



Comhairle Cathrach na Gaillimhe  
Galway City Council

## Wolfe Tone Pedestrian Bridge II



### Part 8 Planning Report

APRIL 2022



1 Galway Business Park, Dangan, Galway H91 A3EF

170/ 173 Ivy Exchange, Granby Lane, Parnel Square West, D01 N938

Building 1000, Gateway Business Park, New Mallow Road, Cork, T23 W9XP

Innovation House, Moneen Road, Castlebar, Co. Mayo F23 E400

<b>Client</b>	Galway City Council
<b>Project No.</b>	2543
<b>Project Title</b>	Wolfe Tone Pedestrian Bridge II
<b>Report Title</b>	Part 8 Planning Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Issue Date
-	Draft	R Waters	-	M Joyce	03/03/2021
0	Issue	R Waters	M Joyce	M Joyce	29/03/2021
1	Issue	R Waters	M Joyce	M Joyce	07/09/2021
2	Issue	R Waters	M Joyce	M Joyce	10/09/2021
3	Issue	R Waters	M Joyce	M Joyce	11/02/2022
4	Issue	R Waters	M Joyce	M Joyce	17/02/2022
5	Issue	R Waters	M Joyce	M Joyce	22/03/2022
6	Issue	RW	MJ	MJ	08/04/2022

**CONTENTS**

1. Introduction ..... 3  
 1.1. Project Objectives and Benefits..... 3  
 1.2. Galway City Development Plan ..... 4  
 2. Site & Function ..... 9  
 2.1. Site Location ..... 9  
 2.2. Function of the Structure ..... 11  
 2.3. Choice of Location ..... 11  
 2.4. Site Description and Topography ..... 11  
 2.5. Vertical and Horizontal Alignments ..... 11  
 2.6. Cross Section ..... 12  
 2.7. Archaeology & Heritage Summary..... 13  
 2.8. Environmental Summary..... 14  
 2.9. Hydrology Summary ..... 14  
 3. Structure & Aesthetics ..... 16  
 3.1. General Description ..... 16  
 3.2. Aesthetics ..... 16  
 3.3. Proposed Structure ..... 16  
 3.4. Lighting 17  
 Appendix A Photographs ..... 18

## 1. Introduction

This is a formal submission for Part 8 Planning by Galway City Council for a new pedestrian walkway on the Wolfe Tone Bridge.

### 1.1. Project Objectives and Benefits

Wolfe Tone Bridge is a vital link across the River Corrib for Galway City, connecting the west of city to the east. The bridge is a busy thoroughfare for pedestrians heading between the city centre and the West End, Salthill and the Claddagh area. The Galway Transport Strategy identified this bridge as the bridge with the most trips within the city centre. It carries twice as much volume of traffic as the Salmon Weir Bridge and six times more than O'Brien's Bridge.

The superstructure of this bridge was constructed in 1934 of reinforced concrete. This reinforced concrete structure was built on cut stone masonry piers and abutments which supported a previous bridge on the site. The bridge had a 6.1m carriageway with a 1.2m footway on either side providing an overall width of 8.5m. In 2004, a 2.5m pedestrian walkway was added to the northern side of the bridge. The carriageway of the bridge was realigned so that the footway on the southern end increased from 1.2m to 1.86m, with a 6.1m carriageway and a 0.5m rubbing strip on the northern end.

The southern footway is the desire line between two areas where large crowds congregate; Fishmarket Square (Spanish Arch) to Middle Bank/Claddagh. The current width of this footway is deficient and is a safety concern, marginalising pedestrians. The current scenario causes conflicts between pedestrians and cyclists/motorists.

The main objectives of the proposed pedestrian walkway on the southern side of the Wolfe Tone Bridge are:

1. Provide a separate and safer crossing facility for pedestrians on the southern side of the bridge which will create a child and pedestrian friendly car free area,
2. Provide accessibility for everyone, including people with disabilities,
3. Reduce conflicts between vehicles and pedestrians,
4. Provide a more attractive environment along this crossing by prioritising pedestrians and encourage more people to walk,
5. Facilitate the development of the orbital route as outlined in the Galway Transport Strategy,
6. Enhance public realm links such as Fishmarket Square, West End and South Park by creating a well-connected link,
7. Enhance sustainable and healthy links between both sides of the river linking Salthill/Claddagh with harbour/City Centre,
8. Maximise the efficiency of the bridge structure available.

