NTA
Údarás Náisiúnta Iompair
National Transport Authority

Feasibility Report

Waterford Bridge Public Transport Shuttle Bus Proposal

12 February 2026

Table of Contents

1 Introduction 4
2 Background 6
2.1 Waterford North Quays SDZ Planning Scheme 2018 6
2.2 Sustainable Transport Bridge Planning Permission 6
2.3 SDZ Infrastructure Business Case Approval and Funding 8
2.4 North Quays SDZ Phase 1 – Planning Application 9
2.5 Section Summary 11
3 Alternative Connections 12
3.1 BusConnects Overview 12
3.2 Proposed Connectivity between the Train Station and the North and South Quays. 12
3.3 Additional Bus Routes 14
3.4 Consideration of the Sustainable Transport Bridge as part of BusConnects. 14
3.5 Tfl Bikes 14
3.6 Section Summary 14
4 Interaction with Other Road Users 15
4.1 Shuttle Bus Width Consideration 15
4.2 North Plaza - Constraints and Operational Considerations 16
4.3 North Quays Promenade - Constraints and Operational Considerations 17
4.4 South Plaza and South Quays - Constraints and Operational Considerations 19
4.5 Potential extended routes for the Shuttle Bus 22
4.6 Clock Tower Junction Requirements and Impacts 22
4.7 Pedestrianised Street Considerations 24
4.8 Section Summary 25
5 Transport Planning Analysis 26
5.1 Journey Time Comparison - Shuttle Bus vs Planned Bus Services using Rice Bridge 26
5.2 Rail Based Passenger Demand to the Rail Station 27
5.3 Operational Requirements and Cost Estimate 27
5.4 Fare Income 28
5.5 Autonomous Vehicle Considerations 28
5.6 Section Summary 29
6 Conclusion 30

1 Introduction

This report has been prepared following a memo by Waterford City & County Council (WCCC) to the National Transport Authority (NTA) requesting funding for a feasibility study. The proposal relates to the provision of a public bus service that would connect the new transport hub on the North Quays to the South Quay Plaza at the clock tower via the sustainable transport bridge and potentially onwards towards Waterford City's Historic Core or east along the Meagher's Quay. This report is an initial feasibility study that has been prepared with input from the Strategic Planning, Fleet Management, Transport Services Planning, Public Transport Contracts and Active Travel and Sustainable Travel sections within the National Transport Authority.

This study aims to assess the feasibility of the NTA introducing a public transport shuttle bus service across the new sustainable transport bridge in Waterford with a view to its operational, infrastructural, regulatory, and financial viability.

2 Background

2.1 Waterford North Quays SDZ Planning Scheme 2018

In 2016, the North Quays area in Waterford was designated as a Strategic Development Zone (SDZ), with the associated Planning Scheme published in 2018. The scheme proposed a mixed-use development comprising retail, hotel, office, residential, and other uses, supported by key infrastructure including the proposed Sustainable Transport Bridge and a Transport Interchange.

The Planning Scheme envisaged the SDZ as primarily retail-led, with provision for 20,000 to 30,000 square metres of retail floor space.

Section 3a.1 of the Planning Scheme outlines the Access Strategy, which includes reference to the bridge and a potential shuttle bus service:

"A sustainable transport bridge capable in width to accommodate pedestrians, cyclists and a City Centre bus service should be built from the North Quay to the South Quay in the vicinity of the Clock Tower on the South Quay. Such a bridge would provide:

- Direct access to the existing City Centre for pedestrians and cyclists.
- A vital link in the connection of the Waterford Greenway to the proposed Dublin–New Ross–Waterford Greenway.
- An opportunity for the retail sector in the city to operate a courtesy shuttle which could connect the extremities of the City Centre together.

Section 3a.3.2 of the traffic assessment notes that the construction of the Sustainable Transport Bridge could extend the walking catchment from the City Centre to the north of the River Suir, encompassing approximately 4,000 people, and the cycling catchment to around 7,400 people. It states that a modal shift in these areas, could result in a reduction of approximately 1,300 car trips during peak periods. The potential traffic impact of the courtesy shuttle is not assessed in this section.

Section 3a.5 describing the Sustainable Transport Bridge references:

> "The bridges termination points at both sides will be focal points on the pedestrian route through the city" and "the sustainable transport bridge will also carry the link between the New Ross to Waterford and the Waterford to Dungarvan Greenway."

2.2 Sustainable Transport Bridge Planning Permission

In September 2019, Waterford City and County Council (WCCC) was granted planning permission by An Bord Pleanála (now An Comisiúin Pleanála) for the proposed Sustainable Transport Bridge. The Environmental Impact Assessment Report (EIAR) described the development as comprising "a sustainable transport bridge crossing the River Suir in Waterford City and includes a paved and landscaped plaza at the landing point on the South Quay, in direct proximity to the Clock Tower. It is

anticipated that the proposed bridge will provide a new pedestrian, cycle and courtesy electric bus link between the North Quays and South Quays"

As part of the environmental assessment, three potential route options for the electric shuttle bus were considered:

- Option 1: Crossing the bridge, travelling via Barronstrand Street and Broad Street, turning left onto Peter Street, right into Bakehouse Lane, right into Lady Lane, and right onto Michael Street, reconnecting with Broad Street/Barronstrand Street.
- Option 2: Crossing the bridge, travelling via Barronstrand Street, Broad Street and Michael Street, and turning at the junction of Michael Street and New Street.
- Option 3: A shuttle route operating solely over and back across the bridge, with future provision for turning left onto Merchant's Quay from the bridge and vice versa.

