Comhairle Cathrach Chorcaí
Cork City Council

Part 8 Planning Report

June 2025

MARY STREET, DOUGLAS STREET AND WHITE STREET PUBLIC REALM ENHANCEMENT SCHEME

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INTRODUCTION

Cork City Council is advancing the Mary Street, Douglas Street, and White Street Public Realm Enhancement Scheme, a pivotal project designed to rejuvenate one of the city's most historic and culturally rich areas. This initiative is part of a comprehensive strategy to enhance the public realm, improve transport infrastructure, and promote sustainable urban development. The scheme is aligned with key policy frameworks, including the UN Sustainable Development Goals, Project Ireland 2040, and the Cork City Development Plan 2022-2028, all of which emphasize the importance of creating vibrant, accessible, and resilient urban environments.

This report supports a Part 8 application for the Mary Street, Douglas Street & White Street Public Realm Enhancement Scheme which proposes a range of enhancements to the existing public realm within the Scheme area. The South Parish area, encompassing Mary Street, Douglas Street, and White Street, is characterized by its narrow streets, high traffic volumes, and limited pedestrian facilities. These conditions have long posed challenges for residents, businesses, and visitors. The proposed upgrades aim to address these issues by implementing a range of measures, including pedestrian zones, one-way traffic systems, shared surfaces, and enhanced landscaping. These interventions are designed to reduce through traffic, improve safety, and create more attractive and functional public spaces that encourage walking and cycling.

Extensive consultation with local stakeholders, including residents, businesses, and heritage organizations, has been a cornerstone of the project design process. Feedback from these consultations has been instrumental in shaping the design of the scheme, ensuring that it meets the needs and aspirations of the community while preserving the area's unique architectural and archaeological heritage. The Mary Street, Douglas Street, and White Street Public Realm Enhancement Scheme represents a significant investment in the future of Cork City, promising to enhance the quality of life for its residents, and visitors, and to support the city's long-term sustainability goals.

Red Abbey


Sráid na Mainistreach Dearg
RED ABBEY STREET

1. Overview

The Part 8 application is proposed by Cork City Council (CCiC) who have worked closely with the design team (AtkinsRéalis in partnership with John McLaughlin Architects and Cunnane Stratton Reynolds) in developing the proposed design.

History of the Area

Goad Insurance Plan of Cork, 1953. Image courtesy of Cork City Libraries.

Tobacco factory on Mary St., Cork city October 1932 Image courtesy of The Irish Examiner

Mary St. West of Red Abbey Square, before demolition. Image courtesy of Cork Camera Club collection, Cork City Libraries

Mary St. West of Red Abbey Square, after demolition. 1965 - Image courtesy of The Echo

View looking down Nicholas St towards Douglas St. 1980 - Image courtesy of The Echo

Finbar Woods Shop on White Street in 1967. Image courtesy of The Echo

Douglas St. looking East from the top of White St. 1981 - Image courtesy of The Echo

White St. looking West. The door on the left is the current 'Cluid Housing' building. Shawlie, White Street - Image courtesy of The Echo

Douglas St. looking West from the top of Rutland St. 1983 - Image courtesy of The Echo

7th Century

The earliest recorded settlement in Cork traces back to the 7th century with the establishment of the monastery of Saint Fin Barre. Located in the vicinity of the present-day Saint Fin Barre's Cathedral.

9th, 10th, 11th Century

From historic sources it is evident that by the 9th century the Vikings were raiding Cork. Recent archaeological excavations in the South Main St area have contributed greatly to our knowledge of the late Viking period in Cork (11th century), known as the Hiberno-Norse period.

12th, 13th, 14th Century

Cork came under English Influence after the Anglo-Normans arrived in the late 11th century and became an official town receiving a charter in 1185. The Red Abbey Tower is the oldest upstanding structure in the city and dates to the 14th century when the Augustinians established an abbey in Cork.

15th Century

In 1491, Cork was embroiled in the English Wars of the Roses when Perkin Warbeck landed in the city, seeking support to overthrow Henry VII. Cork's moniker, the 'rebel city,' stems from these events.

17th Century

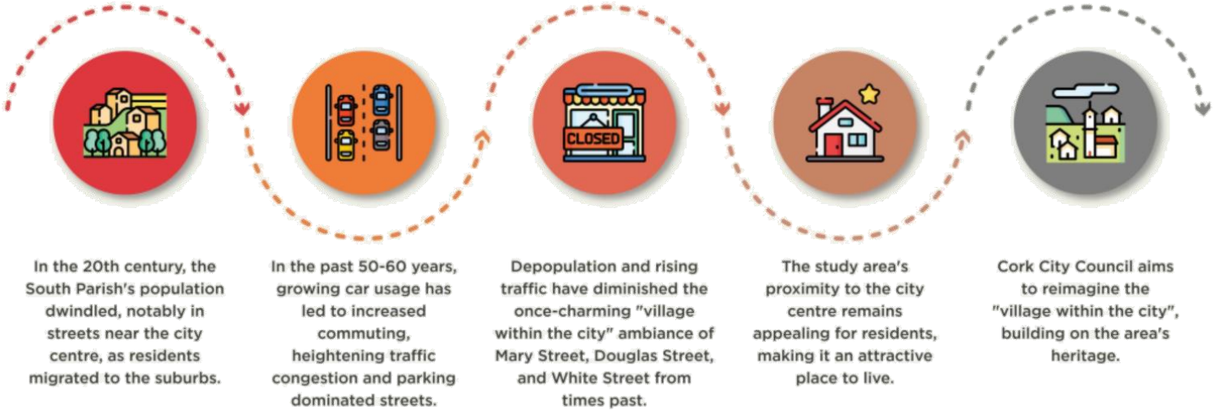
The 17th century marked a significant phase in the development of the South Parish, witnessing the establishment of the present day street pattern, including Barrack Street, Evergreen Street, Douglas Street, Cove Street, and Dean Street.

18th Century

Throughout the 18th century, the population concentrated mainly around Barrack Street, Sullivan's Quay, and Tower Street, while the surrounding areas to the south and east were characterized by gardens and orchards. Nano Nagle place dates from this period.

19th Century

The South Parish Area became a **"village within the city"** over the following centuries where trade grew up alongside residences. The area became a vibrant, bustling area where small businesses prospered, and children played in the streets.



Location

The project is located along Mary Street, Douglas Street, White Street and adjacent streets in Cork City, Co. Cork. Figure 1-1 illustrates the location and the extents of the scheme.

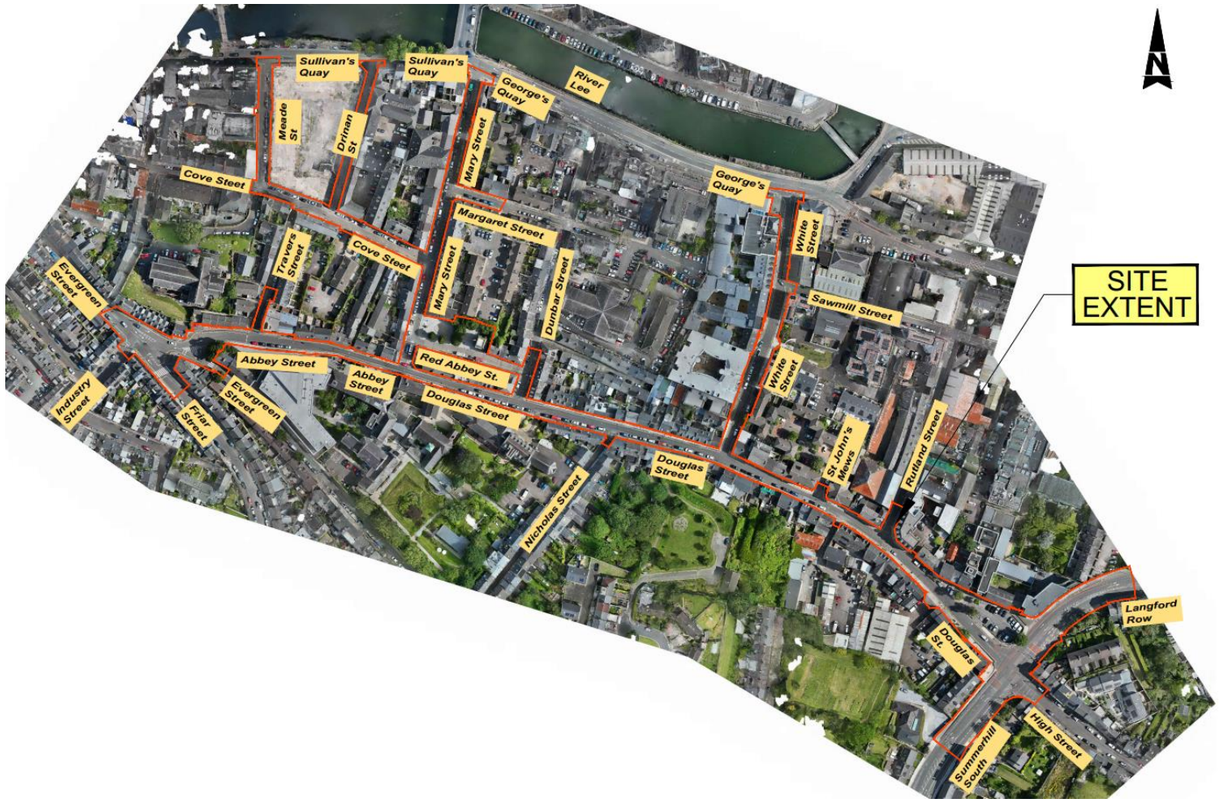


Figure 1-1 - Scheme Location Map

Need for the Scheme

Cork City Council conducted a User Satisfaction Survey in 2022, receiving responses from 123 residents and business owners. From this feedback and subsequent meetings with stakeholders/residents, the following items were identified for the scheme area:

While the historic nature of the area, proximity to city centre and the sense of community were all identified as positive aspects of the neighbourhood, there were also a number of negative attributes identified:

- **Through Traffic:** The presence of through traffic contributes to a deteriorated local environment, resulting in increased congestion, pedestrian safety concerns, and damage to footpath infrastructure.
- **Lack of Green Space:** The limited availability of green space within the historic neighbourhood negatively impacts public health, restricts opportunities for children's outdoor play, and reduces access to constructive recreational areas that can help deter youth from engaging in antisocial behaviour.
- **On Street Parking:** Excessive on-street parking along narrow streets contributes to traffic congestion, restricts pedestrian movement due to insufficient footpath widths, and diminishes the overall streetscape quality. This condition not only compromises accessibility and safety but also limits opportunities for the integration of street trees and green infrastructure, which are essential for enhancing urban livability and environmental resilience.

The area of Mary Street. Douglas Street and White Street is currently open to motorised traffic in a mixture of one-way and two-way roads and faces a high-volume of traffic with relatively high speed. Apart from the provision of footpaths, there are no other segregated facilities for active travel modes.

The streets within the study area mainly consist of narrow carriageways, narrow footpaths, and high kerbs. With development predating the invention of cars, the historical streetscapes have physical constraints including limited space between housefronts, tight junctions and steep gradients along some of the streets. The constrained cross-sectional width has led to limited on-street parking spaces which constrict the carriageway. As seen on Figure 1-2 below, at some sections of Douglas Street the combination of narrow carriageway with 2-way traffic and on-street parking creates issues with congestion as there is not sufficient space for opposing cars to pass each other. These situations can result in manoeuvres where one vehicle will drive onto the footpath to allow vehicles to pass from the opposite direction. This phenomenon in conjunction with vehicular overrunning has caused damage to multiple footpaths throughout the scheme area, particularly on Douglas Street (refer to Figure 1-3).

As can be seen in Figure 1-4, constrained street width and allowance of on-street parking has resulted in many of the footpaths being sub-standard throughout the study area, which is both unpleasant and unsafe for pedestrians. The current environment makes navigation very difficult for those with limited mobility.

Figure 1-2: Limited Carriageway Space on Douglas Street for 2-way Traffic

Figure 1-3: Footpath Damage due to Vehicle Overrunning (Corner of Douglas Street and White Street)

Figure 1-4: Narrow Footpath on Douglas Street

Objectives

The upgrade of Mary St, Douglas St and White St is a unique opportunity to regenerate a historic neighbourhood and facilitate its integration with the rest of Cork City. The process to define the preferred public realm improvement project centred around the following objectives. These key objectives, defined by Cork City Council having been informed by the responses to the User Satisfaction Survey, are aligned with international, national, and local policies and are as follows:

1. Create an environment which will encourage modal shift to sustainable forms of transport.
2. Improve quality of life for residents in the area:
   a. Maintain majority of parking and access.
   b. Reduce through traffic.
3. Enhance connectivity for pedestrians and cyclists.
4. Enhance the street environment to promote retail & leisure activity.
5. Improve the operating environment for businesses in the area.
6. Regenerate the street and linkages to the city centre.
7. Improve the public realm in support of the South Parish Cultural Precinct by enhancing the area encompassing Nano Nagle Place and Red Abbey.
8. Create a public space on the northwest corner of the junction between Douglas Street and Summerhill South.
9. Improve the study area to allow the South Parish to be marketed as a tourist destination.

The key project objectives as outlined above include encouraging a modal shift to sustainable forms of transport and increasing priority for pedestrians and cyclists moving around the Douglas Street Mary Street and White Street areas. The proposed improvements to the public realm and liveability in the area require a reduction in vehicular traffic, which then facilitates increased safety and access for pedestrians and cyclists.

Options Selection

The Options Identification process involved consideration of the key project objectives as well as best practice design guidance utilising high-level site survey and analysis. This was undertaken through a combination of desktop and on-site research.

Due to the complex nature of the historic street configurations and existing traffic flows, an extensive long-list of options were identified. A total of 19 long-list initial options were identified, ranging from a do-nothing approach to a full pedestrianisation of Douglas Street with resultant changes to traffic.

The identified options required analysis of various traffic flow configurations and assessing the impact these would have on access to the study area and surrounding streets. Design options were explored with the intention of reducing through traffic in the Douglas Street, Mary Street and White Street area to facilitate active travel, make the neighbourhood safer and more attractive for people on bicycles and on foot and also improve the street environment for residents and businesses.

An initial option sifting was undertaken to discard the options that don't meet the key project objectives and therefore cannot be considered further. The main purpose of the sifting was to reduce the number of options to be assessed in detail and focus on the options most-aligned with the project aims. After a multi-stage sifting process, the viable options were subjected to a multi-criteria analysis (MCA). Following the MCA, layouts and sketches of the emerging preferred option were shared with local businesses and residents to gather early feedback. This engagement helped inform further refinement of the proposal. The refined design was then presented to the public in a non-statutory public consultation in September 2023, and further design modifications were made based on public feedback to develop the scheme described herein.

2. Policy Context

The project aligns with several international, national, regional, and local policies:

- **UN Sustainable Development Goals**: Promotes health, well-being, and sustainable urbanization.
- **Project Ireland 2040**: Supports compact growth, enhanced regional accessibility, sustainable mobility, and climate resilience.
- **Southern Regional Spatial and Economic Strategy**: Encourages compact growth, sustainable mobility, and heritage enhancement.
- **Cork City Development Plan 2022-2028**: Focuses on compact liveable growth, transport and mobility, climate and environment, green infrastructure, heritage, and placemaking.
- **Cork Cycle Network Plan**: Aims to develop a comprehensive cycling network.
- **Cork Metropolitan Area Transport Strategy 2040 (CMATS)**: Seeks to reduce car dependency and enhance public transport and active travel options.

UN Sustainable Development Goals

The proposed project aligns with the following UN Sustainable Development Goals:

Goal 3: Ensure healthy lives and promote well-being for all at all ages.

- Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
- Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents.

Goal 11: Make cities inclusive, safe, resilient and sustainable.

- Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
- Target 11.3: By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.
- Target 11.7: By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

Figure 2-1 - UN Sustainable Development Goals (Source: United Nations)

Project Ireland 2040

The proposed project aligns with the following Project Ireland 2040 National Strategic Outcomes:

Compact Growth

"Carefully managing the sustainable growth of compact cities, towns and villages will add value and create more attractive places in which people can live and work. All our urban settlements contain many potential development areas, centrally located and frequently publicly owned, that are suitable and capable of re-use to provide housing, jobs, amenities and services, but which need a streamlined and co-ordinated approach to their development, with investment in enabling infrastructure and supporting amenities, to realise their potential. Activating these strategic areas and achieving effective density and consolidation, rather than more sprawl of urban development, is a top priority."

Enhanced Regional Accessibility

Improving local accessibility through improved footpaths and cycle routes helps enhance regional accessibility through creation of comprehensive and cohesive transport networks to connect communities.

Sustainable Mobility

"In line with Ireland's Climate Change mitigation plan, we need to progressively electrify our mobility systems moving away from polluting and carbon intensive propulsion systems to new technologies such as electric vehicles and introduction of electric and hybrid traction systems for public transport fleets, such that by 2040 our cities and towns will enjoy a cleaner, quieter environment free of combustion engine driven transport systems."

Enhanced Amenities and Heritage

"This will ensure that our cities, towns and villages are attractive and can offer a good quality of life. It will require investment in well-designed public realm, which includes public spaces, parks and streets, as well as recreational infrastructure. It also includes amenities in rural areas, such as national and forest parks, activity-based tourism and trails such as greenways, blueways and peatways. This is linked to and must integrate with our built, cultural and natural heritage, which has intrinsic value in defining the character of urban and rural areas and adding to their attractiveness and sense of place."

Transition to a Low-Carbon and Climate-Resilient Society

Enhancements in footpaths and cycle access contribute to reducing carbon emissions by promoting walking and cycling as alternatives to car travel. These improvements help lower the overall carbon footprint and support efforts to combat climate change by fostering environmentally friendly transportation options.

Southern Regional Spatial and Economic Strategy

Per the Regional Spatial & Economic Strategy for the Southern Region, "the RSES primarily aims to support the delivery of the programme for change set out in Project Ireland 2040, the National Planning Framework (NPF) and the National Development Plan 2018-27 (NDP). As the regional tier of the national planning process, it will ensure coordination between the City and County Development Plans (CCDP) and Local Enterprise and Community Plans (LECP) of the ten local authorities in the Region."

The RSES defined strategies that generally align with the Project Ireland 2040 National Strategic Outcomes. The proposed project is supported by the following RSES Strategies:

1. Compact Growth

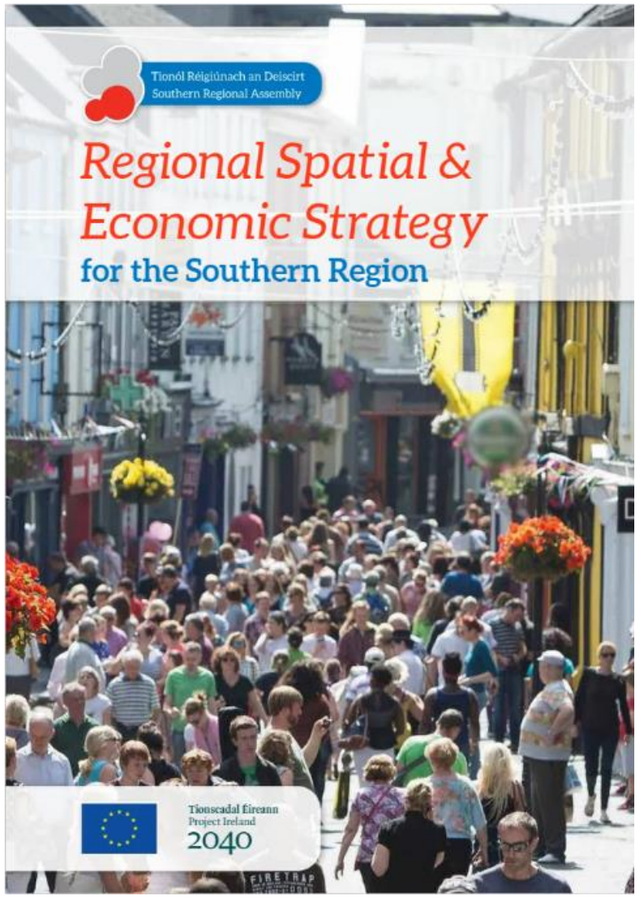
Strengthening and growing our cities and metropolitan areas; harnessing the combined strength of our 3 cities as a counterbalance to the Greater Dublin Area, though quality development; regeneration and compact growth; building on the strong network of towns and supporting our villages and rural areas.

4. Sustainable Mobility

Transforming our transport systems towards well-functioning, sustainable integrated public transport, walking and cycling and electric vehicles.

7. Diversity, Language, Culture and Heritage Enhancement

Strengthening and protecting our Region's diversity, language and culture, our recreational assets, and our natural and built heritage.



Cork City Development Plan 2022 – 2028

The Cork City Development Plan 2022 – 2028 states that a key priority is to "achieve a considerable modal shift to reduce the car dependence for residents of Cork City." The Plan aligns with current policies that focus on active travel, such as Ireland Project 2040, Climate Action Plan, CMATS, Cork Cycle Network Plan, National Cycle Manual, among many others. Cork City Council recognises the importance of both walking and cycling to the overall well-being and quality of life of residents.

The Plan establishes nine Strategic Objectives (SO's) to guide development within Cork City, with particular emphasis on SO 1: Compact Liveable Growth. This project is in alignment with the following SO's:

SO 1: Compact Liveable Growth

Deliver compact growth that achieves a sustainable 15-minute city of scale providing integrated communities and walkable neighbourhoods, dockland and brownfield regeneration, infill development and strategic greenfield expansion adjacent to existing city.

SO 2: Delivering Homes and Communities

Provide densities that create liveable, integrated communities by using a mix of house types, tenures and sizes linked to active and public transport. Provide amenities, services and community and cultural uses to enable inclusive, diverse and culturally rich neighbourhoods.

SO 3: Transport and Mobility

Integrate land-use and transportation planning to increase active travel (walking and cycling) and public transport usage. Enable the key transport projects in the Cork Metropolitan Area Transport Strategy (CMATS) delivering multi-modal usage and smart mobility, accessible for all.

SO 4: Climate and Environment

Transition to a low-carbon, climate-resilient and environmentally sustainable future. Implement climate mitigation and adaptation measures that reduce our carbon footprint including sustainable energy consumption, sustainable transport, circular economy, green construction and flood risk mitigate and adaptation.

SO 5: Green & Blue Infrastructure, Open Space and Biodiversity

Manage and enhance green and blue infrastructure, to protect and promote biodiversity, ecology and habitat connectivity, protect natural areas, enhance landscape character and maritime heritage, and manage access to green and blue spaces that provide recreation, amenity and natural areas.

SO 7: Heritage, Arts and Culture

Protect and enhance the unique character and built fabric of the city its neighbourhoods, urban towns and settlements by caring for Protected Structures, archaeological monuments and heritage, Architectural Conservation Areas and intangible heritage. Identify, protect, enhance and grow Cork's unique cultural heritage and expression in an authentic and meaningful way. Ensure Cork's heritage, culture and arts are celebrated and developed to create an attractive, vibrant and inclusive place to live, work, study and visit.

SO 9: Placemaking and Managing Development

Develop a compact liveable city based on attractive, diverse and accessible urban spaces and places. Focus on enhancing walkable neighbourhoods that promote healthy living, wellbeing and active lifestyles, where placemaking is at the heart. Follow a design-led approach with innovative architecture, landscape and urban design that respects the character of the city and neighbourhood.

Cork Cycle Network Plan

The Cork Cycle Network Plan has been developed in line with the National Cycle Manual guidelines for network planning. Its objective is to provide a "*clear plan for the future development of the cycling network within the Metropolitan Area to encourage greater use of cycling for trips to work, school, recreation and leisure*".

As part of the Cork Cycle Network Plan, the CCC-U35 scheme is a secondary cycle link joining Summerhill St and Barrack St via Douglas St & Abbey St. Per the Plan, "This is proposed as a secondary route with a mixed street facility providing improved signage and road markings to alert motorists to cyclists."

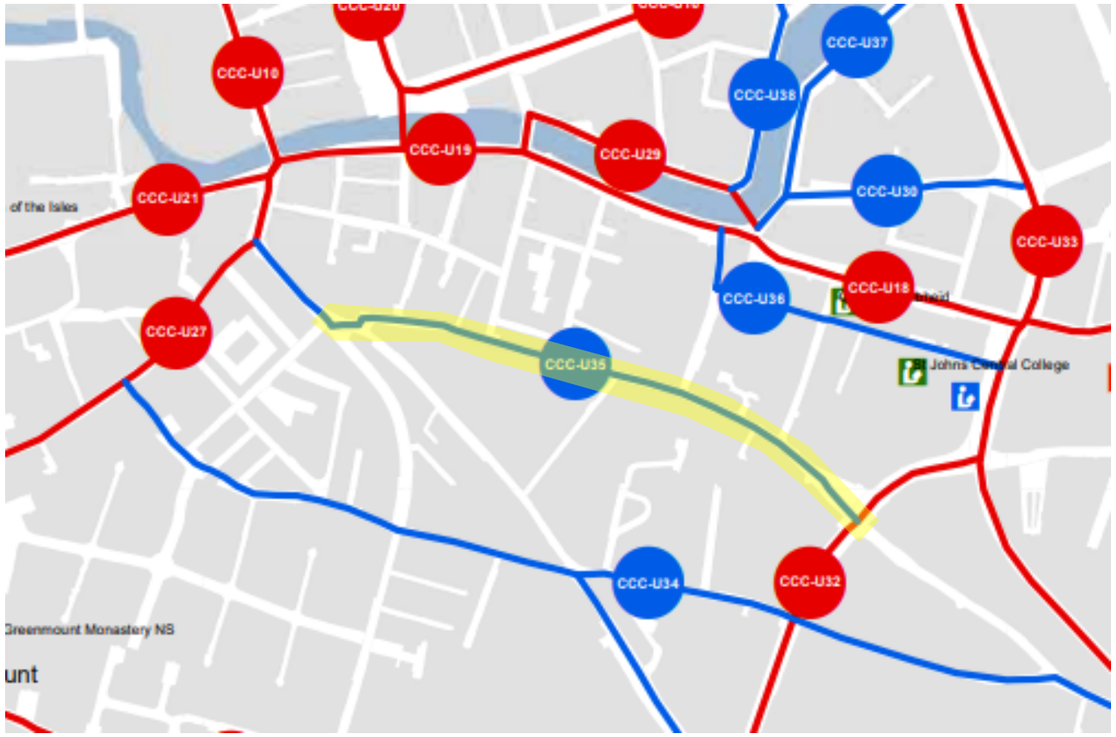


Figure 2-2 - Cork Cycle Network Plan within Project Limits (Source: Plan U1 - CORK CITY CENTRE)

Cork Metropolitan Area Transport Strategy 2040 (CMATS)

The Cork Metropolitan Area Transport Strategy (CMATS) aims to reduce dependency on the private car, while increasing the appeal of sustainable transport options. It recognises that pedestrian access to the City Centre Island is inhibited in some areas by a limited number of pedestrian bridges, substandard crossing facilities and high volumes of vehicular traffic and speeds on approach roads. CMATS was formulated to be consistent with six identified guiding principles. The principles relevant to this project and their consistency with the Strategy Outcomes are summarised as follows:

Principle 1: To support the future growth of the Cork Metropolitan Area (CMA) through the provision of an efficient transport network.

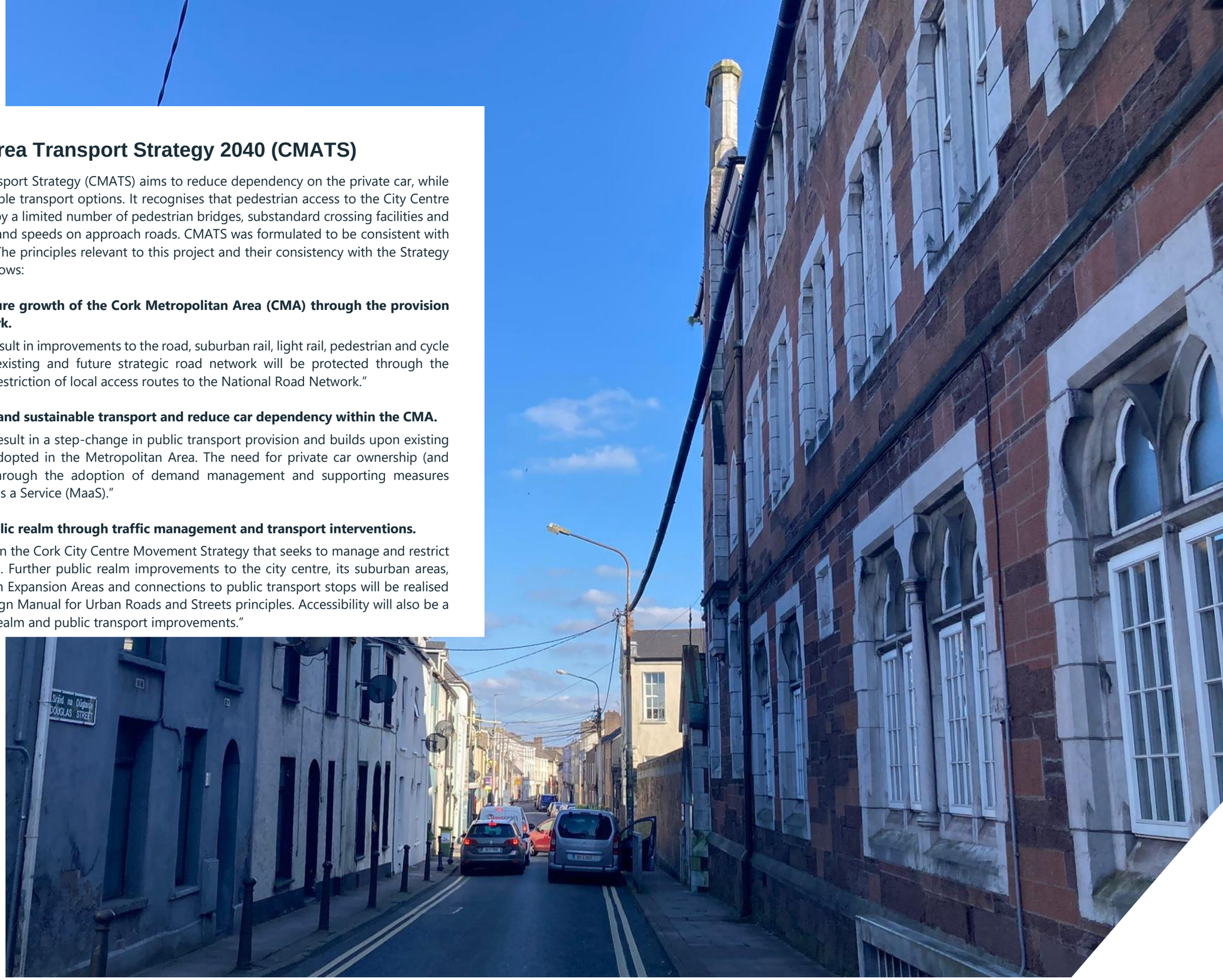
"Implementation of CMATS will result in improvements to the road, suburban rail, light rail, pedestrian and cycle network. The efficiency of the existing and future strategic road network will be protected through the minimisation of local traffic and restriction of local access routes to the National Road Network."

