City Centre

Figure 2. NTA's CBCs.

The subject site immediately adjoins Corridor 16, the Ringsend to City Centre CBC. Details of the alignment of the Ringsend CBC are shown in Figure 3 below. This CBC has proposed significant bus priority upgrades on both the North and South Quays.

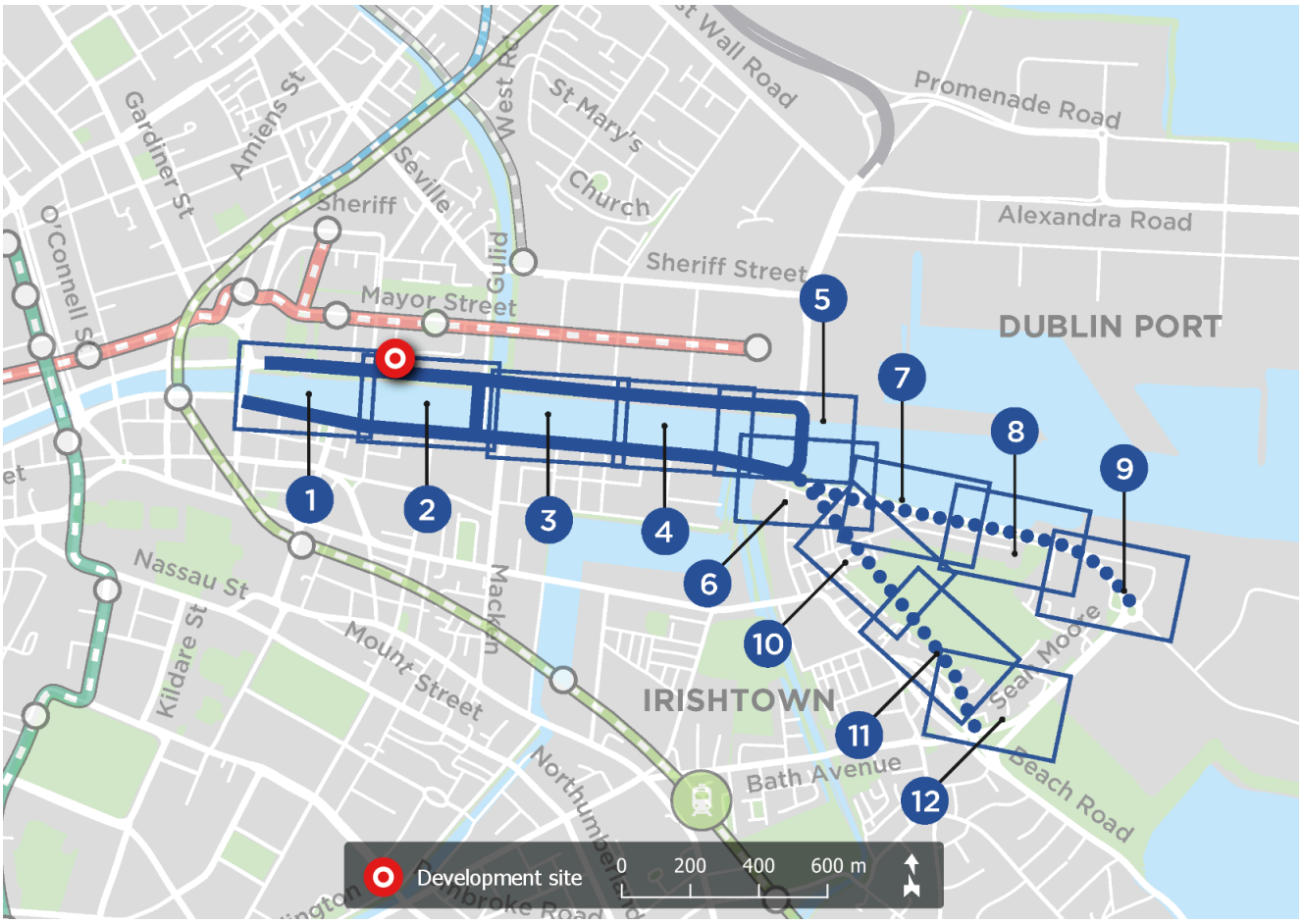

Figure 3. Detailed alignment of the Ringsend CBC showing the improved infrastructure past the subject site.

4.4 Phased implementation of the new BusConnects Spine routes has started. To date (October, 2023), five of the many phases required to modify the bus network in the GDA have been introduced. Three of the phases involved new Spine routes, while phase four of BusConnects' route changes involved the first tranche of orbital bus routes north of the city centre. Most recently, Phase 5A was launched in June 2023 and featured the introduction of the first of the western orbital services, featuring new routes W4, W61 and W62. The C-Spine, G-Spine and H-Spine bus services have been introduced in parts of the west (C and G) and north suburbs (H) of Dublin. All of the new Spine routes now operate relatively close to the subject site, with routes G1 and G2 passing the site of the proposed development. Further BusConnects phases have been designed and planned but will take a

number of years to implement. The NTA expects the whole network of services to be completed by 2025. The planned timescale for the implementation of the CBC corridors, the physical upgrading of bus priority measures, is unclear at this point as they are still in the planning process.

5. Existing Public Transport Network Serving the North Wall Quay Site.

5.1 The subject site is located immediately adjacent to North Wall Quay in Dublin 1 as shown in Figure 1 above. Future employees/residents of this site commuting around Dublin and elsewhere wishing to avail of current public transport services have a wide variety of quite different options. Commuters have several options:

- Board the attractive LUAS Red Line services at the nearby Mayor Square Stop circa 100m to the north-east of the subject site. George's Dock Stop is also an option.
- Within metres of the site entrance, directly access the existing bus services towards either the northern suburbs and beyond (such as Swords, Malahide, Skerries, Drogheda and Dundalk) in one direction, or Dublin City Centre and elsewhere in the other.
- They can easily access the DART and commuter rail network in all directions from either Pearse, Connolly, Docklands or Tara St stations.

The basis as to which transport option individuals select depends on a wide variety of factors. Many of these are addressed in the following sections where the services are described in some detail.

5.2 The key public transport services in the area are summarised in Table 1 below, together with their peak advertised timetable frequencies:

Route	Origin	Destination	Peak Frequency (mins)
LUAS Red Line	Point Depot	Tallaght/Saggart	Timetabled at 3-10 minutes
G1/G2	Spencer Dock	Red Cow/ Liffey Valley	6 (combined)
500/X, 503, 505X, 506	City Centre	Swords	10/20 minutes
33X, 41X, 142	City Centre/UCD	Malahide, Skerries	3-5 Peak Only Trips
Various routes	City Centre	Ashbourne, Drogheda, Dundalk	Low Frequency

Table 1. Main public transport services operating close to the North Wall Quay site.

As Table 1 indicates, there are a wide variety of public transport routes and services available to residents in the area. The **LUAS Red Line** services are the standout public transport option for future commuters/residents to/from the subject site. This fast, high frequency and long established tram route offers high quality public transport services in both directions. The scale of the operation, from early morning (typically 05.30) to past midnight, its attractive frequency and predictable journey time will dwarf most of the other public transport alternatives available to future users of the proposed redevelopment. Most will likely gravitate towards the city centre and interchange to further public transport options, if required.