## 1.2. Galway City Development Plan

The proposed development site is situated within Galway City Centre; therefore, development must have regard to the policies and provisions of the Galway City Development Plan 2017-2023, which governs development in the city.

The strategic vision for Galway is to establish the city as a gateway city and ‘to be a successful, sustainable, competitive, regional centre that creates prosperity, supports a high quality of life and maintains its distinctive identity and supports a rich cultural experience. This vision has been informed by the national and regional policy and will be achieved through delivery of seven core goals outlined below:

1. Achieve a high quality of life for all citizens through the provision of a good quality, attractive, built environment, through the protection of the unique natural environment and through facilitation of key economic, cultural and social supports.
2. Enable the city to fulfil its role as a National Gateway, a regional centre and contribute to the economic recovery through the provision of balanced and sustainable economic opportunities for growth, innovation and investment across all employment sectors and allow the role of the Gateway to harness the strengths and maximise the economic development for the whole West Region.
3. Promote the reduction of greenhouse gas emissions through proactive measures in line with EU commitments to tackle climate change and reduce vulnerability to the harmful effects of climate change, in particular sea level encroachment and extreme weather events, through specific adaptation measures.
4. Apply the principle of sustainability particularly where it relates to the uses of land, buildings, water, energy, waste and through the encouragement of sustainable modes of transport and the integration of transportation with land use
5. Aspire to make Galway an equal and inclusive city, particularly through facilitating all forms of social inclusion in the built environment, including in the public realm, housing, community facilities, in access to employment opportunities and public transportation
6. Protect the distinctive and diverse natural environment in the city and strengthen the green network and linkages, recognising the biodiversity value of the amenity, the range of recreational benefits this provides, the potential through facilitating active and healthy lifestyles, the effect it can have on the quality of general health and well-being and the value it has for providing an attractive city setting
7. Encourage a sense of collective identity and a shared vision through civic engagement on projects such as the development of a Local Economic and Community Plan for Galway and also on the promotion of specifically focused projects such as the European Capital of Culture 2020, that will promote the unique form and character of the city, give opportunities for the development of cultural, community and other beneficial infrastructure and enhance and diversify the city economy.

In addition, the core strategy is supported and informed by the Galway Transport Strategy prepared by the Planning Authority to address transportation issues within the city and to deliver integrated land use planning in a sustainable manner. Of importance is that this supports opportunities that will reduce congestion and car dependency through increased capacity of reliable public transport and the promotion and facilitation of cycling and walking.

## 1.2. Galway City Development Plan continued...

The Plan also seeks to deliver sustainable neighbourhoods which prioritise walking, cycling and public transport to improve connectivity and promote good quality public spaces. In this context the Council will support development that is consistent with the following strategic objectives:

- **Connectivity and Permeability:** provide convenient access to places, particularly to schools and places of work. Routes within the area should be accessible for everyone and as direct as possible.
- **Sustainability:** prioritise the needs of walking, cycling, public transport and the need for car-borne trips to be minimised.
- **Safety:** provide for safe access on streets, paths and cycle routes for users of all ages and degrees of personal mobility

The concepts for sustainable mobility are further elaborated in Chapter 3 Transportation, the strategic aim of which is 'To integrate sustainable land use and transportation, facilitating access and choice to a range of transport modes, accessible to all sections of the community that ensures safety and ease of movement to and within the city and onward connectivity to the wider area of County Galway and the West Region.'

### **Policy 3.2 Land Use and Transportation**

- Promote close co-ordination between land use and transportation through policies, land use zoning and objectives.
- Facilitate the future development of Galway City and environs within the strategic framework of the Galway Transport Strategy and the associated implementation phasing to ensure that the city has the necessary transport infrastructure and services to support its continued growth and development.
- Provide ease of access to public transport and include for the promotion of walking and cycling in the development and design of residential neighbourhoods.
- Provide for development of high volume, trip intensive, developments such as commercial centres and employment hubs at locations that will minimise the need, distance and time taken to travel and promote the use of sustainable transport modes such as walking and cycling and public transport to access these locations.
- Promote sustainable residential densities particularly along and close to routes where the Galway
- Transport Strategy has proposals for a high quality sustainable transport network service.
- Use Local Area Plans and Masterplans, to give direction for future settlement expansion that includes for integration of land use with transportation.
- Require new developments to be permeability proofed for walking, cycling and for access to public transport routes and endeavour to maximise permeability in existing developments and retain existing local links.

## 1.2. Galway City Development Plan continued...

### **Policy 3.3 Galway Transport Strategy (GTS)**

- Continue to progress a sustainable transport solution for the city through the implementation of measures included in the GTS and required supporting projects.