Principle 2: To prioritise active and sustainable transport and reduce car dependency within the CMA.

"Implementation of CMATS will result in a step-change in public transport provision and builds upon existing walking and cycling strategies adopted in the Metropolitan Area. The need for private car ownership (and dependency) will be reduced through the adoption of demand management and supporting measures including car clubs and Mobility as a Service (MaaS)."

Principle 5: To enhance the public realm through traffic management and transport interventions.

"CMATS endorses and builds upon the Cork City Centre Movement Strategy that seeks to manage and restrict through traffic in the City Centre. Further public realm improvements to the city centre, its suburban areas, Metropolitan town centres, Urban Expansion Areas and connections to public transport stops will be realised through the adoption of the Design Manual for Urban Roads and Streets principles. Accessibility will also be a key consideration during public realm and public transport improvements."



3. Description of Scheme

The scheme involves upgrading Mary Street, Douglas Street, and White Street to improve pedestrian and cyclist facilities, reduce through traffic, and enhance the public realm. The proposed development will consist of the following:

- Upgrading & widening of footpaths including the introduction of controlled and uncontrolled pedestrian crossing points through-out the scheme
- Re-alignment of the junction between Friar St. & Evergreen St. to provide traffic calming measures and provide controlled and uncontrolled pedestrian crossing points
- Re-alignment of the junction between Evergreen St. & Abbey St. to provide traffic calming measures and provide controlled and uncontrolled pedestrian crossing points
- Conversion of Abbey St. into a shared surface two-way Cul de sac street, incorporating removable barriers at the junction between Abbey St. and Mary St. allowing emergency vehicle access through to Douglas St. from Abbey St.
- Introduction of a landscaping area that maintains pedestrian stairway access between Abbey St. and the Southern End of Travers St.
- Creating a Cul de sac street on the Northen section of Travers St.
- Creation of a shared active travel facility on Douglas St. between the junctions with Mary St. and Dunbar St. with emergency vehicle access only.
- Conversion of Douglas St. into a one-way east bound street between the junctions of Dunbar St. and Rutland St.
- Introduction of a small city park on the eastern end of Douglas St and removing vehicle access to and from Douglas St. from the junction with Langford Row.
- Converting the existing signalised junction between Langford Row and Douglas St. into a Protected Junction with protected cycle facilities.
- Conversion of Douglas St. into a shared surface two-way Cul de sac street, between the junction with Rutland St. and the new city park
- Conversion of Meade St. into a one-way south bound street
- Conversion of Drinan St. into a one-way north bound street
- Conversion of Cove St. into a one-way east bound street between the junctions with Meade St. and Drinan St.
- Conversion of Cove St. into a one-way west bound street between the junctions with Mary St. and Goulds Sq.
- Upgrade of Red Abbey Sq. including traffic calming along Red Abbey St, the removal of railings around Red Abbey Tower and introduction of enhanced landscaping and lighting measures
- Conversion of White St. to a one-way south bound street
- Provision of contraflow cycle facilities to allow two-way cycle access along one-way streets for portions of Cove St, Mary St, Red Abbey St, Dunbar St and Douglas St.
- Introduction of raised tables and crossing points at street junctions through-out the scheme
- Introduction of landscaping measures including trees, planter beds and Sustainable Urban Drainage Systems (SuDS) measures through-out the scheme
- Introduction of seating elements through-out the scheme.
- Introduction of bike parking through-out the scheme
- Introduction of TFI shared bike scheme on Abbey Street
- Introduction of community shared bin storage on Abbey St. & Dunbar St.
- Undergrounding of all overhead cables through-out the scheme
- Introduction of enhanced lighting through-out the scheme.

By changing some streets to become one-way combined with strategic usage of raised table junctions and parking modifications, the scheme creates additional width for improved pedestrian and bicycle facilities.

Traffic Modifications

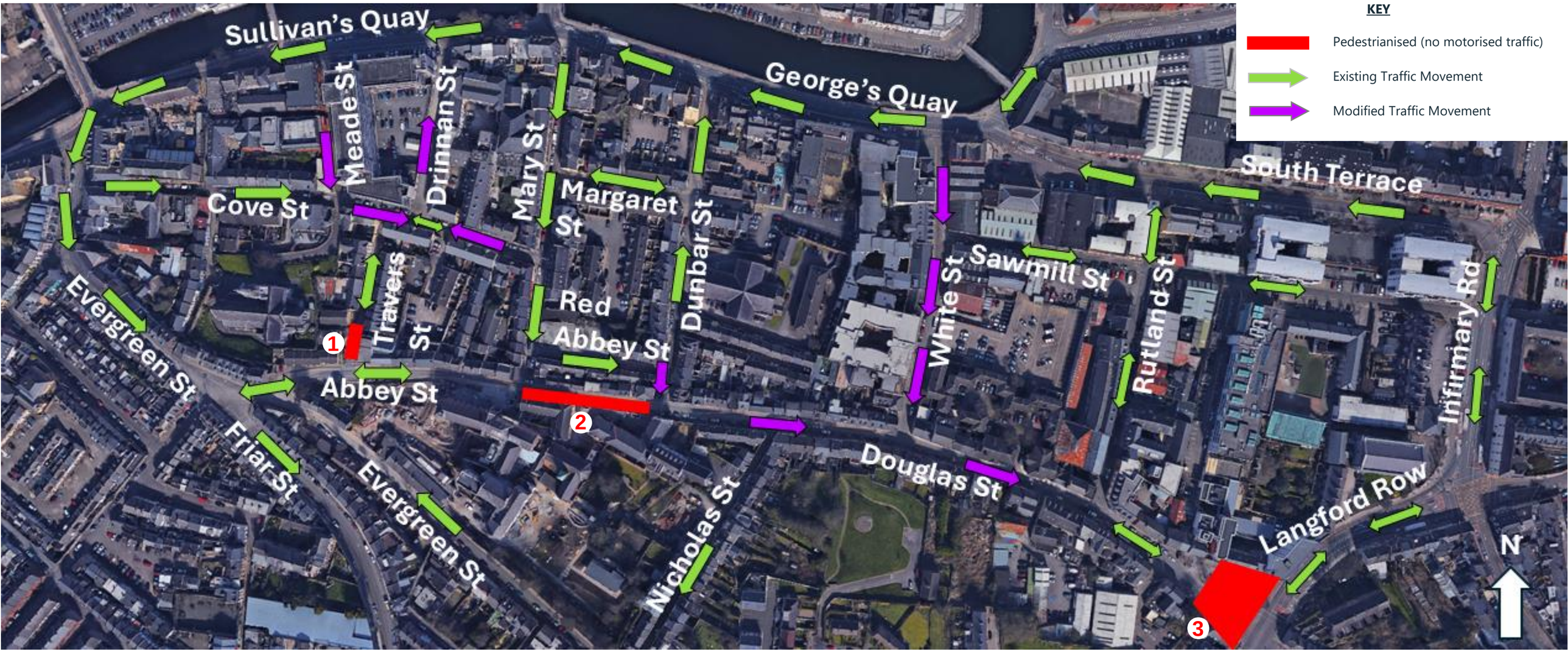


Figure 3-1 – Proposed Traffic Flow Modifications

To reduce through-traffic and provide increased pedestrian and cycle facilities, the project proposes to cut off strategic vehicular routes by introducing pedestrianised sections and converting some two-way streets into one-way streets. Some portions of roadway will become shared spaces, providing pedestrian and bicycle priority over infrequent vehicular traffic.

Shared Spaces

Abbey Street between Evergreen Street and Mary Steet and Douglas Street between Rutland Street and the new Langford Row Park will be shared surface streets where there is no delineation between pedestrian and vehicular spaces.

Pedestrianised Sections

Three locations are proposed to be pedestrianised and closed to motorised traffic (shown in red in Figure 3-1):

1. Travers Street from Abbey Street to the bottom of the existing stairs
2. Douglas Street (currently one-way) between Mary Street and Dunbar Street (retaining vehicular access west of Mary Street)
3. From east of Rutland Street to Langford Row (retaining vehicular access to businesses)

Converting Bi-directional to One-way Streets

The streets indicated with purple arrows in Figure 3-1 above are proposed to have the following modifications:

1. **Cove Street**

   To facilitate accessibility from the reconfigured Travers Street, the existing eastbound one-way portion of Cove Street is proposed to be extended from Meade Street to Drinnan Street. (See Figure 3-10)

   To prevent Cove Street from being used as a "rat-run" into the City from Friar Street, it is important to not allow eastbound access from Cove Street to Mary Street. Rather than introducing a complete closure, the project proposes to make Cove Street one-way only westbound between Drinnan Street and Mary Street.

2. **Meade Street & Drinnan Street**

   To facilitate operations with the revised Cove Street configuration, Meade Street is proposed to be converted into southbound one-way only from Sullivan's Quay to Cove Street, and Drinnan Street is proposed to be converted into northbound one-way only from Cove Street to Sullivan's Quay.

3. **Dunbar Street**

   To facilitate the Douglas Street modifications, the existing northbound one-way portion of Dunbar Street between Douglas Street and Red Abbey Street will reverse direction to become southbound one-way.

4. **Douglas Street**

   To make extra street width available for pedestrian improvements, Douglas Street is proposed to be converted into eastbound one-way only from Dunbar Street to Rutland Street.

5. **White Street**

   To make extra street width available for pedestrian improvements, White Street is proposed to be converted into southbound one-way only from George's Quay to Douglas Street.

Junction Improvements

FRIAR STREET / EVERGREEN STREET AND ABBEY STREET

As can be seen in Figure 3-2, the existing junction provides excess vehicular width and utilises pedestrian railing, all of which contribute to a sense of vehicular superiority and leads to excess speeds through the junction, Pedestrians are channelised toward zebra crossings which then lead to pathways with steps and other impediments to accessibility.

The proposed improvements (as depicted in Figure 3-3) will reduce the carriageway widths to remove excess lane width, which then provides additional width for footpath widening. The confusing orientation of streets at the junction will be modified to have minor legs teeing into larger streets. The local access on Abbey Street will be accessed via a ramp up to the new shared surface from Evergreen Street. Evergreen Street will be realigned to tee into Friar Street. These perpendicular junction alignments help facilitate shorter and safer pedestrian crossings, all of which are proposed to utilise raised table crossings to further control vehicular speeds. A total of three zebra crossings are proposed to cross Friar Street and Evergreen Street, and uncontrolled crossings will be provided across the minor streets at the junctions with larger streets.

Figure 3-2 - Existing Junction - Friar St / Evergreen St and Abbey St

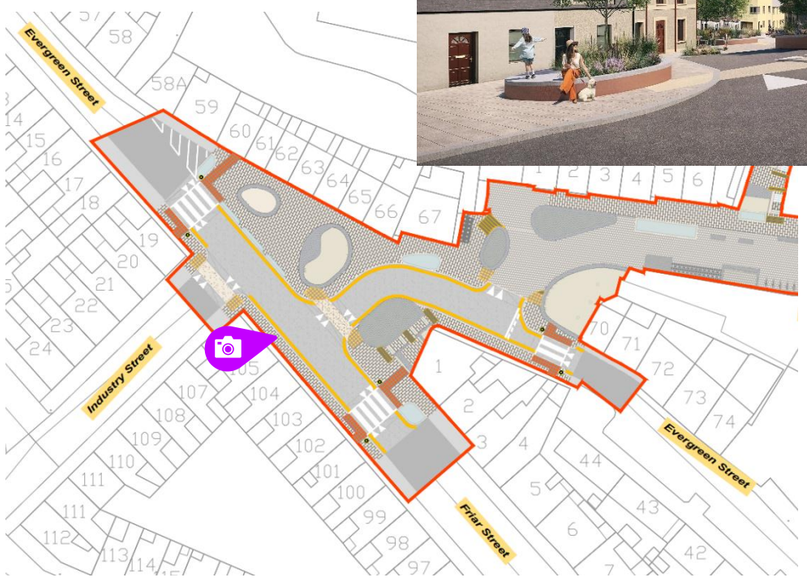


Figure 3-3 - Junction Improvements - Friar St / Evergreen St and Abbey St

SUMMERHILL SOUTH / LANGFORD ROW

With the pedestrianisation of Douglas Street and introduction of a new park at the eastern end of the scheme, the existing four-legged junction of Douglas Street and Summerhill South / Langford Row will be converted to a three-legged junction as depicted below in Figure 3-4. The junction will provide bicycle facilities in accordance with Cycle Design Manual requirements for a Protected T-Junction.

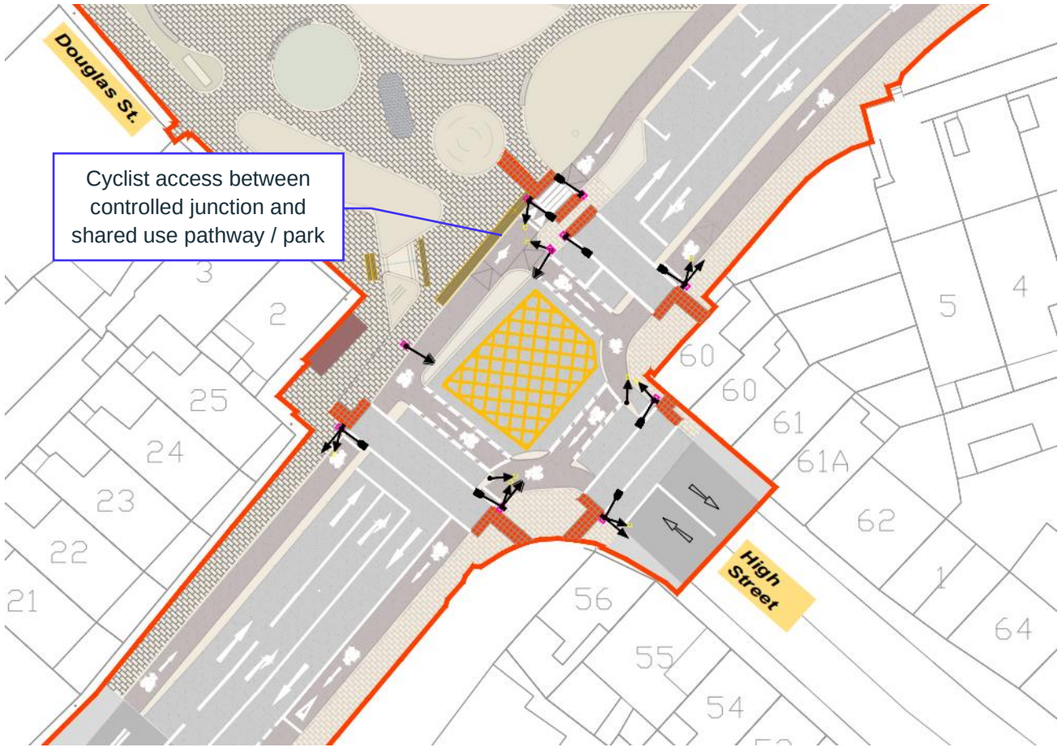


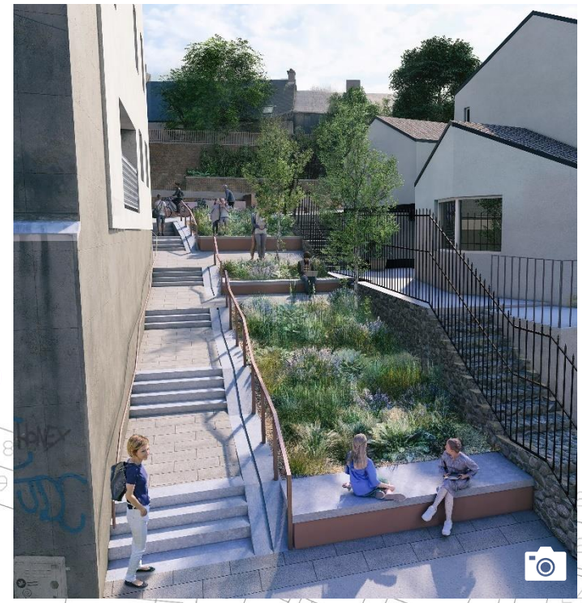
Figure 3-4 - Junction Improvements - Summerhill South / Langford Row

Street Modifications

ABBEY STREET / DOUGLAS STREET

With the pedestrianisation of Douglas Street from Mary Street to Dunbar Street, the vehicular traffic on Abbey St will be limited to services for local residents, and access to Nano Nagle Place and the CCAE Cork Centre for Architectural Education. Vehicle speeds will be constrained by restricting the available lane width using planter walls (as illustrated in Figure 3-5). By providing paving setts with no road markings, drivers will further slow and be more aware of pedestrians and cyclists also using the shared surface. It is anticipated that pedestrians will favour the northern side of the street, and a 2.0m desirable (1.8m minimum) pathway width is provided between the existing buildings and planters or other obstructions. Clearway signage will prohibit parking along the shared surface.

The portion of Travers Street immediately north of Abbey Street will be closed to vehicular traffic, providing landings and planters along with renovated stairs. The existing gradient of this portion of Travers Street is not currently conducive to users with mobility impairments, and provision of an accessible pathway through this area is not feasible. Instead, these pedestrians will continue to use alternative routes like Mary Street, as they currently do.



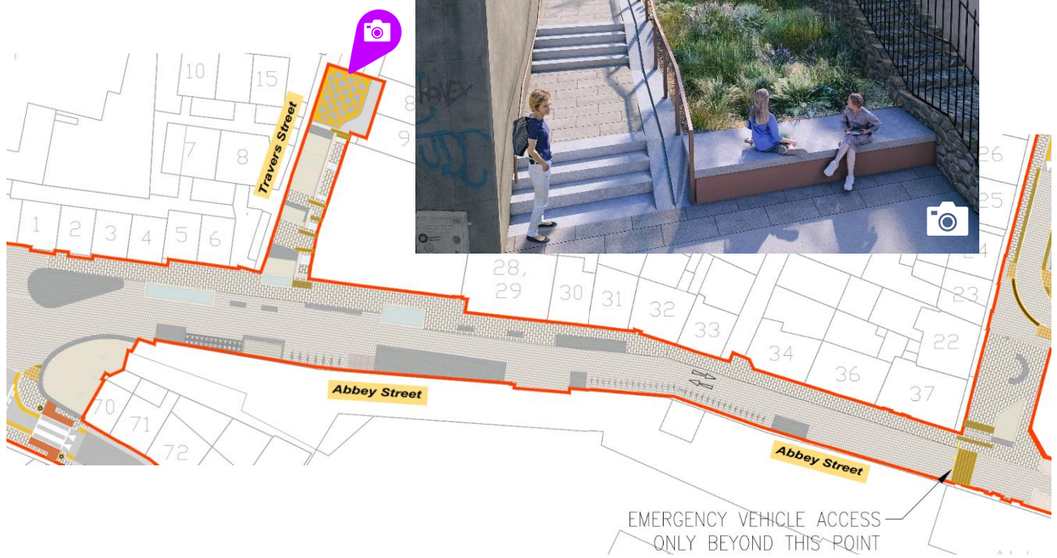


Figure 3-5 - Street Improvements - Abbey Street & Travers Street

DOUGLAS STREET (WEST)

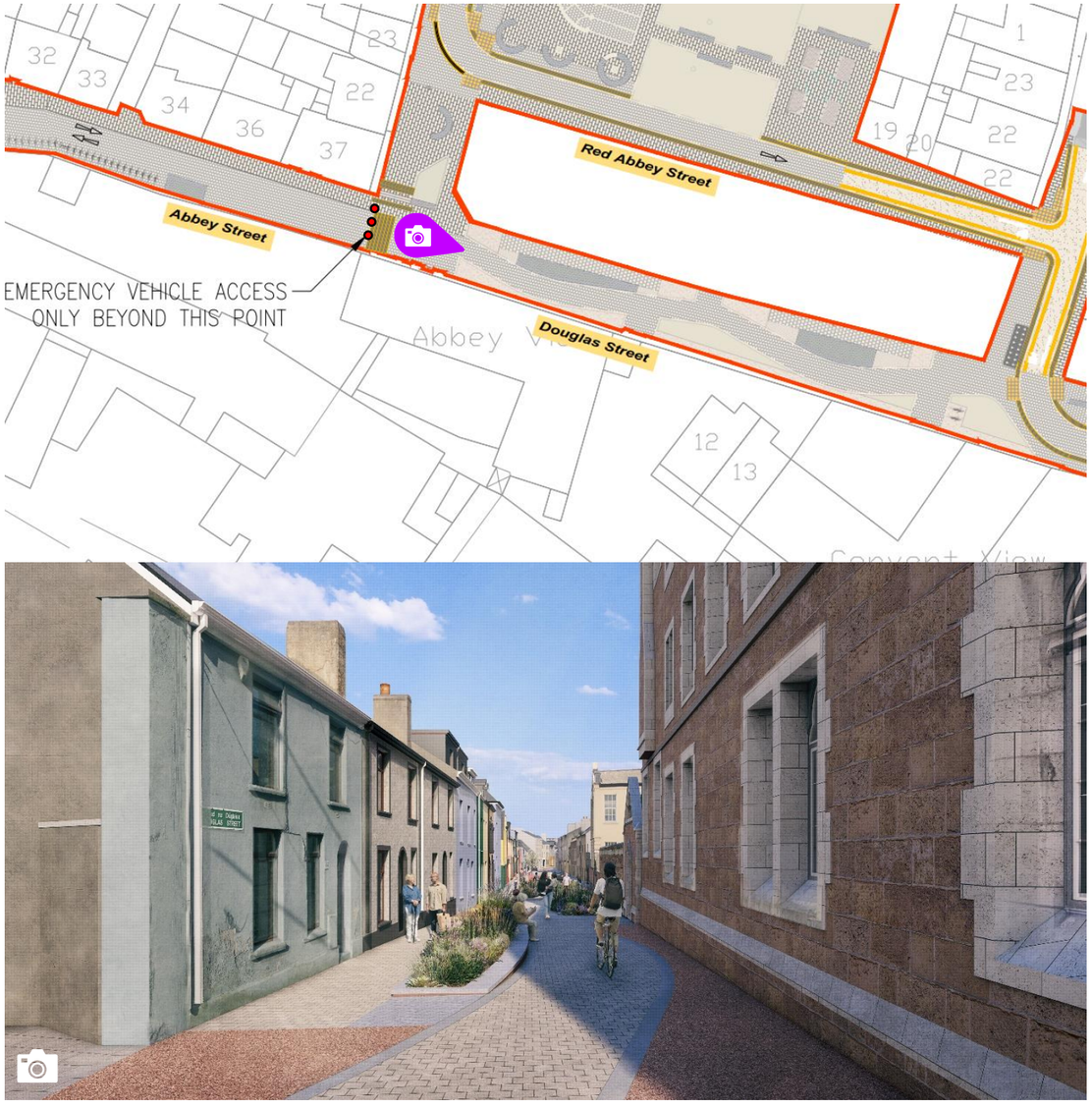


Figure 3-6 - Street Improvements - Douglas Street (West)

Removable bollards (illustrated as red dots in Figure 3-6 above) will allow emergency vehicles access only beyond this point. Cyclists can travel in both directions. This is the narrowest stretch of Douglas Street currently, and removing vehicular traffic allows inclusion of a shared use pathway flanked by planters and landscaping. During emergencies, the removable bollards can make way for emergency services to drive along the path, with planters laid-out to not obstruct this access when necessary. A 1.8m minimum width footpath will be provided in front of residences on the north side.

DOUGLAS STREET (CENTRAL)

Between Dunbar St and White St, southbound traffic from Dunbar Street turns east and the roadway transitions to a typical configuration with an upstand kerb and footpath on either side of an asphalt roadway section. Parking spaces are provided on the north side of the street. A raised table junction is provided at the junction with Nicholas Street, providing width to accommodate turning of cars and rubbish trucks onto Nicholas Street. A shared loading bay is provided in front of the Iberian Way restaurant and Fionnbarra pub. The roadway transitions back to a raised kerb configuration before approaching the next raised table junction at White Street. Contraflow cycle markings will be provided through this section to enable cyclists to travel in both directions while vehicular traffic is only permitted eastbound.

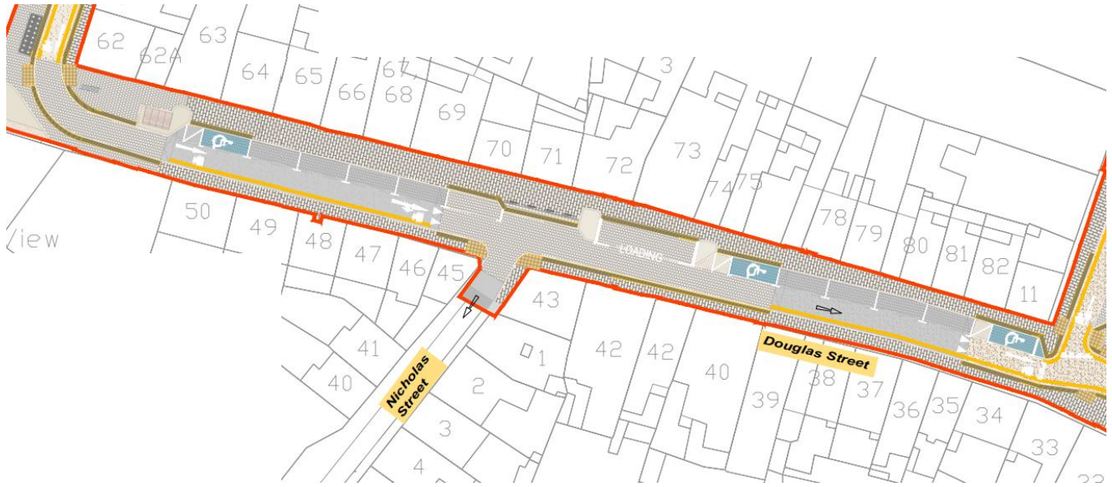


Figure 3-7 - Street Improvements - Douglas Street (Central)

DOUGLAS STREET (EAST)

At the junction with White St, a raised table junction is provided with width for occasional truck deliveries to local businesses, along with multiple parking spaces on both the north and south side. The road transitions back to a raised kerb configuration as it approaches the junction with St John's Mews. A raised, flush pedestrian uncontrolled crossing is provided across this private road entry. Additional parking spaces are provided on the north side of the street, and the street turns to the north at Rutland Street which allows the introduction of an outdoor seating area for Café Moly on the north, with an additional outdoor seating area on the south provided for Spar. Contraflow cycle markings will be provided through this section to enable cyclists to travel in both directions while vehicular traffic is only permitted eastbound.

Figure 3-8 - Street Improvements - Douglas Street (East)

LANGFORD ROW PARK

Douglas St to the east of Rutland St will be a shared surface that maintains vehicular access to local businesses, medical centre and a creche while introducing planters and other street furniture (see Figure 3-9 below). The current car park will be removed and replaced with a new pocket park. In addition to pedestrian and cycling routes through the centre of the park, shared active travel routes are provided on both the north and south side to favour either desire-line, and a 2.0m desirable (1.8m minimum) pathway width is provided between the existing buildings and planters or other obstructions.

Additional parking spaces are proposed along Langford Row to facilitate accessibility to the medical centre and creche drop off. Controlled, signalised crossings are proposed to be incorporated into the junction design at Langford Row. The shared active travel routes through the park are able to connect with dedicated cycle lanes along Summerhill South / Langford Row.

Figure 3-9 - Street Improvements - Langford Row Park

MARY STREET

As illustrated in Figure 3-10 below, traffic from westbound George's Quay will continue to turn left onto southbound Mary Street as currently happens. A raised table, uncontrolled crossing will be provided at the northern entry before returning back to a raised kerb section with designated parking spaces on the west side. A footpath is provided around the ramp and stair access to the Diabetes Care Centre and the Cork Osteopath Clinic, with two designated disabled parking spaces immediately adjacent to the access. Raised table junctions are provided at the junctions with Margaret Street and Cove Street to help prioritise pedestrian movements while slowing traffic. Traffic is also slowed via a chicane movement as vehicles cross through the Margaret Street junction. Parking spaces are provided on the east side of the street as traffic heads south from Margaret Street. The junction configuration at Cove Street is established to make wrong-way traffic difficult and minimise the likelihood of rat-run traffic.

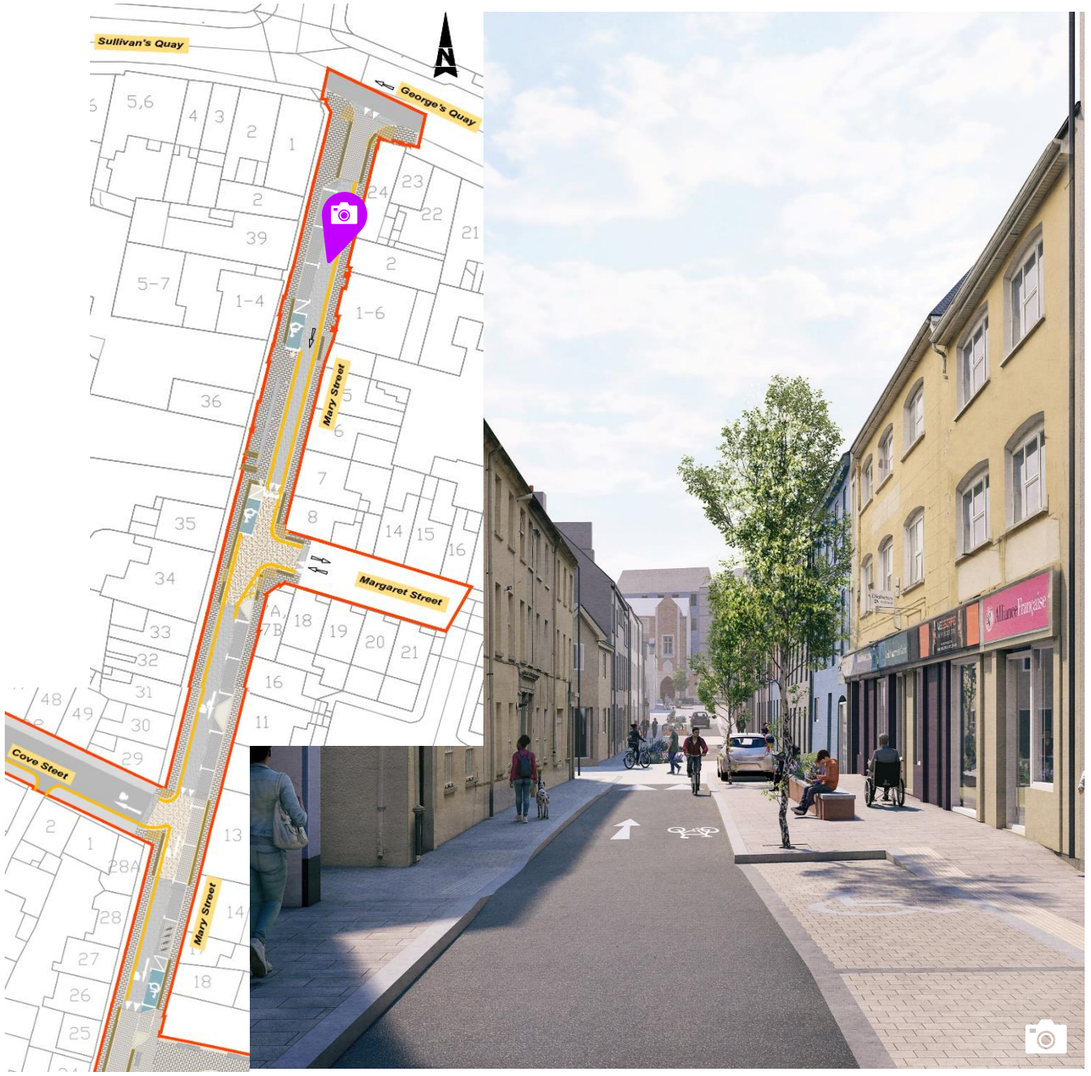


Figure 3-10 - Street Improvements - Mary Street

RED ABBEY STREET

At the southern end of Mary Street, the roadway bends to the east to traverse around the Red Abbey Tower National Monument. To help control speeds, a raised shared surface is introduced to match the courtyard elevation. This helps emphasise the shared use nature of this space, and creates a more enticing environment for bikes and pedestrians to have accessibility between Red Abbey Tower and Nano Nagle Place. As traffic reaches Dunbar Street, it can either turn north to loop back toward George's Quay, or south to connect to Douglas Street. Contraflow cycle markings will be provided through this section to enable cyclists to travel in both directions while vehicular traffic is only permitted eastbound. The two-way cycle access will also continue north on Mary St and west on Cove St.