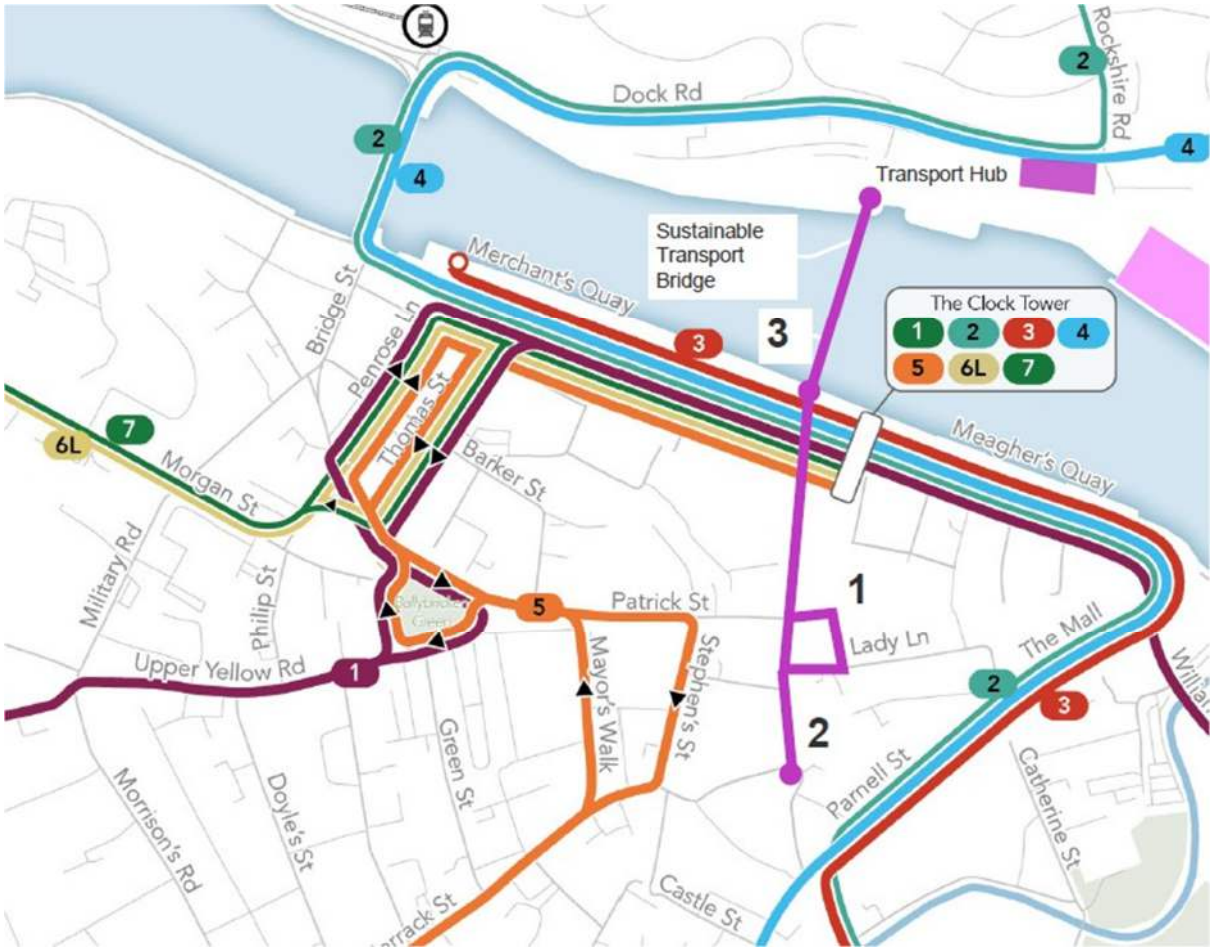

Figure 1 Options for Shuttle Bus analysed in the EIAR as part of the Bridge Planning Application – the Proposed Waterford BusConnects Bus Network is also shown.

The EIAR identified the preferred route as Option 3 - The route operating solely over and back across the bridge. It noted "this route fulfils this objective with the least disturbance to the surrounding area. The proposed bus route will connect Waterford City centre with the North Quays SDZ, thereby connecting two key retail facilities."

The EIAR also considered seven vehicle types for the shuttle service. The preferred option was the MotoEV Electro Transit Buddy 15 Passenger Hard Door ADA Shuttle, selected for its wheelchair

accessibility, compact size, manual operation, and aesthetic suitability. Larger vehicles were ruled out as “too cumbersome considering the proposed purpose and turning requirements at either end of the bridge. And an autonomous bus was “not considered appropriate considering the safety risk due to the shared space between cyclists and the vehicle.” The bridge was therefore designed for shuttle movement, not full city bus integration.

The permitted bridge design was approximately 207 metres in length and 8 metres in width. It included a 4.2 metre carriageway for cyclists and the shuttle bus, with 1.9 metre pedestrian paths on either side. A turning area of 11m radius for the shuttle bus was incorporated into the Clock Tower Plaza on the South Quays, which serves as the bridge’s southern landing point. No turning area was included on the northern side, and depot facilities for the shuttle bus were not considered as part of the design. It is worth noting, that subsequently, the developer Harcourt Development have a design for the Central Plaza at the northern end of the bridge that can accommodate a turning circle. The Sustainable Transport Bridge is an opening bascule bridge with a central span designed to lift and open, allowing river traffic, such as boats and larger vessels, to pass underneath on the River Suir.

2.3 SDZ Infrastructure Business Case Approval and Funding

In Nov 2022, the government gave Waterford City and County Council’s final business case approval for €170.6 million for the North Quays Infrastructure Project, the project’s main contract consists of 3 transport-focused infrastructure sub-projects:

1. An integrated transport hub through relocation of the existing train station and the formation of a new integrated, more central public transport interchange on brownfield sites to the north of the river Suir.

2. A sustainable transport corridor through the construction of a new sustainable transport bridge (facilitating pedestrian/cyclist/public transport). The bridge will link the North and South Quays. It will also create an urban greenway facilitating a connection between the existing Waterford to Dungarvan Greenway and the proposed Waterford to New Ross Greenway.

3. City Centre Access – this project will result in improved site-access roads and bridge structures at North Quays.

The final approved business case did not account for the costs or benefits of a bus service using the bridge. Of the total transport benefits (€113.94 million), the majority arise from benefits attributed to active travel.

The NTA has provided €71.3 million towards the cost of the Infrastructure Project to the end of 2024, primarily for the Sustainable Transport Bridge. This funding also supported design work and accommodation works including rock stabilisation, pump stations and the south quays plaza. A further €13 million in NTA funding is projected by the end of 2026.

2.4 North Quays SDZ Phase 1 – Planning Application

Planning permission for Phase 1 of the North Quays SDZ scheme was granted in April 2025. The development includes approximately 350 residential units, a 160-bedroom hotel with conference facilities, a 163-room aparthotel, and a mix of office, retail, and food & beverage uses. Key components are:

- Residential: c. 350 units;
- Office space: 7,540 sqm;
- Retail: 3,940 sqm;
- Food & beverage: 1,360 sqm;
- Crèche: 433 sqm;
- Hotel: 160 bedrooms + conference centre;
- Aparthotel: 163 rooms; and
- Public realm: High-quality spaces including plazas, riverside boardwalk, and greenway connections.

The permitted scheme includes a podium linking the sustainable transport bridge to a central plaza and a riverside promenade. This promenade features pedestrian and cycle infrastructure connecting to the approved transport interchange to the north-east.

While the retail provision is significantly reduced compared to the original SDZ vision, reflecting current market trends, future phases may deliver additional commercial floorspace.

The development also proposes a new riverside promenade and cycleway (part of the South East Greenway) between the sustainable transport bridge and the eastern site access. This cycleway will serve as a permanent active travel connection and provide emergency vehicle access to the bridge. The planning application, EIAR, and Transport Assessment do not mention bus access via this route.