Route 500/X, operated by Swords Express**,** is the most accessible and attractive bus service for commuters from the subject site. It operates from Stop 2499 (CHQ, Docklands) immediately adjacent to the site on North Wall Quay. This route represents the core of the Swords Express network. The peak frequency on this established commercial route to/from the city centre and more northern suburbs of Swords and neighbouring areas is a bus approximately every 10 minutes in the morning and evening peak periods. Their website indicates that the service is currently operating a "reduced timetable" suggesting that the pre-pandemic level of service is not in place. The route operates from Eden Quay, in the heart of Dublin City Centre, along the North Quays to the Port Tunnel to quickly reach its various destinations in the Swords Manor area. The privately operated route owes much of its success to its exploitation of the full potential of the Port Tunnel to reach its destination in extremely competitive journey times. It charges a premium fare to match the speedy, premium coach-style service it operates. Since its inception in 2007 Swords Express has attracted a strong and loyal customer base. The 500X mirrors the parent 500 route but has slightly fewer stops.

Route 505X has an average peak frequency of roughly 20 minutes and, in contrast to its sister route 500/X, operates to the south western housing developments of Swords such as Boroimhe and River Valley.

Routes 503/506 are further route variants of the coherent Swords Express network that serve other markets in the city centre and the Swords area, respectively. Route 503 has two morning and evening peak services that operate across the city centre to/from Merrion Square before following the parent route to/from the North Quays. Route 506 on the other hand starts at Eden Quay, like the bulk of services, but varies from the rest of the Swords Express network in that it serves the Holywell area of Swords on its way to/from the Swords Manor terminus.

The key Dublin Bus services operating west along the North Quays to Dublin City centre are **Routes G1/G2,** which offer a combined frequency of a bus every 6/8 minutes throughout each weekday and Saturdays, reducing to every 10 minutes on Sundays. These strong

frequencies are typical of the BusConnects Spine routes that will form the core of the Dublin bus network when fully implemented. The nearest stops for these routes are also very conveniently placed, as they are immediately adjacent to the planned redevelopment site. Commuters can access these routes from Stop 6252 (North Wall Quay) opposite the subject site. These routes form part of the nascent Spine Routes that will dominate the BusConnects network in Dublin. **Route 151**, another attractive cross-city route from the western suburbs of Clondalkin, terminates in East Wall but is of limited relevance in that most commuters can walk to this destination from the subject site. **Route 60**, a new BusConnects radial route, operates from Sir John Rogerson's Quay, across the river from the subject site, to the Red Cow LUAS stop in Clondalkin. Like routes G1 and G2, it offers strong links back towards the city centre, numerous rail stations and further linkages to the west of the city.

Route 33X, 41X and 142 are three "express" routes also operated by Dublin Bus. Route 33X is an express route to/from Custom House Quay/St Stephen's Green and Skerries, serving the likes of Lusk and Rush on route. It has five morning and evening peak services on weekdays only. Route 41X operates from UCD Belfield to Knocksedan in Swords, while route 142 operates between Portmarnock, Malahide and UCD. Like route 33X, they offer a peak only weekday service with 4/5 peak trips. All three routes operate via the Port Tunnel to offer attractive journey times to northern towns/villages of County Dublin.

The balance of bus services operating immediately past the subject site are a mix of commercial bus services targeting other commuter markets north of the city. These include **routes 123, 179, 191, 194, 901, 910 and 980**. For example, routes 901 and 910 are operated by Matthews Coaches to Drogheda/Dundalk and Laytown and Bettystown. Route 194 runs to Ashbourne under the Ashbourne Connect brand. The frequency of these routes is generally lower than regular urban routes and they operate under commercial licences issued by the NTA. Most offer peak-only services. These routes serve customers wishing to access specific towns and villages north of the city as far as Co Louth. Over many years of operation, these companies have built up a loyal customer base and are a key component of the wider public transport network. Bus Eireann also operate **routes 100X and 101X** from the city centre along North Wall Quay to Dundalk and Drogheda respectively, along the east coast.

Due to the extremely attractive changes to public transport's fare structure launched by the NTA, offering free intermodal transfers available under the Leap card system, the prospect of bus/tram transfers for users of this site is very positive. The 20% fare reduction and other promotions, recently extended, has already served to further boost demand for public transport services. The fares of commercial bus operators listed above do not always benefit from these promotions. But Swords Express, for example, do offer material discounts to Leap Card and Taxsaver ticket holders. The likes of the Leap Card encourage interchange whereby commuters exiting the subject site can board a tram or bus and interchange to other modes/routes in the city centre to reach their ultimate destinations.

5.3 The subject site, by virtue of its central location, offers its users a variety of options for travelling to and from the development, as seen above. The extent to which they will access the site by one mode or another depends to a large degree on the "costs" of these alternatives. 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/rail trip into four basic components:

- The walk time to the target bus/tram stop.
- The wait time for the bus/tram.
- The duration of the public transport journey itself.
- The walk time to the work or school destination from the alighting bus or tram stop.

The impacts of fares etc, are ignored in this brief outline. Each component of the bus or tram trip - including any interchange between modes - is assigned different weightings depending on their relative attractiveness.

While there can be some debate over the values of these weightings, extensive

international research has confirmed that travellers generally dislike both the walking and waiting elements of the journey more than the in-vehicle journey time (hence the underlying attraction of car use where both of these elements are near zero and within one's control). On this basis, the walk element, being relatively unattractive, 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, often unknown, arrival time of buses. 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 heavy rail or tram weightings for both the waiting component and journey time are typically somewhat lower due to their greater general predictability, especially given the near certainty around rail journey time and protection against congestion that rail systems such as the LUAS generally enjoy.

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 choose can be assessed. In the case of future residents/commuters of the North Wall Quay site heading to their place of work, they have a wide number of options if deciding to commute by public transport. On the one hand, as indicated earlier, future commuters to the site have the **extremely attractive option** of a commute by LUAS Red Line services. The tram service can be accessed within 2/3 minutes of the subject site from the Mayor Square stop. The combination of LUAS' strong peak (and off-peak) frequency and reliable journey times by tram will materially reduce its relative generalised cost and draw many future residents to LUAS.

Alternatively, future users of the site can easily access the wide variety of bus services described above within 50m of the site. This easy access, which minimises walk time, combined with the high relative bus speeds achieved by use of the nearby Port Tunnel, ensures that public transport customers residing in the northern suburbs benefit from attractive bus services. The Swords Express network is ideally suited to the needs of commuters in this area. Commuters from this redevelopment also have the attractive option of accessing both the multiple heavy rail and core bus network by either walking to nearby stations on transferring from the likes of routes G1 and G2, and availing of the free Leap Card transfers to other modes. In summary, given the site's proximity to the focal point of the city's growing public transport network, the subject site is extremely well

located in that the “generalised cost” of people coming to/from this development is quite low by comparison with many commuters.

5.5 The relative attraction of bus and LUAS services with the planned BusConnects proposals for the area is discussed in section 7 after the current demand for these services is examined. The surveys conducted to determine current passenger use for public transport in the area are now outlined in section 6, together with the network capacity assessment pre and post-development.