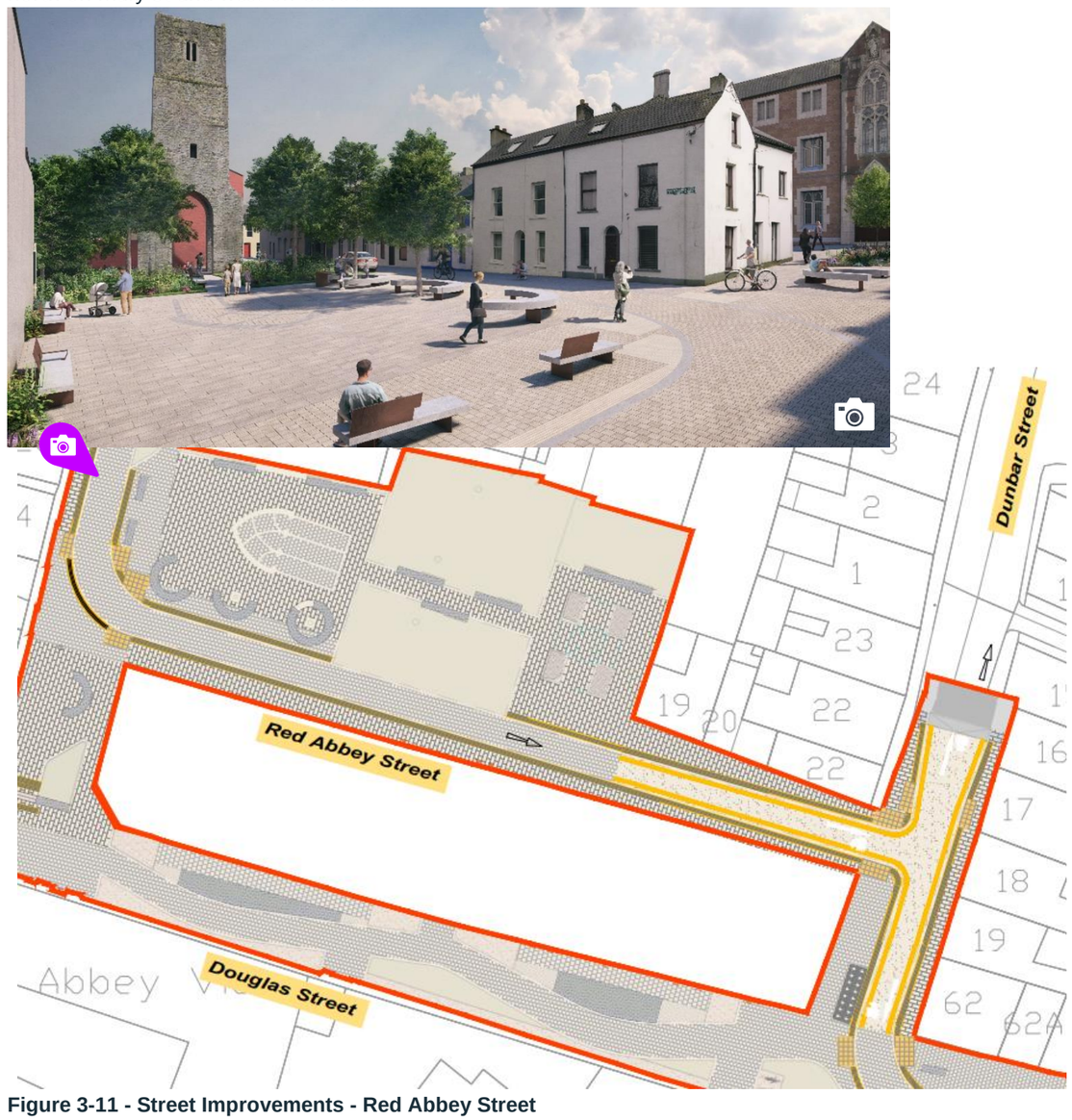


Figure 3-11 - Street Improvements - Red Abbey Street

WHITE STREET

As illustrated in Figure 3-12, White Street will be converted from bi-directional to one-way southbound, with traffic from westbound George's Quay turning left to head south toward Douglas Street. A raised table, uncontrolled crossing will be provided at the northern entry before returning back to a raised kerb section with a chicane movement to slow traffic and shift to the east, facilitating access to a parking garage entry on the west. As traffic crosses a raised table junction at Sawmill Street, the roadway width narrows to help control traffic speeds while making room for planters on the west and parking spaces on the east as it returns to a raised kerb section. Access to an additional parking garage is provided toward the southern end of the street, and a 15-minute parking space is provided to facilitate business in the area.

Figure 3-12 - Street Improvements - White Street

4. Traffic and Parking Impact

Traffic surveys indicate high volumes of through traffic on Douglas Street, Mary Street, and White Street. The proposed scheme aims to reduce traffic volumes and improve safety for pedestrians and cyclists. Parking will be reconfigured, with some spaces removed to widen footpaths and create public spaces. Traffic modeling shows significant reductions in traffic volumes on key streets, with rerouting measures to manage displaced traffic.

Traffic Surveys

Traffic surveys were carried out within the study area and comprise the following:

- Junction Turning Count (JTC);
- Pedestrian Turning Count;
- Origin Destination Survey;
- Traffic Signal Data; and
- Queue Length Survey.

NTA South West Regional Model (SWRM)

The South West Regional Model (SWRM) is one of the 5 regional NTA's strategic transport planning tool. Based around a classic transport modelling four-stage model, the system forecasts future year transport demand based upon population and employment scenarios and assigns it to networks and services. The SWRM includes both Cork and Kerry counties with greater details represented within Cork Metropolitan Area.

The Road, Public Transport (PT) and Active Mode Assignment Models assignment modules receive the trip matrices produced by the Demand Model and assign them in their respective transport networks to determine route choice and the generalised cost for all origin and destination pair.

The Road Model assigns motorized vehicular trips to the road network and includes capacity constraint, traffic signal delay and the impact of congestion. The Road Model uses SATURN software.

Local Area Model (LAM)

The Calibrated Base Scenario is the reference to compare the proposed scheme against, also named Do Nothing scenario in this report. Further information on the scheme can be found in the traffic modelling report.

Assessment Methodology

The proposed changes to the road network were coded in a Local Area Model and both AM & PM assignments were run to produce traffic flows and routing. The flow difference between the Do Something scenario and the Do Nothing scenario indicates and quantifies the rerouting due to the scheme.

Modelling Results – Difference in Traffic Flows

The modelled traffic flow difference between the Base (Do Nothing) and the tested scenario for both peak hours are represented in the figures below for both peak periods.

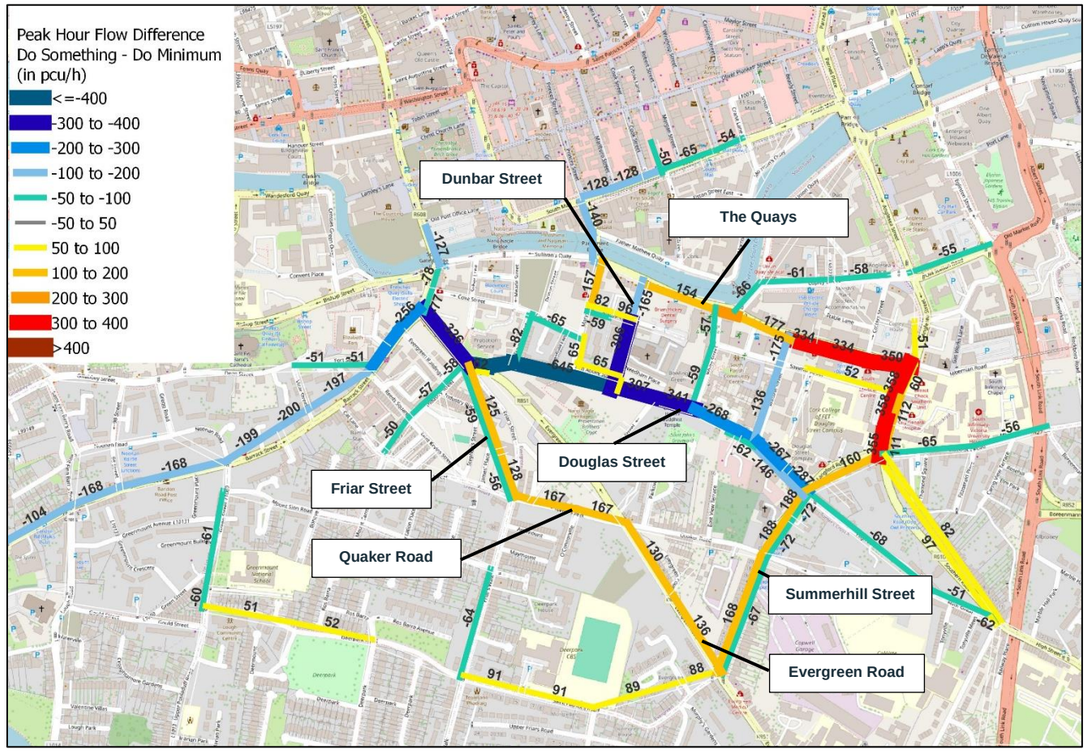


Figure 4-1 – AM Flow Difference (Do Something – Do Nothing)

For the AM period, some key points relating to the difference in traffic flows:

- It is noted that there is a significant reduction in traffic within the study area
- Eastbound traffic rerouting occurs via Friar St, Quaker Rd, Evergreen Rd and Summerhill with between 125 – 190 vehicles (pcu/hr)
- Northbound traffic using Douglas St – Rutland St is rerouted to Infirmary Rd – South Terrace

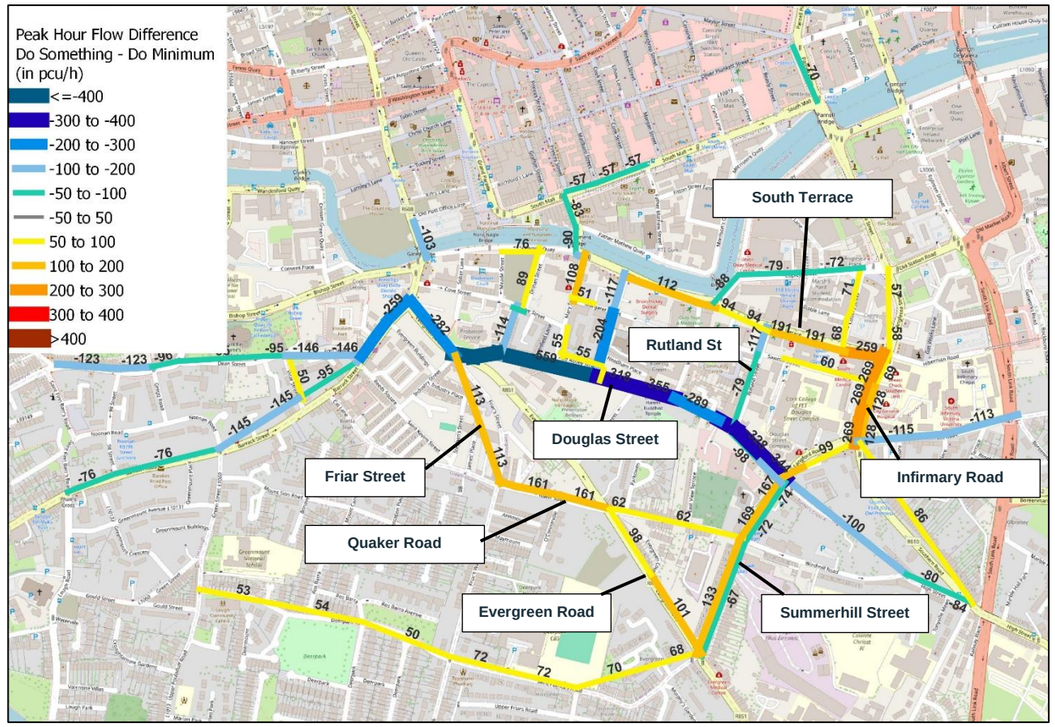


Figure 4-2 – PM Flow Difference (Do Something – Do Nothing)

For the PM period, some key points relating to the difference in traffic flows:

- It is noted that there is a significant reduction in traffic within the study area, similar to the AM period.
- Traffic rerouting occurs via Friar St, Quaker Rd, Evergreen Rd and Summerhill St with between 100 – 175 vehicles (pcu/hr)
- It is also noted that there is an increase in traffic on Infirmary Rd and South Terrace to access Rutland St and The Quays. The increase was observed as 270 vehicles (pcu/hr).

Modelling Results – Traffic Flows

The absolute traffic flows for the Do Something scenario are presented in Figure 4-3 (AM peak hour) and Figure 4-3 – Do Something AM Peak Hour Traffic Flow

(PM peak hour) below. Traffic flows in the study area drop below 100 pcu/h with the introduction of the scheme, from a maximum of 645 pcu/h in the AM and 559 pcu/h in the PM on the western part of Douglas St.

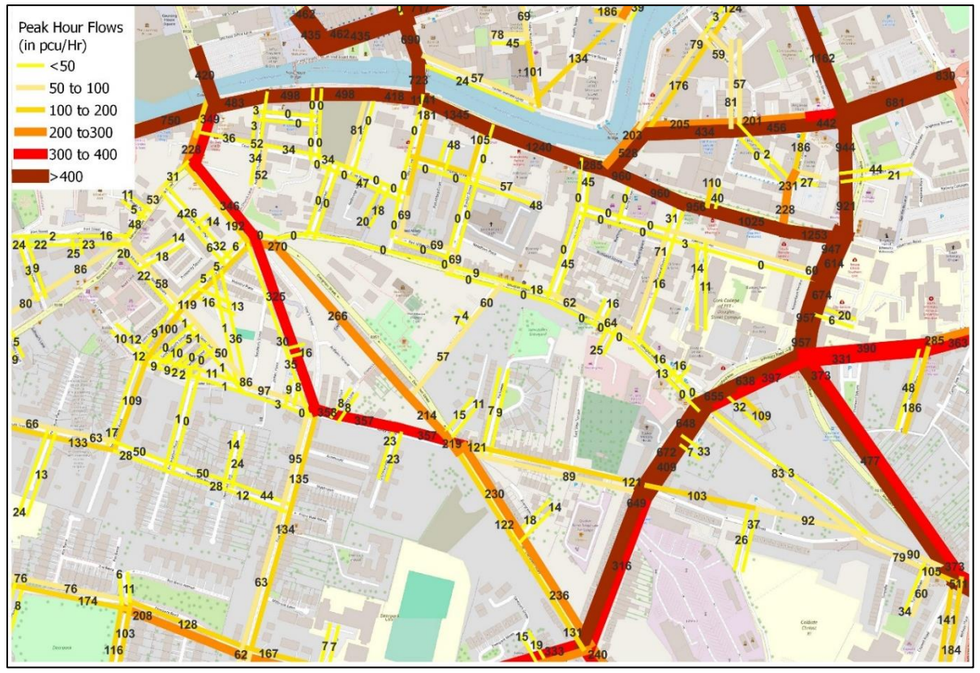


Figure 4-3 – Do Something AM Peak Hour Traffic Flow

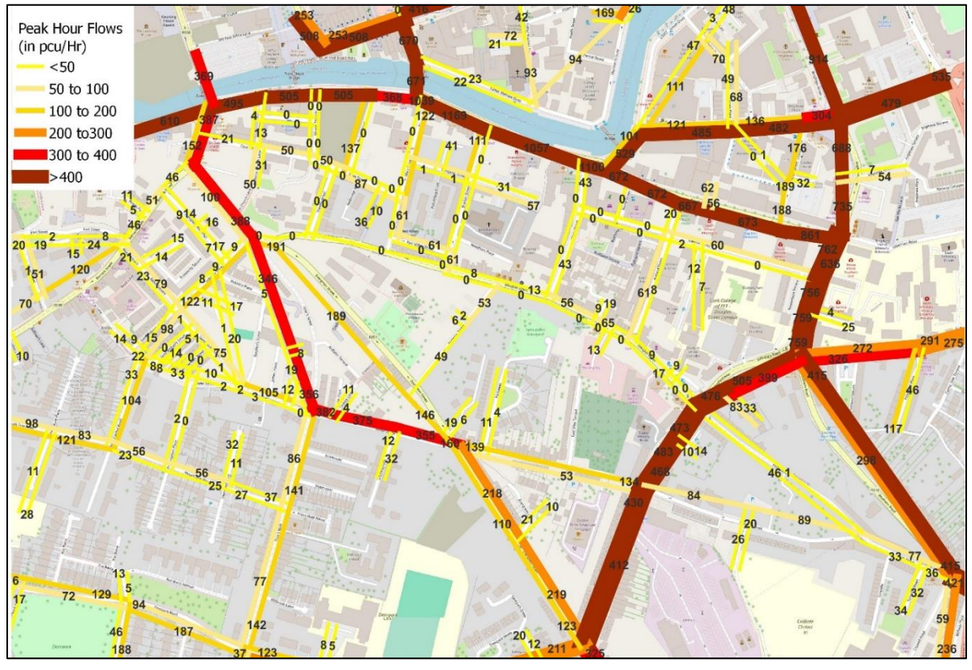


Figure 4-4 – Do Something PM Peak Hour Traffic Flow

Traffic Summary and Conclusion

A bespoke Local Area Model (LAM) of the study area, cordoned off the NTA South Western Regional Model has been built in SATURN software for that purpose. Greater details were added to the LAM to accurately represent the road network and a calibration exercise was undertaken to replicate current travel conditions, using 2023 traffic surveys. The LAM passed the guidelines criteria (more than 85% of the movements with GEH <5) and therefore is considered fit for scenario testing.

The proposed scheme - Douglas Street closed to general vehicular traffic in front of Nano Nagle Place and at its eastern end, plus implementation of a one-way traffic system on adjacent streets has been tested in the LAM. The results show a significant traffic reduction on Douglas Street (traffic flows under 100 pcu/hr on the busiest section in the AM peak, down from 600 pcu/hr), which is compatible with the implementation of the proposed active travel measures. The conversion of Cove Street to one-way westbound from Mary Street while still being one-way eastbound from Barrack Street prevents any rat-running through the area, while maintaining access for the residents and people with a destination in the area.

The eastward traffic that currently uses Douglas Street will reroute outside the study area via alternative routes such as Friar Street – Tower Street – Evergreen Street and Deerpark – St Patrick's Road. While these routes will see a forecasted increase of approximately +100 to +170 pcu/hr, this is not considered excessive and can be accommodated without significant changes to the existing road network. It is also important to note that there is a wider distribution of traffic across the city, influenced by route choices made at the origin, which further disperses traffic volumes and reduces the likelihood of overloading any single corridor.

The northbound though traffic that currently uses Summerhill St - Douglas St - Rutland St will reroute via Langford Row, Infirmary Rd and South Terrace (+100 to +150 pcu/hr). Trips ending in the eastern part of Douglas St or Rutland St will also be redirected via Infirmary Rd, South Terrace and Rutland St to access the area. The overall traffic increase on Infirmary Rd and South Terrace is estimated to be between +200 pcu/hr and +350 pcu/hr. Additional delays due to the traffic increase on the Infirmary Rd – South Terrace route is estimated to be below 30 seconds.

Parking

Multiple parking surveys were conducted to assess occupancy rates and duration of stays from 07:00 to 19:00 on both a weekday and a weekend day in January 2023. Additionally, nighttime parking surveys were carried out in August and September 2023 on Thursday and Saturday nights from 19:00 to 07:00. The aim of the scheme is to minimize the reduction of parking spaces required to provide the requested public amenity enhancements such as park areas, outdoor dining spaces, and wider footpaths. The results of the surveys are summarized in the figure below.

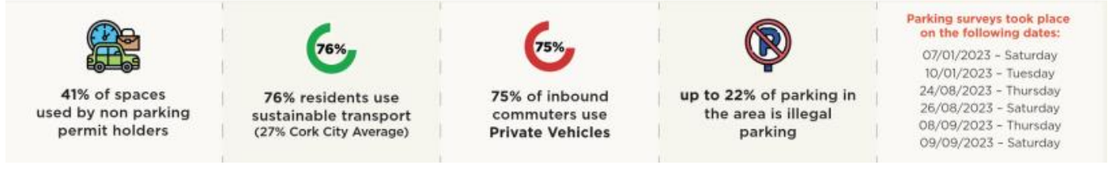


Figure 4-5 - Parking and User Survey Highlights

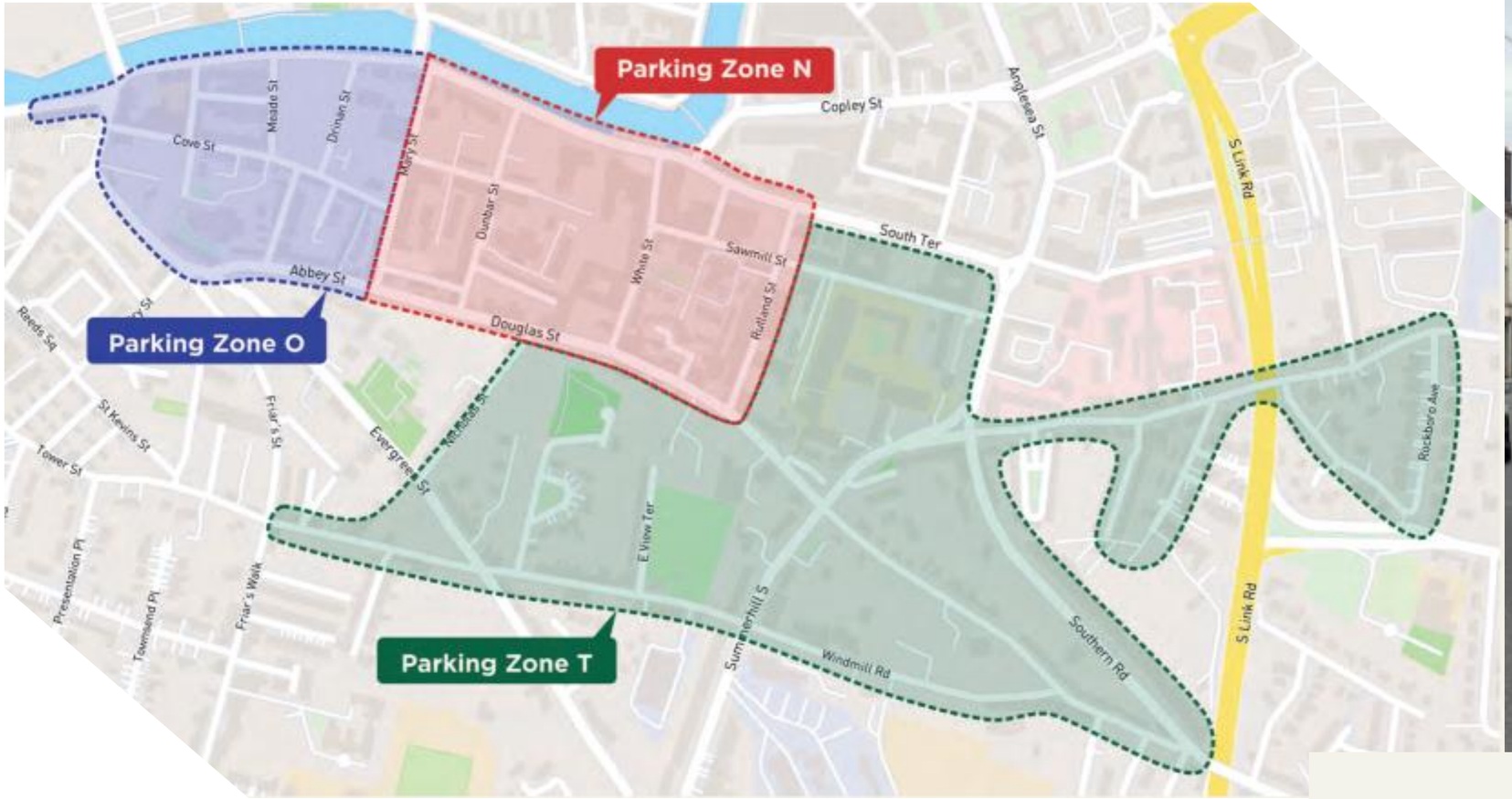


Figure 4-6 - Permit Parking Zones

The project spans across permit parking zones "O", "N" and "T", with Parking Zone N being the most impacted by the proposed improvements. Zone N currently provides 143 parking spaces for 140 parking permit holders (although the highest observed number of displayed parking permits during the surveys was 82). The proposed improvements will provide 96 parking spaces, for a reduction of 36 spaces within the zone. Figure 4-7 below displays the parking space changes for all three affected zones.

With Parking Zone N accounting for most of the impacts, the parking surveys are able to provide further granularity regarding the usage of the existing parking spaces. As can be seen in Figure 4-8 below, there are two peak parking times where the existing parking is currently undercapacity: from 11.00 to 14.00 during the workday, and from 18.00 to 03.00 in the evening/overnight. The figure further illustrates the level of parking permits and disabled parking observed, with ticket/disk parking filling in the remainder of the parking volume. The proposed parking capacity, although reduced from the current parking capacity, is still above the combined total required for the observed permit and disabled parking in the zone.

	Existing Parking Spaces	Proposed Parking Spaces	Reduction of Parking Spaces	Numbers of Parking Permits
Zone N Permit Parking	143	107	36	140 82 highest observed
Zone O Permit Parking	91	86	5	43
Zone T Permit Parking	191	172	19	163
Total	**425**	**365**	**60**	**346**

Figure 4-7 - Parking Space Changes per Zone

Figure 4-8 – Capacity and Existing Parking Numbers - Zone N

By severing direct access to Douglas Street and implementing street changes to prevent rat-runs into the city center, there will be less opportunistic parking by non-residents. Additionally, the scheme's investment in making highly desirable pedestrian and cycling alternatives will help attract residents to utilize active forms of transportation and reduce the demand for motor vehicles amongst residents. The connectivity and close proximity to bus routes will provide wider mobility for residents and for non-residents coming into the community to visit businesses, medical facilities, shops or residents.

With reduced demand for spaces for ticket / disk parking, the proposed parking capacity is anticipated to continue accommodating permit and disabled parking with some additional ticket / disk parking capacity. Cork City Council have identified a slate of solutions to accommodate parking challenges for locals, commuters and businesses alike (See Figure 4-9 below). The identified solutions will address challenges through a combination of limiting the duration of parking for short term parking and improving demand for sustainable forms of travel.

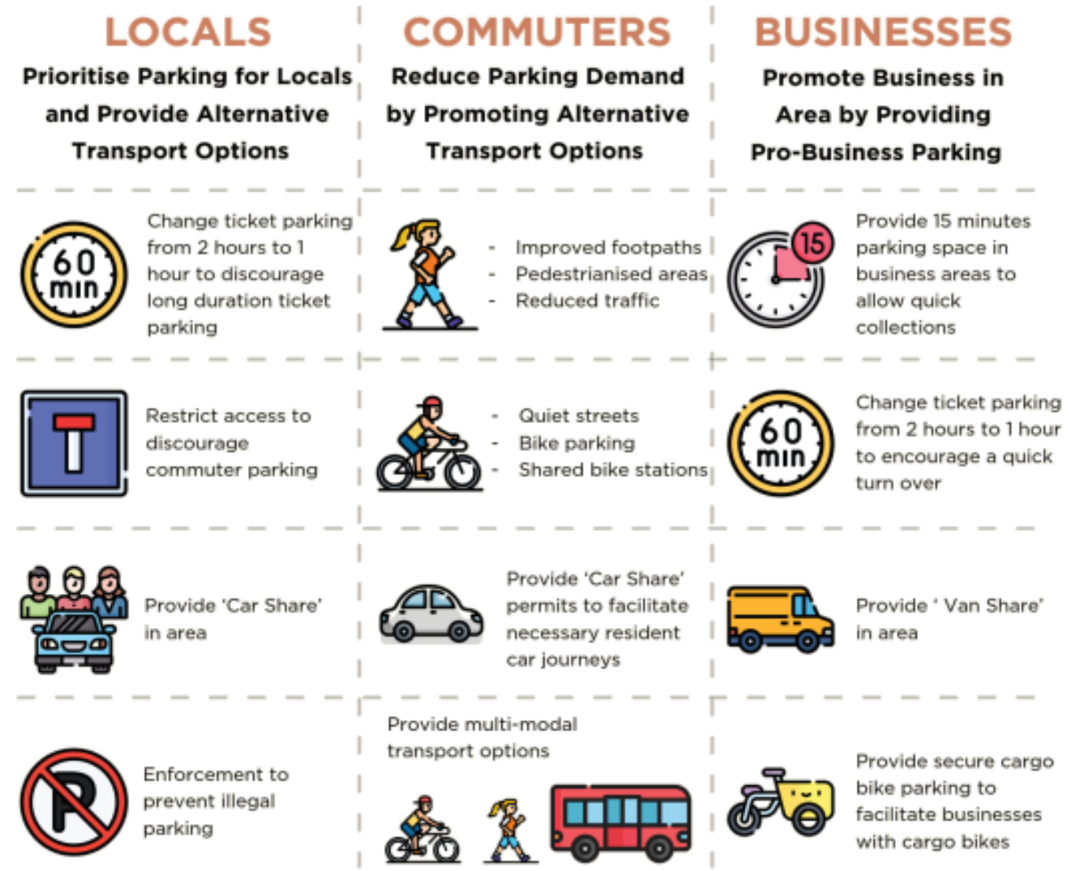


Figure 4-9 - Identified Solutions to Parking Challenges

URBAN REALM & LANDSCAPE DESIGN

5. Urban Realm Design

The Mary Street, Douglas Street & White Street Public Realm Enhancement Scheme is intended to create an environment that will encourage a modal shift to more sustainable forms of transport while also improving the quality of life for the residents of these streets and the surrounding area in the South Parish. The South Parish is an important residential and commercial quarter within the city centre. It also has the potential for further tourism development with its rich historical and cultural assets including St. Fin Barre's Cathedral, Elizabeth Fort, Nano Nagle Place and Red Abbey. The new Urban Realm Design focuses on creating attractive, accessible, and safe public spaces that are distinctive and subtly contemporary while remaining sensitive to the historic context.