### **Policy 3.5 Public Transport**

- Support the GTS proposals for implementation of a local city bus network which will include for a high frequency cross-city network of services and all associated infrastructural requirements, traffic management and priority arrangements.
- Facilitate public transport interchanges and associated proposals for transfer ticketing and flexible payment methods.
- Progress plans for traffic restrictions in the city centre to accommodate bus priority.
- Promote the availability of the city bus network including the priority measures for use by the national, regional and tour bus services.
- Ensure ease of access to all bus termini in the city centre and facilitate tourist coach drop-off /pick up locations and bus layover areas.
- Continue to support the taxi service where these are located conveniently for access and where appropriate, permit the service to use bus priority infrastructure.
- Facilitate rail transport, in particular the development of commuter rail and improved inter-urban services.
- Facilitate the provision of park and ride facilities in conjunction with the provision of the public transport network as proposed in the GTS.
- Promote access to public transport services for those attending primary and post primary schools in consultation with the Department of Education and Skills

## 1.2. Galway City Development Plan continued...

More specifically, in relation to walking and cycling the Plan recognises the existing benefits of the city having a compact form and relatively flat topography. Census records for 2011 indicate that 17% of workers in the city walk to work. It is a key objective of the Council to sustain and increase this level. In this respect, the Plan sets out the following objectives:

### Policy 3.6 Cycling and Walking

- Support the GTS proposals for a primary cycle network to facilitate safe and convenient medium distance journeys.
- Support the proposed Greenways as part of the primary cycle network and as part of a link to Bearna, Oranmore, Maigh Cuilinn and Oughterard.
- Support the GTS proposals for a secondary cycle network and feeder links to facilitate safe and convenient local journeys and to afford linkage into the primary cycle network.
- Facilitate cycling on the proposed bus network where appropriate and on the proposed Cross-City Link in the city centre.
- Improve bicycle parking at key destinations and near bus stops /interchanges.
- Promote and facilitate the extension of the Public Bike Share Scheme across the city.
- Implement a structured programme of improvements across the whole city pedestrian network and at road crossings.
- Promote accessibility for all users including persons with disabilities and reduced mobility and have regard to best practice guidance from the NDA.
- Promote, facilitate and maintain maximum connectivity and permeability for pedestrians and cyclists in the design of new developments and in upgrading existing developments in accordance with the Design Manual for Urban Roads and Streets (2013) and Permeability a best practice guide. NTA (2015).
- Promote the implementation of a Wayfinding Scheme with provision of directional information and signage at appropriate locations across the city as part of a greater Public Realm strategy.
- Ensure facilities for pedestrians and cyclists are designed in accordance with national standards.
- Support and promote initiatives such as Park and Stride, Green Schools Programme and the concept of having safe routes to school.
- Consider the introduction of reduced speed limits in the city centre and residential areas of the city.
- Continue to encourage an increase in the use of sustainable transport modes including public transport through targeted promotion.

## 1.2. Galway City Development Plan continued...

### Pedestrian

- Investigate the potential for the construction of a new pedestrian bridge from Gaol Road to Newtownsmyth.
- Provide a new pedestrian and cycle bridge on the piers of the Old Clifden Railway Line from Waterside to NUIG.
- Prioritise improvements to pedestrian movements and safety within the city centre including extension of pedestrianisation, provision of wider footpaths and shared streets.
- Prioritise improvements to pedestrian movements and safety between the City Centre, Woodquay and Bóthar na mBan to the Headford Road LAP area.
- Improve permeability and linkages within the City Centre, between the City Centre and designated regeneration areas and linkages with the immediate environs.

### Assessment:

In planning terms, the following can be ascertained from a review of the planning policy guiding the proposed development site:

- There is clear and unambiguous policy support for increased walking and cycling and improved accessibility in Galway
- Section 3.6 of the Galway City Development Plan 2017-2023 states that “Safe access and improved permeability will be secured also through a number of new river crossings”
- Policy objective 4.1 with respect to the City’s Green Network recognises the need to improve accessibility in accordance with Galway Transport Strategy, while also striving to secure a balance between improved recreational facilities and the preservation of the natural and built heritage of the City

Therefore, having regard to local planning policy, the proposed development is supported in principle. It will provide improved pedestrian facilities at this location.



## 2. Site & Function

### 2.1. Site Location

The River Corrib flows from Lough Corrib to Galway Bay, passing through Galway City along the way. There are four bridge crossings of the river within the city, three of which are within the City Centre.