6. Public Transport Surveys.

6.1 The main objective of the analysis in this report is to determine whether or not the incremental demand for public transport generated by the proposed redevelopment of the site at North Wall Quay will put the capacity of the existing public transport services (bus and rail) in the wider subject site area under undue pressure. An appropriate share of the newly generated patronage from the development has already been determined by CS Consulting in their TTA. To assist this process, a survey of both bus and LUAS usage in the immediate area of the subject site has been undertaken.

6.2 The demand profile for public transport services, like road traffic, is quite seasonal in nature. Ideally then, surveys of bus and rail travel should be conducted during periods of highest demand. In reality, public transport supply and demand tends to follow quite predictable patterns, in the absence of unusual factors. For example:

- Demand for bus, commuter rail and LUAS 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 during the non-holiday weeks in the opening four or five months of the year, and autumn, represent the most 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 compared with Tuesday to Thursday, with some exceptions.
- Public transport usage on Saturdays and Sundays in particular is materially lower than midweek demand in most areas, but at weekends demand can pick up appreciably, especially in the run up to Christmas.
- Demand for public transport also follows a predictable pattern throughout the standard weekday, but the morning peak is shorter in duration but has higher patronage levels than the corresponding, returning evening peak flows.

6.3 In determining whether spare capacity is available to meet increasing demand from any development site, it is clearly best, considering the observations in 6.2, to undertake surveys and test the midweek morning or evening peaks prior to the summer period, or in the autumn, when schools, etc are open. In addition to the established pattern of demand for public transport services, any assessment has the added complexity of any residual impacts of the Covid-19 pandemic. The fallout for public transport demand has been significant due to alterations in work patterns and the increased tendency for many white-collar workers to work from home (WFH). While the seasonal factors will work through as the years progress, there is no compelling evidence here, or internationally, that public transport usage post Covid-19 will ever return to normal. To complicate matters, recent fare reductions, both general and targeted at certain age cohorts, have certainly boosted demand, not necessarily in the peak periods.

To assess the current demand for public transport from the subject site, a survey of bus usage at one of the nearby busy bus stops was undertaken. It was important that the stop selected would be indicative of what is happening elsewhere in the core of the city centre. Similarly, the level of demand at the nearby LUAS stop - Mayor Square - was also surveyed. Current DART and commuter rail demand into and out of the nearby Dublin City stations has been examined using a review of the latest available published statistics and more recent observations.

Bus Survey in Dublin City Centre near Subject Site

6.4 The location of the subject site is such that it is in relatively proximity to multiple city centre bus, heavy rail and LUAS stops. The public transport network that can be accessed without difficulty from the subject site is shown in Figure 4 below.

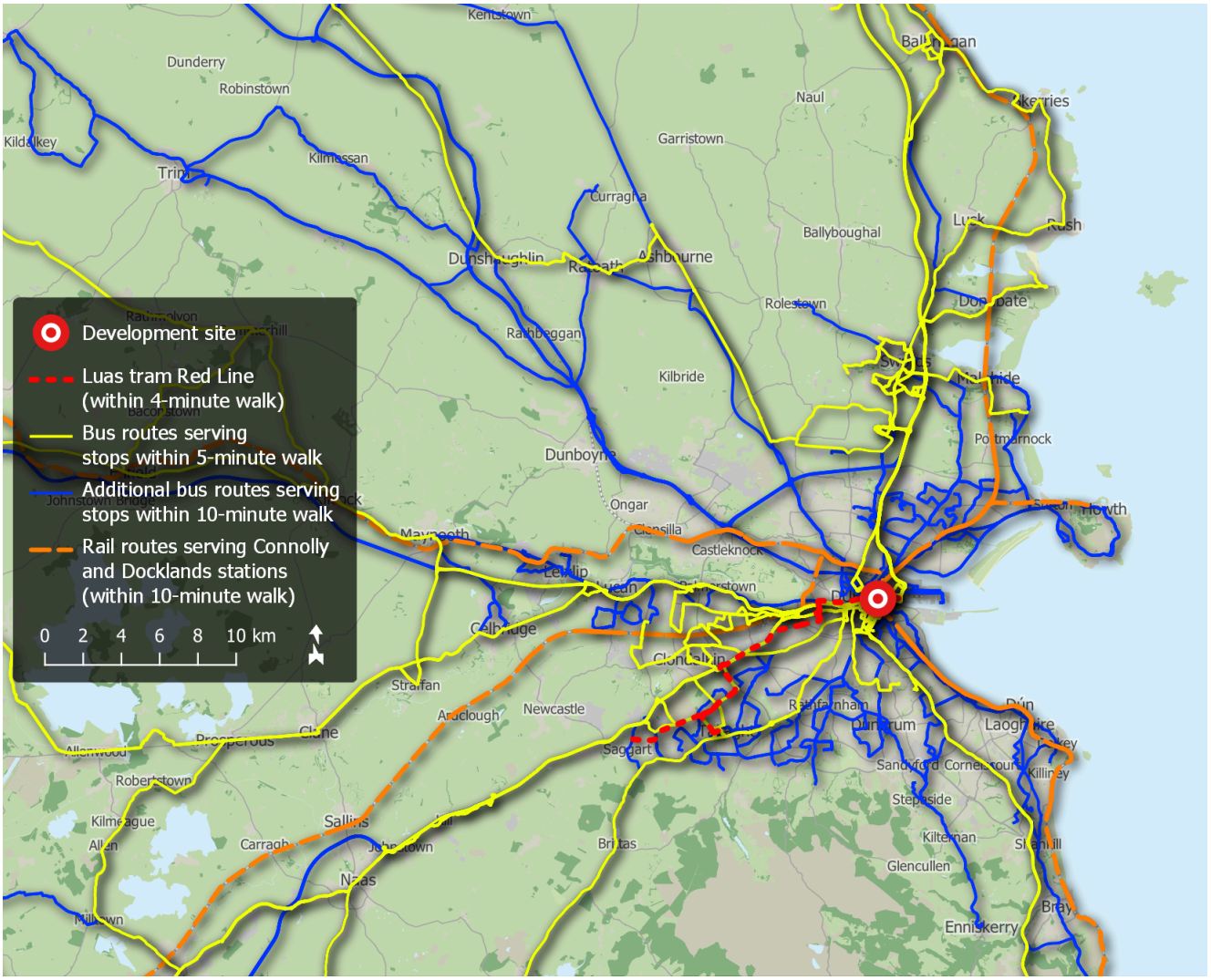

Figure 4. Public Transport Network accessible from the North Wall Quay site.

The locations that were most appropriate for collecting meaningful surveys were obvious. Firstly, the deciding factors in going for **Bus Stop 2499 (CHQ Docklands)** were:

- Its **close proximity** to the subject site, within 50 metres.
- The presence of key bus routes in the area stopping at this stop.
- The **mix, geographical spread and number of routes** operating to different parts of the city from this stop.
- In keeping with the guidelines regarding when best to undertake meaningful surveys, it was agreed to conduct the bus stop survey at stop 2499 (CHQ, Docklands) in advance of any mid-term breaks for schools and when universities have reopened.

6.5 The survey methodology required that the following process was adopted:

- Design of survey form to capture all relevant data including the time the bus departed the stop, bus type (for capacity), numbers on board the bus, whether any were standing and space for notes.
- Survey form to also capture the survey sheet number, date, stop number, location and surveyor ID.
- Survey stop selection based primarily on proximity to the subject site.
- The most appropriate two-hour survey period was determined based on network knowledge and subject site location.
- For <u>each</u> bus using the stop, the following were recorded - time of departure, route no, bus type (single or double-decker), passenger numbers on departing bus, passengers standing (yes/no) and any notes of interest.