Figure 2 Site Layout Plan - Phase 1 Planning Application

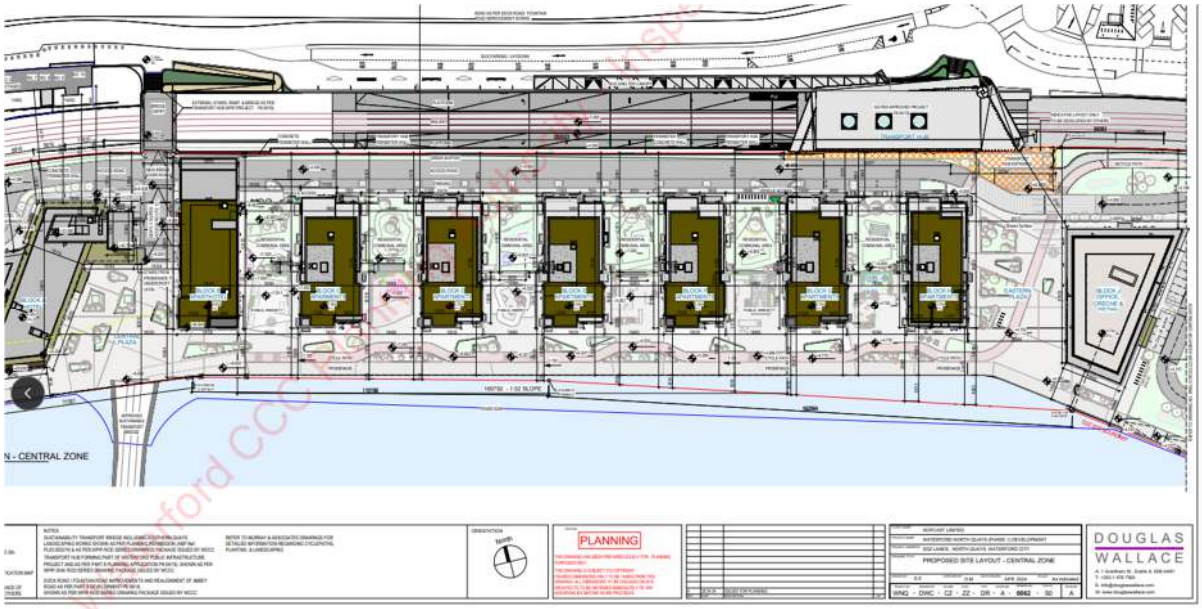

Figure 3 Site Layout Plan showing Riverside Pedestrian Promenade and Cycle Way

Figure 4 Visualisation from the Bridge

2.5 Section Summary

The original SDZ Planning Scheme envisioned the shuttle bus going back and forth on the bridge, as a privately funded courtesy low-capacity low speed shuttle was envisaged to help link to a major retail centre. With the absence of large-scale retail on the North Quays, the original rationale underpinning the shuttle bus concept has fundamentally changed. The bridge was designed for, and received planning permission for, a low-capacity shuttle bus which would travel over and back. The shuttle bus was never to operate as a public transport service, and it has not formed part of any approved programme or business case to date. The shuttle proposal also predates the current BusConnects plans.

3 Alternative Connections

3.1 BusConnects Overview

BusConnects is a public transport investment programme focused on Ireland's major urban centres. It encompasses a wide range of improvements, including:

- Redesign of the bus network
- Development of new bus corridors and cycle lanes
- Introduction of a new ticketing system
- Transition to cashless payment
- Simplified fare structure
- Updated bus livery
- New bus stops and shelters
- A shift to a zero-emissions bus fleet

BusConnects Waterford supports the delivery of both local and national strategies, including:

- Waterford Metropolitan Area Transport Strategy (WMATS)
- Regional Spatial and Economic Strategy for the Southern Region
- Waterford City and County Development Plan 2022–2028
- National Development Plan 2021–2030
- National Sustainable Mobility Policy
- Climate Action Plan

WMATS identified the need for significant investment in bus services and infrastructure, including priority measures such as junction upgrades, bus lanes, and traffic signal enhancements.

As the first step in the BusConnects programme for Waterford, the NTA published a revised bus network for Waterford City in January 2025, following public consultation. Implementation of the new network is planned to begin in 2027.

Detailed cost estimates have not yet been developed for the Waterford BusConnects programme. However, based on experience in the other metropolitan areas, the scale of service improvements, fleet investment and supporting infrastructure is likely to require a multi-million-euro investment per annum. Securing funding for Bus Connects will be the NTA priority for public transport in Waterford.

3.2 Proposed Connectivity between the Train Station and the North and South Quays.

Under the revised network, as shown in the maps below, three services will operate between the train station/North Quays and the Clock Tower on the South Quays. These services will form part of Routes 2, 4A and 4B, all of which will use Rice Bridge, located west of the sustainable transport bridge.

- Route 2: Ballygunner to Rockshire Road
- Route 4A: SETU West to Slieverue
- Route 4B: Whitfield Hospital to Abbey Park

Route 4 is proposed to have 15-minute frequency between 07:00 and 19:00, with a 30-minute frequency operating from 06:00–07:00 and 20:00–23:00, and Route 2 will have a 30-minute frequency operating between 06:00-23:00. The estimated journey time between the railway station and the South Quays bus stop at the Clock Tower is approximately five minutes, as outlined in Section 4.2. The combined frequency of these routes is 6 services an hour.

Maps of the New Network Plan

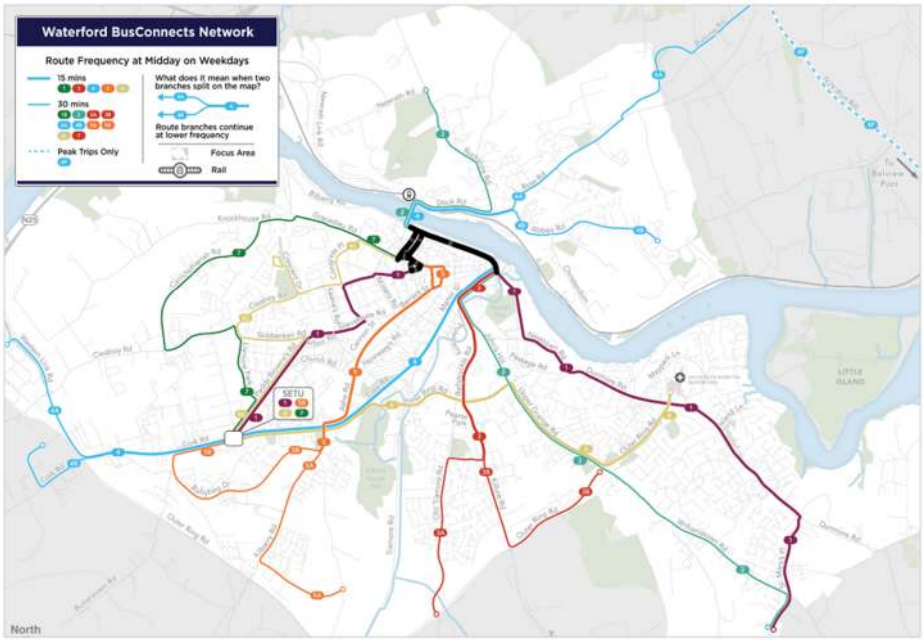

Figure 5 Proposed BusConnects Network

Figure 6 Proposed BusConnects Network City Centre

3.3 Additional Bus Routes

A further 3 intercity/regional routes have potential to connect the train station to the south quays

40 Interurban Cork - Waterford - Rosslare

340 Waterford – New Ross- Wexford

370 Waterford – Rosslare

3.4 Consideration of the Sustainable Transport Bridge as part of BusConnects.

Under the BusConnects network, no bus routes were identified use the sustainable transport bridge. Its potential use was considered during the 2022 scoping phase, however, due to the specific vehicle type permitted and the absence of a suitable connecting road network, the bridge was not deemed viable for city bus operations.