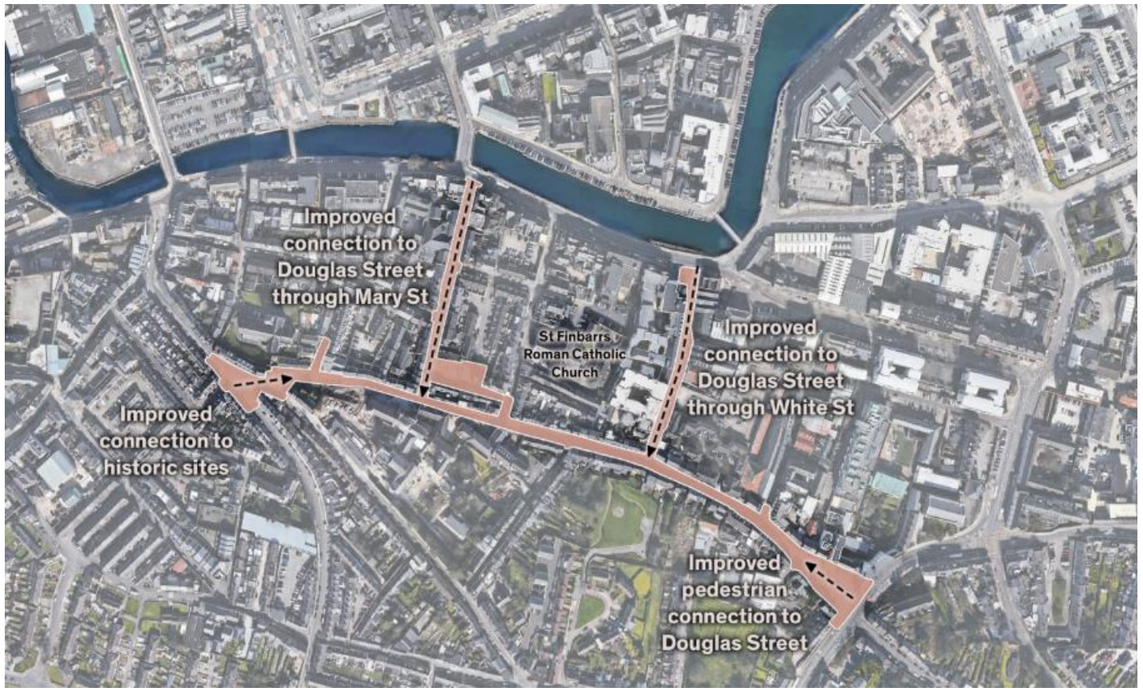


Figure 5-1 - Connectivity with Surrounding Historical and Cultural Assets

The area currently comprises narrow streets with extensive parking, limited footpath space and a lack of cycle facilities. The streets in the study area also lack any greening resulting in an environment that lacks attractiveness for the residents and visitors to the area alike. The Urban Realm Design will ameliorate this through combining high quality improved public realm, improved infrastructure for people walking and cycling, and increased greening and biodiversity.

Key elements of the design include streetscape upgrades, targeted areas of pedestrianisation, urban greening and the provision of new public spaces including an amenity space at Red Abbey Square and a park at Langford Row for community events and gathering. High quality material finishes are proposed throughout, including the use of natural stone paving and a palette that is sensitive to the historic context. The new Urban Realm will provide inviting spaces for people to pause and gather in this neighbourhood.

Key features of the Urban Realm Design include:

- Shared surfaces - Infrastructure for people walking and cycling will be upgraded throughout. Shared surfaces will be used to calm traffic and prioritise pedestrians and cyclists.
- Improved footpaths, crossings and surfaces – Paving will be upgraded using high quality natural stone, providing robust surfaces that are sensitive to historic context.
- Amenity spaces – upgraded amenity space at Red Abbey Square and a park at Langford Row with a small Covered Pavilion will provide a much-needed green amenity and gathering space in this part of the city.
- Playable Streets - The scheme will include informal play elements and encourage use of the area as playable streets. This will be further developed at detailed design stage.
- Heritage Connections – the Urban Realm will provide enhanced connections to heritage sites and the city centre, encouraging visitors to the area.
- Universal Access, Age Friendly and Play Strategies - The improved public realm and street furniture has been developed with Universal Access principles and Age Friendly and Child Friendly concerns as central. The concept design phase of all street furniture is developed to include for accessibility and play, and will be further developed as part of the detailed design stage.

Urban Realm Design and Materials Strategy

Figure 5-2 - Texture on Street, Red Sandstone Wall Remaining, and View of Abbey St from top of Mary Street c. 1900 (Cork City Library)

The Urban Realm Design and Materials Strategy is based on the following elements:

- The scheme will draw on historic elements in the South Parish to develop a material palette which is sensitive to context and authentic.
- Through the use of suitable materials develop a scheme that is distinctly characteristic of Cork City. This includes the use of limestone and red sandstone as found in local buildings, as well as complementary colours and materials where these historic materials are not viable. The proposed material palette

inspired by historic elements includes coloured concrete with red sandstone aggregate, cut limestone capping, and red oxide finish to metal elements.

- Develop a clear design language that connects and identifies areas improved under this scheme, including using the same design language for planters, seating, play elements, walls and covered pavilion.
- Connect all elements of street furniture including seating, lighting and bike storage by using a shared metal finish for seat backs, handrails, lighting columns and bike and bin storage. This is proposed as a red oxide coloured finish to complement red sandstone finishes.

Material Palette and Street Furniture Strategy

Key to the proposed development is the provision of improved public realm. A central element of this will be new and distinctive street furniture. This new street furniture will be functional and subtly contemporary while remaining sensitive to the historic context and distinctly characteristic of Cork City. This includes the use of limestone and red sandstone as found in local buildings, as well as complementary colours and materials where these historic materials are not viable. The proposed material palette inspired by historic elements includes coloured concrete with red sandstone aggregate, cut limestone capping, and sensitively coloured finish to metal elements.

As shown in Figure 5-3, all elements of street furniture including seating, lighting and bike storage will be connected by using a shared metal finish for seat backs, handrails, lighting columns and bike and bin storage. This is proposed as a subtly red coloured finish to complement red sandstone finishes. The improved public realm and street furniture has been developed with Universal Access principles and Age Friendly and Child Friendly concerns as central. The concept design phase of all street furniture is developed to include for accessibility and play.

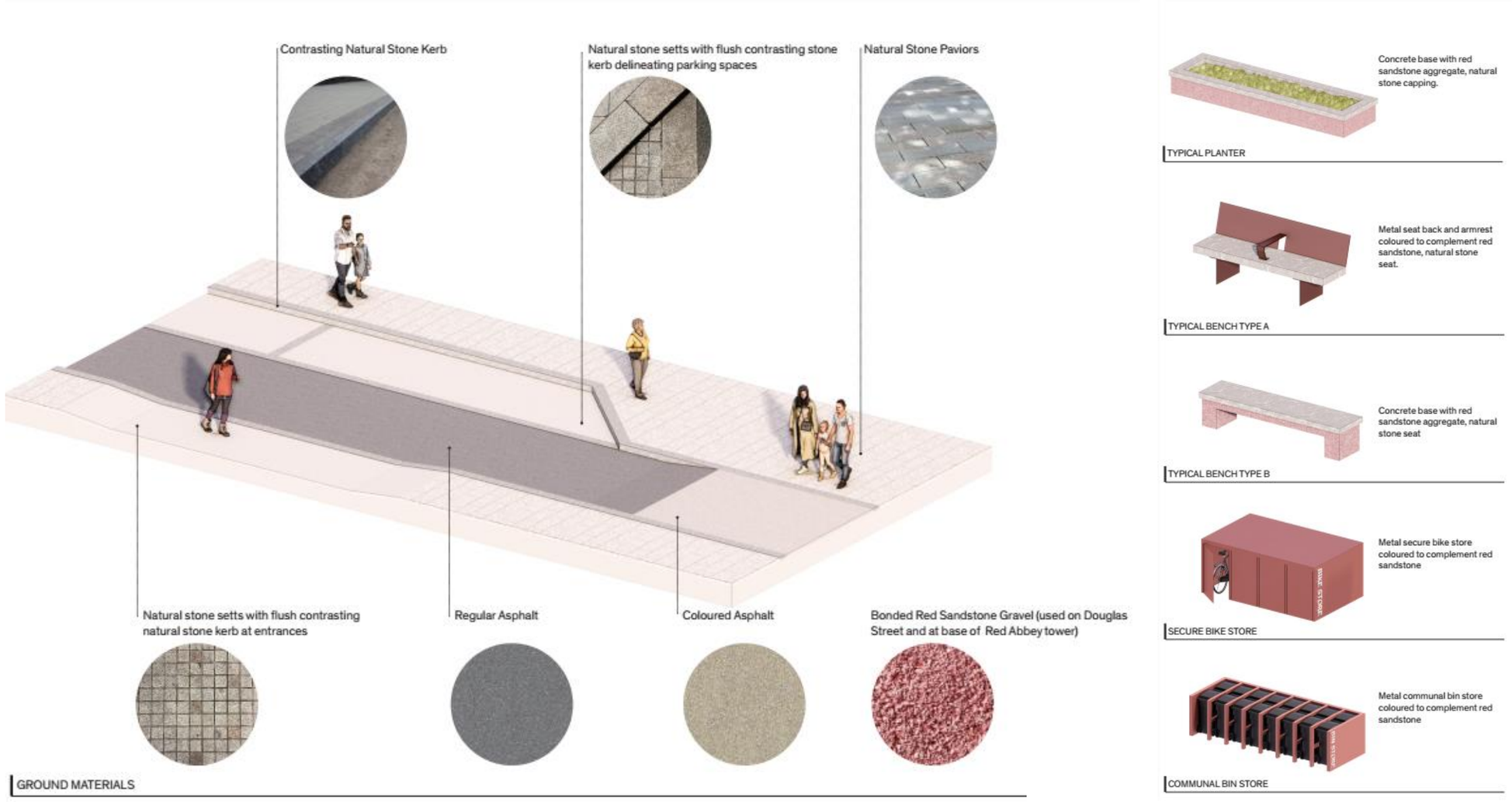


Figure 5-3 - Material Palette and Street Furniture

Play Strategy

- Develop and encourage the use of Douglas St, Mary St and White St as playable streets, serving the residential population and passersby with informal play elements that work with the linear nature of the scheme and develop layers and elements that subtly encourage different types of play.
- Linear play - work with the linear nature of the scheme to create trails, movement based play e.g. stepping stones
- Performance as play – provide opportunities for informal performance as play, widen and adapt some seating or steps to provide small stages where children can informally perform / play

- Messy play / tactile play- Allow some access to water or gravel, other loose elements for tactile play. A water fountain or access to water at the Langford Row Park could also reference the historic water trough.
- Signal / invitation to use functional elements for play - Add to or extend parts of some seating or planters to encourage their use for play
- After dark play - Opportunity to work with lighting for some after dark play e.g. sensored lighting.

Bin Storage Strategy

The storage of wheelie bins along the street was identified in early project stages as a key issue for residents and people passing through the area. Bins on the pavements were making the streets unsightly and difficult to traverse, adversely impacting accessibility throughout the neighbourhood for mobility-impaired pedestrians. The strategy developed for bin storage is to provide larger shared bin storage areas to serve residents on the upgraded areas of the street that are to be used to provide new public realm, thus minimising the impact of bins on the urban streetscape while maintaining ease of access for residents.

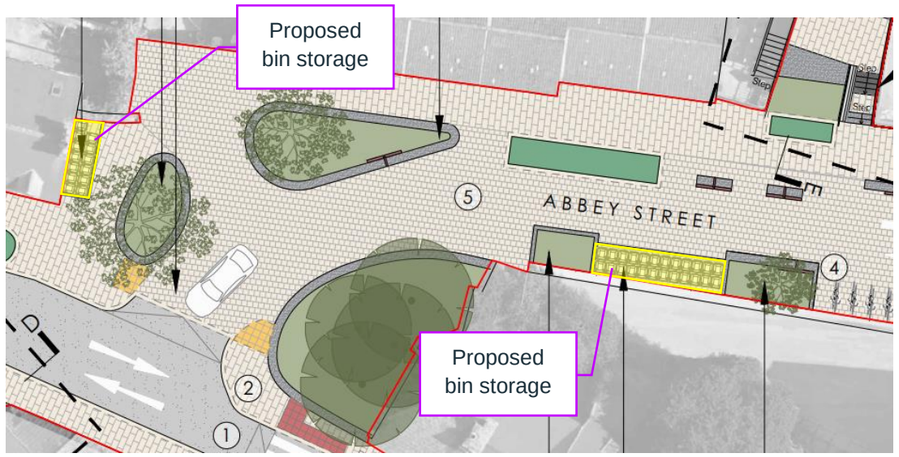


Figure 5-4 - Bin Storage Along Abbey Street

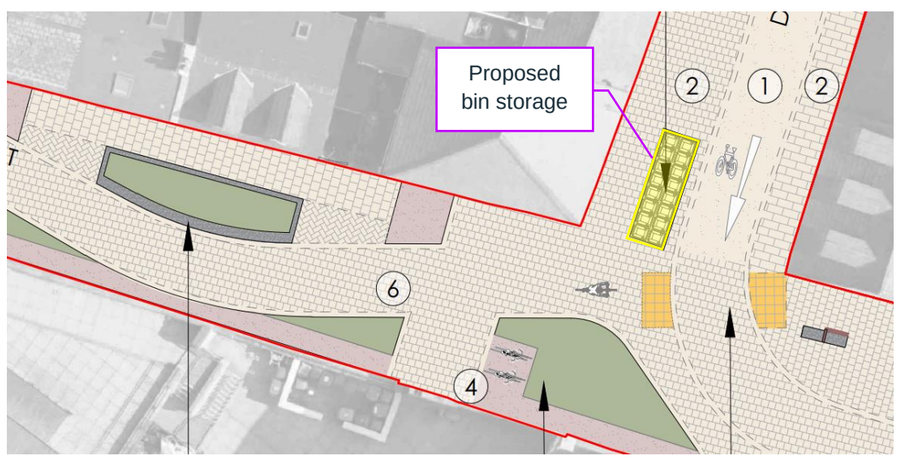


Figure 5-5 - Bin Storage Along Dunbar Street

Lighting Strategy

The lighting strategy for the scheme aims to provide an attractive environment that provides safe levels of lighting for all to see potential hazards and feel safe, while highlighting the historic assets within the neighbourhood, all while being mindful of the residents in the neighbourhood and ensuring usage of power-efficient and environmentally friendly solutions. The design will minimise light pollution, eliminate as far as is possible light spill into neighbouring properties, and will take account of the "Campaign for Dark Skies". All lighting will be designed in accordance with Cork City Council Public Lighting Office "Exterior Lighting Design Requirements, Guidance & Specification Manual for Lighting Equipment Supply, Installation & Maintenance".

LIGHTING COLUMN EXAMPLE

Anticipated Lux Levels

100 lux – Steps

30-50 lux – Junctions at Friar Street and Langford Row

10 lux – Pedestrian areas

Varies – Accent Lighting

Accent Lighting

Accent lighting is anticipated to highlight planters, steps and seats to create bright effects of light and shadows between the general and accent lighting. Uplighting is planned to illuminate Nano Nagle Place and Red Abbey Tower.

Figure 5-6 - Lighting Concepts

Dimming Profiles and Dynamic Lighting

Most of the scheme is anticipated to follow Dimming Profile U14, with incorporated trimming to 35/18 which is the currently used standard. Dynamic dimming by CMS / PIR will be utilised in the park area. The project will review opportunities to incorporate motion sensors in the park area, allowing the lighting levels to increase when there is motion and stay darker when it is still. This provides benefits regarding energy efficiency, light pollution, as well as increased safety by allowing pedestrians to see when others are approaching at night time.

Red Abbey Square

Red Abbey Square will be enhanced as a much-needed accessible amenity space within the South Parish, providing inviting spaces for people to pause and gather; places for all ages to sit and to play; additional trees and greening and improved access to the rich heritage asset of Red Abbey tower. The square will be paved with high quality natural stone providing a durable and flexible space that could support markets or small gatherings. Materials for street furniture will draw on historic elements in the South Parish to develop a scheme that is distinctly characteristic of Cork City, including the use of limestone and red sandstone as found in local buildings.

Traffic surrounding Red Abbey Square will be slowed through provision of a shared surface, better connecting this area to the pedestrianised section of Douglas Street and enhanced heritage setting for Nano Nagle Place beyond. This connection will be further strengthened through improved public realm and additional street furniture.

Figure 5-7 - Visualisation of Red Abbey Square

Langford Row Park

Figure 5-8 - Visualisation of Langford Row Park

Langford Row Park is designed as a Neighbourhood Garden that will provide a vital new green amenity in this part of the city. The design of the park will be subtly contemporary while remaining sensitive to the historic context, and will provide for community events, informal gathering and play as well as accommodating rain gardens as part of sustainable urban drainage solutions for the area. The design balances high quality paved areas with looser areas of planting.

A small Covered Pavilion designed to support community events and gathering will sit above the rain garden and will provide a focal point at the end of Douglas Street. Planting will include new trees surrounding the garden as well as rain gardens, grass mounds and pollinator and biodiversity planting. The proposed material palette inspired by historic elements includes coloured concrete with red sandstone aggregate, cut limestone capping, and red oxide finish to metal elements and a clear design language will connect planters, seating, play elements, walls and covered pavilion.

Figure 5-9 - Visualisation of Langford Row Park Pavillion

6. Landscape Design

Introduction to Softscape Concept

This softscape concept outlines the planting and green infrastructure strategy for the revitalisation of Douglas Street, Mary Street, and White Street. The approach prioritises climate resilience, biodiversity enhancement, strong visual character, and community wellbeing. Layered planting systems and designed plant communities provide both ecological and cultural value in this dense urban context, ensuring seasonal interest, habitat value, and a strong local identity.

Figure 6-1 - Sample Planting Plan at Junction with Evergreen St

Biodiversity & Pollinator Strategy

A matrix of perennial planting and layered planting design supports biodiversity across zones:

- Extensive Perennial Beds: Inspired by Piet Oudolf and Nigel Dunnetts approach, these include Nepeta, Echinacea, Sedum, and Calamagrostis, offering diverse textures and extended flowering.
- Pollinator Corridors: Supported through mass plantings of nectar-rich, long-season species and the integration of bulb layers (Allium, Scilla, Tulipa) for spring forage.
- Pocket Parks & Pause Zones: Include diverse understorey planting beneath multi-stem trees (Betula jacquemontii, Prunus shimidzu) for multi-season habitat layers.

Figure 6-2 - Pollinator Planting

Native & Non-Native Species

The palette balances native species with context-appropriate non-natives to deliver a robust urban street tree strategy. This pragmatic approach allows the planting scheme to deliver both ecological and visual success in challenging conditions:

- Native Species: Used where ecological function and cultural relevance align—e.g., Sorbus aucuparia, Betula pubescens and Pinus sylvestris
- Non-Native Inclusion: Essential in street and paved contexts due to root resilience, seasonal display, and tolerance to urban stress. Examples include Amelanchier lamarckii, Perovskia atriplicifolia, and Calamagrostis x acutiflora.

Figure 6-3 - Examples of Native and Non-native Combinations

Designed Plant Communities

Distinct plant communities are assigned to specific microclimatic zones:

- Full-Sun Prairie Planting: Using Stipa, Echinacea, and Salvia nemorosa in drift planting for visual rhythm and pollinator support.
- Shade / Understory Planting: Include Heuchera, Luzula, Helleborus, and Geranium renardii beneath trees for year-round cover.
- Layered Gateway Planting: Combine evergreen shrubs, perennial massing, and flowering bulbs for entry definition and seasonal drama.

Figure 6-4 - Examples of Plant Communities

Sustainable Urban Drainage Systems (SuDS)

SuDS are integral to the softscape strategy, ensuring functional stormwater management while contributing to amenity and biodiversity.

- Rain Gardens: Located at key points such as junctions and pocket parks, rain gardens are planted with grasses (e.g., Deschampsia, Stipa), flowering perennials (Verbena bonariensis, Iris sibirica), and water-tolerant shrubs to manage runoff and enhance biodiversity. (See Figure 6-5)
- Tree Pits with Integrated SuDS Functionality: Tree pits in the public realm are designed as multifunctional SuDS features that manage stormwater while supporting healthy tree growth. Each pit includes a structural or engineered soil system for root development and load-bearing beneath paving. A permeable surface layer (e.g., resin-bound gravel or tree grilles) allows rainwater infiltration, while a sub-base of open-graded aggregate provides temporary water storage. Surface runoff is directed into the pit via inlets, where it is stored and filtered. Additional features may include root barriers, aeration pipes, and passive irrigation systems. These systems reduce runoff, support groundwater recharge, and promote tree vitality in compacted urban environments.
- Swales: Swales will be integrated into the park to manage surface water runoff and serve as an outfall for the site's low-lying areas. These shallow, vegetated channels slow and filter runoff, support infiltration, and enhance biodiversity through moisture-tolerant planting, while also contributing to the park's visual structure.

1. Rainwater runs off hard surfaces into the rain garden.
2. The water filters through the soil and drainage layer.
3. Water infiltrates into the ground (where ground conditions permit); and
4. Water evaporates into the air from the soil or plants.

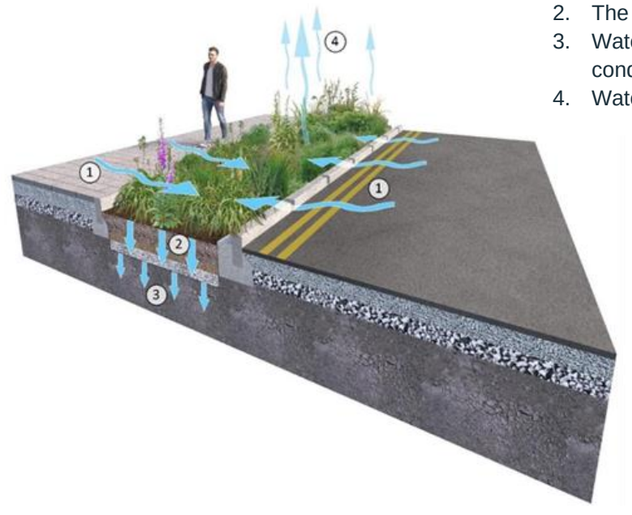


Figure 6-5 - Illustration of Typical Rain Garden

(Source: https:/www.nationaltransport.ie/wp-content/uploads/2023/09/NTA-Advice-Note-Greening-NBS-SuDS-for-AT-Schemes_R01.pdf)

Edible Planting – Langford Row Park

As part of the greening strategy for Langford Row urban green space, the design includes the integration of edible planting to support urban biodiversity, community engagement, and sensory experience. A small orchard-style grove of compact fruit trees, such as *Malus domestica* (apple), *Prunus domestica* (plum), and *Pyrus communis* (pear), will provide seasonal interest and encourage public interaction with the landscape. Understory beds will feature culinary herbs including *Rosmarinus officinalis* (rosemary), *Thymus vulgaris* (thyme), *Allium schoenoprasum* (chives), and *Mentha spicata* (mint), offering fragrance and foraging opportunities. This edible landscape approach enhances educational and ecological value while aligning with broader food sustainability goals.

Maintenance & Management

The strategy incorporates self-regulating, layered planting systems that reduce long-term inputs:

- Gravel mulch for moisture retention and weed suppression.
- Seasonal cutting of herbaceous material, typically once annually in late winter.
- Low-maintenance planting typologies to reduce ongoing management costs.

DESIGN STANDARDS AND APPROACH

7. Design Standards and Approach

The design follows best practice guidelines, including the Design Manual for Urban Roads and Streets (DMURS), NTA Cycle Design Manual and Sustainable Urban Drainage Systems (SuDS). The approach emphasizes:

- Pedestrian and cyclist priority.
- Traffic calming measures.
- High-quality materials and finishes.
- Integration with the historic character of the area.

Street & Footpath Widths

In line with DMURS section 4.4.1, carriageways throughout the project provide a typical minimum width of 2.8m. Due to the constrained widths, the provided on-street parking is typically 2.1m wide. The narrow lane widths will serve to calm traffic and provide a safer carriageway for cyclists to share. Proposed footpaths provide a minimum typical width of 1.8m. The proposed design width exceeds the Cycle Design Manual section 4.2.10.3 recommended minimum carriageway width of 4.6m to accommodate contraflow cycling on shared streets.

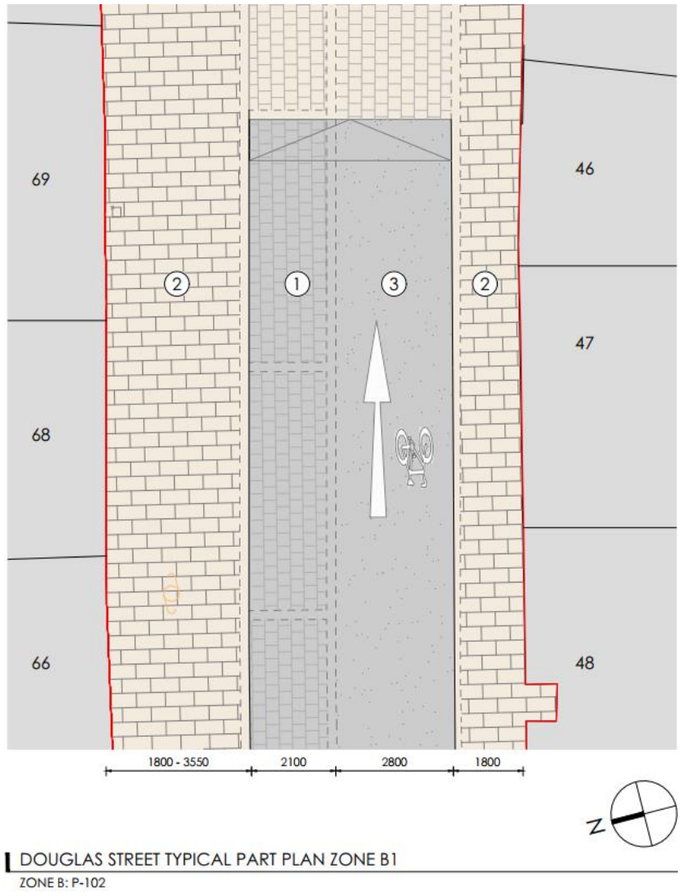


Figure 7-1 - Typical Street & Footpath Widths on Douglas Street

Disabled Parking

Due to the constrained street width, it is infeasible to provide 3.6m width disabled on-street parking widths as described in the Building Regulations, as doing so would eliminate the ability to provide footpaths on either side of the street. Eliminating footpaths would have been counterproductive to the aims of increasing accessibility, so the design team took an alternative approach to provision of on-street disabled parking.

To provide a design that is closer to compliance with the Building Regulations, the proposed disabled parking spaces are 7m long. As the width of the street is restricted, the width of the designated car parking space is limited to 2.1m from the kerb. In each case, the design team ensured that there is a 1.5m wide area on the footpath that is free of permanent structures/planters to make up the 3.6m width, and the space is level with the adjacent footpath (either located on raised table sections, or the footpath is dropped to match the carriageway at the parking space location).

Vehicular Speed Limit

In line with the new speed limits for roads in Ireland which were signed into law in April 2024, all roadways in this project are considered urban area will have a default speed limit of 30km/hr.

Cycle Connectivity

With the conversion of several roads from two-way to one-way streets, it is important that the scheme identify and provide the required cycle connectivity. As part of the Cork Cycle Network Plan, the CCC-U35 scheme is a secondary cycle link joining Summerhill St and Barrack St via Douglas St & Abbey St. Per the Plan, "This is proposed as a secondary route with a mixed street facility providing improved signage and road markings to alert motorists to cyclists." Figure 7-2 below illustrates how the scheme is providing two-way connectivity for bicyclists along the CCC-U35 route through the project.

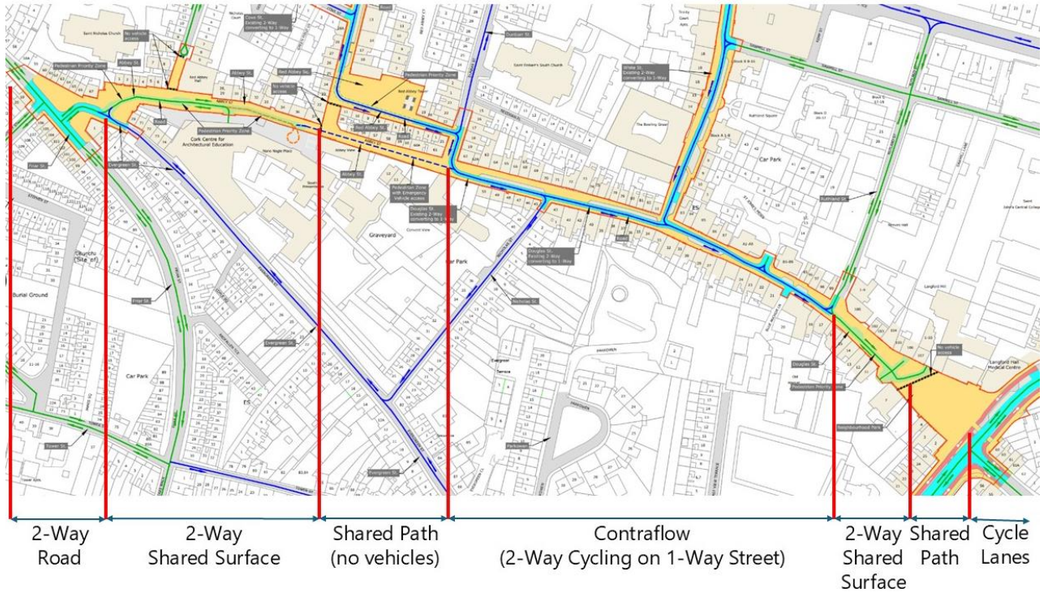


Figure 7-2 - Secondary Cycle Route CCC-U35 - Two-way Connectivity for Mixed Street Facility

To allow two-way access for bicyclists through one-way roads, contraflow cycle access will be allowed along several roadway sections in accordance with Cycle Design Manual Section 4.2.10. This access is made possible due to reduced traffic volumes and lower speeds throughout the scheme.