The bus survey which forms the basis for the existing bus capacity assessment was undertaken at stop 4495 between 16.25 and 18.31 on Tuesday 3 October, 2023. In terms of the bus network in the area, this would be seen as the busiest bus stop. Passengers accessing the bus network here have the choice of a whole range of services as outlined in Table 1 above. They serve a wide variety of suburbs and towns, primarily to the north of the city.

The survey results for bus stop 2499, in Table 2 below, show the observed passenger demand profile by time bands for the evening peak in question:

Time	Buses Surveyed	Passengers	Passengers/Bus
16.30 - 16.59	12	256	21
17.00 - 17.29	11	349	32
17.30 - 17.59	26	789	30
18.00 - 18.30	22	466	21
Total	71	1,860	26

Table 2. Bus passenger demand, stop 2499, CHQ, Docklands.

The summary of bus passengers by 30-minute time band in Table 2 indicates that 1,860 passengers left bus stop 2499 on 71 buses over the two hour duration of the survey. This equates to a bus approximately every 1.7 minutes. From Table 2, it can be seen that the bus arrivals were generally well spread over the survey period, but with a noticeable peak between 17.30 and 17.59 when 26 buses departed with 789 passengers. The only three full buses were observed between 17.20 and 17.45. The volume of buses broadly matched the demand profile observed. This resulted in the passenger loadings on the buses being quite evenly spread over the survey period. This is borne out by the relatively tight range of average passenger numbers per bus, which varied from 21 to 32 passengers for the time bands highlighted above. It is clear that the Swords Express and other services have fine-tuned their level of service to the known demand profile. The evidence from the passengers gathering at stop 2499 is that they appear to target specific buses on the various routes. This suggests that individual commuters monitor departures online and habitually use the same routes and buses.

It was observed that the number of commuters boarding any one bus was, primarily, in

small single figures. The bus stop never became overcrowded as potential passengers were spread throughout the survey period. Few passengers spent more than five minutes at the stop. This is probably testament to their use of the various real-time apps used to track buses and predict their arrival time. The vast majority of bus passengers counted were already on board the buses that commenced closer to the core of the city centre.

Bus passengers per bus is lower than elsewhere in the bus network but this reflects the scale of single-decker coaches operating on many of these routes. In order to get a better picture of the scale of capacity in the bus network, it is essential to sort the passenger loadings by service and bus type. This is because, in contrast to the balance of the Dublin bus network, the route profile on the North Quays is dominated by a combination of Swords Express routes and a variety of other, smaller commercial operators. Clarity is achieved by separating out the single decker from double-decker services, as shown in Table 3 below:

Operator	Passengers	Buses	Passengers /Bus	Seated Bus Capacity *	% Spare Capacity
Dublin Bus (DB)	571	12	48	67	28
Other DB	163	23	7	67	90
Swords Express	606	19	32	50	36
Commercial Routes	447	14	32	50	36
Bus Eireann	73	3	24	50	52
Total	1,860	71	26		

Table 3. Surveyed passengers by operator type, at Stop 2499, CHQ, Docklands.

*Seated Capacity varies by bus type. Averages estimated for commercial routes.

The survey captured the passenger loading for the routes identified in section 5. Most buses, especially early in the survey period, operated well below capacity. Only four buses, within 15 minutes either side of 17.30, were full. The busiest buses were from the main express routes operated by Dublin Bus (33X, 41X, 142) and Swords Express (505X). As can be seen from the split by service type in Table 3 above, the Swords Express and Dublin Bus (Express routes) services dominated the commuter market by bus with 63% of passengers. The various commercial bus routes combined to also capture a significant 24% share of the market.

6.6 The loading (or occupancy) data inevitably leads to information of spare capacity on these buses. Bus capacity, for the purposes of this analysis, is taken, conservatively, as only the seated capacity of the bus. Bus spare capacity is the **inverse** of the bus occupancy rate. With double-decker buses having 67 seats, this understates the ultimate true capacity of buses by roughly 20%. Coaches do not permit standing on board. There is much greater clarity around buses' seated capacity and, additionally, passengers would not be expected to stand for a protracted period of time.

Based on the seated capacity of the various bus types - a mixture of double-deckers (Dublin Bus) and coaches elsewhere - it can be seen that all the operators had significant levels of spare capacity in their networks:

- The Dublin Bus express routes operating through the Port Tunnel are relatively busy but still have 28% spare capacity, before the additional carrying capacity of 20 that, in theory, could stand on these buses. In practice, users would likely await the next bus rather than stand for an extended period of 30+ minutes.
- The high spare capacity of the other Dublin Bus routes heading away from the city centre (that terminate locally) can be ignored as it is of no benefit to commuters from this area.

- The Swords Express network of services for the Swords-bound commuters has an

estimated 36% spare capacity, somewhat exaggerated by some of the later buses surveyed. The timetable currently on offer, even if reduced, is well pitched to meet the existing level of demand. Should demand increase materially, one would expect the operator of these routes to increase supply accordingly.

- The commercial routes, on average, had loadings similar to Swords Express. None were observed to be completely full. They therefore have material spare capacity in the evening peak period surveyed.
- The Bus Eireann routes (100X and 101X) had lower average passenger numbers that probably reflect the nature of the routes that operate through a variety of towns and villages with resultant lower average speeds.

The behaviour of passengers on these routes largely reflects the impact of the "generalised cost" model in that many trade money for speed as time is seen as precious. This level of spare capacity strongly indicates that there is much scope for further increases in customers before bus capacity on these routes is even challenged. The key message is that access to the bus network from this area of the city is not currently impacted by any obvious capacity constraints in the bus network. Operators would normally react with extra services if demand was not being met with any regularity. In terms of the proposed development on North Wall Quay, the extent to which the generated traffic leaving the subject site in the evening peak impacts these types of passenger loadings is discussed in later sections, following the review and analysis of the parallel LUAS demand survey.

LUAS Survey Data

6.7 As already identified earlier, the Mayor Square LUAS Red Line Stop is the closest tram stop to the subject site. It is the third stop from the most easterly terminus at The Point. In keeping with the survey time parameters outlined in 6.2, the passenger count was undertaken on Wednesday 11 October, 2023, between 16.28 and 18.32. Only westbound (citybound) trams were surveyed. Table 4, on the following page, shows the estimated passenger numbers leaving the stop on each tram surveyed in that direction:

Tram Time	Fleet Number	Destination	Numbers Boarding	Est. Passengers at Departure
16.30	3023	Saggart	15	65
16.35	4004	Tallaght	20	72
16.43	4014	Tallaght	42	105
16.49	3025	Saggart	28	120
17.02	3024	Tallaght	56	140
17.13	4006	Tallaght	75	170
17.16	3016	Saggart	30	135
17.28	3017	Saggart	36 (72)	185
17.30	3009	Tallaght	75	125
17.38	4003	Tallaght	65 (70)	175
17.59	3011	Saggart	55 (85)	185
18.09	3018	Tallaght	70	135
18.29	3006	Saggart	56 (66)	170
18.32	4004	Tallaght	25	105
TOTAL				**1,887**

Table 4. Estimated westbound passenger demand at Mayor Square LUAS stop.