3.5 Tfl Bikes

A new Tfl Bikes station is also proposed at the rail station. While this option will not suit all users, it will provide an additional and convenient link to the south quays and the wider city centre. This will help to broaden the range of onward travel choices available to passengers.

3.6 Section Summary

The large scale investment planned as part of the new BusConnects Waterford network will provide frequent and reliable services between the relocated train station and the city centre, offering multiples of the passenger carrying capacity of the proposed shuttle service, while addressing bus connectivity goals originally intended for the shuttle. This investment plan was not underway at the time of the original shuttle service proposal.

4 Interaction with Other Road Users

The southern entrance of the relocated train station opens onto a new public plaza, forming part of the North Quays SDZ development. According to the memo from Waterford City & County Council, it is feasible to accommodate both cyclists and an electric shuttle bus within a shared corridor across the public plaza, the cycleway, and the sustainable transport bridge, while pedestrians would be provided with separate, dedicated corridors. The memo notes the design of the bridge and plaza areas was informed by the weight and dimensions of the proposed shuttle bus. Additionally, the memo notes "based on a safe shared street speed of 10 km/h, the estimated round-trip travel time between the train station on the North Quays and the Clock Tower Plaza on the South Quays is approximately 8 minutes".

4.1 Shuttle Bus Width Consideration

The interaction between the proposed shuttle bus and other road users is influenced by the vehicle type, particularly its width. The Environmental Impact Assessment Report (EIAR) describes a design vehicle as a wheelchair-accessible, 15-passenger electric shuttle, approximately 5 metres in length, 1.5 metres in width, and 2 metres in height, with a turning radius of 5.5 metres. The design vehicle used in the bridge planning application is an unusually narrow vehicle. Promotional material suggests the vehicle is sold primarily for off street uses such as campuses and carpark. Nonetheless, while not as narrow as the design vehicle used in the bridge planning application, there is a broad range of small to medium-sized electric shuttle vehicles currently available on the market.

Under EU classification, vehicles carrying more than eight passengers (excluding the driver) and weighing less than 5 tonnes fall under the M2 category. These vehicles typically have maximum dimensions of 12.00 metres in length, 2.55 metres in width, and 4.00 metres in height.

Smaller passenger vehicles, such as cars and people carriers (M1 category), are also subject to a maximum width of 2.55 metres. Recent data indicates that the average width of new cars in the EU now exceeds 1.8 metres. Therefore, even if the proposed shuttle bus carries fewer than nine passengers, a compact compliant vehicle would likely fall within a width range of 1.8 to 2.55 metres.

For example, the 'Harlander' trial electric autonomous shuttle bus in Belfast which carries 8 passengers is 2.3m wide. While the upper limit of 2.55 metres would be most appropriate for defining a design vehicle, aligning with regulatory standards and avoiding potentially legally contestable constraints on vehicle procurement, a range of 1.8 - 2.4 metres for the width of a shuttle bus will be used for the purposes of this assessment.

Figure 7 Design Vehicle – Electro Transit Buddy

Figure 8 image of the 8-seater 'Harlander' autonomous vehicle trialled in Belfast

4.2 North Plaza - Constraints and Operational Considerations

The planning application for Phase 1 of the North Quays SDZ development does not include provision for a shuttle bus service at the bridge landing point. No vehicular route is indicated connecting the bridge to the integrated transport hub or to the wider road network to the north. Nonetheless, Harcourt Developments's design for the Central Plaza at the northern end of the bridge will accommodate a turning circle.

The bridge landing comprises a pedestrian plaza, and the route to the transport hub to the east consists of a 3m wide 2-way cycleway and a separate 4m wide pedestrian promenade. The central plaza has been designed with extensive landscaping and greenery to support a pedestrian-focused environment, with movement occurring in multiple directions. This aligns with the SDZ objective "Proposed plazas will be designed in a legible and clear manner, incorporating landscaping and public art, while facilitating pedestrian and cycle circulation".

Regular turning movements by a shuttle bus in this area could present safety concerns and may conflict with the intended character of the space, and present accessibility challenges. Such use would require amendments to the existing planning permission.

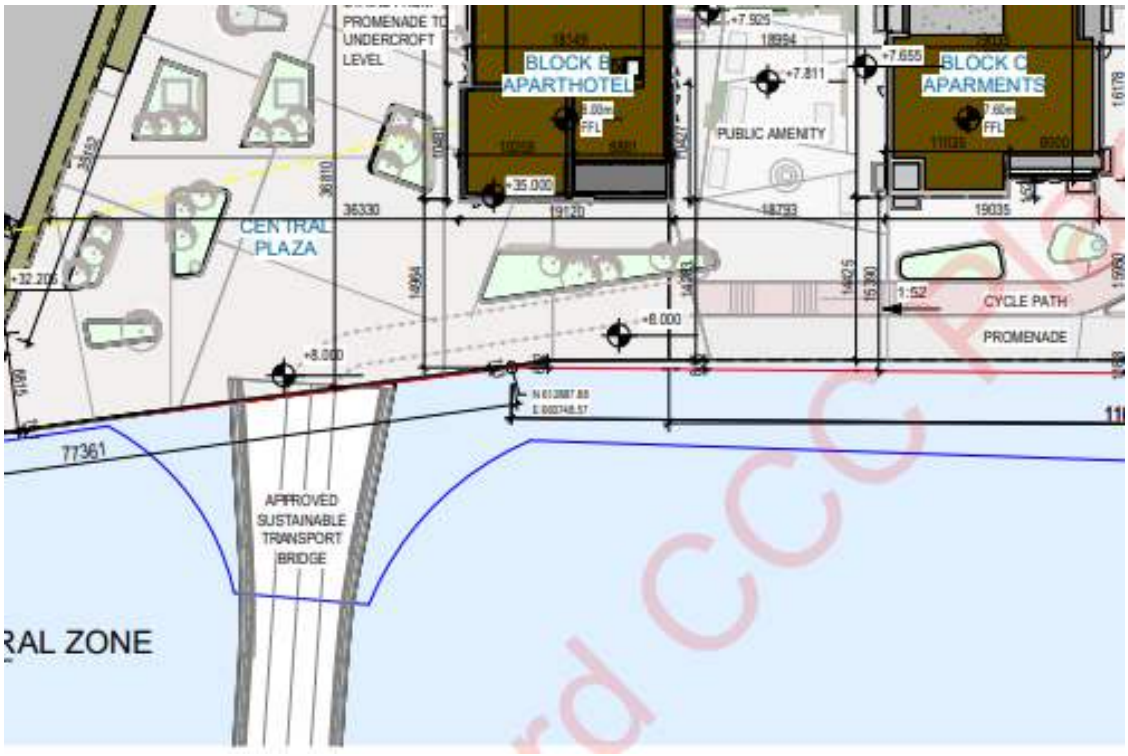

Figure 9 North Plaza as per Site Layout Plan submitted as part of the SDZ application