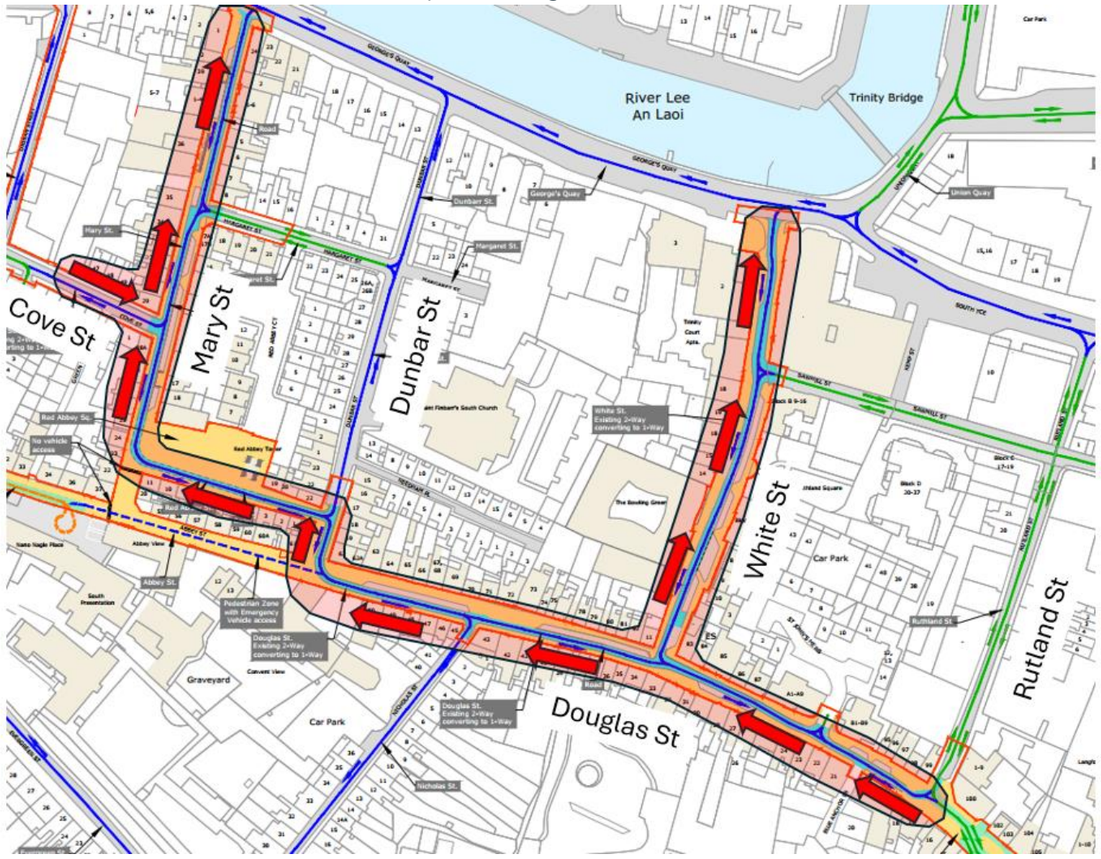


Figure 7-3 - Proposed Contraflow Cycle Facilities

The proposed contraflow cycle facilities for the scheme are illustrated in Figure 7-3 above. To facilitate east-west access to the neighbourhood west of Mary St, the scheme will provide contraflow cycle access eastbound from Drinan St to Mary St, and continuing on from the contraflow access described in Figure 7-2 above, cyclists can contraflow northbound on Drinan St from Douglas St to Red Abbey St, and from Red Abbey St continuing on to northbound Mary St up till it meets with Cove St. Mary St and White St will both provide contraflow cycle access northbound to provide full connectivity with George's Quay.

Vehicle Swept Path Analysis

Where vehicles are expected to make turning movements, such as junctions, a swept path analysis was performed using a swept path evaluation in AutoCAD. Given the constrained nature of the streets in the project vicinity, the design team decided to apply different vehicles based on the following criteria:

- Main Carriageways: Mary, Douglas (Central), Red Abbey, Dunbar, White, Rutland - 11.22m Rubbish Truck controls
- Secondary Carriageways: Douglas (West)/Abbey St, Cove, Margaret, Nicholas, Sawmill, Blue Anchor, Douglas (East) - 10m Rubbish Truck with consideration of 10m Rigid Truck at businesses.
- Garage Entries and Diagonal Parking Spaces - Normal Car controls

The constrained street widths, combined with increased footpath widths and decreased carriageway widths, creates a situation where larger vehicles would have difficulty making turns at the tight junctions throughout the scheme. Providing carriageway width to fully accommodate the swept path of vehicles would remove large portions of footpath and create longer pedestrian crossings. To balance between increased pedestrian priority for regular traffic, but allowing rubbish and delivery trucks to facilitate regular operation of the community and businesses, the design team took an approach to provide raised table junctions to allow the swept path to carry on the footpath and cross the kerbline before the ramp drops the carriageway back to a standard section with upstand kerb. Footpaths, kerbing and tactile surfaces within the anticipated swept paths will be designed to withstand vehicular loading.

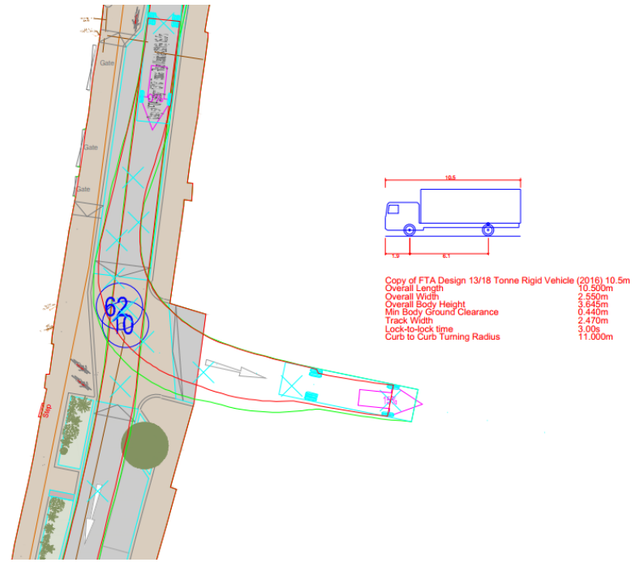


Figure 7-4 - Sample Swept Path Analysis Location

Emergency Services Access

In the process of reducing the available carriageway widths to accommodate improved footpath widths, it was paramount for the design team to ensure that emergency services were provided adequate widths to maintain access throughout the neighbourhood. After coordination with Cork City Fire Brigade, the design team learned that an 8.2 metre fire truck would be used in the majority of the neighbourhood. The design team applied an 8.2 metre fire truck swept path analysis throughout the scheme, but it was determined that the 10m rigid truck was the controlling vehicle throughout (and would therefore facilitate fire truck access). Swept path analysis was also performed to verify access for a 10 metre high-reach fire truck to reach taller buildings near the Langford Row Park.

There are two pedestrianised areas that required further evaluation regarding emergency services access; one at the western portion of Douglas Street, and the other at the new park near the Langford Row junction. In addition, the modifications at Travers Street are severing current connectivity, which required consideration of emergency access.

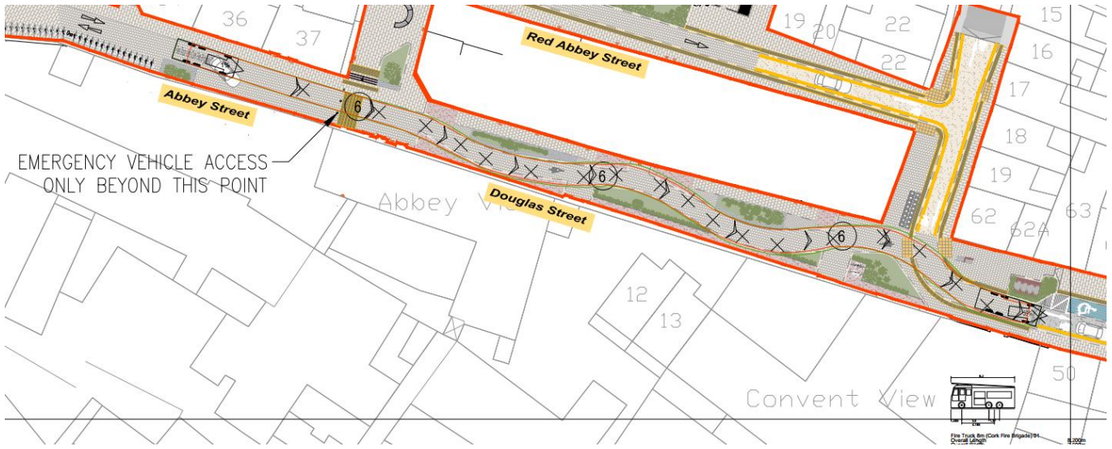


Figure 7-5 - Fire Truck Access at Douglas Street West

Access along Douglas Street West will primarily be available to emergency services via retractable bollards placed along Douglas Street in front of Nano Nagle's car park (in-line with Mary Street). The design team also decided to verify access would be available coming from Dunbar Street as well. The swept path analysis depicted in Figure 7-5 above was used as part of the iterative design, moving features to facilitate fire truck access. The planters along this portion of the road are such that the planters along the north are elevated to bench height, but the planters along the southern side could be traversable, allowing emergency services to drive over them if necessary. The swept path analysis shows that a standard fire truck would be able to stay on the pathway, however.

Emergency access in the new park location will be facilitated through usage of high-reach appliances accessing the taller buildings overlooking the park from Langford Row. Analysis was also performed to verify the high-reach appliance could access the location from the west as well. Cork City Council staff met with the Fire Brigade toward the end of 2024, and they are satisfied that the high-reach appliance can reach the upper floors with a setup position on Langford Row for fire tender access to the tall residential building at the Douglas St./Langford Row junction. The location and ultimate size of trees in the park area will be considered during detailed design to ensure nothing impedes the boom of the high-reach appliance relative to the newly proposed kerb lines.

With the proposed modifications at Travers Street, emergency vehicles will either have to reverse down the street, or drive down head-first and reverse back out. Parking will be restricted along the north side of Cove Street at the junction with Travers Street to help facilitate manoeuvres onto the street, and the scheme proposes to add a build-out on the southern side of Cove Street to the west of Travers Street to offset traffic and improve sight distance for eastbound Cove Street traffic if any emergency vehicles need to reverse out of the street.

Egress During Flood Events

There is a creche and Cork College of FET Douglas Street Campus located along the north side of the new park that will maintain vehicular access with the proposed improvements. These facilities currently have access to a private car park that is accessible from both Douglas Street and Sawmill Street. The design team has been informed that previous flooding along Sawmill Street has forced people parked in this car park to exit southward onto Douglas Street and out to Langford Row. With the addition of the park, this connection will no longer be an option.

The design team was provided with video of previous flooding events around the park location, and using the LiDAR survey, were able to ascertain an approximate maximum flood elevation from the previous event (this elevation also coincides with the approximate elevation of the Rutland Street junction, at which point the water would overflow and run northward along Rutland Street). A preliminary 3D surface has been developed for the design to approximate a shared surface that connects both existing edges of the street (maintaining property threshold elevations), and creating a valley approximately two metres south of the northern properties that allows surface water to channelise. Comparing the witnessed flooding elevation with this preliminary surface allowed the team to develop the approximate depths shown in Figure 7-6 below.

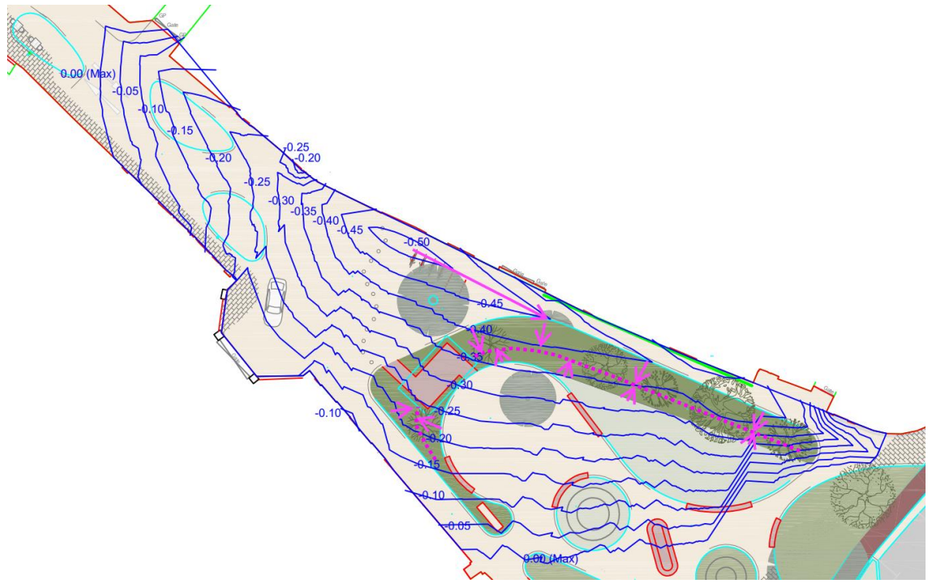


Figure 7-6 - Initial Depths of Historic Flooding Level versus Preliminary 3D Surface

The indicative low point from the preliminary surface is located in front of a mechanic shop on the northern side of the street, in a location where there are gullies next to an existing tree that is to remain. With the gully being near a tree, it is highly likely that it has propensity to become clogged, which could lead to the levels witnessed in the video, forcing water to travel overground and outlet northerly along Rutland Street. With the proposed design, the surface will be modified to allow the surface water to be channelised toward the planted swale as shown in pink lines in Figure 7-6. The park and swale will be graded to facilitate the overland drainage into the swale and provide overflow drainage inlets that will allow leaves and other potential blockages to settle into the swale without blocking the gully inlets. This will provide a new low point, drawing the surface water further away from the building thresholds, and simultaneously reducing the likelihood of gully blockages.

With the anticipated reduction in flooding depths, occupants near the park including those leaving the creche or the Cork College of FET Douglas Street Campus Car Park will be better able to travel westward away from

the park. During severe flooding events where lower-lying streets like Sawmill Street or George's Quay might be inaccessible, traffic between Rutland Street and Nicholas Street can be allowed to reverse flow (heading westerly) to allow vehicles from the park, Rutland Street and White Street to reach Nicholas Street as shown with red arrows in Figure 7-7 below. Nicholas Street can then be taken to access higher ground, connecting back to larger streets and providing further egress away from any flooding.

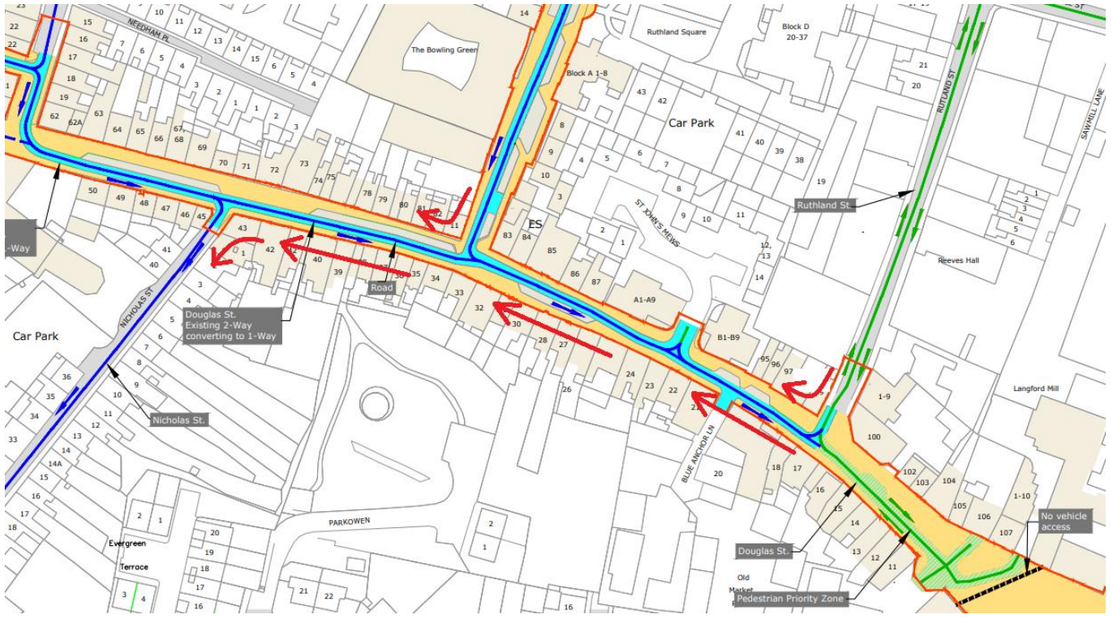


Figure 7-7 - Allowable Reverse Flow During Flood Events

If the lower lying roadways are inaccessible, cutting off access to Mary Street and White Street, emergency services can still access Douglas Street from the west (where emergency services may access via Friar Street or Evergreen Street), and traverse across the pedestrianised portion of Abbey Street using the retractable bollards in front of Nano Nagle Place.

Drainage & Utilities

With the wealth of history and archaeology in this area (see Section 9. Architectural & Archaeological Heritage below), it is important that the project minimise the required excavation areas, especially in the region around Red Abbey. Where excavation works are required, the project aims to keep them to a minimum, and within the previously disturbed zones within the street. With this approach in mind, the project obtained ground penetrating radar (GPR) surveys of the existing underground utility services. This data, combined with obtained utility record drawings, was used as a basis for the design. Proposed tree plantings were located in areas that avoid creation of utility conflicts which would require diversions. There were some select locations where these conflicts were unavoidable, however, so minor utility service diversions were identified where this occurred.

The existing overhead electrical and communications lines are proposed to be moved underground with this scheme. The preliminary design effort has included a proposed design of the required underground ducting for evaluation of potential conflicts. Proposed ducting will generally follow along the previously disturbed areas along the streets. The project red line boundary has been developed taking into account the reaches of overhead line that are anticipated to be placed underground.

With the constrained site, the drainage pattern will be similar to the existing condition. Some record information concerning the existing drainage systems has been received by the design team, but further surveys will be required for detailed design. There are two different drainage systems within the project area; one that drains surface water directly into the River Lee, and another that is a combined sewer system that connects into the City's treatment plant. The existing condition of the street is almost completely impervious, whereas the proposed scheme will be introducing more pervious areas and utilising SuDS elements like rain gardens and swales to further improve the concentration and quality of surface drainage entering the gullies. (See Figure 6-5 - Illustration of Typical Rain Garden) The scheme is intending to facilitate drainage by providing gullies with minor connections back to the existing systems in similar gully locations.

COORDINATION

8. Consultation

Extensive consultation was conducted with key stakeholders, including local businesses, residents, and heritage organizations. Feedback highlighted the need for improved footpaths, reduced traffic, and enhanced public spaces. A user satisfaction survey indicated strong support for pedestrian-friendly streets and public realm improvements.

Cork City Council have performed a comprehensive outreach campaign from 2023 through 2025 to engage with the public and key stakeholders. Some highlights from this process included Council staff conducting street surveys and door-to-door resident surveys in May 2023, a Non-Statutory Public Consultation in September 2024 and several presentations to various stakeholder groups including disability advocacy groups for Make Way Day 2024. Local businesses were robustly engaged, with particular concerns being addressed in multiple in-person meetings where design alternatives were addressed to find a balance that works best for the neighbourhood as a whole.

User Satisfaction Survey

A User Satisfaction Survey was carried out on Mary St, Douglas St and White St, aimed at pedestrians, cyclists, building owners and residents in the area.

Pedestrians and Cyclists

- Pedestrians and Cyclists were interviewed on the street on Mary St. Douglas St. & White St.
- Survey occurred between 07:00 – 19:00 on the 25th, 26th & 27th May 2023
- Interview were captured by interviewers interviewing people directly or by people filling out the survey online after receiving a QR from the interviewer

Building Owners & Residents

- QR codes to questionnaires were distributed in the letter boxes of buildings & houses along Mary St. Douglas St. and Whites St.

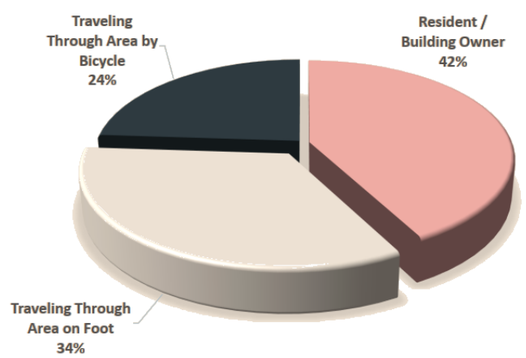
Questions

- There were 6 questions , 5 of which required one of the possible answers to be ticked or an order of preference given to a range of options. The last question was open ended where respondents were asked for any additional comments

Figure 8-1 - User Satisfaction Survey Responses

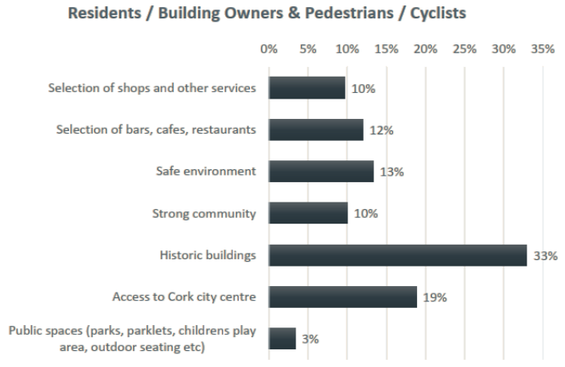
Question 1
Are you a resident or building owner in the Mary Street, Douglas Street or White Street Area?

Question 2
If you are not a resident or building owner are you currently travelling through the area on foot or by bicycle?



Respondent Type	Number
Resident / Building Owner	123 42%
Traveling Through Area on Foot	99 34%
Traveling Through Area by Bicycle	70 24%
Total Responses	292

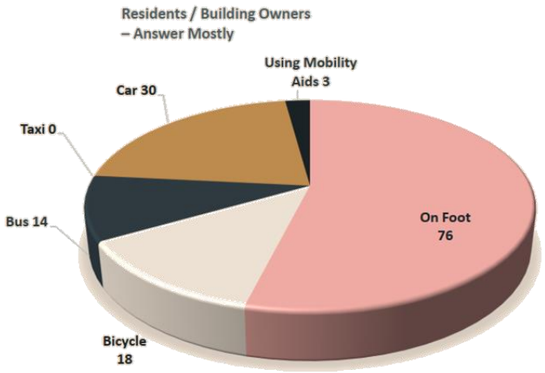
Question 3
What do you see are the positive aspects of the Mary Street, Douglas Street and White Street Area Currently



Answer Choices	Responses
Selection of shops and other services	10% 58
Selection of bars, cafes, restaurants	12% 72
Safe environment	13% 80
Strong community	10% 60
Historic buildings	33% 198
Access to Cork city centre	19% 113
Public spaces (parks, parklets, childrens play area, outdoor seating etc)	3% 20

General Consensus between Residents / Building Owners & Pedestrians / Cyclists

Question 4
How do you usually move around the Douglas St. Mary St. White St (South Parish) area

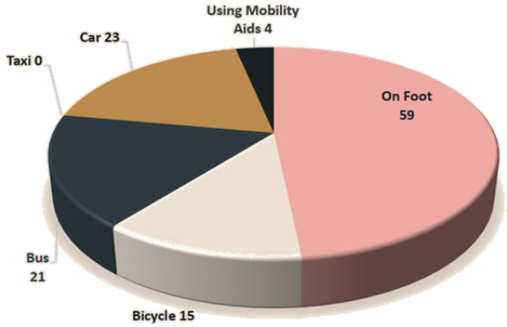


Answer Choice	On foot	Bicycle	Bus	Taxi	Car	Using mobility aids
Mostly	76	18	14	0	30	3
Often	25	11	12	1	10	0
Sometimes	15	14	18	12	14	2
Rarely	5	19	26	34	9	2
Never	2	61	53	76	60	116

63 Residents Use a Car (Mostly to Rarely)
vs 60 Residents Never Use a Car

Walking has Largest Modal Share
for Residents / Building Owners

Question 5
How would you prefer to move around the area in the future



Answer Choice	No
On foot	59
Bicycle	15
Bus	21
Taxi	0
Car	23
Using mobility aids	4

Active Travel has largest share of
preferred mode of transport

Increase in the Number of People Who Would like to Travel by Bus

Non-Statutory Public Consultation

Cork City Council hosted a Non-Statutory Public Consultation with support from AtkinsRéalis and John McLaughlin Architects to present the proposed scheme to the public and solicit input from the community. The consultation took place at Nano Nagle Place on 2nd & 3rd September 2024 from 9:30 am – 7:00 pm on both days. Council staff distributed 1,000 resident flyers, 200 business flyers and posted 8 posters through the neighbourhood to advertise the event. There were 131 attendees.

Area

1000 resident flyers

200 business flyers

8 posters

Flyers

Posters

Figure 8-2 - Invitations to Non-Statutory Public Consultation

Presentation boards were displayed throughout the room to allow the public to walk through the project background (including history of the area, review the need for the project and feedback from the User Satisfaction Survey, review the project timeline), view the proposed scheme through photomontage comparisons of the existing streets versus proposed visualisations, and review the overall proposed scheme layout, and continue to see the main issues including proposed revisions to vehicle movements through the scheme, traffic and parking impacts, and continuing on to see an analysis of public spaces currently available to the neighbourhood.

Upon signing in at the welcome table, participants received a feedback questionnaire form to capture their views and feedback as they made their way through the exhibition. (See Figure 8-3)

Figure 8-3 - Feedback Questionnaire

Figure 8-4 - Design Team Interacting with Participants

After receiving the feedback forms, Council staff were able to tabulate the responses to the Feedback Questionnaire forms, providing insight into the broader community's satisfaction with various aspects of the scheme as follows:

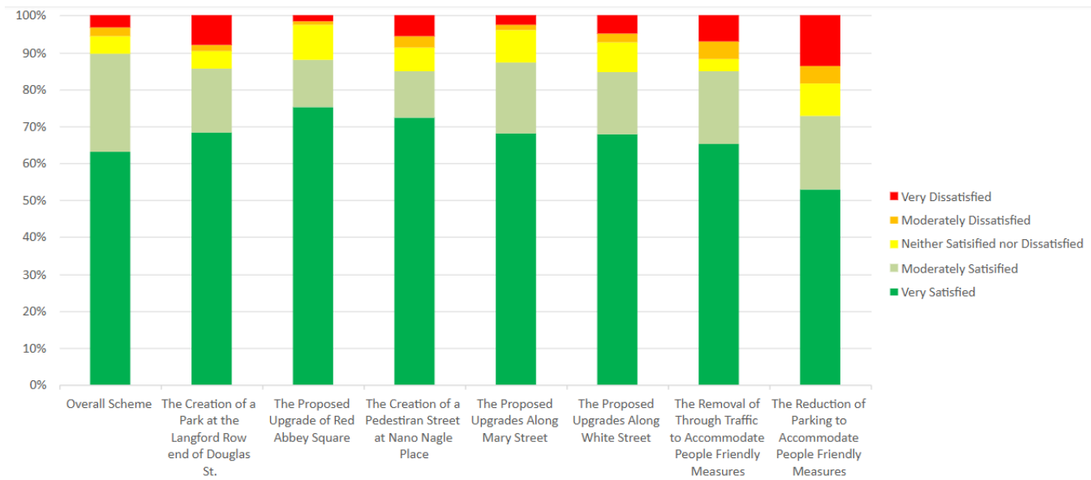


Figure 8-5 - Feedback Questionnaire Responses

Key takeaways from the questionnaire responses include:

- Every project aspect received greater than 50% "Very Satisfied" (greater than 70% including "Moderately Satisfied")
- Areas with largest dissatisfaction included Removal of through traffic & Reduction in Parking
- Overall scheme approval ("Very Satisfied" and "Moderately Satisfied") was nearly 90%

A total of 263 comments were received through the Feedback Questionnaire, and are summarised in Appendix A.2. The design team considered each comment, and several modifications were made to the design as a result of the interactions during the event and the feedback provided. Several business owners also attended the event, and conversations progressed into early 2025 with the design team providing analysis and configuration refinements to allow the project to work for residents and local businesses alike.

9. Architectural & Archaeological Heritage

An Archaeological Impact Assessment was prepared that examines the known and potential archaeological resource within a study area encompassing the footprint of the proposed scheme and the area extending for 100m in all directions from its extent. The study area is located in the South Parish area of the city, to the immediate southeast of the medieval core and is located within the Zone of Archaeological Potential (ZAP) surrounding the historic core of Cork (CO074-034001-) as defined by Cork City Council and the Archaeological Survey of Ireland. The report firstly outlines the methodology used in its compilation and then provides an archaeological and historical context for the study area, which includes a summary of the legal and planning framework relevant to the archaeological resource. The results of a site inspection are described, an assessment of impacts is provided and conclusions and recommended archaeological mitigation measures are detailed.

Desktop Study

The assessment commenced with a desktop study carried out in order to identify all known archaeological sites within the study area. The principal sources reviewed for the known archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). Between 1984 and 1992, the Archaeological Survey of Ireland (ASI) issued a series of county SMRs which list known archaeological sites and places, and this record formed the basis for the statutory RMP established under Section 12 of the National Monuments (Amendment) Act 1994. Similar in format to the SMRs (comprising a list and set of maps), the RMPs were issued for each county in the State between 1995 and 1998. Archaeological monuments included in the statutory RMP are legally protected and are generally referred to as 'Recorded Monuments'.

The Archaeological Survey of Ireland (ASI) has continued to record and add entries to the SMR and has developed an online database and web viewer known as 'Historic Environment Viewer' which provides access to the current SMR database of the National Monuments Service (www.archaeology.ie). Current SMR datasets were reviewed in April 2025.

Site Inspection

The streets within the study area were inspected January 2023 and January 2025. The area was assessed in terms of historic streetscape, recorded archaeological sites and potential for undetected archaeological sites/features.

An archaeological inspection of the study area was undertaken on 31st January 2023 by a suitably qualified archaeologist (David Murphy) and a follow up inspection was carried out in January 2025. The study area was assessed in terms of historic streetscape, recorded archaeological sites and potential for undetected archaeological sites/features. Weather conditions were dry and bright on the days of survey and this provided excellent visibility.