The evening peak survey of tram usage in Table 4 above shows that 14 trams, observed

over the approximate two-hour period, carried a total of 1,887 passengers on departure from the Mayor Square stop. The observer undertaking the survey estimated the passenger numbers in each tram, noting how many were standing, if any. Interestingly, the demand from this LUAS stop is broadly similar to passengers surveyed on the nearby bus routes.

The survey shows steady demand for the tram service, with demand rising appreciably in the run up to maximum loadings around 17.30. In the case of three trams - between 17.28 and 17.59 - some passengers either failed to board or decided to await the next tram. A fourth tram was also well loaded after a significant gap prior to 18.29. The unequal headway (time between trams) of the Red Line service led to much of the crowding. While the busiest trams were crowded, they were not anywhere near their design capacity. The specified tram capacity (for both Red and Green Lines) is shown in Table 5 below:

Tram Type/ Capacity	Seated	Standing	Design Capacity	Estimated Practical Capacity (80%)
401 Series (Red Line)	72	219	291	233
402 Series (Green Line)	68	251	319	255

Table 5. Luas Design Capacity. Source, Transdev.

According to Transdev - the Operator of LUAS services - the seated and standing capacity of the 40m long 401 series trams, that are used exclusively on the Red Line, are 72 seats and 219 standing. This yields a design capacity of 291 passengers. This is akin to “crush loading” and is not witnessed. The seating capacity is undoubtedly correct, but the density of standing persons/metre squared is not achievable in practice. For the purposes of this analysis, it has been assumed that a “practical capacity” of 80% or 90% of the design capacity is more reasonable. The former has been used here and in itself is somewhat challenging to achieve. The 55m longer 402 series trams on the Green Line nevertheless

have fewer seats (68 v 72) but more standing room and higher available capacity.

6.8 The spare capacity available at the Mayor Square Stop is shown in Table 6 below, where the data in Table 4 has been reconfigured into four 30-minute timebands:

Time Band	Passenger Numbers	Number of Trams	Average Loadings	% Spare Tram Capacity*
16.30 - 16.59	362	4	91	61
17.00 - 17.29	630	4	158	32
17.30 - 17.59	485	3	162	30
18.00 - 18.32**	410	3	137	41
Total	1,887	14	135	**42**

Table 6. Estimated Tram Spare Capacity by Timeband.

*Tram capacity taken as 233 persons.

**Tram surveyed at 18.32 included in this timeband.

Table 6 indicates that the spare capacity on the trams observed over the survey period averaged 42%. It went as low as 30% in the period between 17.30 and 18.00. Despite this spare capacity, potential passengers waiting to board declined to do so as they saw the trams as being too busy. To this observer, it was obvious that customers are reluctant to make their way onto trams that have passengers standing around the doorways, despite there being plenty of room to stand close to the seating areas. This behaviour is quite understandable when the real time information at the stop is indicating that the next tram is within a minute or two, as happened. One can argue that capacity per 401 series Red Line tram will not often exceed, say, 200 passengers in these circumstances if customers refuse to board at that level of patronage.

6.9 While the survey concentrated on the recorded level of demand it is equally, if not more, interesting to review the actual service on offer. The average frequency was 8.7 minutes between trams, somewhat outside the advertised 3-10 minute range listed for that time period. In fact, that frequency is advertised for the whole period between 07.04 and 20.54 in the LUAS stop timetable data. On that basis, one would anticipate peak operations closer to the 3-minute headway. This suggests that the scale of tram service recorded was very much on the low side. There have been suggestions of difficulties arising from operating staff shortages, but it is unclear if that still pertains.

The somewhat erratic headway between trams leads to boardings rising where gaps in the headway arise. For example, a gap of 13 minutes was observed between 16.49 and 17.02. This was followed by another gap of 11 minutes to 17.13 and another gap of 12 minutes between 17.16 and 17.28. An even worse gap arose, at the height of the peak period, between 17.38 and 17.59. The impact of these service blips is high numbers waiting to board some of these trips. For this latest departure, only 55 (of 85 potential passengers) managed to board the 17.59 tram. In total, four trams were full to the extent that aspiring passengers decided to wait for the next service. There was no indication of passengers leaving a Tallaght-bound tram to wait for a Saggart departure (and vice versa).

If the actual level of service resulted in an even 5-minute headway during the peak hour between 17.00 and 18.00 (still well above the maximum 3-minute headway), a total of 12 trams would have served the stop at Mayor Square. From Table 6, the 1,115 passengers in this timeband, all other things being equal, would have been spread over 12 trams or less than 100 per tram - with seats available to the majority of travellers. In practice, it may be that Transdev, as the operator of the LUAS system, is satisfied that the level of service on the street is adequate to meet the revised passenger volumes presenting post Covid-19 and the new WFH work patterns.

6.10 In summary, the level of patronage at the LUAS Mayor Square Stop was steady throughout the survey period, with noticeable peaks during the 15 minutes either side of 17.30. Demand prior to 17.00 and after 18.00 was seen to fall away. The level of spare capacity in the system was greater than observations might suggest and would be increased appreciably if the advertised timetabled service was delivered. There is sufficient capacity in the LUAS to materially increase the level of service to meet growing passenger demand. The current Red Line tram frequency on this extension of the network is well below timetabled levels.

DART, LUAS and Commuter Services Demand Overview.

6.11 The capacity currently available on the LUAS network has already been assessed above. In order to get a handle on the demand for both DART and other commuter (heavy rail) services serving Dublin, one of the most insightful sources is the NTA's "PSO Bus and Rail Statistics" for 2021. The impact of the pandemic on all public transport services is evident when one examines this data. These are best summarised in table format here:

Table 2A: Dublin Region Annual Passenger Journeys (millions)

Year/ Operator	Dublin City Bus Services	Dublin Commuter Bus Services	Dublin Commuter & Dart Rail Services	Light Rail (Luas) Services	Total Passenger Journeys
2013	112.5	4.9	25.9	30.5	173.8
2014	116.3	5.0	26.5	32.6	180.4
2015	119.8	5.1	28.1	34.6	187.6
2016	125.4	5.5	30.9	34.0	195.8
2017	136.3	5.1	32.8	37.6	211.7
2018	141.5	5.9	34.2	41.8	223.4
2019	152.7	6.6	35.6	48.3	243.2
2020	77.6	3.4	12.8	19.2	113.0
2021	78.9	3.8	11.8	19.5	114.0

Table 7. Dublin Region Annual Passenger Numbers (millions). Source, Table 2A, NTA Bus and Rail Statistics, 2021.

While this data is somewhat out-of-date, it does illustrate the seismic changes in demand that occurred during the pandemic. The drop in passenger numbers on all services and modes of travel between 2019 and 2020 was precipitous. For example, passengers on Dublin bus routes (both Dublin Bus and Go-Ahead volumes) halved, despite the first quarter

of 2020 having near normal levels of activity. While the data in Table 7 above indicates only a very minor recovery in 2021, volumes have shown good recovery in 2022 and 2023, helped by some return to office work etc, and lower bus fares.