4.3 North Quays Promenade - Constraints and Operational Considerations

Drawings submitted with the planning application indicate that the two-way cycle track along the North Quays promenade is 3 metres wide. Based on the range of 1.8 - 2.4 metres for the width of a shuttle bus, this would only allow for single-vehicle operation along most of the route between the South Plaza and the train station, limiting the feasibility of two-way shuttle bus movements.

The proposed use of the 3m dedicated cycle path by regular bus services raises several concerns. The route in question serves as the primary cycling corridor in Waterford City, linking Ferrybank to the city centre and providing access to the train station. It also forms part of the connection between two

national greenways: the Southeast Greenway (to New Ross) and the Waterford Greenway (to Dungarvan).

The route is expected to serve a mix of commuters and recreational users, including families. In practice, even with a narrow vehicle operating at six-minute intervals, cyclists travelling in the opposite direction would likely need to divert into pedestrian areas to avoid head-on conflicts with buses. For cyclists travelling in the same direction, buses would be unable to safely overtake due to insufficient passing room. This arrangement would undermine both the safety and attractiveness of the cycle route and pedestrian area, diminishing its value for residents, commuters and recreational users, despite active travel being a key component of the public investment rationale in the area.

While buses have been permitted in some international examples of shared space, these areas are purpose-designed to accommodate pedestrians, cyclists and small numbers of low-speed vehicles. Successful shared space relies on careful design from the outset, with adequate width, appropriate surface materials, and considered placement of tactiles and street furniture. Such schemes also typically include clearly defined pedestrian-only zones to support people with visual or mobility impairments.

The NTA is not aware of any precedent for regular bus services operating on dedicated cycle infrastructure. There is no applicable street design guidance or legislative basis to support such use, as motorised vehicles are not permitted on cycle tracks under current regulations. Some two-way cycle tracks have been used for emergency access by ambulances and fire services, and while drawings submitted with the application show a swept path for a fire appliance along the cycleway (see figure 11) these vehicles operate under exemptions provided by the Roads and Traffic Acts. Reclassifying the cycleway as a road with restricted access could be considered; however, this would require a change to the existing planning permission and a reassessment of applicable design standards and road safety audits.

Figure 10 Visualisation of Pedestrian Promenade and Cycleway submitted as part of the Phase 1 Planning Application

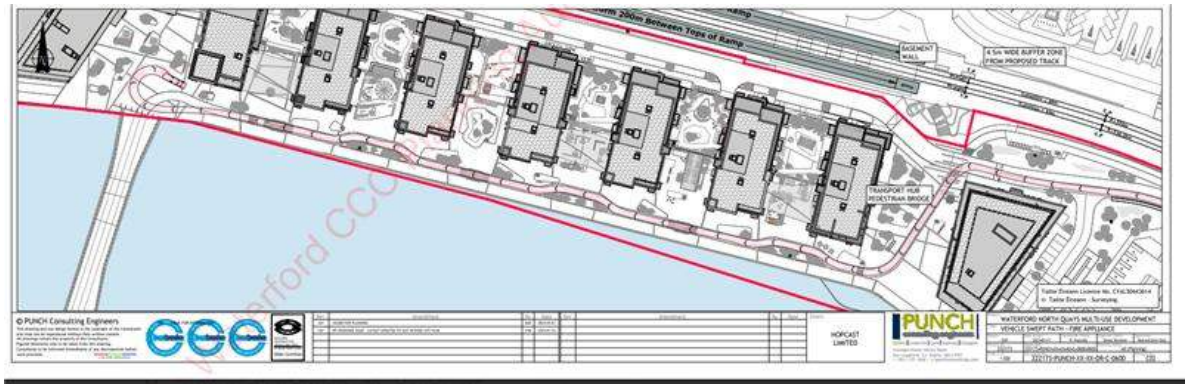

Figure 11 Vehicle Tracking of Fire Appliance using Cycleway for Access submitted as part of the Phase 1 Planning Application

4.4 South Plaza and South Quays - Constraints and Operational Considerations

The bridge landing point on the South Quays, as outlined in Planning Application includes provision for a turning movement via an 11-metre turning circle. However, no vehicular connection is indicated between the landing point and the surrounding road network to the south. The area is designed as a shared space and pedestrian zone, with no designated vehicular route beyond the turning area.

Like the Northern Plaza, this location is intended to function as a high-quality public space, prioritising pedestrian movement and public realm activities. Introducing a turning shuttle bus into this environment would create complex interactions between vehicles and pedestrians, raising concerns around safety, accessibility, and the overall character of the space.