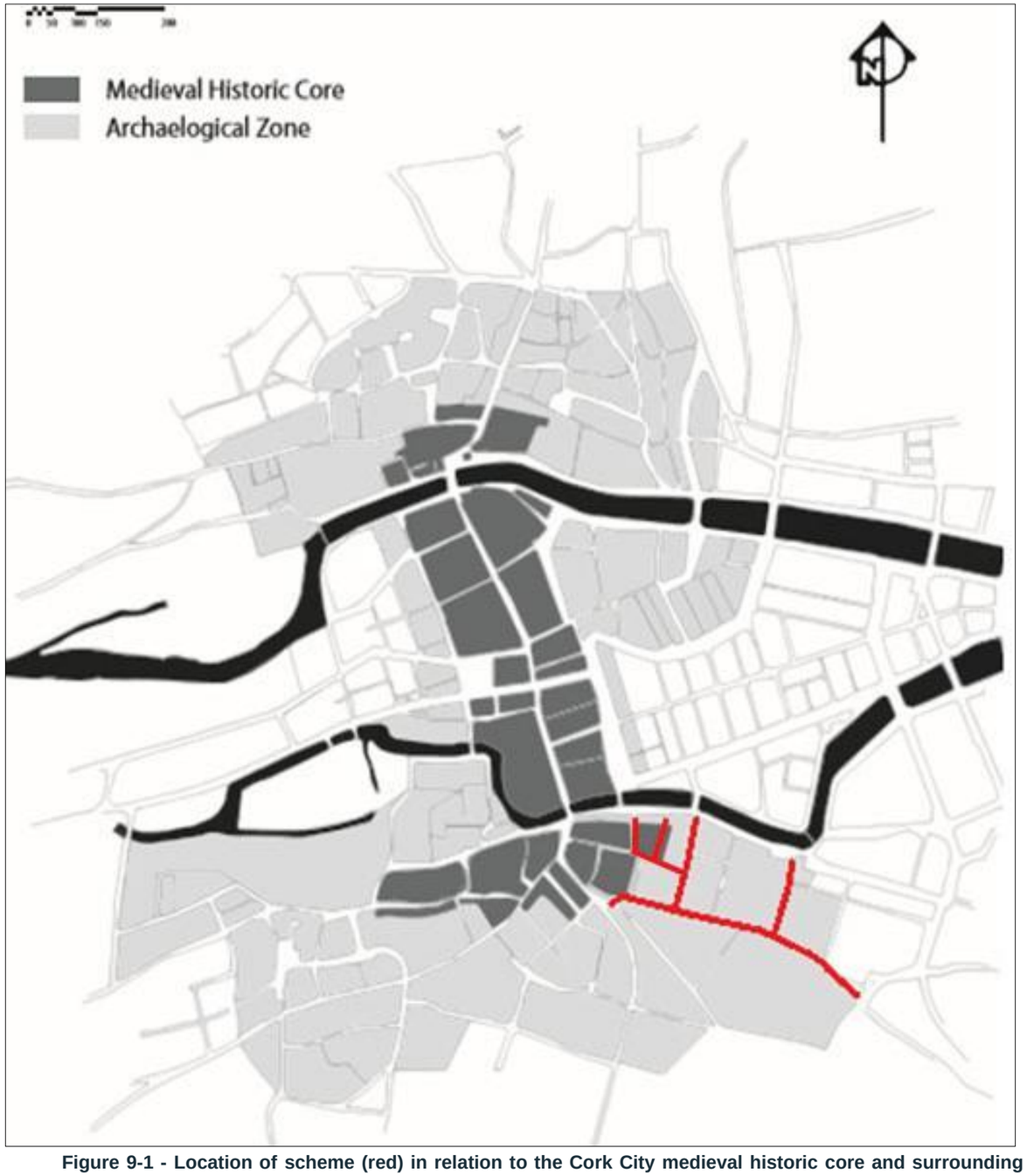


Figure 9-1 - Location of scheme (red) in relation to the Cork City medieval historic core and surrounding archaeological zone as defined by Cork City Council

Assessment of Potential Impacts

Proposed Works

The proposed scheme area encompasses Abbey Street, Mary Street, Douglas Street, Meade Street, Drinan Street and White Street in the South Parish area of Cork City. The scheme design will incorporate: a reduction in on street parking; full or partial pedestrianisation of some of the streets in the study area; footpath widening and enhancement; decluttering of the streetscape and undergrounding of overhead services; provision of Sustainable Urban Drainage Systems (SUDS); the provision of cycle facilities including secure bike parking; public realm enhancements including providing public spaces with greening and improved public lighting.

The proposed scheme will provide for remediation works required to ensure that the Red Abbey crossing tower is safe to walk beneath, and this will include the removal of the existing modern fencing. The upgrades to improve public lighting within the environs of Red Abbey will utilise existing pole locations in order to avoid new areas of ground disturbance within the environs of the monument. The proposed scheme will also entail ground works to facilitate drainage works and the undergrounding of overhead electrical and communication lines in the streets within the study area.

Impact Assessment

The study area is located within the Zone of Archaeological Potential which surrounds the medieval historic core of Cork (CO074-034001-) and, in general, can be considered to possess a moderate to high archaeological potential. There are nine individual recorded archaeological sites located within 100m of the proposed scheme (Table 1 and Figure 3) and the majority of these are likely contained within their historic boundaries which do not appear to have extended into the streets located within the footprint of the proposed scheme. However, the Augustinian 'Red Abbey' (CO074-041----), is located within the close environs of proposed scheme works. This is a National Monument in the ownership of Cork City Council and, as such, this archaeological site, and its environs, are afforded greater legal protection under the National Monuments Act 1930 (as amended).

Based on the results of previous archaeological investigations within the environs of the Red Abbey, it comprises an area of particularly high archaeological potential with a high likelihood of the presence of sub-surface archaeological remains, including medieval structural remains, deposits, artefacts and human burials.

The proposed scheme will not require any ground works that will result in direct adverse impacts on any known elements of the recorded archaeological resource. The proposal to enable public access to the extant remains of the Red Abbey crossing tower by the removal of the existing security fencing will result in a positive effect on the setting of this monument and will also facilitate enhanced public access. The existing security railing panels are not directly attached to the tower and their removal will, therefore, not require any direct interventions to the structure. The removal of the internal mesh fencing panels within the crossing tower will require detaching modern metal poles that have been inset into its masonry. The removal of this fencing will result in a temporary, negligible magnitude, direct effect on the monument which will result in a positive residual effect on its setting and accessibility. The proposed scheme will replace the existing fencing with clips or hinges that will facilitate the temporary reinstatement of security fencing in the event that it is necessary for religious events or if anti-social behaviour becomes an issue.

The western end of the proposed scheme in Abbey Street is located within the environs of a late 11th/early 12th-century Hiberno-Scandinavian settlement, which was centred in the Barrack/Cove Street area, and is also within the environs of the medieval ecclesiastical church (CO074-040002-) in the area now occupied by the 19th-century St Nicholas Church. The remainder of the proposed scheme is also located within the Zone of Archaeological Potential around the historic core of Cork and may retain sub-surface remains associated with residential and industrial expansion of the city into the area during the post-medieval period.

It is also noted that the Benedictine priory of St John the Evangelist (CO074–043----) is reputed to have been founded in the vicinity of Douglas Street/White Street in c.1191 but its precise location is unknown. While no traces of this priory have been uncovered to date during archaeological investigations carried out within the environs of the proposed scheme, the potential exists for the presence of sub-surface remains of this site within the study area.

In conclusion, the proposed scheme will require ground reduction works, including drainage and service trenches, within the Zone of Archaeological Potential encompassing the historic core of Cork. The potential exists that sub-surface archaeological features and deposits associated with recorded archaeological sites in the vicinity of the streets within the footprint of the proposed scheme may extend beyond their existing boundaries. This is particularly relevant with regards to religious sites such as the church and graveyard of St. Nicholas (CO074-040001-; CO074-040002-), the Red Abbey (CO074-041----) and potentially, the Benedictine priory and hospital of St John the Evangelist (CO074–043----; CO074-080----). Both the church of St. Nicholas and the Red Abbey are in close proximity to the sections of the proposed scheme in Abbey Street and Mary Street respectively. The archaeological potential of the Red Abbey area is attested to by the results of previous archaeological investigations which have uncovered human burials and structural remains dating from the medieval period onward.

Finally, the recent discovery of a large defensive-type ditch feature (CO074-183----) to the rear of No. 52 Barrack Street must also be considered. The ditch, which was radiocarbon dated to the mid to late-11th century, may potentially represent an outer defensive line of the Hiberno-Scandinavian south bank settlement. The revealed curvature of this previously unrecorded feature suggested a continuation to the northeast, along an alignment that may potentially continue towards the western side of the study area and onwards towards the location of the Hiberno-Scandinavian harbour at Cove Street (Murphy 2022). The potential for the survival of sub-surface elements relating to this feature must also be considered in relation to any subsurface groundworks undertaken in Abbey Street, Mary Street or the western end of Douglas Street.

In conclusion, while the proposed scheme will not result in any predicted direct effects on extant archaeological sites within the study area, the potential exists for direct negative effects on any unrecorded, sub-surface archaeological remains within the study area and this will require mitigation.

Archaeological Conclusions and Recommendations

Conclusions

The archaeological impact assessment was undertaken in order to assess the known and potential archaeological resource of the streets within the boundary of the proposed scheme and to determine the nature of potential impacts which may occur to this resource. Based on the evidence garnered from relevant datasets and the historic documentary and cartographic sources, it is concluded that ground works required to facilitate the proposed scheme will result in no direct effects on any known archaeological monuments.

However, due to the study area's location within the Zone of Archaeological Potential which surrounds the medieval historic core of Cork (CO074-034001-), the subject streets can be considered to possess a moderate to high archaeological potential. The western portion of the study area, in particular, possesses a heightened archaeological potential due to its location within, or in immediate vicinity to, an area that documentary sources indicate was close to the late 11th / early 12th-century Hiberno-Scandinavian settlement. This is also the case for the area of the proposed scheme in the vicinity of the church and graveyard of St. Nicholas and the Red Abbey.

As such, it is considered that, without the implementation of appropriate mitigation measures (see below), any sub-surface ground works undertaken as part of the proposed scheme have the potential to directly and negatively impact on the unrecorded archaeological heritage resource of the area.

Recommendations

It is recommended that sub-surface ground works carried out as part of the proposed scheme should be subject to archaeological monitoring by a suitably qualified Project Archaeologist and under a licence issued by the National Monuments Service. This will include monitoring of any required advanced geotechnical investigations as well as works such as drainage and service trenching during the construction phase. It is recommended that in the event that any advance geotechnical investigations (e.g. boreholes, trial pits and slit trenches) are proposed within the environs of the Red Abbey, the locations of such works should be subject to advance archaeological review. The potential for incorporating targeted archaeological investigations as part of any such advance works, if required in this archaeologically sensitive area, should be considered in consultation with the Cork City Council Archaeologist and the National Monuments Service.

The archaeological monitoring of the proposed scheme should be undertaken until such time that the project archaeologist is satisfied that no further risk to the archaeological resource exists, and this should be determined in consultation with the Cork City Council Archaeologist and the National Monuments Service. In the event that any archaeological artefacts, features or deposits are revealed during the programme of archaeological monitoring, all machine excavation should be halted at the relevant location while the discovery is cleaned and cordoned off by the Project Archaeologist. The Cork City Council Archaeologist and the National Monuments Service should then be notified of the discovery and consulted to determine the appropriate mitigation strategy which may entail preservation in situ by avoidance or preservation by record through a licensed archaeological excavation.

In the event that any human remains are identified during monitoring, including within the environs of St. Nicholas Church and the Red Abbey, all works should be halted at the location while the National Museum of Ireland and An Garda Síochána are notified as per statutory requirements. The services of a suitably qualified osteoarchaeologist should also be retained in order to advise on any required future strategy for the treatment of any such human remains.

In addition, any other works within the environs of the Red Abbey, such as the removal of security fencing, should be supervised by the Project Archaeologist who will include a written and photographic record of the works. It should be noted that the Red Abbey is a National Monument in the ownership of a Local Authority and, therefore, an application for a Ministerial Consent for any works within the environs of this monument may be required. This application should include detailed design information describing the nature and extent of the proposed works as well as measures that will be enacted to protect the monument. It is recommended that the appointed Project Archaeologist should liaise with the Cork City Council Archaeologist in relation to any such application process well in advance of the commencement of any works at this location in order to ensure

that no delays to the scheme programme will occur. It is also recommended that the location of the Red Abbey plaza area should also not be used as a compound or storage area during the construction phase and that the area should be kept well-maintained at all times.

10. Environmental Assessment / Considerations

EIA Screening

An EIA screening report has been carried out in accordance with the Planning and Development Regulations as amended 2001- 2025 (which give effect to the provisions of EU Directive 2014/52/EU). The report assessed the impact of the Proposed Development in conjunction with committed developments in the surrounding area.

Based on all available information, and taking account of the scale, nature and location of the Proposed Development, AtkinsRéalis provided an opinion that the preparation of an EIAR is not a mandatory requirement (under Schedule 5, Part 1 and 2 of the Planning and Development Regulations 2001 - 2025. The Proposed Development is deemed a sub-threshold development; hence the potential for significant environmental effects arising as a result of the Proposed Development has been evaluated, in accordance with the requirements of Schedule 7A and Schedule 7 of the Planning and Development Acts 2001-2025.

Key findings are summarised as follows;

- Due to the limited nature of the works it is considered that there will be no significant cumulative impacts with other developments in the general area;
- There will be no significant impact on biodiversity, groundwater, surface water or traffic; and,
- There will be no significant impacts on recorded monuments or historic features.

In summary, no significant adverse impacts to the receiving environment will arise as a result of the Proposed Development. Please refer to the EIA Screening Report and the Cork City Council Determination as Competent Authority for further information.

AA Screening

AtkinsRéalis was appointed by Cork City Council to prepare, on its behalf, an Appropriate Assessment (AA) Screening Report in respect of the proposed upgrades scheme along Mary St. Douglas St. White St Public Realm Enhancement Scheme. The report comprises the AA Screening Report in respect of the proposed works and is intended to assist Cork City Council, in its capacity as the competent authority in this case, by providing it with sufficient evidence to make a properly informed determination as to whether Appropriate Assessment under article 6(3) of the Habitats Directive (02/43/EEC) is required in respect of the proposed works.

The AA Screening Report has examined the details of the proposed Mary St. Douglas St. White St Public Realm Enhancement Scheme and the Natura 2000 sites in their Zone of Influence. It has analysed the potential impacts of the proposed works on the receiving natural environment and evaluated their effects, both individually and in combination with other plans and projects, in view of the conservation objectives of the relevant Natura 2000 sites. The report has been prepared in line with the Habitats Directive, as transposed into Irish law by the Habitats Regulations, relevant case law and guidance from the European Commission, the relevant Government Departments, and the Office of the Planning Regulator, on the basis of objective information and adhering to the precautionary principle.

Following the assessment detailed in the report, it was concluded that the proposed works will not, either individually or in combination with other plans or projects, give rise to impacts which would constitute significant effects on the Great Island Channel SAC, Cork Harbour SPA or any other Natura 2000 site, in view of their conservation objectives. Please refer to the AA Screening Report and the Cork City Council Determination as Competent Authority for further information.

11. Conclusions and Recommendations

The Mary Street, Douglas Street, and White Street Public Realm Enhancement Scheme is a significant project that aligns with policy objectives and addresses key issues identified through consultation. The scheme will improve safety, accessibility, and the quality of the public realm, while respecting the historic character of the area. It is recommended to proceed with the preferred option, incorporating traffic management measures and providing an enhanced public realm that provides benefit to the community as a whole.

APPENDICES

A.1 Traffic LAM Report

Mary Street, Douglas Street and White Street Upgrades Scheme

Traffic Modelling Report

Cork City Council

June 2025

Notice

This document and its contents have been prepared and are intended solely as information for Cork City Council and use in relation to Mary Street, Douglas Street and White Street Upgrades Scheme

WS Atkins Ireland Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 56 pages including the cover.

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 0	Draft for comments	MA	DS	BL	BL	22/01/2023
Rev 1	Additional Scenarios	MA	MA	BL	BL	07/03/2024
Rev 2	Updated Scenarios	RT	BL	MA	BL	25/06/2024
Rev 3	Update Scenarios	BL	NC	BL	NC	11/12/2024
Rev 4	For Planning Approval	BL	NC	BL	NC	09/06/2025

Client signoff

Client	Cork City Council
Project	Mary Street, Douglas Street and White Street Upgrades Scheme
Job number	5218684
Client signature / date	

Contents

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Figures

1. Introduction

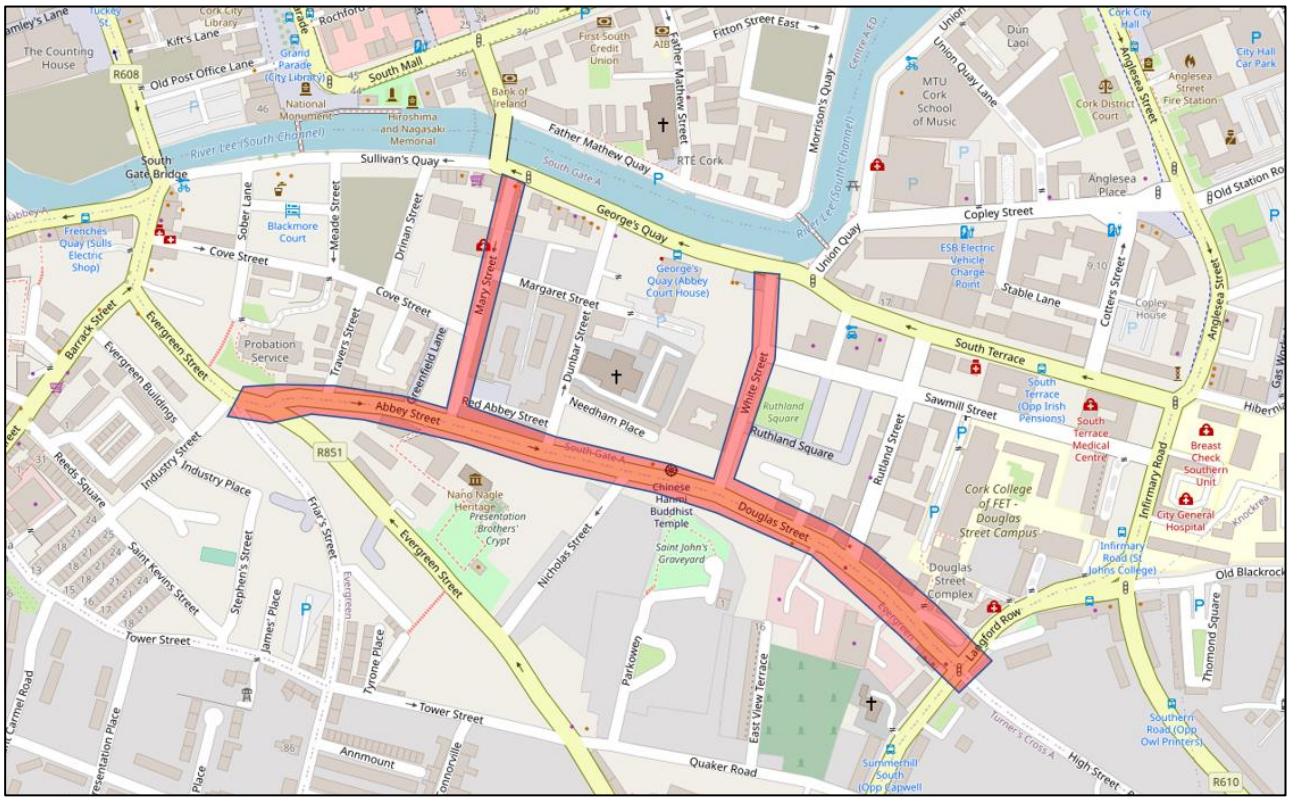
1.1. Background

Cork City Council (The Client/CCC) as the Contracting Authority, appointed AtkinsRéalis (the Consultant) to provide Engineering-led Multi-disciplinary Consultancy and Design services for the progression of the public realm provisions and associated works along Mary Street, Douglas Street & White Street in Cork City from Concept Development & Option Selection through to Close out and review, encompassing all elements in-between.

1.2. Project Location

The project is located along Mary Street, Douglas Street & White Street in Cork City, Co. Cork. The extents of the scheme include Mary Street, Abbey Street, Douglas Street, and White Street in their whole length. Figure 1-1 illustrates the location and the extents of the scheme.

Figure 1-1 - Scheme location map



1.3. Transport Modelling Rationale

In this context, the proposed upgrades include modifying the current transport network, by changing traffic directionality and restricting access to certain part of the study area. Understanding and quantifying the impacts the scheme will have on road traffic and more generally on Cork City transport system is necessary to select the best solution. Pursuing this aim, AtkinsRéalis undertook traffic and transport analysis by building a Local Area Model (LAM). The purpose of the LAM is to test how the road traffic would distribute under different circumstances (i.e. the proposed scheme) and identify and mitigate if possible any impacts that may arise. The transport modelling and analysis give confidence that the scheme to be implemented will function from a traffic perspective.

1.4. Report Content

This report includes a description of the data used for the transport modelling (Chapter 2), methodology to develop and calibrate a bespoke model (Chapter 3), the testing done with the model (Chapter 4) and the conclusions drawn from the modelling work (Chapter 5).

2. Data Requirement

2.1. Introduction

This section provides details on the traffic surveys carried out to collect data to develop a local area model of the study area.

2.2. Traffic Surveys

Traffic surveys were carried out within the study area and comprise the following:

- Junction Turning Count (JTC);
- Pedestrian Turning Count;
- Origin Destination Survey;
- Traffic Signal Data; and
- Queue Length Survey.

2.2.1. Junction Turning Count

Junction turning count data was collected for a 12-hour period between 07:00 and 19:00 for a single weekday. The locations of JTC are shown in Figure 2-1 and listed in Table 2-1.

Figure 2-1 - Locations of JTC Survey

Table 2-1 - Locations of Junction Turning Count

Junction ID	Location
1	South Gate Bridge/Sullivan's Quay Junction
2	Mary St/George's Quay Junction
3	Dunbar St/Buckingham Pl Junction
4	White St/George's Quay Junction
5	Rutland St/South Terrace Junction
6	South Terrace/Infirmary Road Junction
7	Barrack St/Evergreen St Junction
8	Evergreen St/Industry St/Friar St/Abbey St Junction
9	Douglas St/Dunbar St Junction
10	Douglas St/White St Junction 10
11	Douglas St/Rutland St Junction
12	Langford Road/Southern Road Junction
13	Douglas St/Summerhill S Junction
14	Barrack St/Tower St Junction
15	Tower St/Friar St Junction
16	Tower St/Evergreen St Junction
17	Quacker Road/Summerhill S Junction
18	Summerhill S/Evergreen Road Junction

2.2.2. Pedestrian Turning Count

Pedestrian turning counts were collected at key junctions within the study area for a 12-hour period between 07:00 and 19:00 for one weekday. The locations of pedestrian turning count are shown in Figure 2-2 and Table 2-2.

Figure 2-2 - Locations of Pedestrian Turning Count

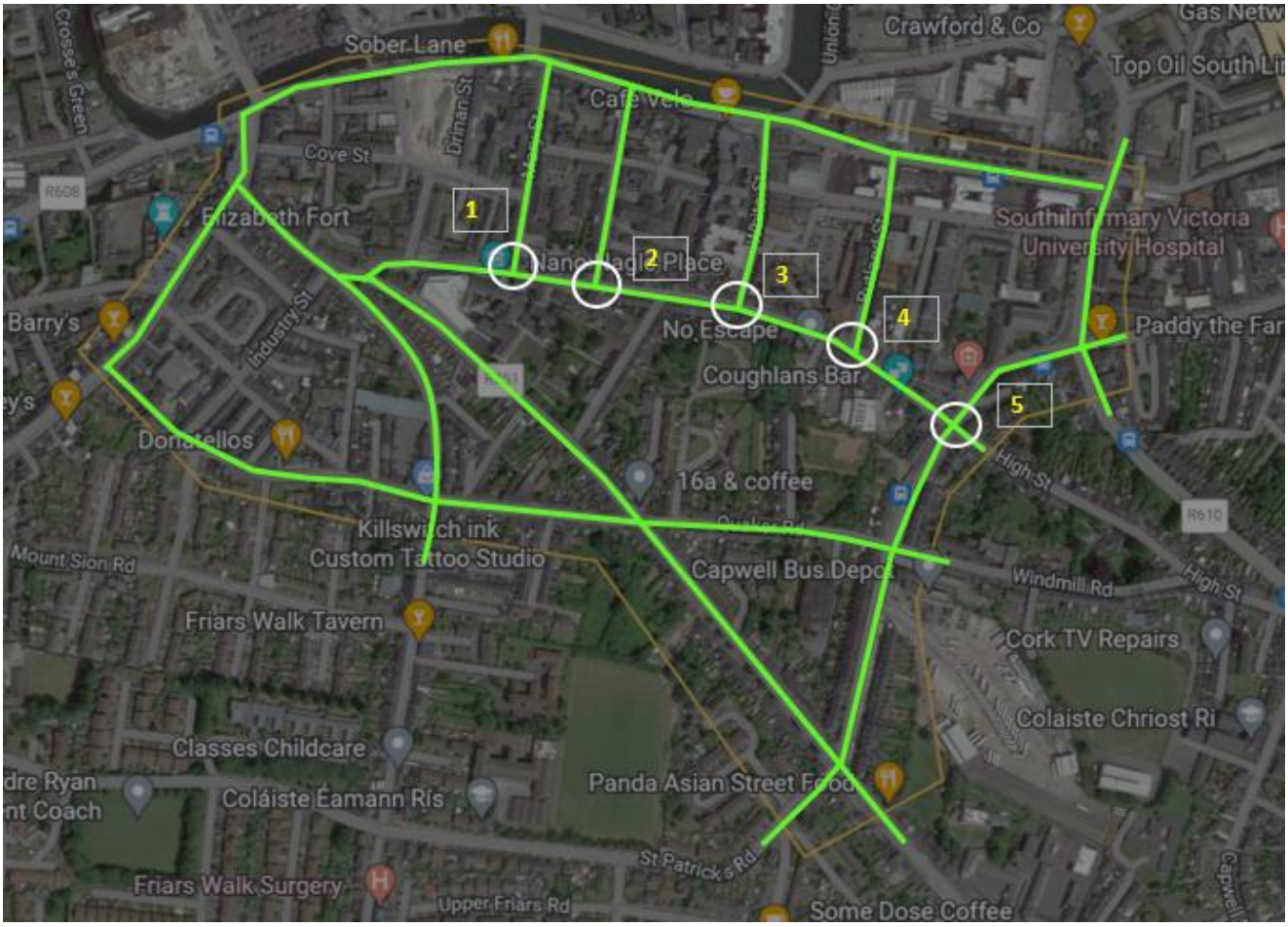


Table 2-2 - Locations of Pedestrian Turning Count

Junction ID	Location
1	Abbey St/Mary St Junction
2	Douglas St/Dunbar St Junction
3	Douglas St/Nicholas St Junction
4	Douglas St/White St Junction
5	Douglas St/Rutland St Junction

2.2.3. Origin Destination Survey (ANPR)

The Origin Destination survey was carried out using the Automatic Number Plate Recognition (ANPR) method. The survey was carried out for the morning (8 to 9 AM) and the evening (17 to 18 PM) peak hours. The locations of the ANPR data collection points are shown in Figure 2-3. The locations are summarised in Table 2-3.

Figure 2-3 - ANPR Locations

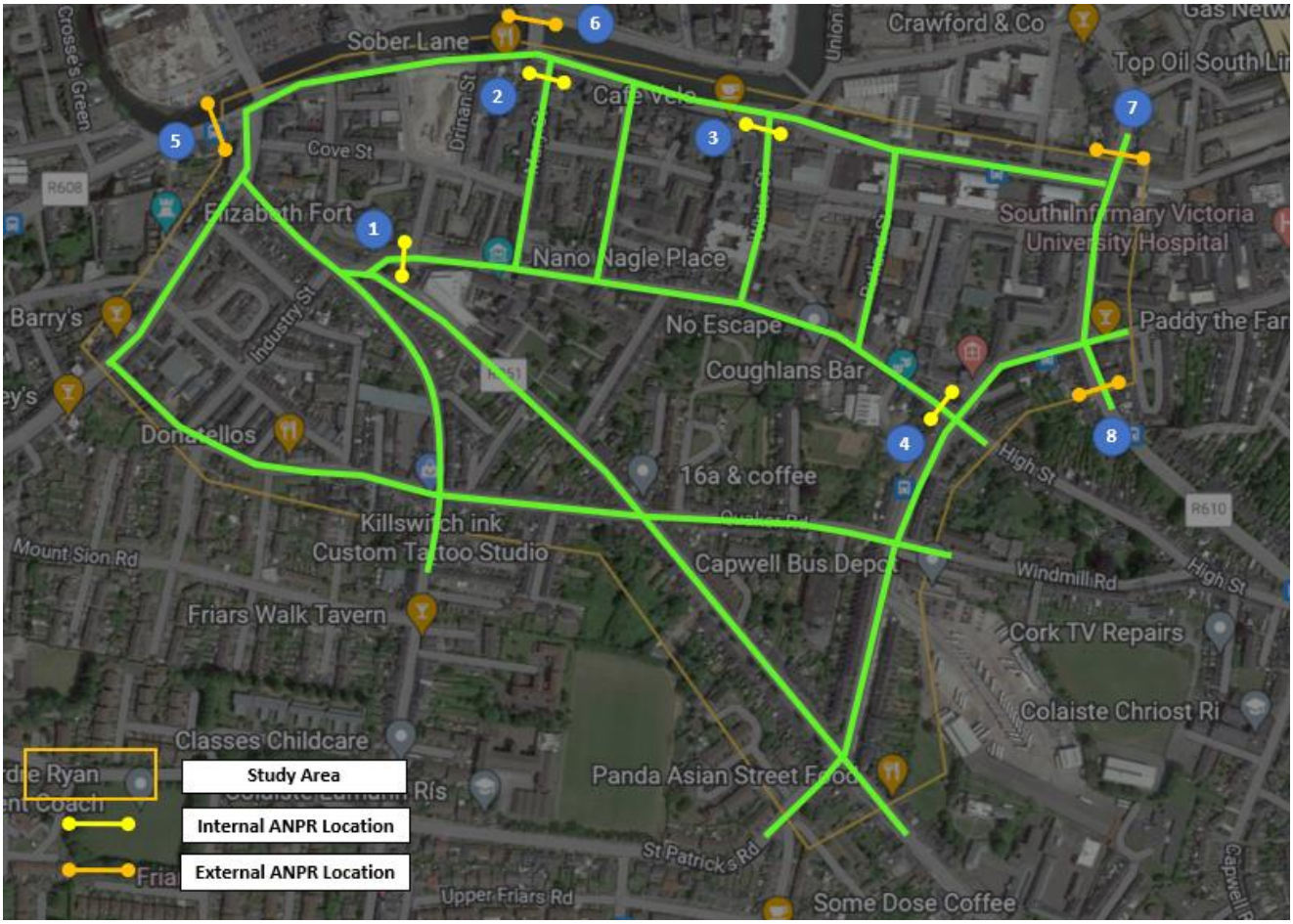


Table 2-3 - Locations of ANPR Survey

Junction ID	Location
1	Abbey St
2	Mary St
3	White St
4	Douglas St
5	French's Quay
6	Parliament Bridge
7	Anglesea St
8	Southern Road

2.2.4. Traffic Signal Data

Traffic signal data is required to determine the signal groups, phases, cycle time, minimum green time, maximum green time and average green time for traffic signals. Traffic signal data was collected at all locations shown in Figure 2-4 and listed in Table 2-4.