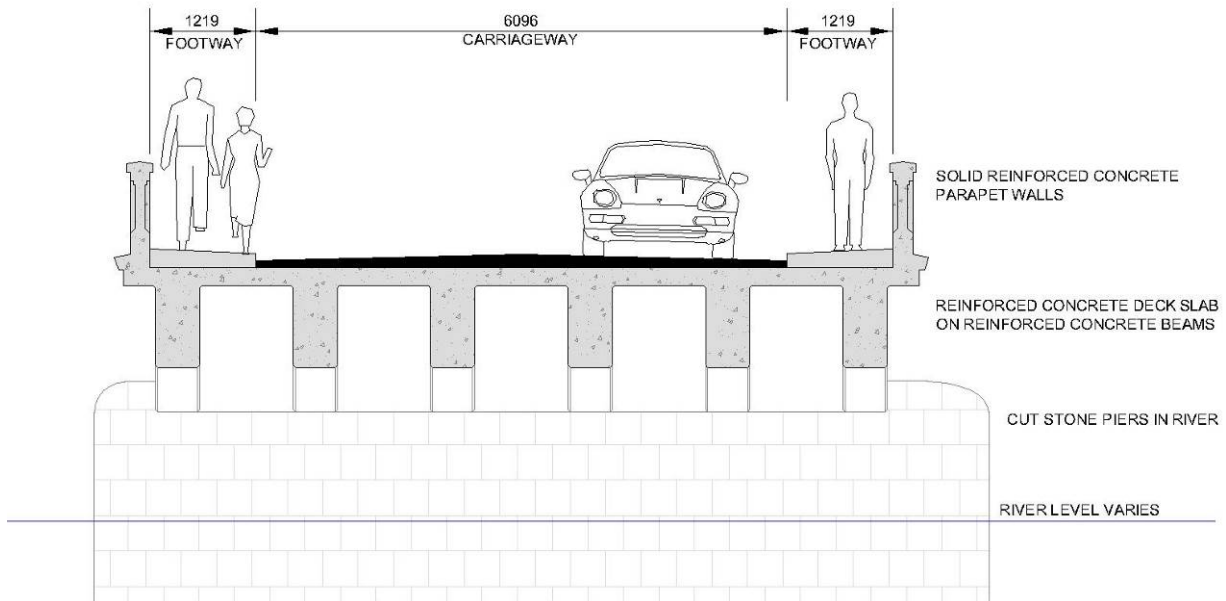
Wolfe Tone bridge is the closest of the Galway City bridges to the sea. The location to Irish National Grid is E 129 630, N 224 915.



Figure 1 Location

Wolfe Tone bridge is one of these three City Centre crossings and is therefore an important transportation link in the city.