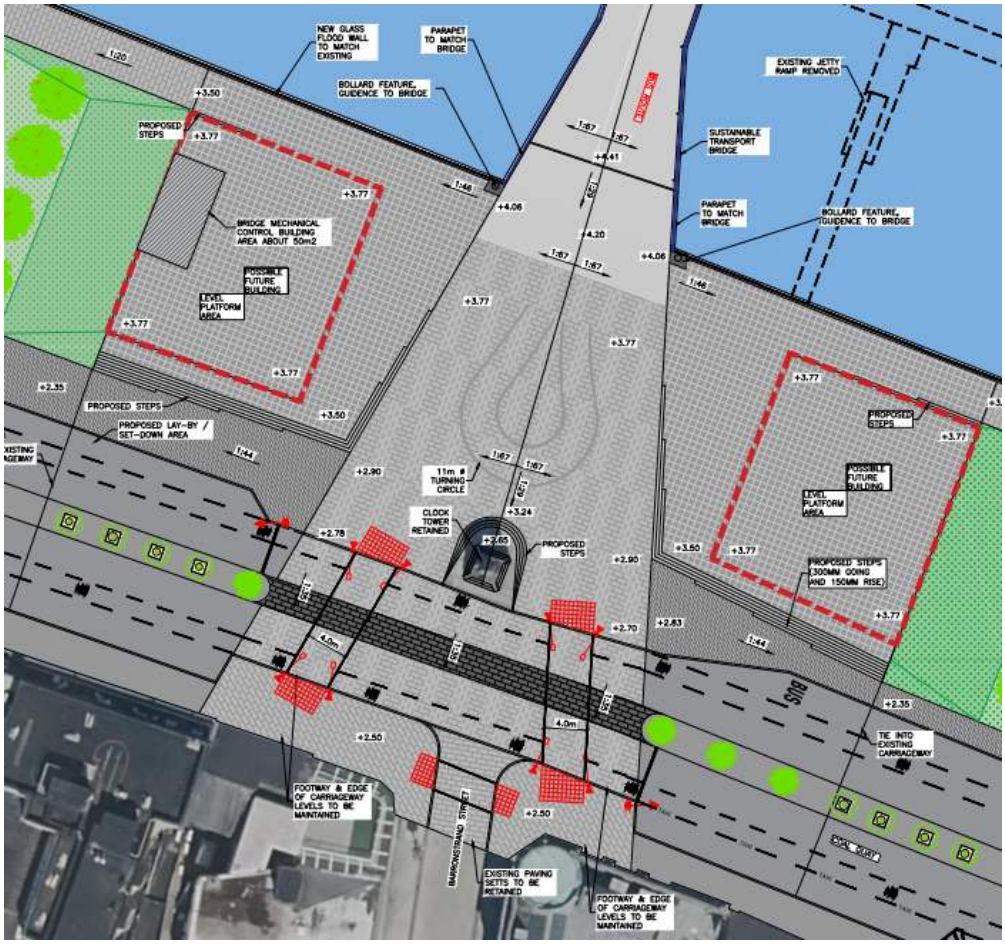

Figure 12 From drawing submitted as part the bridge planning application outlining 11m diameter turning circle

Figure 13 Visualisation of South Plaza on WDCC website

Figure 14 Construction Underway of South Plaza Oct 2025

4.5 Potential extended routes for the Shuttle Bus

The memo submitted to the NTA by Waterford City & County Council outlined options for extended shuttle bus routes, illustrated in purple in Figure 16 below:

- **Route A**: Travels from Clock Tower Plaza up Barronstrand Street and Broad Street, turns left onto Peter Street, right into Bakehouse Lane, right into Lady Lane, and right again onto Michael Street, before returning via Broad Street and Barronstrand Street to Clock Tower Plaza.
- **Route B**: Travels up Barronstrand Street, Broad Street and Michael Street, turning at the junction of Michael Street and New Street to return to Clock Tower Plaza.
- **Route C**: Turns left from Clock Tower Plaza onto Merchant's Quay and returns via the same route.
- **Route D** also shows potential connectivity on the north quays between trransport hub and the public road network at the new Abbey Road Roundabout.

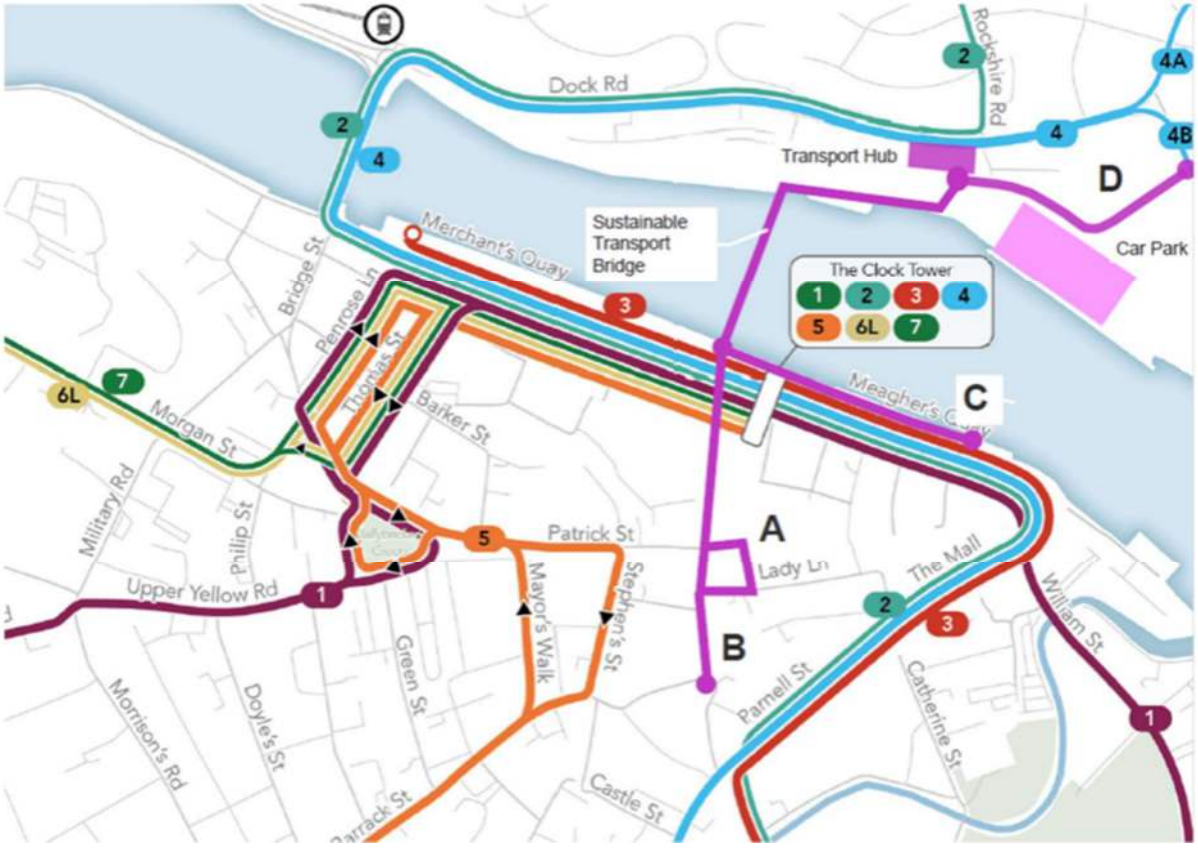

Figure 15 Potential Options for Extended Shuttle Bus Routes

4.6 Clock Tower Junction Requirements and Impacts

If the shuttle bus were to continue south through the Clock Tower junction and enter the pedestrianised zone of Barronstrand Street, as proposed in Routes A and B, a new signalised junction would be required. This is because the shuttle bus would need to cross footpaths, cycle tracks, pedestrian crossings, and general traffic lanes, as shown in figures 16 and 17. A dedicated bus phase

at the junction would be necessary to ensure safe and efficient movement, particularly for those with mobility or vision impairments.

The introduction of such a junction and associated signal phasing would have direct implications for traffic flow and bus operations along the Quays. Under the revised BusConnects Waterford network, seven bus routes are planned to operate along this corridor, with a key interchange point located near the Clock Tower. Signalisation for the shuttle bus would increase delays for other bus services and affect timetable reliability and operational efficiency of the wider BusConnects network, which is designed to support high-frequency, reliable services across the city.