Figure 2-4 - Locations of Signal Data

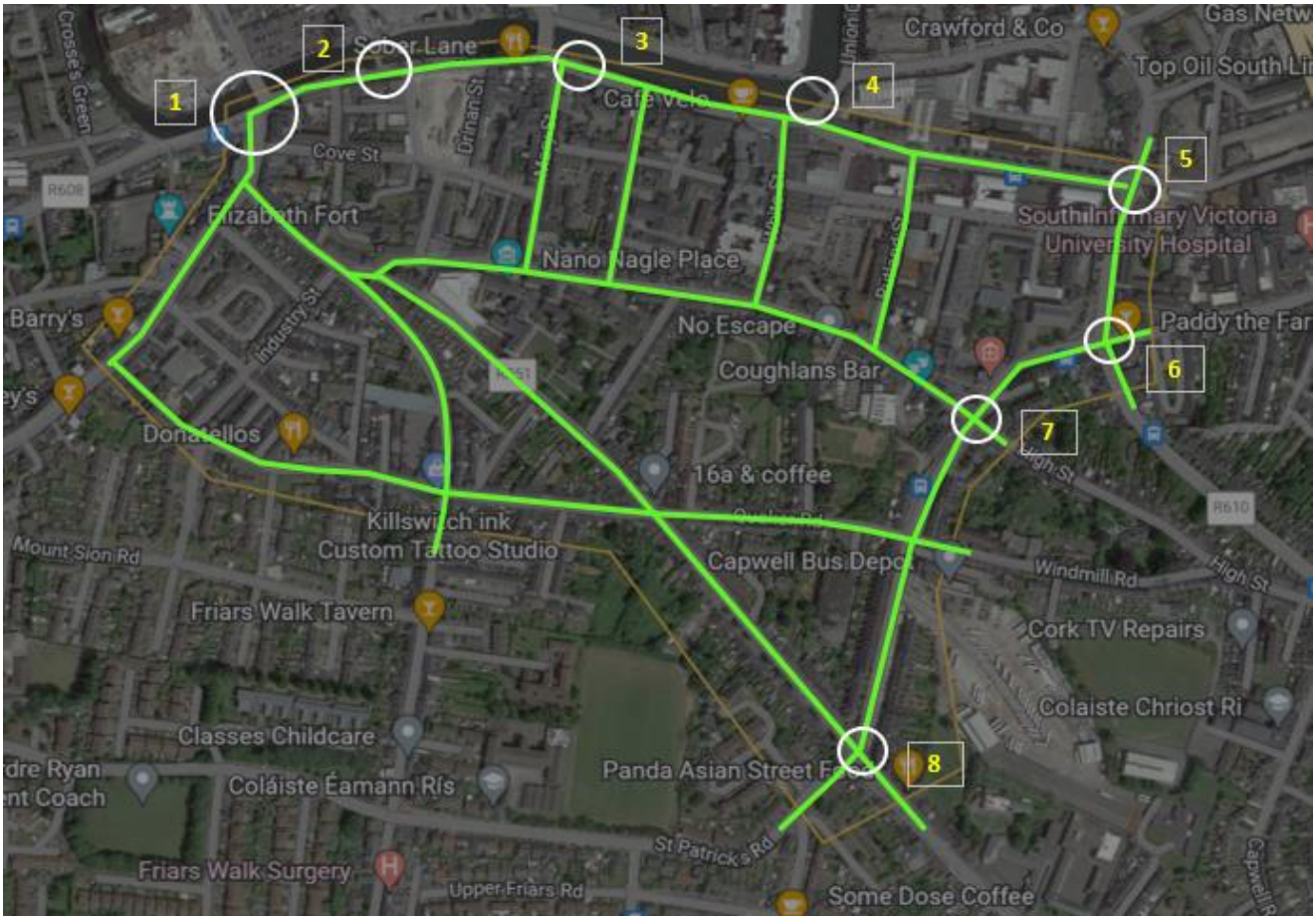


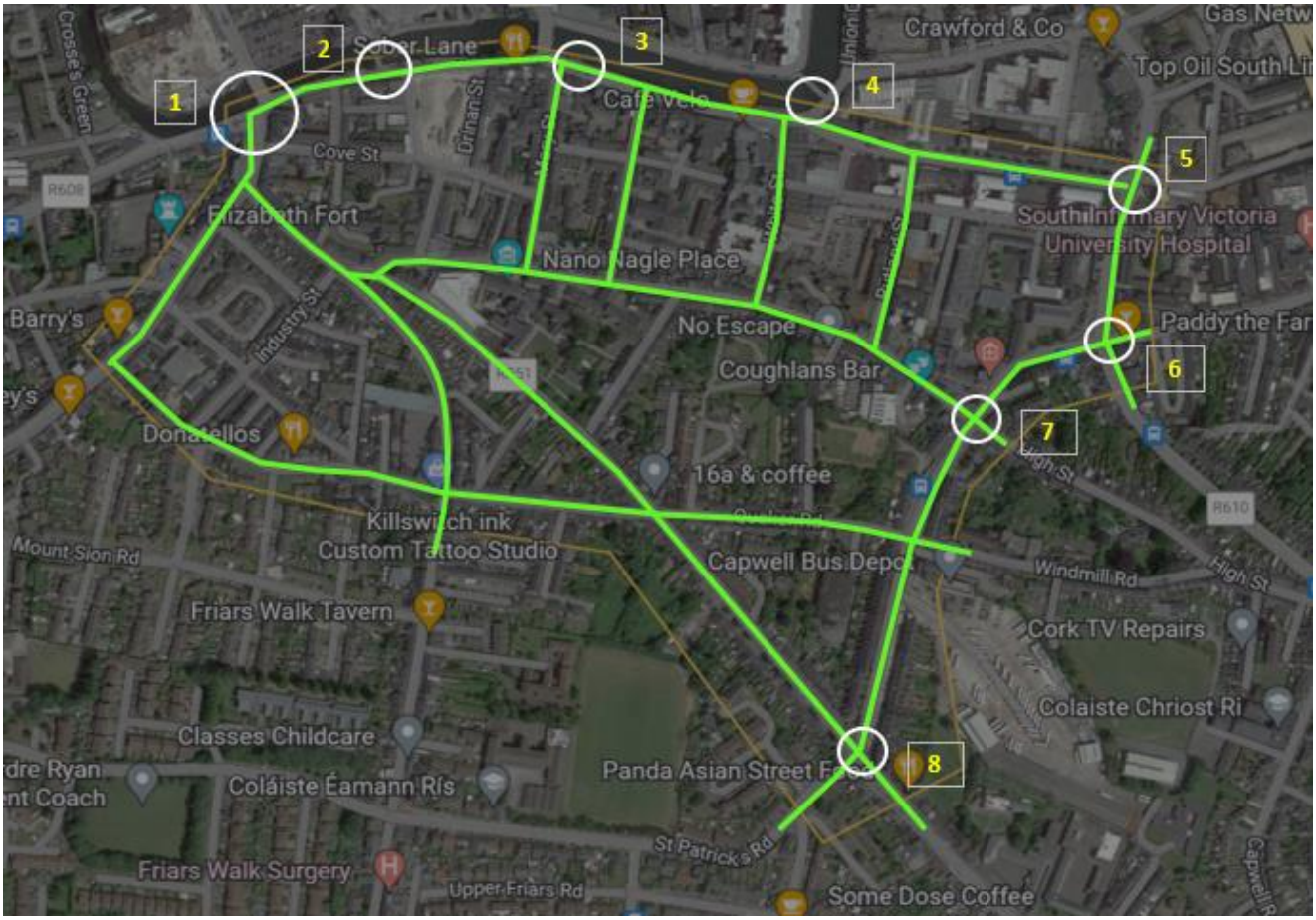
Table 2-4 - Locations of Traffic Signal Data

Junction ID	Location
1	South Gate Bridge/Sullivan's Quay Junction
2	Nano Nagle/Sullivan's Quay Junction (pedestrian crossing signal)
3	George's Quay Junction (pedestrian crossing signal)
4	Union Quay/South Terrace Junction
5	South Terrace/Infirmary Road Junction
6	Langford Road/Southern Road Junction
7	Douglas St/Summerhill S Junction
8	Summerhill S/Evergreen Road Junction

2.2.5. Queue Length Survey

Queue length survey was carried out at key junction to collect vehicle queuing data. The was collected for 12 hours of period between 07:00 and 19:00 with 5-minute interval. Figure 2-5 shows the locations of queue length survey.

Figure 2-5 - Locations of Queue Length Survey



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4	Union Quay/South Terrace Junction
5	South Terrace/Infirmary Road Junction
6	Langford Road/Southern Road Junction
7	Douglas St/Summerhill S Junction
8	Summerhill S/Evergreen Road Junction

2.3. NTA South West Regional Model (SWRM)

The South West Regional Model (SWRM) is one of the 5 regional NTA's strategic transport planning tool. Based around a classic transport modelling four-stage model, the system forecasts future year transport demand based upon population and employment scenarios and assigns it to networks and services. The SWRM includes both Cork and Kerry counties with greater details represented within Cork Metropolitan Area.

The Road, Public Transport (PT) and Active Mode Assignment Models assignment modules receive the trip matrices produced by the Demand Model and assign them in their respective transport networks to determine route choice and the generalised cost for all origin and destination pair.

The Road Model assigns motorized vehicular trips to the road network and includes capacity constraint, traffic signal delay and the impact of congestion. The Road Model uses SATURN software.

3. Local Area Model Development

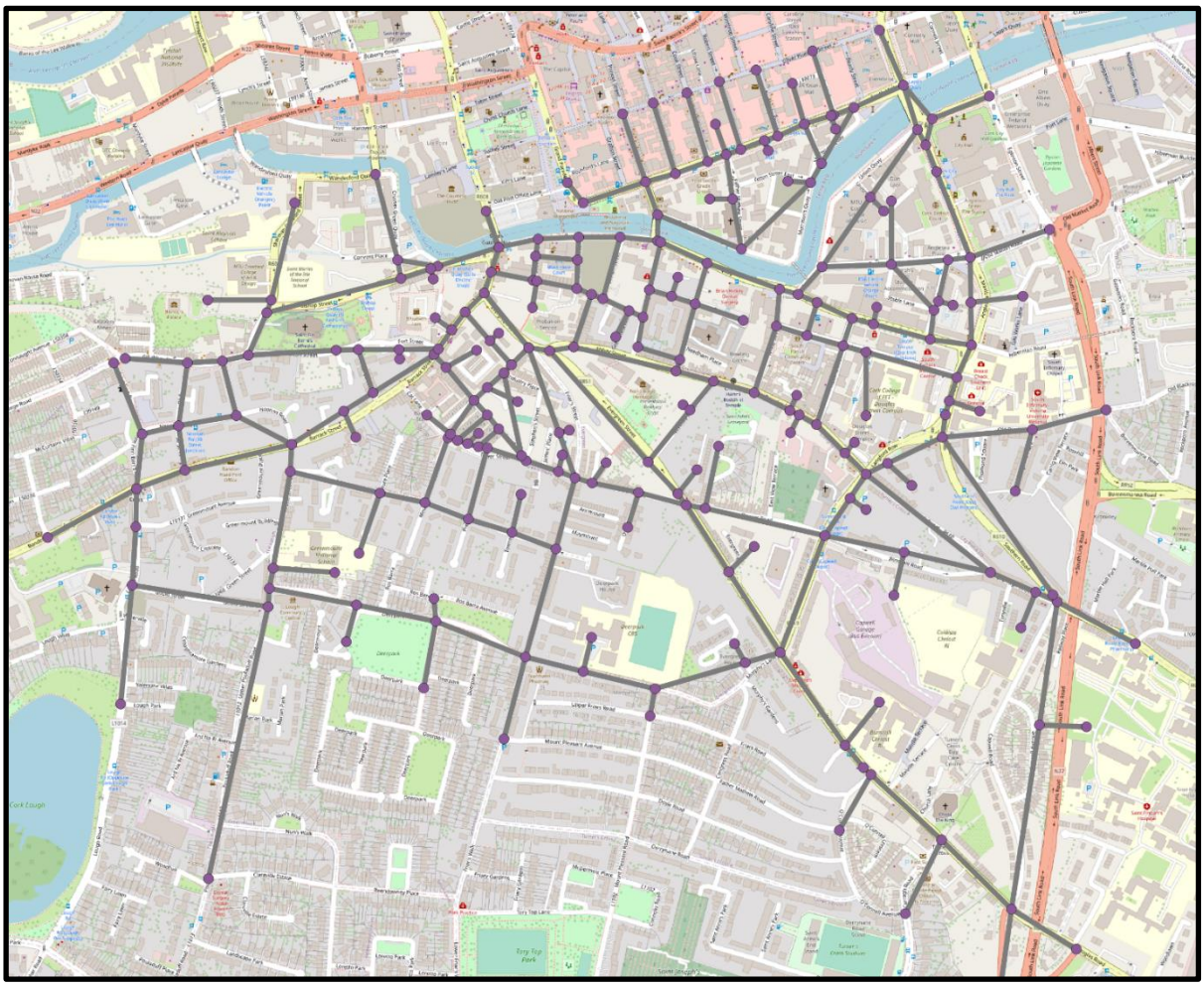
3.1. Introduction

The methodology for developing the Local Area Model (LAM) is presented in this chapter. The approach relies on the data sources presented in Chapter 2 and follows the relevant TII guidelines (PAG Unit 5.1 - Construction of Transport Models).

3.2. Model extent

The LAM, centred on the study area, is required to include parts of the road network that are likely to be impacted by the tested scheme. The extent of the model is summarised in the figure below.

Figure 3-1 - Local Area Model (LAM) Extent



3.3. Model Specifications

Two Time Periods are represented in the LAM: AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00). Three Vehicles classes are included: Car, Light Goods Vehicle (LGV) and Heavy Goods Vehicle (HGV), aligned with the NTA SWRM. The LAM is representing a neutral weekday in 2023.

3.4. Step 1: Network Coding

The first step aims at representing the current highway infrastructure in the network and it involves the following tasks:

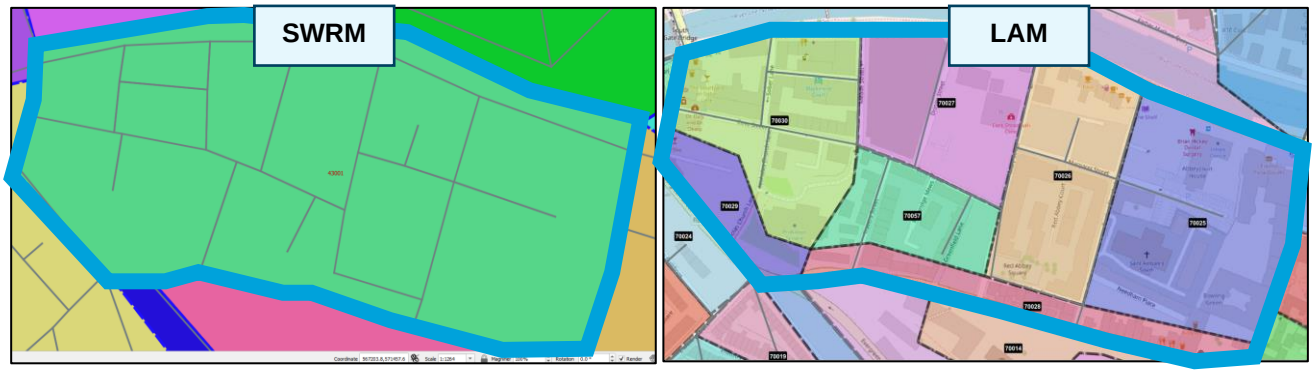
- Selecting the area of interest and clipping the network from the wider NTA South West Regional Model (SWRM)
- Identifying the missing links and coding them. This includes the coding of 106 additional links and 92 additional nodes.
- Since the SWRM model is built for the wider Cork-Kerry area, it may lack finer details. A detailed review of the existing network coding was therefore undertaken (free flow speed (FFS), junction type, number of lanes, flare length) and necessary changes were made.

3.5. Step 2: Zones Disaggregation

The SWRM zones are large aggregations of land due to the strategic function of the model. These zones were further disaggregated in the LAM to represent more accurately where journeys start and end. This process considered the minor roads, residential building zones, school zones, car parking (both on-street and off-street) and commercial zones.

The following figure summarises the disaggregation of a SWRM zone into 7 LAM zones.

Figure 3-2 – Disaggregation of SWRM zones into LAM Zones



Following that process, all zones were reviewed and disaggregated into smaller zones. The process resulted in the overall disaggregation of 40 SWRM zones into 87 LAM zones.

New loading points corresponding to new LAM zones were then required. The loading points for all these zones were determined based on existing access/loading arms from these zones. For the on-street parking zones, no new loading arms were coded. For these zones, the loading points were provided on the existing or new nodes coded.

3.6. Step 3: Demand Trips Matrix Preparation

The existing trip demand matrices from the cordoned SWRM are the starting point for the LAM. The dimension of these matrices (40*40, based on the number of SWRM zones included) requires an extrapolation to an 87*87 dimension (number of LAM zones). This was done by apportioning the number of trips to/from existing SWRM zones based on the estimated number of buildings within each subzone of the SWRM.

The extrapolation of matrices for all the vehicle classes were done using the same approach for both AM and PM peak hours. The resulting matrices were brought forward to the calibration process.

3.7. Step 4: Initial Assignment & Network Review

The prior matrices obtained from Step 3 were assigned to the road network and the resulting modelled traffic flows extracted and compared with the observed counts. The observed counts were obtained from the JTC (Junction Turning Count) survey undertaken by National data Company (NDC) on 7th March 2023 (Tuesday) for the following 18 junctions.

Figure 3-3 - Location of JTC Survey

The model was calibrated in accordance with the GEH statistic criteria guidelines provided in the TII document "Project Appraisal Guidelines for National Roads Unit 5.1 – Construction of Transport Models" (PE-PAG-02015) for the base year scenario for the morning and evening peak hours.

The GEH statistic criteria is a form of chi-square statistic test which compares the modelled and observed traffic volume counts and is defined as:

$$\mathrm{GEH} = \sqrt{\frac{(\mathrm{M}-\mathrm{C})^2}{0.5 \times (\mathrm{M}+\mathrm{C})}}$$

Where M is the modelled traffic volume counts and C is the observed traffic volumes. The TII guidelines state that the GEH value should be less than 5 for more than 85% of the cases.

Based on the results obtained, the summary of GEH statistic criteria for the initial matrices is summarised in the table below.

Table 3-1 - GEH Calibration for Junction Turning Movement (Initial Prior Matrices)

Category	Movements	GEH<5	% Calibrated
AM Peak			
Cars	111	65	58%
LGV	111	96	86%
HGV	111	100	90%
PM Peak			
Cars	111	60	54%
LGV	111	105	95%
HGV	111	110	99%

From the above table, it can be observed that the model is not calibrated for Cars, despite a decent level of calibration for LGV and HGV. Therefore, the initial matrices obtained were brought forward to the matrix estimation process.

3.8. Step 5: Matrix Estimation Process

The Matrix Estimation Process (ME Process) is incorporated in the SATURN software, and it uses the difference between the modelled flows and the observed flows, at the turning movement level, to adjust the trip demand matrices. It is an iterative process that also requires manual intervention and analysis to ensure that the adjusted trip matrices are correct.

The following constraints were provided so that ME process doesn't overestimates the trips to match GEH criteria. These constraints involve:

- Trip Ends constraints of +/- 20% were provided to limit level of demand changes
- The process was run 3 times for each vehicle class to limit level of demand changes.

The new matrices obtained from the above process, were assigned to the network and the turning volume were obtained to compare with the observed volume, as summarised in the following section.

3.9. Calibrated LAM

Based on the results obtained from Post ME process matrices, the summary of GEH statistic criteria is summarised in the table below. The detailed analysis about each junction is provided in Appendix A.

Table 3-2 - GEH Calibration for Junction Turning Movement (Calibrated Post ME Matrices)

Category	Movements	GEH<5	% Calibrated
AM Peak			
Cars	111	100	90%
LGV	111	107	96%
HGV	111	110	99%
PM Peak			
Cars	111	96	86%
LGV	111	108	97%
HGV	111	110	99%

The results from the above table indicate that the GEH values for turning movements are within the acceptable limits for both time period and hence, the model was considered validated as per TII guidelines and was brought forward for the analysis of further scenarios.

The assigned traffic flows for the Calibrated Base Scenario (AM & PM) are shown in the figures below.

Figure 3-4 – Calibrated Base Scenario: AM peak hour flows (pcu/h)

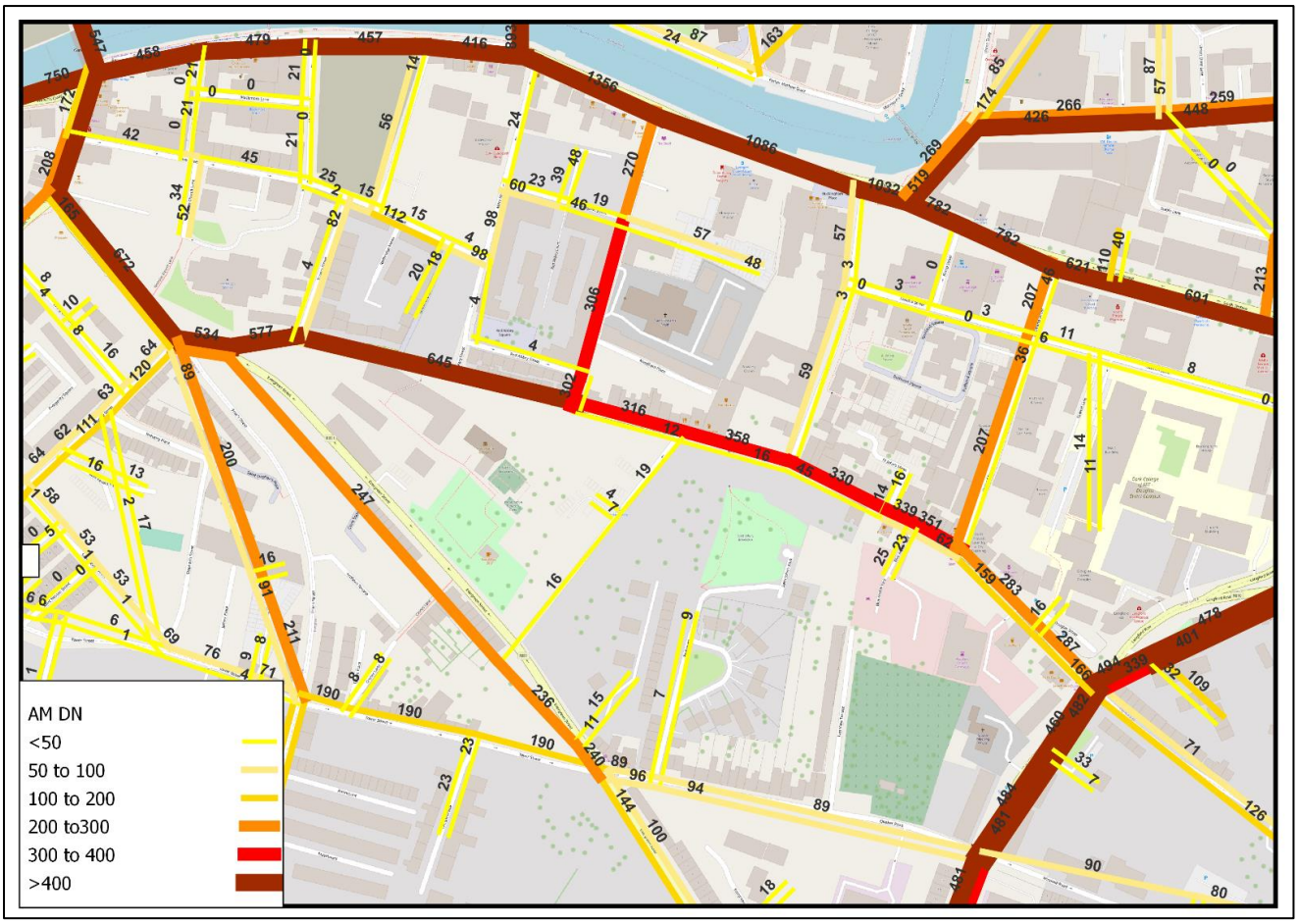
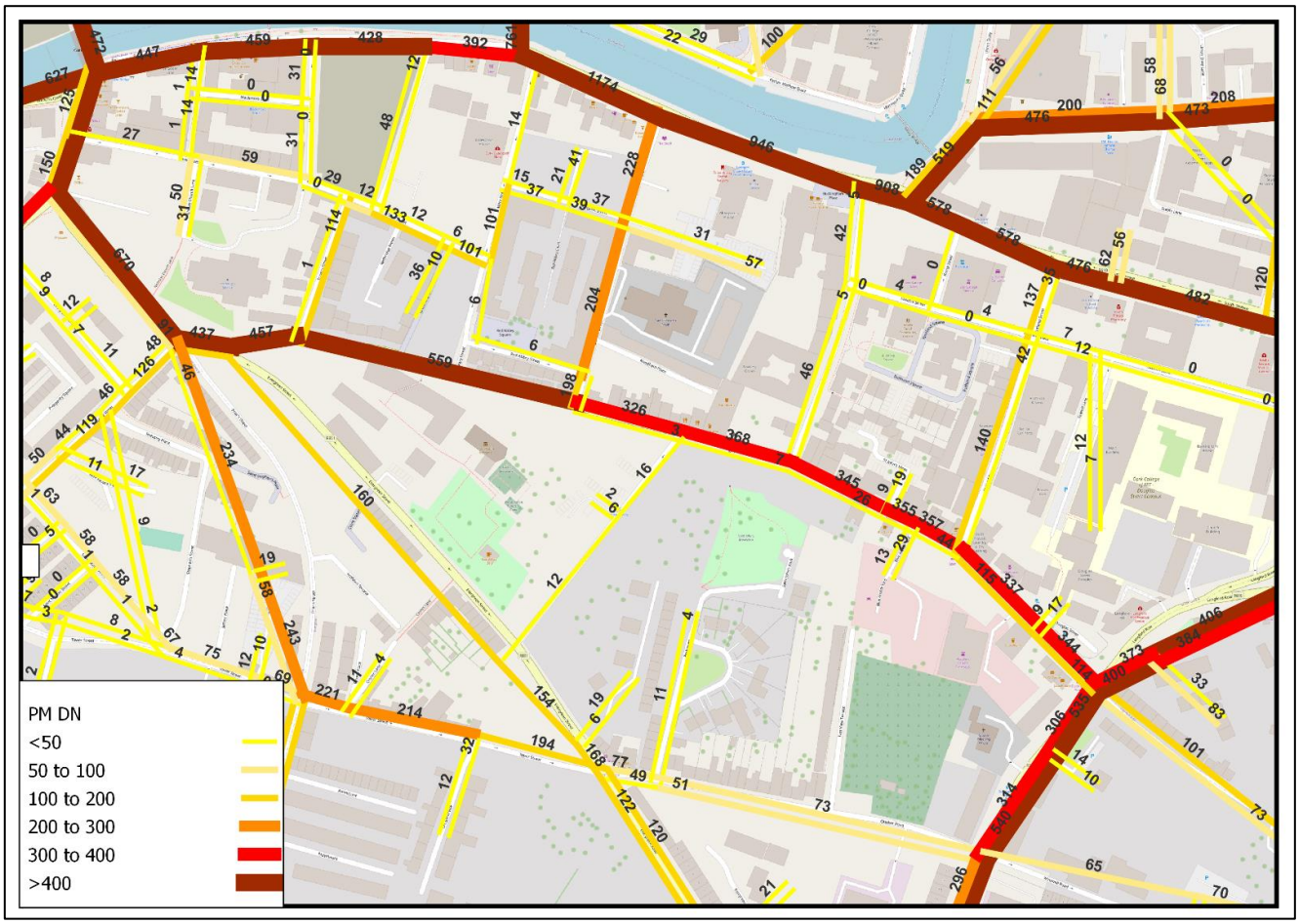


Figure 3-5 – Calibrated Base Scenario: PM peak hour flows (pcu/h)



The traffic flow diagrams show that the busiest part of the study area is the western section of Douglas St, where traffic flows are up to 650 pcu/h in the AM peak (550 pcu/h in PM peak). Dunbar Street caters for about 200-300 pcu/h, travelling Northbound to reach the Quays. Mary St and White St are relatively quiet traffic wise, with only 100 pcu/h or less in both AM & PM.

4. Scenario Modelling

4.1. Introduction

The Calibrated Base Scenario is the reference to compare the proposed scheme against, also named Do Nothing scenario in this report. Further information on the scheme can be found in the Feasibility and Option Selection Report. This report focuses on the modelling of the scheme.

4.2. Assessment Methodology

The proposed changes to the road network were coded in the Local Area Model and both AM & PM assignments were run to produce traffic flows and routing. The flow difference between the Do Something scenario and the Do Nothing scenario indicates and quantifies the rerouting due to the scheme. A series of Intermediate Scenarios have been developed and assessed as part of the project and results are presented in Appendix B.