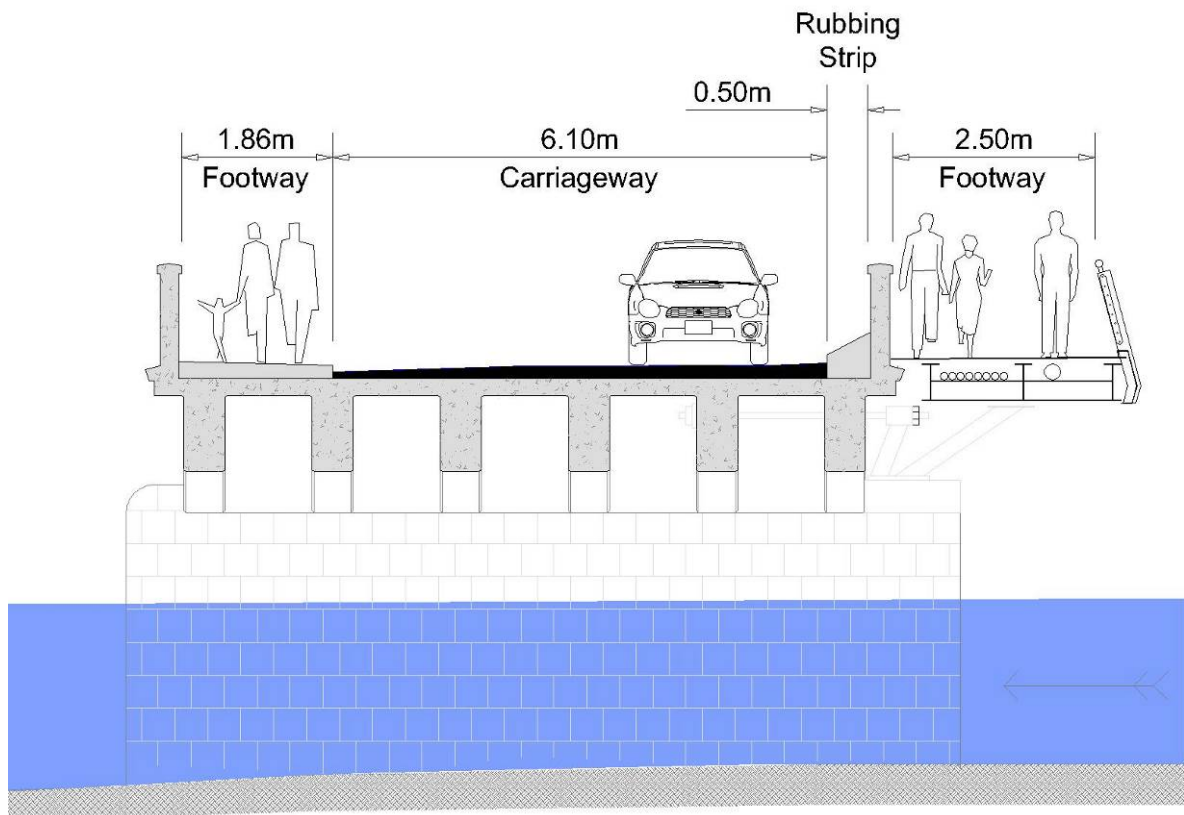
Wolfe Tone bridge is a three-span reinforced concrete bridge, built in 1934. The superstructure was built on cut stone masonry piers and abutments which supported a previous bridge on the site. The cross section from 1934 to 2004 had a 6.1 m carriageway and two 1.2 m footways; one each side of the carriageway.



**Figure 2 Original Cross Section (looking West)**

Galway City Council added a pedestrian bridge to the north side of Wolfe Tone Bridge, completed in 2004. This pedestrian bridge was designed by Ryan Hanley Ltd., and constructed by Ward & Burke Construction Ltd.

With the pedestrian bridge, the cross section now comprises a 2.5 m north footway, a 6.1 m carriageway, and a 1.9 m south footway.



**Figure 3 Current Cross Section (looking West)**

## 2.2. Function of the Structure

The proposed pedestrian bridge will:

1. Provide a separate and safer crossing facility for pedestrians on the southern side of the bridge which will create a child and pedestrian friendly car free area,
2. Provide accessibility for everyone, including people with disabilities,
3. Reduce conflicts between vehicles and pedestrians,
4. Provide a more attractive environment along this crossing by prioritising pedestrians and encourage more people to walk,
5. Facilitate the development of the orbital route as outlined in the Galway Transport Strategy
6. Enhance public realm links such as Fishmarket Square, West End and South Park by creating a well-connected link,
7. Enhance sustainable and healthy links between both sides of the river linking Salthill/Claddagh with harbour/City Centre,
8. Maximise the efficiency of the bridge structure available.

## 2.3. Choice of Location

The location, on the downstream (south) side of Wolfe Tone Bridge, has been chosen for the following reasons:

- It addresses the current safety issue due to the inadequate footway width,
- The cost saving benefits of using the abutment and piers already in place on Wolfe Tone Bridge,
- A precedent has been set by the previous pedestrian bridge, which has been a very successful addition to the infrastructure of Galway City,
- There is a desire to provide a pedestrian way from the Long Walk to the Claddagh Quay and on to Nimmo's Pier, with minimal proximity to trafficked roads,
- It allows for the provision of safe and accessible pedestrian facilities, with the option to provide improved cycling facilities on the existing bridge,
- It creates a new amenity in the area with the creation of a new vista of the river and environs downstream of Wolfe Tone Bridge,
- It will improve opportunities for linkage and connectivity between the western and eastern banks of the River Corrib and centres of business, education, residential, social and cultural importance.

## 2.4. Site Description and Topography

The site is immediately downstream of Wolfe Tone bridge. At the West abutment is the Claddagh Basin at 3.8 m OD, and at the East abutment is the Fishmarket at 3.7 m OD.

The clear distance from abutment to abutment is 54 m.

## 2.5. Vertical and Horizontal Alignments

The vertical alignment will be a constant gradient of 0.19%, so a slight fall of 0.1 m from West to East over the 54 m.