To support the assessment of potential impacts, the NTA undertook swept path analyses, (an evaluation and calculation of the space required when a vehicle makes turning manoeuvres) for the potential shuttle bus routes A, B, and C. For the purposes of this exercise, and to give a conservative view of the impact, the designer developed a shuttle bus model based on the very small and manoeuvrable Easymile vehicle currently in use in Bonn University Hospital.

Figure 16 Swept Path Analysis for a bus from South Plaza to Barronstrand Street – the yellow lines show the path of a small shuttle bus

Figure 17 Swept Path Analysis for a bus from South Plaza to Meagher's Quay - – the yellow lines show the path of a small shuttle bus

4.7 Pedestrianised Street Considerations

In routes A and B proposals, the proposed shuttle route would pass through pedestrianised areas, including Broad Street and Barronstrand Street. These streets are characterised by high levels of pedestrian activity and public realm use, including outdoor seating and commercial frontage, which would be disrupted by regular vehicle movements. The introduction of a shuttle service in these areas raises concerns regarding safety, accessibility, and the overall character of the space.

The NTA is not aware of any precedent for regular bus services operating on pedestrianised streets in Ireland. Existing exemptions under the legislation typically apply only to access and delivery vehicles In set time periods outside of peak pedestrian periods, and do not extend to scheduled public transport services. Any proposal to operate a shuttle in these areas would require careful consideration of regulatory compliance, public realm impacts, and potential planning amendments.

Figure 18 Barronstrand Street with Outdoor Seating in the Background.

4.8 Section Summary

There is no suitable vehicular connection from the North Quays to the train station, and the infrastructure was not designed for regular bus movements. Introducing such services would negatively impact walking and cycling routes, particularly along the promenade and cycleway, which form part of the national greenway network. On the South Quays, connecting the shuttle to the city core would require a new junction at the Clock Tower, which would affect journey times and reliability for existing and planned bus services. The pedestrianised nature of the surrounding streets also presents safety and regulatory concerns. Moreover, there is no precedent or regulatory basis for operating scheduled public transport services on pedestrianised streets or dedicated cycleways.

5 Transport Planning Analysis

5.1 Journey Time Comparison - Shuttle Bus vs Planned Bus Services using Rice Bridge

A journey time analysis was undertaken to compare the proposed shuttle bus service using the Sustainable Transport Bridge with existing and planned public transport services operating via Rice Bridge.

At present, no public bus routes directly connect the Clock Tower to the location of the new train station. However, under the BusConnects Waterford programme, Route 4 is planned to provide this connection at 15-minute intervals.

A private operator - JJ Kavanagh currently operate services (Route 607 Abbey Park to Ballygunner) and (Route 617 Slieverue to Waterford Hosptial) between the Clock Tower and Fountain Street, approximately 100 metres from the train station. These services advertise journey times of 3 to 6 minutes over a 1.6 km route. It should be noted that these timetables were published prior to ongoing construction works on Dock Road, which may now affect actual travel times.

To support this analysis, the NTA used the TomTom traffic data, a very large dataset derived from GPS-enabled vehicles, navigation devices, and mobile phone apps. TomTom data is widely used in transport planning to assess travel behaviour and congestion patterns.

Analysis of TomTom data indicates that peak-time journey durations for general traffic were approximately 5 minutes in 2021 (pre-construction), increasing to approx. 7 minutes in 2025 (including construction-related delays). Journey times could be further reduced if bus priority measures such as bus lanes or via priority at signals were implemented on Dock Road, and potentially further towards on the South Quays.

The proposed shuttle bus would travel approximately 220 metres across the Sustainable Transport Bridge at a speed of approximately 10 km/h (due to sharing with pedestrians), resulting in a travel time of approximately 1 minute and 20 seconds plus a walk of an additional 300 metres to reach the train station. Using a walking speed of 1.5 metres per second, equals 3 minutes and 20 seconds, resulting in a total estimated journey time of 4 minutes and 40 seconds.

Notwithstanding the safety and regulatory concerns previously outlined regarding the use of the cycleway, if the shuttle bus were able to connect directly to the train station along the waterfront promenade, the estimated journey time would be approximately 3 minutes and 9 seconds at a travel speed of 10 km/h. Including a stop at the northern plaza which would be likely to be required to serve adjacent businesses, this would increase the total journey time to approximately 3 minutes and 20 seconds.

While cycling will not suit everyone, it is also an option for completing this short connection. The 550 metres from the Clock Tower to the Station can be cycled in approximately three and a half minutes at a modest average speed of 10 km/h, whether using a TfI Bike or a personal bicycle. The low-speed estimate reflects the need to share space with pedestrians on the bridge.