The fall in rail volumes was even more dramatic than the collapse in bus demand. The combined commuter rail and DART patronage declined by 64% in 2020. Passenger numbers in Table 7 indicate that they fell from 35.6m in 2019 to 12.8m in 2020. LUAS passenger numbers followed a similar pattern to other rail systems and fell 60%. In general, rail modes - whether intercity, commuter, or LUAS - saw greater reductions in customer numbers during the pandemic. The equivalent NTA rail figures for 2021 in Table 7 do not show any material recovery in passenger volumes. While LUAS figures have nudged higher, other commuter/DART passenger numbers continued to decline further in 2021.

6.12 With the gradual return to work, albeit with significant levels of WFH, there has been a recovery in broad public transport usage. The latest data in the CSO Transport Bulletin, September, 2023 confirms this. The relevant headlines in this report show that:

- Bus transport volumes have fully recovered and exceed pre-Covid-19 volumes in August 2023. The number of bus journeys in Dublin for week 35 of 2023 (the week beginning 28 August 2023) was 9% higher compared with the number of journeys in the same week in 2019.
- Comparing the same week with 2022, there was a 16% increase in the number of bus journeys in Dublin. So, while bus usage was still below pre-pandemic levels in 2022, it has now exceeded the 2019 peak in 2023.
- The general trend of rail recovery lagging behind bus travel continues.
- LUAS journeys for week 35 of 2023 increased by 13% when compared with the same week in 2022 but were still down 6% in comparison to the same week in 2019.
- Indications are that the same pattern of below par travel also applies to heavy rail networks into Dublin, with both DART and commuter rail demand slower to recover.

The recent CSO Bulletin mirrors what was surveyed by the various transport authorities for Dublin City Council's annual Cordon Count. The entry points around the entire city centre form the basis for the cordon itself. The annual count surveys the volume of cars, buses,

cyclists, walkers etc entering the city centre. The broad trend has been in place for years. That is, reduced car usage and greater volumes of people entering the city on the various forms of public transport. Of particular interest here is the count of daily public transport passengers by public transport mode.

Selective data from Table 2 of the NTA Canal Cordon Report 2022 is highlighted in Table 8 below. The count is taken between 07.00 and 10.00 (AM peak) on midweek days.

Mode of Travel	Bus	Rail	LUAS	All PT
2016	56,572	31,309	12,254	100,135
2017	60,798	34,409	11,953	107,160
2018	64,206	34,471	13,835	112,512
2019	65,048	37,407	13,832	116,287
2020	No Data.	No Data	No Data	-
2021	38,885	13,330	5,740	57,955
2022	61,362	25,314	10,982	97,658

Table 8. Passengers on public transport modes. Source, NTA Canal Cordon Report, 2022.

It is clear from Table 8 that between 2019 and 2021, the fall in bus patronage, while still dramatic, was proportionately smaller than both heavy rail (DART and commuter rail) and LUAS. Equally, bus customers are now closer to the 2019 levels by late 2022 than either rail service. This is consistent with CSO data sourced from the NTA. The latter, more recent information (August 2023) has bus patronage back above 2019 levels while the rail modes still lag the peaks of 2019.

6.13 In summary, it is reasonable, based on the above data review, to conclude that there is considerable spare capacity available to potential rail customers from the redevelopment site. given that rail volumes have not yet recovered their pre-pandemic demand levels. The new work patterns associated with the WFH phenomenon, and the quieter Monday and Friday volumes, are the primary reasons for this.

The spare capacity in the bus and LUAS services adjacent to the development site, as observed from the survey data analysed above, is therefore supplemented by the lower volumes of heavy rail experienced post pandemic. Collectively, the public transport network as a whole serving the subject site has significant levels of spare peak capacity.

7. Public Transport Capacity Assessment.

7.1 The level of generated trips from the North Wall Quay redevelopment has been determined by CS Consulting in their TTA for the site. In Section 4 of that report, the basis for the trip generation and distribution aspects of the development are outlined. The forecast development traffic during the operational phase has been estimated using both CSO Census 2016 data and trip rates from the Trip Rate Information Computer System (TRICS) database, based on the surveyed traffic for similar types of development in similar urban locations. In section 4.9 of the CS Consulting TTA, the net trip generation figures have been listed in Table 28, and they have been reproduced in Table 9 below:

Net Change in Weekday Direct Trip Generation by Mode

Transport Mode	Direction and Time Period					
	Arrivals			Departures		
	AM Peak	PM Peak	Full Day	AM Peak	PM Peak	Full Day
Driving a Car or Van	-11	-3	-78	-5	-5	-78
Passenger in a Car/Van/Taxi	+14	+1	+52	+2	+12	+52
Bicycle	+90	+7	+337	+11	+79	+337
Motorcycle	+6	+1	+23	+1	+6	+23
Bus	+210	+16	+792	+24	+185	+792
Train or Tram	+353	+26	+1,325	+41	+310	+1,325
Walking	+135	+10	+510	+15	+119	+510
TOTAL	+797	+58	+2,961	+89	+706	+2,961

Table 9. Net Trip Generation by Mode. Source, Table 28, CS TTA.

The net trip generation figures reflect the difference between the anticipated trips arising from the planned redevelopment and the estimated current trip from the existing building. They also reflect the fact that car parking in the proposed development is kept to a minimum. The split between bus and “train or tram” mirrors the current split for the area.

Generated Bus Trips

7.2 The analysis undertaken by CS Consulting in arriving at the generated trips by each mode is sound. The modal splits outlined in Table 9 above reflect the current breakdown by mode and the reduced car parking available to office users in the proposed development. In this analysis it has been assumed, for the purpose of the future capacity assessment, that:

- **Bus commuters** will leave the site in the PM peak in the same demand profile that was observed in the survey between the hours 14.30 and 18.30 in Table 2 above. On that basis, they have been allocated pro rata to the range of bus services at stop 2499.

- Given its proximity to the site, and the range of routes available at stop 2499, it is further assumed that **25% of the development's bus users will depart from this stop.** This is an onerous assumption despite this stop's proximity to the subject site. From Table 1 earlier, we saw that routes at the surveyed stop almost exclusively served areas to the north of the city and beyond, along the east coast. The generalised cost model outlined earlier serves to distribute travellers across a wide variety of routes. Some will walk some distance (or transfer by LUAS) to access the many bus routes leaving the core of the city centre. There are numerous bus stops where in excess of 100 routes serve other areas of the west and south of the city from the likes of D'Olier St, Westmoreland St and Aston's Quay. The relatively small existing numbers boarding buses at the surveyed bus stop reflect this pattern.

From Table 9 above, we see that 185 additional bus passengers are generated from the new development in the PM peak period. On the basis that only 25% of these bus users will board buses at stop 2499, an additional 46 passengers are added to the existing numbers surveyed.

Table 10 on the next page is similar in style to Table 3 earlier, but now reflects these additional passengers anticipated when the proposed development is in operation:

Operator	Passengers	Buses	Revised Passenger/Bus	Seated Bus Capacity *	% Spare Capacity
Dublin Bus (DB)	571**+14**	12	49	67	27
Other DB	163**+4**	23	7	67	90
Swords Express	606**+15**	19	33	50	34
Commercial Routes	447**+11**	14	33	50	34
Bus Eireann	73**+2**	3	25	50	50
Total	1,860**+46**	71	**27**		

Table 10. Surveyed **+ Generated passengers** by Operator type, at Stop 2499, CHQ, Docklands. *Seated Capacity varies by bus type. Averages estimated for commercial routes.