The horizontal alignment will be straight, matching the downstream profile of Wolfe Tone Bridge.

## 2.6. Cross Section

The proposed minimum width of the bridge will be 2m. This is the minimum recommended in BD 29/04 “Design Criteria for Footbridges”. This is also the minimum recommended in the document “Access to the Built Environment” by the Irish Wheelchair Association.

Referring again to BD 29/02, it recommends 300mm of width per 20 persons per minute. Thus at 2m the corresponding pedestrian flow would be 133 persons per minute.

The support brackets for the existing Wolfe Tone Pedestrian Bridge I are supported by a 1.2m projection of the cut stone masonry piers and abutments. The corresponding projection on the downstream side is just 0.7m. Thus the “footprint” available to support the proposed bridge is less. In order to keep the additional vertical loading stress to a similar level for both bridges, the design decision has been taken to limit the deck width to 2m.

The parapet will be 1.25 m high, as per BD 52/16. This does not cater for a cycleway on the proposed pedestrian bridge, for which a 1.4m high parapet would be required.

The proposed cross section will be:

- New south footway 2 m,
- Footway 1.9 m,
- Carriageway 6.1 m,
- North footway 2.5 m.

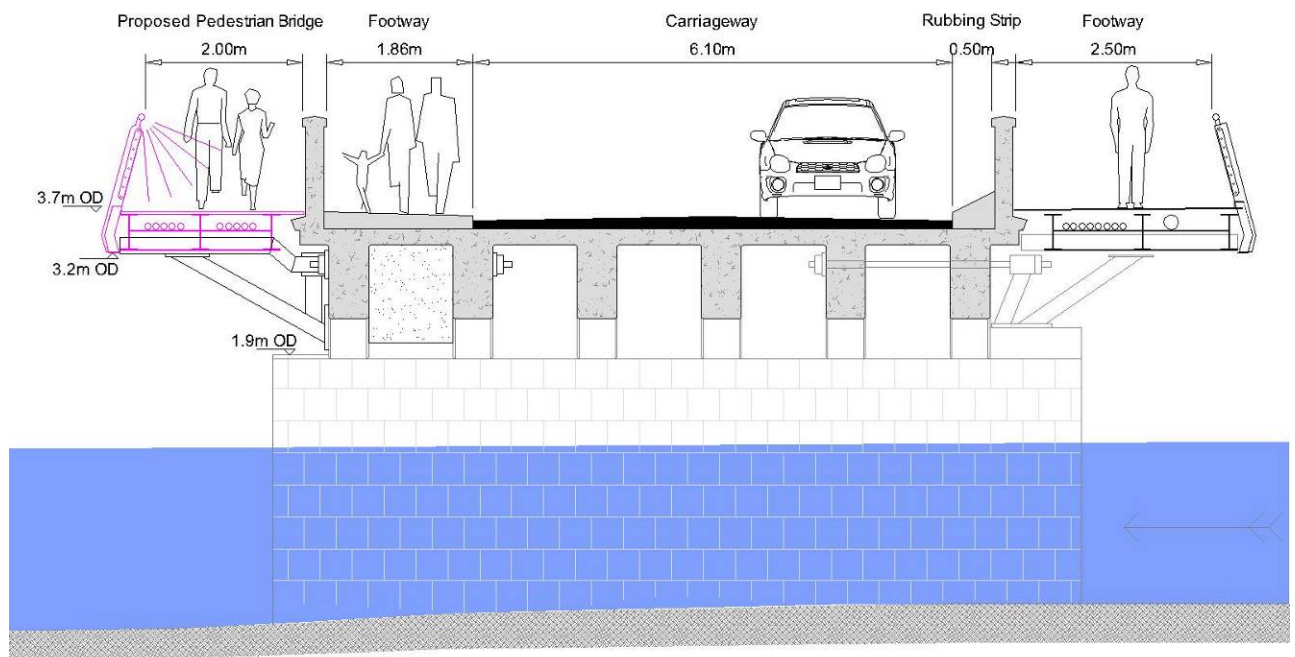


Figure 4 Proposed Cross Section (looking West)

## 2.7. Archaeology & Heritage Summary

Wolfe Tone Bridge, built 1934, spans the River Corrib and connects the western part of Galway City Centre at Fishmarket to the Claddagh.