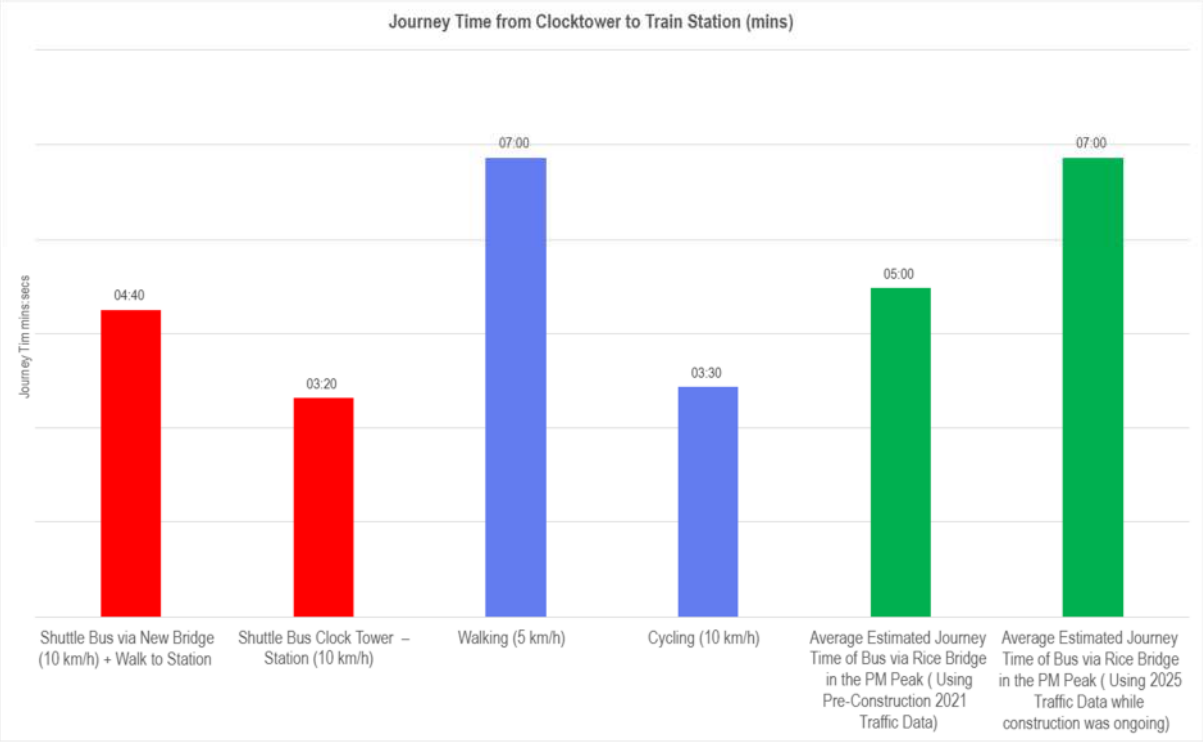

Figure 19 Journey Time Comparison using TomTom Traffic Database

5.2 Rail Based Passenger Demand to the Rail Station

While the Waterford Metropolitan Area Transport Strategy (WMATS) and the longer-term vision set out in the All-Island Strategic Rail Review proposes improvements to InterCity rail services to Dublin, Limerick Junction, and Rosslare, including increased frequency, reliability, and reduced journey times, current service levels are approximately 20 train movements per day at Waterford Station. A proposed shuttle bus frequency of a 6 min trip from the clock tower to the train station would result in up to 170 round trips daily between 06:00 and 23:00. This significantly exceed passenger demand linked directly to rail arrivals and departures. This suggests that at present, for most shuttle trips, there may be no direct rail-related passengers. Rail passenger demand can be reviewed in future should train service frequency increase.

5.3 Operational Requirements and Cost Estimate

Based on operational experience with electric vehicles in the Local Link network, the NTA expects that a shuttle service could operate daily from 06:00 to 23:00, totalling 17 hours of service. Based on recent tenders, the estimated operating cost for electric vehicles which ranges from €150 to approximately €175 per hour per vehicle. This figure includes driver wages, energy costs, vehicle maintenance, and insurance. It does not include vehicle procurement costs, as Local Link operators are responsible for supplying their own vehicles and ensuring compliance with all regulatory

requirements. However, as a relatively unique vehicle in an estuarine environment, the cost of these buses may require a further subsidy.

An additional consideration is the location and method of overnight storage for the vehicles once out of service. The route to the storage facility should be feasible, and the facility itself must be equipped to support electric charging and routine maintenance.

The design vehicle referenced in the planning application, MotoEV Electro Transit Buddy 15 Passenger XE Hard Door Shuttle, had a fully loaded range of 80 km. While battery technology has improved since then, and at an average operating speed of 10 km/h it may be feasible to run for 16 hours without recharging. However, given the unique nature of the shuttle bus and its operating environment, exposed to estuarine conditions, it is likely that two vehicles would be required to ensure regular maintenance and service continuity. This would result in an estimated annual operating cost of €1,855,000 – €2,165,000.

5.4 Fare Income

Experience from Local Link services indicates that fare revenue is relatively modest. A significant proportion of passengers use Free Travel Passes, and fares are intentionally kept low to support accessibility and social inclusion. Given the nature and location of the proposed shuttle service, it is likely that this pattern would be even more pronounced, with a high proportion of users availing of free or subsidised travel options. Therefore, it is considered likely that fare revenue derived from the service would make a negligible contribution to cost recovery.

5.5 Autonomous Vehicle Considerations

While autonomous vehicles may in the future offer potential cost savings by reducing driver-related expenses, the technology is still in its early stages. Existing deployments have been limited to pilot programmes or controlled environments, such as the Harlander Bus trial in Belfast, which always needed a ‘safety operator’ on board. The Harlander autonomous vehicle trial in Belfast is supported by £11 million (€12.7million) in joint government and industry funding, as part of a broader UK Government investment in pilot autonomous mobility projects.

Widespread adoption of autonomous buses is not expected until later in the decade or into the 2030s. Realising this potential will require substantial investment in supporting infrastructure, regulatory frameworks, and public acceptance.

Figure 20 Safety Operator on board the Harlander Trial Autonomous Vehicle in Belfast

5.6 Section Summary

The estimated annual operating cost of the shuttle raises concerns about its financial sustainability, particularly considering the investment in reliable, high-capacity, accessible connections between the relocated train station and the city centre under BusConnects, with journey times broadly comparable to those proposed for a shuttle service across the bridge. While future autonomous shuttle trials may offer innovation potential, their high cost and the need for regulatory and infrastructure readiness mean such initiatives must be carefully evaluated.

6 Conclusion

The feasibility study has examined the operational, infrastructural, regulatory and financial implications of introducing a publicly funded shuttle bus service across the Sustainable Transport Bridge. There has been an understandable desire to secure a bus connection across the river. The original shuttle concept reflected aspects of the earlier SDZ Planning Scheme, and while intended to be privately funded, did offer a level of connectivity at a time when no alternative public bus link was planned.

However, the context in which that idea first emerged has changed significantly. While future phases of development may deliver additional commercial floorspace, the scale and nature of development on the North Quays is very different from the earlier retail-led scheme, where a privately funded courtesy shuttle was envisaged to serve retail customers. It is also important to note that the shuttle was never intended to operate as a public transport service integrated with the wider bus network, and it has not formed part of any approved programme or business case to date. In addition, the proposal predates the development of the current BusConnects plans.

There are now effective alternatives planned for public buses connecting the railway station and the city centre. BusConnects Waterford, a large-scale investment programme, will deliver a doubling of bus services in the city, including multiple high-frequency, fully accessible routes will link Ferrybank to the relocated station and onwards to the South Quays and city centre. These services will offer journey times broadly comparable with a shuttle operating at a necessarily modest speed of 10kph back and forth across the bridge, while providing significantly greater capacity and forming part of a coherent citywide network. In this context, a standalone shuttle would duplicate a higher standard bus connection already planned.

The study also identifies the substantial ongoing cost associated with operating a bespoke service of this nature. Based on the NTA's experience of Local Link operations, the annual subsidy requirement would be in the region of €1.85–€2.16 million. This level of commitment would be difficult to justify when set against competing investment priorities, including the expansion of city bus services under BusConnects.

The NTA remains committed to supporting sustainable transport in Waterford and has already invested more than €84 million in the new bridge and the wider North Quays infrastructure. Alongside the planned doubling of city bus services, the NTA is focused on delivering high-quality, high-capacity, integrated sustainable transport connections across the city.

The NTA would be happy to continue engaging constructively as a stakeholder should Waterford City and County Council wish to explore an alternatively funded bus service in future or consider an innovation-focused autonomous vehicle trial when the regulatory environment allows.

An tÚdarás Náisiúnta Iompair
Teach Mhargadh an Fhéir
Marhadh na Feirme
Baile Átha Cliath 7, D07 CF98

National Transport Authority
Haymarket House Smithfield,
Dublin 7, D07 CF98

NTA
Údarás Náisiúnta Iompair
National Transport Authority