The generated trips increased total bus carryings by 46 to 1,906, or 2.4%. The revisions to the original level of spare capacity are minimal. The numbers of passengers per bus only increased from 26 to 27. This reflects the fact that only 46 generated bus trips were spread over 71 buses past the stop. The spare seated capacity was lowest for the Dublin Bus express routes at 27%, with at least one third spare capacity on the other operators' services. This is not to say that the spare capacity is spread evenly over all buses. A small number of buses will be full (as they were in the survey) but passengers will await the next bus. It is wholly uneconomic and unrealistic to design a bus service that results in no full buses.

The scale of spare capacity is such that the buses at this stop could cater for 100% of the generated bus trips were that to happen. The safety margins on the bus side are even greater when one considers the planned expansion of the bus network under the NTA's BusConnects proposals currently being implemented in phases and the reduced timetable operated by Swords Express.

7.3 Even allowing for residual Covid effects, based on recent patronage, this analysis clearly indicates that the bus network's spare capacity, post generated trips, is more than adequate to cater for the increased bus commuter demand from the proposed development. This conclusion is indicative of the anticipated outcome for all the bus stops in the core of the city centre.

Generated LUAS Trips

7.4 In similar fashion to the bus trips estimated by CS Consulting to be generated from the North Wall Quay development, the anticipated growth in LUAS trips has also been shown in Table 28 of the TTA for the subject site. From this and Table 9 above, a total of 310 additional "Train or Tram" trips are expected from the development.

The earlier analysis, summarised in Table 6, showed a significant level of spare capacity of 42% at the nearby Mayor Square LUAS Stop, despite some trams being crowded enough to deter some passengers. As noted earlier, the level of service, in terms of trams per hour, was well below the advertised frequency. Only 14 trams were recorded in just over two hours. The maximum headway, if (somewhat unrealistically) maintained for a full hour, would see 20 trams.

In this analysis, it has been assumed, for the purpose of the future capacity assessment, that:

- 50% of the generated "train and tram" trips (155 in total) would travel westbound by LUAS. This is a somewhat onerous assumption given the relatively good access to attractive DART and commuter rail services at Connolly, Docklands, Tara St and Pearse St stations, as well as eastbound LUAS trips towards The Point.
- All of the generated tram users would seek to board at Mayor Square.
- All would travel westbound (in the direction of the surveyed passengers).
- The generated trips are allocated pro rata to the demand pattern observed.

The impact of the additional LUAS trips on the projected spare capacity of the trams is outlined in Table 11 below. This table is similar in style to Table 6 earlier:

Time Band	Passenger Numbers	Number of Trams	Revised Average Load	% Spare Tram Capacity*
16.30 - 16.59	362+**30**	4	98	58
17.00 - 17.29	630+**52**	4	171	27
17.30 - 17.59	485+**40**	3	175	25
18.00 - 18.32**	410+**33**	3	148	36
Total	1,887+**155**	14	146	**37**

Table 11. Surveyed **+ Generated** Tram Passengers and Spare Capacity by Timeband. *Tram capacity taken as 233 persons.

**Tram surveyed at 18.32 included in this timeband.

7.4 The newly-generated trips increased total tram passengers by 155 to 2,042, or 7.9%. Loadings increased to 146 persons per tram or 11 extra passengers per tram. The revision to the original level of spare capacity was relatively small. The spare tram capacity fell from 42% to 37% with the addition of the generated trips. This is not to say that the spare capacity is spread evenly over all the trams. There are peaks within peaks in all transport systems. A limited number of trams will be viewed as full (as they were in the survey) and passengers will await the next tram. Not unlike the bus network, it is impractical to operate a tram service that results in no full trams. The scale of spare capacity is more than adequate to cater for the newly-generated trips from the proposed development. It must be recalled that the surveyed tram level of service was well below the design frequency in the system.

Monitoring of Public Transport Capacity

7.5 The NTA, in its Transport Strategy for the GDA 2022-2042, 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. This assurance applies to all routes, large and small.

The NTA's major DART+ plans for the upgrade of commuter rail services for the Dublin region will radically increase the capacity of rail services to/from the city centre. This report will outline how the DART+ and other proposals directly impact the city centre in section 7 below, after the review of the BusConnects network currently being implemented.

Capacity Assessment Summary

7.6 From the analysis of the current and anticipated future bus and rail passengers, based on the granular data in the case of the buses and LUAS, to the overview numbers for DART and heavy rail patronage, it is clear that the proposed development at North Wall Quay can be easily accommodated by existing public transport services. This is largely down to the sheer scale of the public transport offering that is open to future commuters to and from the subject site. The current plans for the ongoing upgrade of Dublin's public transport infrastructure, both bus and rail, are outlined in the next section. These will further boost the capacity of the city's public transport network to cater for future developments such as at North Wall Quay.

8. Public Transport Plans impacting Dublin City Centre.

8.1 This section of the report identifies the key public transport projects that will positively benefit both the quality and future capacity of the public transport system in Dublin. The commuters in the proposed development will benefit from these upgrades.

BusConnects

The BusConnects route consultation process carried out by the NTA, which concluded in 2020, modified the original service proposals following the review of tens of thousands of submissions by members of the public and key stakeholders. The final, agreed, bus network commenced implementation in 2021. Five phases of the BusConnects project, the latest in June, 2023, have been implemented. Figure 5 below shows the proposed Bus Connects network for the Dublin City Centre 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 many respects, are similar to many existing bus services serving the Dublin area but with a number of new elements.