- The bridge is not listed on the Record of Protected Structures (RPS) in the Galway City Development Plan 2017-2023 but falls within the protected designation afforded to Galway City River and Waterways including bridges, walling, embankments, piers and other associated infrastructure (RPS ref. 8501).
- The cast-iron date plaque on the bridge is individually listed, (RPS Ref. 13002). A recommendation of the Architectural Heritage Impact Assessment is that this plaque be restored as part of the works.
- The proposed project will involve works to the historic quay wall at Fishmarket. This structure is listed as a protected archaeological monument on the statutory Record of Monuments & Places (RMP: GA094-100058-).
  - This Zone affords statutory protections to the quay under the provisions of the National Monuments Acts 1930-2014 and any works proposed within this area would require advance written notification to the National Monuments Service (NMS). Submission of an archaeological assessment, identifying the potential impacts and providing mitigations, is required to assist NMS with recommendations.
  - No works should be undertaken for a period of two months following submission of notification, without the express consent of the Minister.
- There is precedence for the proposed development as a similar pedestrian bridge on the northern, upstream side of Wolfe Tone Bridge was constructed in 2004.
- The Construction Stage should be cognizant of the archaeological constraints posed by the statutory protections at Fishmarket. The proposed project will require:
  - Consultation with the NMS and Galway City Heritage Office.
  - Notification to NMS and compilation of a local assessment of the potential impact of works on the archaeological resource of the area.
  - Assessment of riverine impacts if applicable.
  - Possible advance licensed investigations/surveys to establish archaeological potential in the vicinity of Fishmarket Quay wall and mitigate impacts of development on same.
  - Possible licensed monitoring of works during construction.

An Architectural Heritage Impact Assessment report has been prepared. This report concludes that the proposed Wolfe Tone Pedestrian Bridge II will ensure that the Wolfe Tone Bridge will continue to serve the public for years to come and help improve access and safety on this important bridge within the city centre.

## 2.8. Environmental Summary

An Appropriate Assessment Screening report for this project was completed by Ryan Hanley in March 2021, under the Habitats Directive (92/43/EEC). This screening concluded that a Natura Impact Statement is not required. This report concluded/recommended the following

1. This project will have no potential for impact to arise on any Special Area of Conservation (SAC) and Special Protection Area (SPA) particularly the Galway Bay Complex SAC and Lough Corrib SAC,
2. In accordance with Article 6(3) of the Habitats Directive, the proposed works at Wolfe Tone Bridge will have no significant effects and Stage 2 of the Appropriate Assessment process (i.e. Natura Impact Statement) is not required.
3. A bat survey was carried out in March 2022, and further bat surveys will be carried out prior to construction. The overall impact on bats following the implementation of the outlined recommendations is negligible as the proposed development will not impact on the roosting bats and will likely increase the suitability of the bridge as a roosting site for bats. Should action be required as a result of the bat survey, then Galway City Council will consult with the National Parks and Wildlife Service and appropriate action will be undertaken.

An Environmental Impact Assessment Screening Report for this project was completed by Ryan Hanley in March 2021. The purpose of this report is to determine whether or not an EIA is required for this project. This report concluded that the proposed pedestrian footbridge at Wolfe Tone Bridge does not exceed any of the thresholds prescribed in the Regulations. This screening concluded that an Environmental Impact Assessment is not required.

## 2.9. Hydrology Summary

Galway City Council proposes to install a second pedestrian bridge at Wolfe Tone Bridge, which spans the River Corrib channel within the Corrib Estuary, to mitigate the current pedestrian safety risks associated with the southern foot path at the bridge.

A Stage 1 and 2 Flood risk assessment has been undertaken for the proposed pedestrian bridge development in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (Department of Environment Heritage and Local Government & Office of Public Works, 2009).

The proposed development location has been identified to be located within Flood Zone A (within a high flood risk area) based on the Western Catchment Flood Risk Assessment and Management study, the Irish Coastal Wave and Water Level Modelling Study data for Galway Bay and historic extreme water level data available from the hydrometric gauges in the Corrib Estuary and Inner Galway Bay area. No further hydrological and hydraulic assessments are required to inform this flood risk assessment.

In accordance with the guidelines, the proposed development:

- Is categorised as Local Transport Infrastructure,
- Is classed as 'Less Vulnerable Development' to flooding; and therefore,
- Requires a Justification Test as it lies within Flood Zone A.