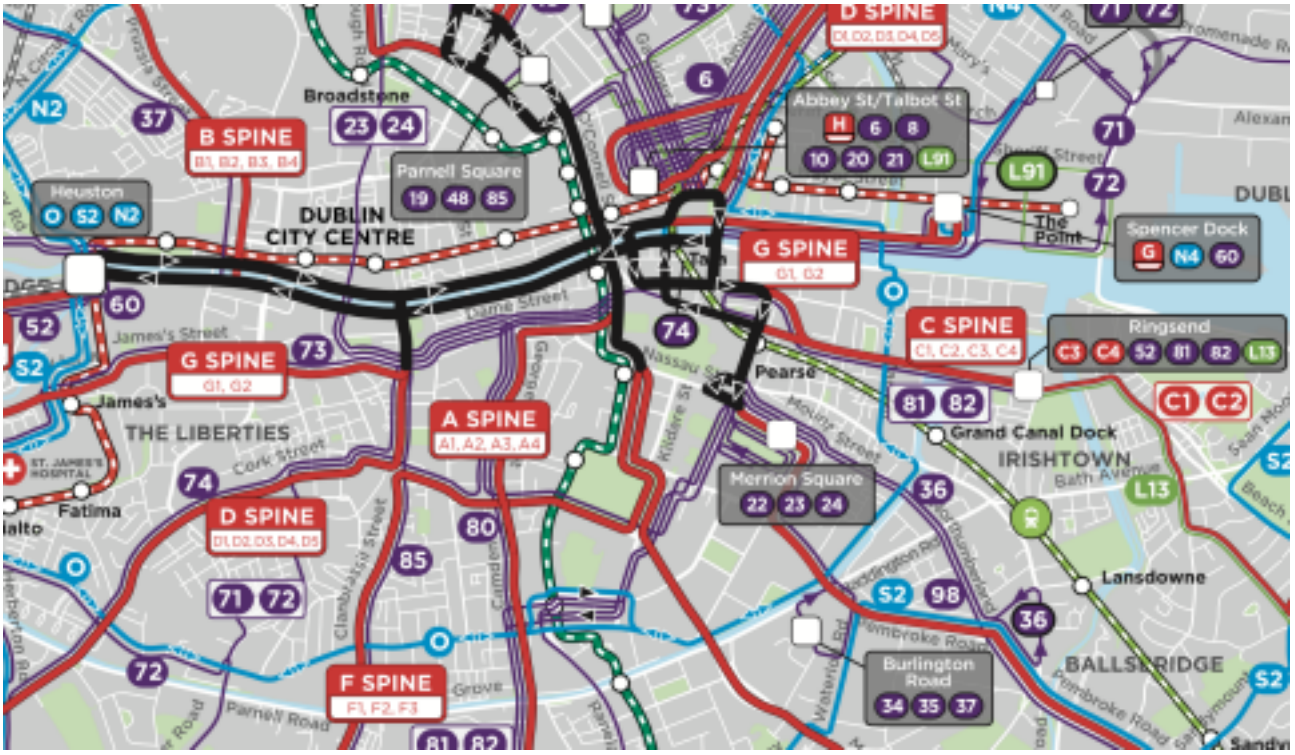

Figure 5. BusConnects "Big Picture" mapping of NTA Dublin City Centre Bus Network.

It is difficult to visually describe the scale of increase in bus service anticipated with the full implementation of the BusConnects project. The density of bus routes in the core city centre mitigates against a good description of individual routes or corridors. In section 3, this report outlined the development of both the bus route network and the new CBC alignments, along which the key so-called Spine-Routes will operate. The focal point for all the new CBCs and the upgraded frequencies on radial routes is the city centre, where the subject site is located. Some of the new BusConnects Spine routes (for the C, G and H spines) have already been implemented and operate close to the development site. The two high-frequency routes on the G-Spine have already been introduced. These operate along North Wall Quay, immediately past the subject site, offering easy access to both the city centre and the western suburbs served by these routes. The C-Spine routes south of the river are also accessible from the development. Over the course of the next two years or so, the NTA plans to launch the balance of the BusConnects routes. This will increase the capacity of the whole bus system by nearly a third and future proof the bus network for the next decade or so.

Metrolink Project

8.2 As described in the CS Consulting TTA for the North Wall Quay site, the MetroLink project includes the development of a north-south urban railway service that will run along the busy corridor between Swords and Sandyford, connecting key destinations including Dublin Airport and the city centre along the 26km route. A large portion of the route will be underground within the city centre and Dublin Airport. The proposed MetroLink will connect to the LUAS Green Line and Charlemont, to create a LUAS/Metro interchange, at Tara Street, adjacent to the subject development, to create a Dart/Metro interchange, and at Glasnevin to connect to the Maynooth and Kildare Rail Lines.

The proposed MetroLink will have capacity for 15,000 passages per direction each hour and a maximum journey time of 50 minutes from end to end. The subject site is within a short walk of the planned MetroLink station at Tara Street, the only interchange in between the existing Dart and proposed MetroLink. The development of the site, which will provide for significant high-density office accommodation, will enable easy access to Metrolink.

DART+ Project

8.3 The DART+ programme, promoted and funded by the NTA and now being implemented by Irish Rail, will revolutionise rail travel in the GDA. This investment will see the DART network expand from its current 50km in length to over 150km. It promises to: “promote multi-modal transit, active transport, boost regional connectivity and make public transport the preferred option for more and more people.”

The DART+ Programme will deliver frequent, modern, electrified services within the GDA and will improve connectivity to regional towns and cities. The five key reasons/objectives why the DART+ Programme is needed are cited as:

- To reduce the over-reliance on the private car.
- To improve land-use planning.
- To improve integration with other modes of transport.
- To support economic and population growth.
- To achieve climate change targets.

The project is seen as supporting growing communities, businesses and future developments by providing a high-quality integrated public transport service in line with government policy including the National Planning Framework and Climate Action Plan. The core of the city centre and surrounding areas will significantly benefit from the DART+ proposals. The DART+ project is promoted as part of the Project Ireland 2040 investment plan and the NTA’s Transport Strategy for the Greater Dublin Area (2022-2042).

LUAS Projects

8.4 Since its introduction nearly two decades ago, the LUAS network has expanded incrementally with extensions (including the link to The Point) to both the Red and Green Lines. While no further extensions are earmarked in the near term, other expansion of the network on new alignments is planned. Any additions will further enhance the LUAS network and raise the quality of the public transport network.

Summary

8.5 There are numerous, significant infrastructural plans in place to enhance the scale and quality of the existing public transport network in and around Dublin. Without exception, these projects will improve connectivity to and from the core city centre for public transport passengers. The development site at North Wall Quay is well placed to benefit from all these planned schemes.

9. Conclusions.

9.1 This report has outlined how well located the development site is in relation to the existing public transport network. The subject site stands to benefit from the enhanced capacity and quality that the planned services and major infrastructure projects for the various public transport modes, bus and rail, will bring to Dublin city centre.

The report determined the existing level of capacity in the public transport networks currently serving the development site. Both the bus and LUAS surveys undertaken, together with an analysis of recent trends in heavy rail services (DART and commuter rail) demand, led to the following key conclusions:

1. The development site is very well located close to both extensive bus and rail networks, adjacent to the heart of Dublin's city centre.

2. The bus survey undertaken in the key evening peak shows the local network of services to be functioning well. The analysis showed a significant degree of spare capacity in the existing bus network passing the development site. The spare capacity was measured following the full post-pandemic recovery in bus patronage brought about by an increasing return to work and the positive effects of the 20% reduction in public transport fares.

3. When the generated bus trips anticipated from the development were added to observed passenger data, the impact on bus spare capacity was limited. There remained more than adequate spare capacity in the bus network available to passengers.

4. Some of the key BusConnects routes already operate close to the subject site. In the event of any material rise in patronage in the years to come, the NTA, through "Measure Bus5", will respond to this increased demand with even higher bus frequencies, in keeping with its transport strategy for the Dublin area. It is anticipated that commercial bus operators will likely follow with enhanced services.

5. Similar analyses carried out on the surveyed LUAS passenger numbers at nearby Mayor Square showed significant levels of existing spare capacity, even with the reduced levels of service observed.

6. The overall trend data since the commencement of the pandemic suggests that there is still some leeway to increase LUAS patronage. The number of generated trips expected to use the LUAS service from the planned development will not challenge existing LUAS network capacity at this location.

7. DART and commuter rail services operating out of nearby Connolly, Docklands, Tara St Station and Pearse St, like LUAS, saw dramatic falls in patronage during the pandemic. Recovery in rail passengers has been relatively slow with significant spare capacity in the system.

8. The future infrastructure and service enhancements expected with Metrolink, DART+ and BusConnects (including the new CBCs), will further boost the capacity and quality of the public transport network in the vicinity of the development site at North Wall Quay.

9.2 The proposed development at North Wall Quay can be easily accommodated by the sheer scale of the public transport offering open to future commuters to and from the subject site.

END