A justification test has been undertaken for the development which confirms that:

- The proposed development is required to mitigate the current high safety risk to pedestrians at Wolfe Tone Bridge.
- The proposed development will improve pedestrian connectivity between the City Centre and Spanish Arch areas, and the Claddagh and Father Griffin Road areas.
- The bridge has been designed to not impede flow conveyance at Wolfe Tone Bridge, to be water compatible and to withstand inundation from the Corrib Estuary.
- There is no other suitable location at lower flood risk for this proposed development that will achieve its proposed function, i.e. to reduce pedestrian safety risk at the existing footpath and improve pedestrian connectivity on the south side of Wolfe Tone Bridge.
- It is not possible to construct a new pedestrian bridge at the Wolfe Tone Bridge outside of Flood Zone A or B.
- The proposed bridge has been designed to not impede the future development of flood defences at Wolfe Tone Bridge.
- Access to the new pedestrian bridge will be expected to be temporarily closed off by Galway City Council during times of significant flood risk in the Corrib Estuary.
- The proposed bridge will be of similar design and details as the existing pedestrian bridge located on the upstream face of Wolfe Tone Bridge.
- The construction of the new pedestrian bridge will be programmed and planned to be undertaken during times of low risk of either fluvial or coastal flooding. The associated construction compound and temporary works, if they unavoidably need to be located within Flood Zone A or B, will be designed to be readily removable and appropriately designed to withstand flood inundation.

As such, the proposed development clearly passes the justification test requirements set out in Section 5 of the guidelines.

### 3. Structure & Aesthetics

#### 3.1. General Description

The recommended structure comprises an aluminium deck, supported by three spans of steelwork beams, with a stainless steel parapet, and all supported on four steelwork support brackets.

The four steelwork support brackets will be bolted to the existing reinforced concrete structure of the Wolfe Tone Bridge, close to or at the diaphragm beams that are present at each abutment and pier.

#### 3.2. Aesthetics

The structure will bear a close resemblance to the existing pedestrian bridge, in order to keep a consistent appearance.

The aesthetics will therefore be functional, without overwhelming the tone of the area, with the Eglinton Canal, Claddagh Basin, Fisheries Tower, Spanish Parade and the Spanish Arch all in close proximity.

#### 3.3. Proposed Structure

##### Span Arrangements

The recommended structure has three simply supported spans of almost equal lengths (between 15.4m and 16.4m)

Name	Span (m)	Comment
West Span	15.37	Plus run-on span of 0.82m
Centre Span	16.43	
East Span	15.89	Plus run-on span of 5.29m

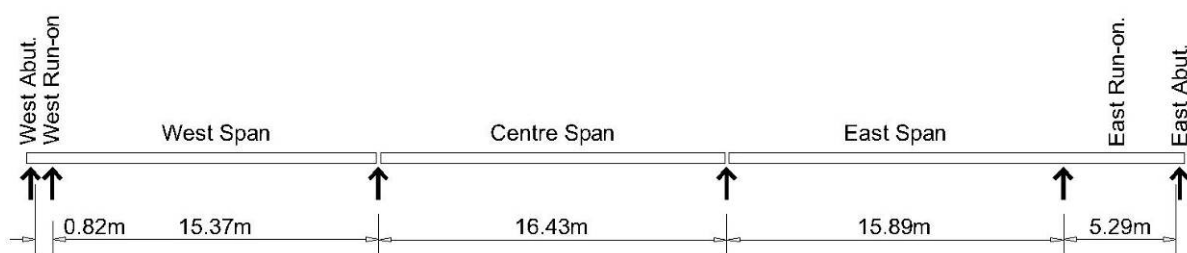


Figure 5 Proposed Span Arrangements



## Approaches

The approaches to the structure will be footways at Spanish Parade and Claddagh Basin. Minor grading may be required on the two approaches, which will be paved with similar materials to the existing. These are dense bitumen macadam at the West Abutment and stone block paving at the East Abutment.

There are run-on spans at both ends, 0.82m at the West end and 5.29m on the East end.

In addition, on the West Approach from the Claddagh Quay road, the South footway will be widened from 1.8m to 3.6m, and the carriageway will be reduced to 6.1m (same carriageway width as on the Wolfe Tone Bridge). A concrete finish is envisaged for this widened footway.

### 3.4. Lighting

The deck lighting will be LED strip lighting incorporated into the handrail. The lighting will meet the requirements of BS 5489 Part 6.

The lighting shall be such that the minimum illuminance on the deck will be 20 lux.

## Appendix A

### Photographs



Photo 1 West Abutment



Photo 2 West Abutment



Photo 3 View From West Abutment



Photo 4 Downstream Elevation



Photo 5 View From East Abutment



Photo 6 East Abutment



Photo 7 East Abutment



Photo 8 Downstream Elevation