4.3. Do Something Description

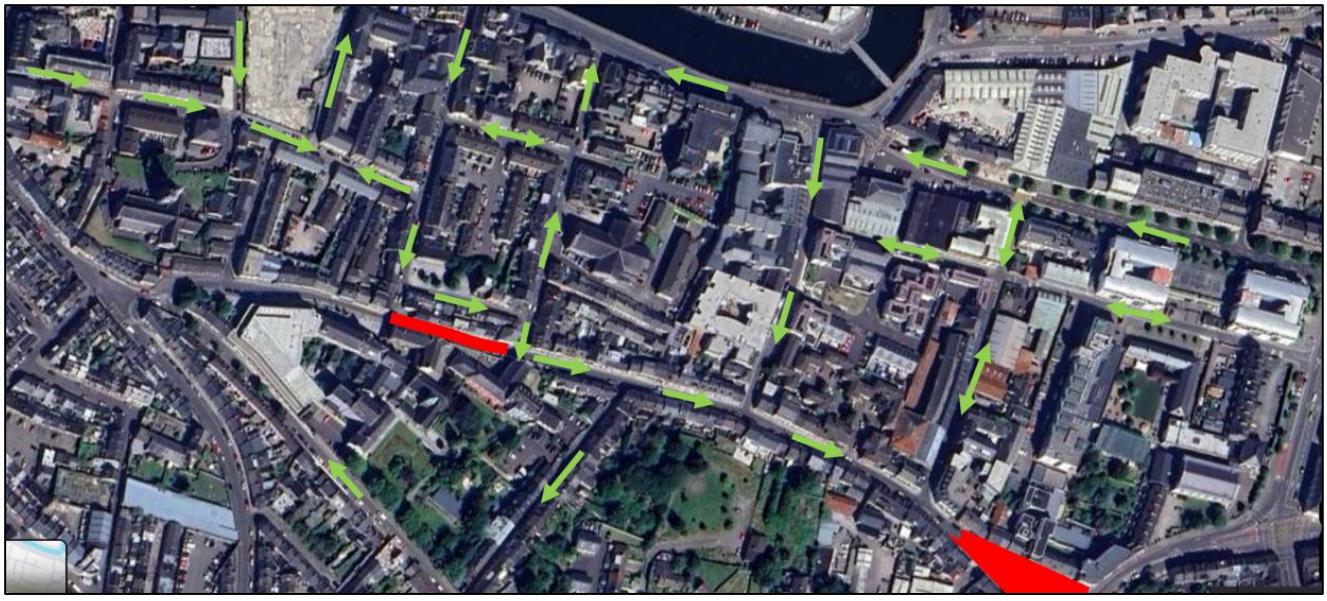
The proposed public realm scheme is modelled in the Do Something scenario. The geometric layout of the tested scenario is represented below in Figure 4-1 and it includes the closure of streets to general vehicular traffic in two sections (in red on the map):

- Douglas St from Mary St to Dunbar St
- Douglas St from Rutland St to the junction of Summerhill South, High St and Langford Row.

As well as this, the following geometric changes are included:

- Cove St one way westbound leading to Drinan Street
- Cove St one way eastbound from Meade St to Drinan St
- White St one-way in southbound direction
- Douglas St one-way eastbound from Dunbar St
- Dunbar St one-way in southbound direction between Red Abbey St and Douglas St
- Drinan St one-way in northbound direction
- Meade St one-way in southbound direction

Figure 4-1 – Do Something Traffic arrangements

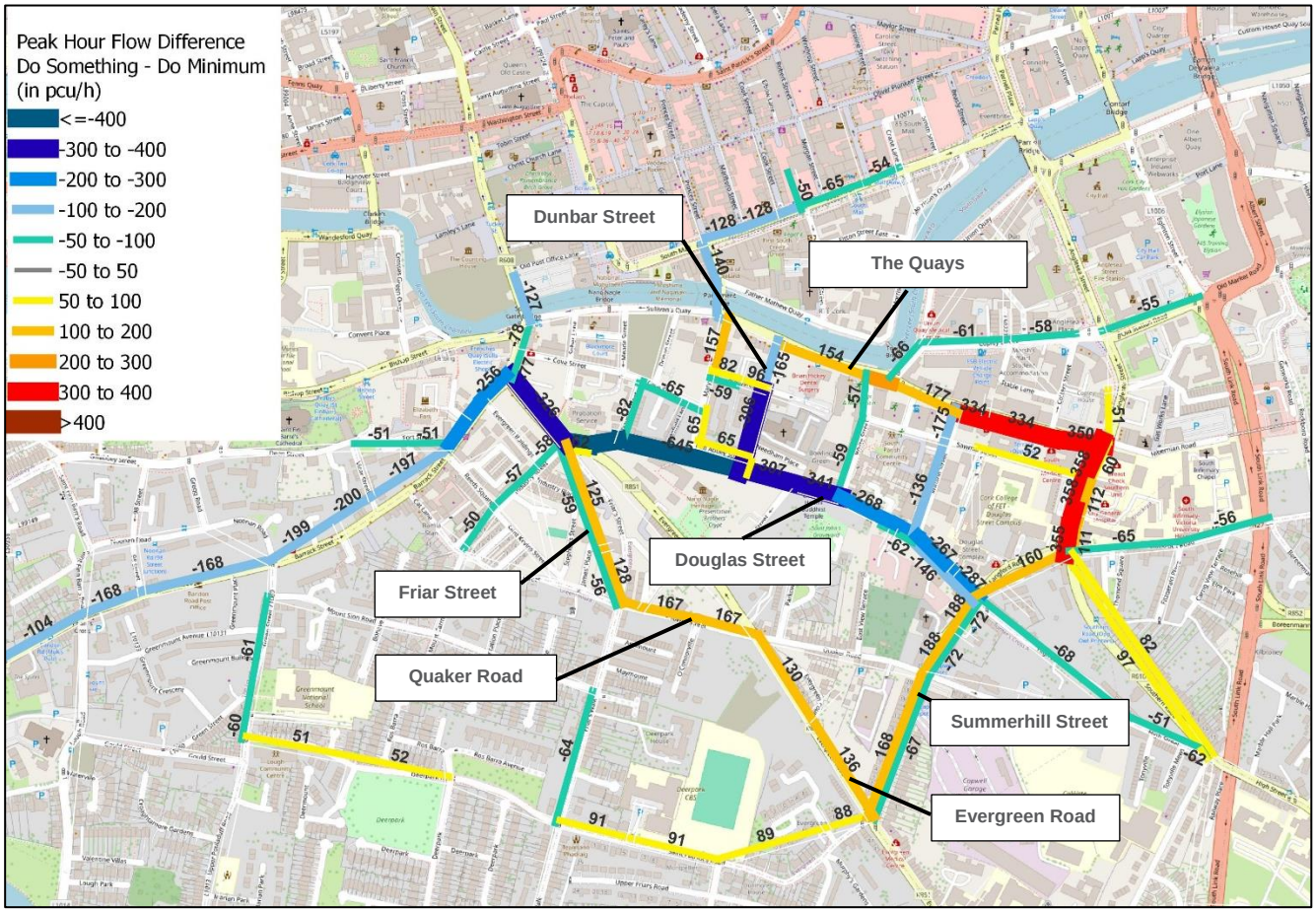


The implementation of the proposed scheme would reroute traffic further away from the study area, due to the road network capacity reduction and the modal shift due to the provision of safer and more direct active travel solutions. Analysis of Origin-Destination routing in the LAM and the SWRM led to the identification of 385 trips (4% of the overall 9,100 trips in the AM peak hour LAM) that would reroute outside the LAM if the scheme were to be implemented. These through movement trips were then removed from the demand matrices prior to assignment on the Do Something scenario. Similar process was applied to the PM peak period.

4.4. Modelling Results – Traffic Flows Difference

The modelled traffic flow difference between the Base (Do Nothing) and the tested scenario for both peak hours are represented in the figures below for both peak periods.

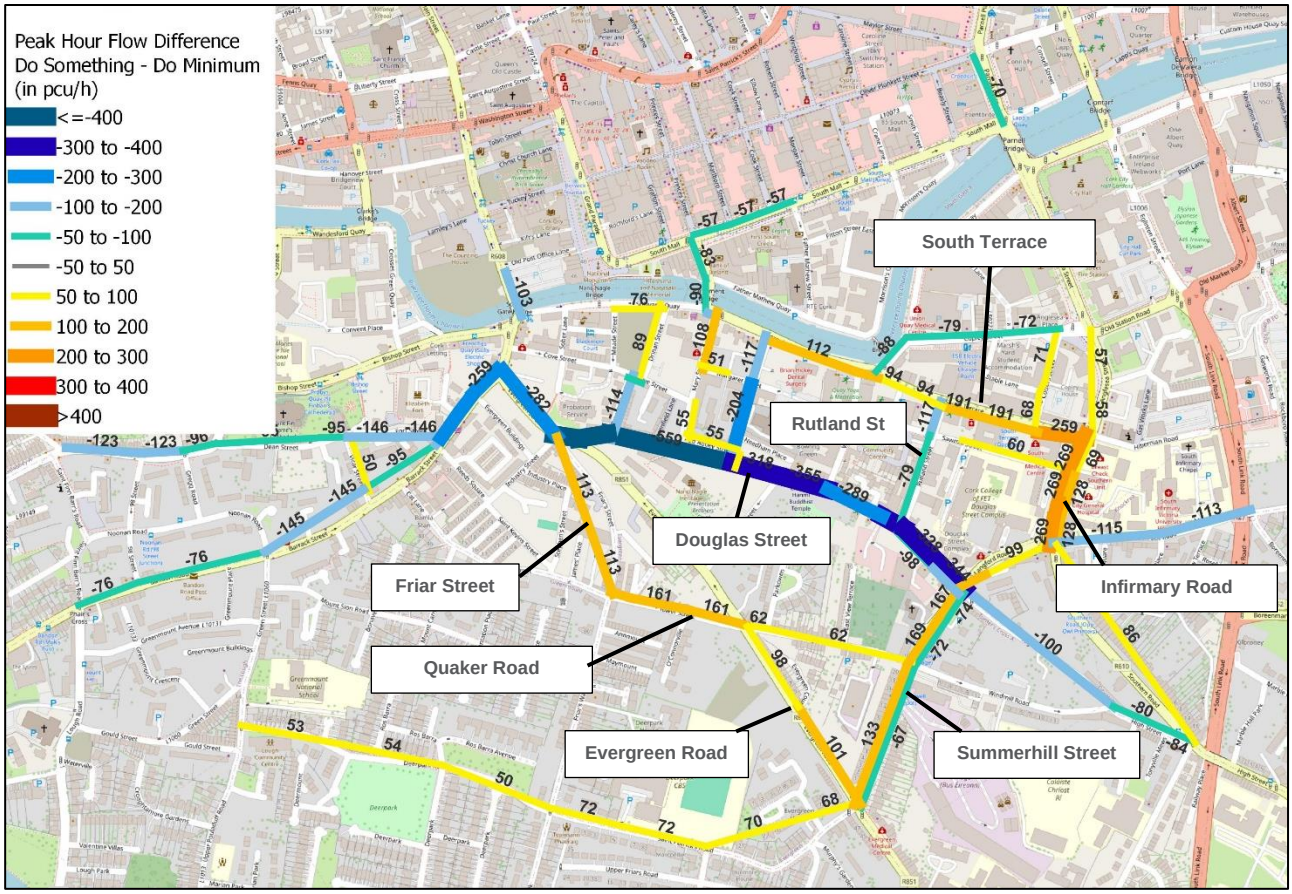
Figure 4-2 – AM Flow Difference (Do Something – Do Nothing)



For the AM period, some key points relating to the difference in traffic flows:

- It is noted that there is a significant reduction in traffic within the study area
- Eastbound traffic rerouting occurs via Friar St, Quaker Rd, Evergreen Rd and Summerhill with between 125 – 190 vehicles (pcu/hr)
- Northbound traffic using Douglas St – Rutland St is rerouted to Infirmary Rd – South Terrace

Figure 4-3 – PM Flow Difference (Do Something – Do Nothing)



For the PM period, some key points relating to the difference in traffic flows:

- It is noted that there is a significant reduction in traffic within the study area, similar to the AM period.
- Traffic rerouting occurs via Friar St, Quaker Rd, Evergreen Rd and Summerhill St with between 100 – 175 vehicles (pcu/hr)
- It is also noted that there is an increase in traffic on Infirmary Rd and South Terrace to access Rutland St and The Quays. The increase was observed as 270 vehicles (pcu/hr).

4.5. Modelling Results – Traffic Flows

The absolute traffic flows for the Do Something scenario are presented in Figure 4-4 (AM peak hour) and Figure 4-5 (PM peak hour) below. Traffic flows in the study area drop below 100 pcu/h with the introduction of the scheme, from a maximum of 645 pcu/h in the AM and 559 pcu/h in the PM on the western part of Douglas St (see Figure 3-4 and Figure 3-5 for Do Nothing traffic flows).

Figure 4-4 – Do Something AM Peak Hour Traffic Flow

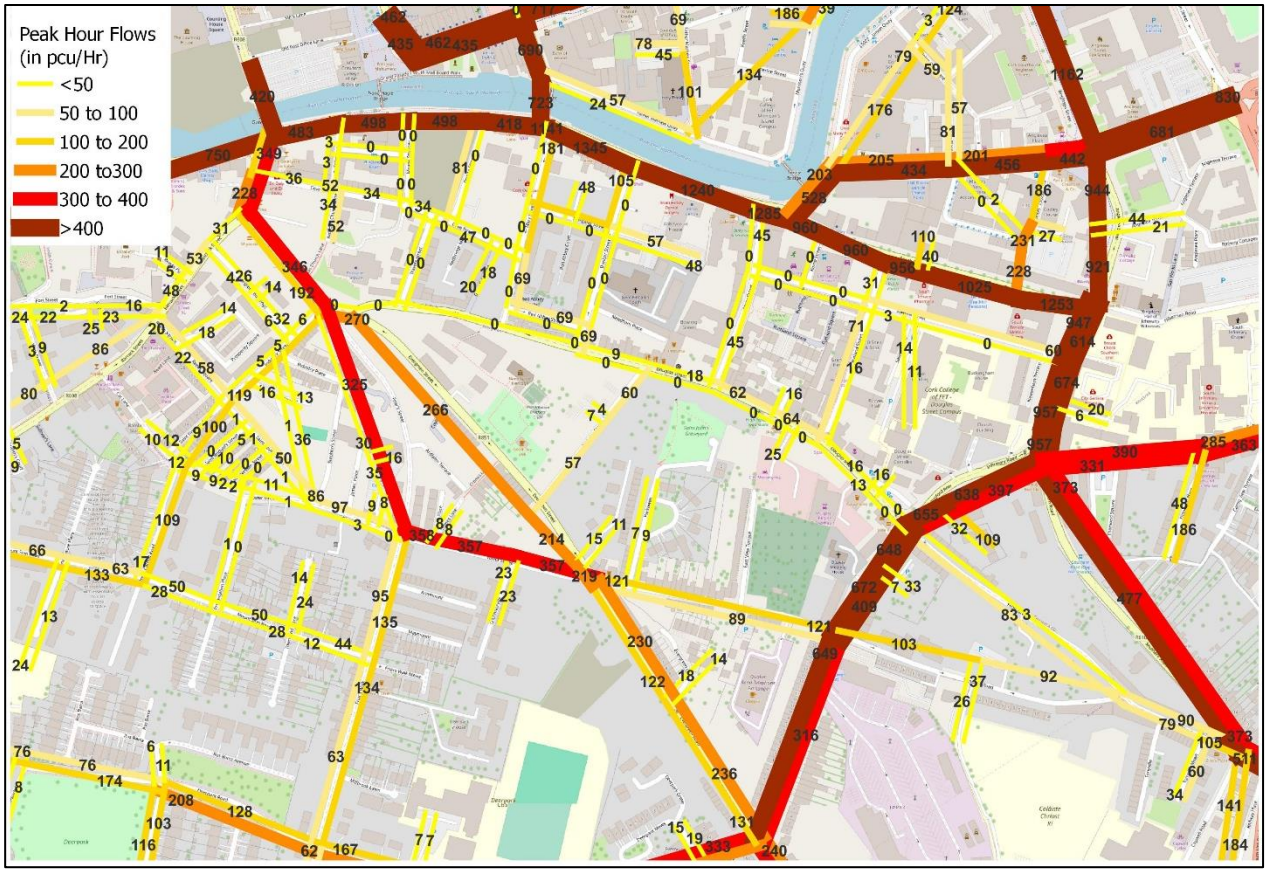
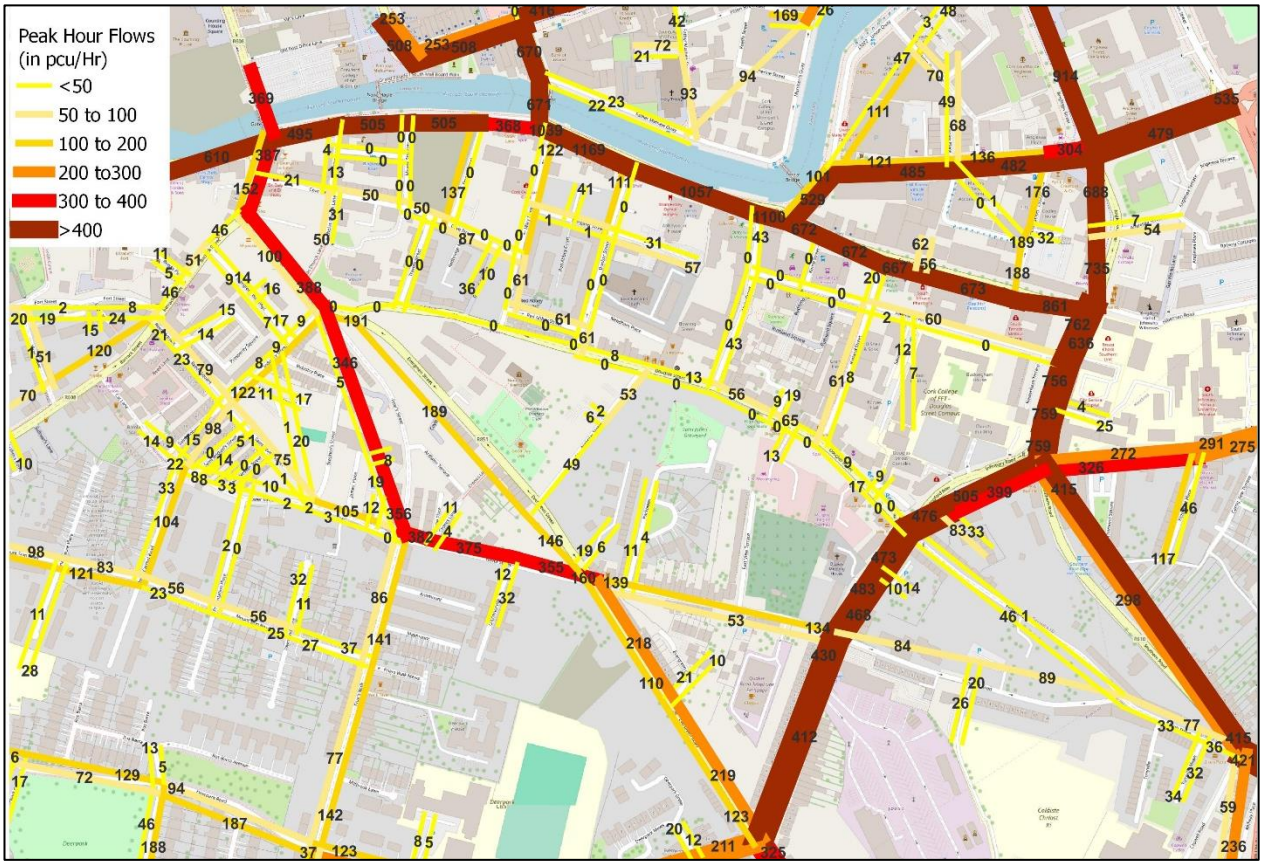


Figure 4-5 – Do Something PM Peak Hour Traffic Flow



5. Summary and Conclusion

AtkinsRéalis were appointed by Cork City Council to assess and quantify the traffic impacts of the proposed Mary Street, Douglas Street, White Street scheme. A bespoke Local Area Model (LAM) of the study area, cordoned off the NTA South Western Regional Model has been built in SATURN software for that purpose. Greater details were added to the LAM to accurately represent the road network and a calibration exercise was undertaken to replicate current travel conditions, using 2023 traffic surveys. The LAM passed the guidelines criteria (more than 85% of the movements with GEH <5) and therefore is considered fit for scenario testing.

The proposed scheme - Douglas Street closed to general vehicular traffic in front of Nano Nagle Place and at its eastern end, plus implementation of a one-way traffic system on adjacent streets - has been tested in the LAM. The results show a significant traffic reduction on Douglas Street (traffic flows under 100 pcu/hr on the busiest section in the AM peak, down from 600 pcu/hr), which is compatible with the implementation of the proposed active travel measures. The conversion of Cove Street to one-way westbound from Mary Street while still being one-way eastbound from Barrack Street prevents any rat-running through the area, while maintaining access for the residents and people with a destination in the area.

The eastward traffic that currently uses Douglas Street will reroute outside the study area and via alternative routes: Friar Street–Tower Street–Evergreen Street and Deerpark–St Patrick's Road principally. The forecasted traffic increase on these alternative routes is not excessive (+100 to +170 pcu/hr) and can be managed efficiently without significant change to the road network.

The northbound though traffic that currently uses Summerhill St - Douglas St - Rutland St will reroute via Langford Row, Infirmary Rd and South Terrace (+100 to +150 pcu/hr). Trips ending in the eastern part of Douglas St or Rutland St will also be redirected via Infirmary Rd, South Terrace and Rutland St to access the area. The overall traffic increase on Infirmary Rd and South Terrace is estimated to be between +200 pcu/hr and +350 pcu/hr. Additional delays due to the traffic increase on the Infirmary Rd – South Terrace route is estimated to be below 30 seconds.

Appendix A. GEH Calibration (Post ME)

A.1. AM Peak

Table 5-1 – GEH AM Calibration

JTC	FROM	TO	Observed			Modelled – Post Me			GEH		
			Car	LGV	HGV	Car	LGV	HGV	Car	LGV	HGV
1	A	C	251	89	20	251	90	19	0.00	0.04	0.14
1	A	B	150	27	3	150	27	10	0.00	0.08	3.10
1	C	B	157	8	0	162	8	2	0.37	0.20	1.91
1	D	C	33	17	0	49	17	1	2.55	0.02	1.46
1	D	B	332	55	5	329	55	7	0.16	0.04	0.86
2	D	A	682	146	110	703	147	42	0.80	0.06	7.74
2	D	B	366	68	5	339	68	8	1.43	0.02	1.31
2	D	C	35	3	3	35	6	7	0.02	1.22	2.20
3	B	A	218	40	8	218	41	11	0.02	0.13	1.21
3	C	A	873	184	45	859	180	47	0.48	0.32	0.30
4	B	A	54	6	3	46	7	3	1.09	0.50	0.49
4	C	B	7	6	0	2	1	0	2.60	2.42	0.20
4	C	A	812	179	45	813	173	44	0.02	0.42	0.20
5	B	A	111	19	3	169	32	6	4.89	2.62	1.61
5	C	B	8	4	0	33	10	2	5.53	2.47	2.16
5	C	A	458	78	15	445	115	15	0.60	3.80	0.01
6	A	C	465	101	10	464	81	10	0.06	2.11	0.00
6	A	B	85	29	10	220	86	10	10.91	7.57	0.01

6	C	B	573	118	20	505	69	14	2.93	5.01	1.48
7	A	C	264	106	20	295	106	20	1.86	0.01	0.00
7	B	A	56	8	3	28	6	3	4.31	0.75	0.14
7	B	C	257	29	13	209	29	12	3.11	0.12	0.08
7	C	A	116	6	0	163	7	2	3.94	0.66	1.78
8	A	D	340	72	18	335	68	18	0.26	0.54	0.12
8	A	C	142	55	5	132	55	4	0.82	0.01	0.35
8	A	B	37	10	10	37	13	10	0.01	0.96	0.00
8	B	A	1	0	0	4	0	0	1.73	0.85	0.71
8	B	D	86	15	5	42	11	4	5.49	1.10	0.65
8	B	C	2	0	0	2	1	0	0.00	1.05	0.66
8	C	B	5	2	0	5	0	0	0.00	1.35	0.14
8	C	A	24	2	0	26	1	0	0.47	0.69	0.20
8	C	D	75	8	0	48	8	0	3.44	0.15	0.37
8	D	C	10	2	3	10	2	1	0.04	0.11	1.62
8	D	B	78	8	0	46	8	1	4.10	0.22	1.11
8	D	A	91	6	0	133	6	1	3.96	0.20	1.70
9	B	A	237	40	8	237	40	13	0.03	0.06	1.68
9	B	C	309	61	15	289	61	15	1.15	0.04	0.07
9	C	A	3	2	0	10	2	0	2.68	0.02	0.49
10	A	C	4	4	0	0	1	0	2.37	1.93	0.00
10	A	B	2	0	0	1	0	0	0.70	0.82	0.14
10	B	A	14	6	0	23	6	0	2.14	0.13	0.51
10	B	C	282	53	15	261	53	15	1.25	0.07	0.00
10	C	B	3	4	0	11	4	0	2.90	0.06	0.73

10	C	A	7	0	0	25	2	3	4.55	1.78	2.54
11	A	C	24	8	0	27	8	2	0.51	0.29	1.88
11	A	B	1	2	0	3	2	0	1.40	0.06	0.80
11	B	A	56	8	3	79	21	5	2.79	3.56	1.19
11	B	C	232	32	13	203	32	12	1.96	0.10	0.23
11	C	B	11	10	0	43	10	3	6.20	0.18	2.61
11	C	A	90	11	0	91	11	0	0.09	0.05	0.69
13	A	D	3	0	0	2	0	0	0.84	0.14	0.00
13	A	C	263	59	10	267	57	8	0.22	0.25	0.77
13	A	B	16	4	0	5	1	0	3.27	1.92	0.24
13	B	A	138	25	3	124	24	3	1.20	0.19	0.30
13	B	D	70	13	3	63	4	3	0.89	3.33	0.30
13	B	C	61	15	3	44	15	8	2.29	0.08	2.32
13	C	B	57	13	0	101	17	3	4.98	0.93	2.59
13	C	A	339	91	15	277	56	6	3.51	4.11	2.95
13	C	D	22	4	0	0	0	0	6.63	2.76	0.00
13	D	C	74	10	0	74	10	0	0.02	0.13	0.75
13	D	B	46	4	0	34	4	0	1.85	0.11	0.58
13	D	A	7	0	0	4	0	0	1.45	0.45	0.14
12	A	D	82	13	0	82	13	0	0.00	0.08	0.57
12	A	C	216	34	5	216	19	5	0.03	3.02	0.00
12	A	B	135	51	3	169	51	6	2.76	0.03	1.68
12	B	A	249	55	13	97	21	4	11.59	5.58	2.93
12	B	D	200	48	3	271	51	4	4.65	0.44	1.01
12	B	C	34	6	3	26	4	0	1.45	0.81	2.20

12	C	B	11	4	0	16	3	0	1.42	0.43	0.87
12	C	A	266	34	5	287	34	5	1.26	0.03	0.01
12	C	D	29	4	0	31	2	1	0.39	0.79	1.22
12	D	C	18	0	5	18	0	3	0.00	0.93	1.18
12	D	B	139	6	8	142	11	2	0.24	1.97	2.79
12	D	A	130	17	3	133	17	4	0.30	0.02	1.00
14	A	C	205	40	13	223	40	13	1.26	0.02	0.14
15	A	D	38	8	0	74	14	4	4.80	2.02	2.98
15	A	C	112	44	5	73	43	2	4.02	0.04	1.89
15	A	B	3	0	3	0	0	0	2.45	0.00	2.24
15	B	A	2	0	0	0	0	0	2.00	0.00	0.00
15	B	D	26	6	0	49	10	2	3.76	1.42	1.85
15	B	C	1	0	0	2	3	6	0.98	2.25	3.51
15	C	A	104	11	0	79	11	0	2.60	0.12	0.95
15	C	D	25	0	0	25	8	5	0.02	3.97	3.06
16	B	A	11	2	0	13	2	0	0.56	0.03	0.95
16	B	D	36	6	0	63	15	4	3.89	2.78	2.78
16	B	C	59	6	0	78	9	5	2.30	1.32	3.18
16	C	A	166	25	5	116	17	3	4.23	1.71	0.85
16	C	D	1	2	0	5	3	0	2.17	0.60	0.65
16	D	C	5	0	0	5	2	0	0.00	1.94	0.79
16	D	A	86	10	0	79	10	0	0.82	0.18	0.63
17	A	D	5	0	0	5	0	0	0.22	0.66	0.45
17	A	C	313	76	13	297	70	16	0.93	0.70	0.81
17	A	B	77	10	0	81	13	0	0.41	1.04	0.51

17	B	A	18	2	0	50	15	1	5.52	4.40	1.69
17	B	D	9	4	0	18	3	2	2.39	0.68	2.16
17	B	C	4	0	0	0	0	0	2.83	0.00	0.00
17	C	B	1	0	0	0	0	0	1.23	0.24	0.00
17	C	A	413	97	15	351	60	7	3.18	4.22	2.24
17	C	D	14	0	0	60	2	1	7.54	2.20	1.17
18	A	D	10	0	0	0	0	0	4.47	0.00	0.00
18	A	C	57	4	0	73	7	5	2.03	1.39	3.19
18	A	B	12	0	0	12	1	1	0.01	1.41	1.22
18	B	A	6	0	0	3	1	0	1.47	1.15	0.47
18	B	D	208	61	3	208	23	3	0.01	5.82	0.30
18	B	C	29	6	0	7	0	0	5.17	3.03	0.00
18	C	B	41	2	0	1	0	0	8.83	1.41	0.49
18	C	A	120	11	0	120	20	3	0.03	2.07	2.44
18	C	D	221	44	15	203	39	5	1.24	0.75	3.10
18	D	C	105	40	15	118	40	14	1.21	0.02	0.38
18	D	B	179	30	0	179	30	2	0.00	0.07	1.98
18	D	A	14	0	0	0	0	0	5.29	0.00	0.00

A.2. PM Peak

Table 5-2 – GEH PM Calibration

JTC	FROM	TO	PM (17-18)			Modelled – Post Me			GEH		
			Car	LGV	HGV	Car	LGV	HGV	Car	LGV	HGV
1	A	C	282	53	5	283	55	5	0.05	0.20	0.00
1	A	B	99	25	0	99	25	5	0.00	0.06	3.26
1	C	B	96	34	5	96	26	3	0.01	1.59	0.74
1	D	C	52	8	0	64	8	2	1.53	0.14	2.20
1	D	B	337	36	3	338	32	3	0.06	0.75	0.30
2	D	A	647	95	83	643	95	23	0.15	0.02	8.24
2	D	B	353	29	8	352	34	5	0.06	1.06	0.83
2	D	C	10	1	0	19	2	0	2.38	1.09	0.57
3	B	A	197	23	0	202	23	3	0.38	0.05	2.48
3	C	A	813	106	25	812	109	25	0.04	0.22	0.05
4	B	A	39	2	0	39	3	0	0.01	0.58	0.69
4	C	B	12	4	0	2	2	0	3.61	0.94	0.40
4	C	A	773	108	25	773	106	25	0.00	0.23	0.00
5	B	A	92	17	0	112	25	1	1.99	1.63	1.08
5	C	B	7	0	0	28	4	3	5.04	2.77	2.59
5	C	A	391	65	10	385	46	10	0.33	2.44	0.01
6	A	C	491	74	5	491	74	2	0.00	0.01	1.39
6	A	B	93	30	0	89	17	3	0.40	2.71	2.36
6	C	B	431	51	15	430	51	11	0.03	0.06	1.15
7	A	C	316	68	8	344	63	7	1.52	0.71	0.04
7	B	A	53	11	3	41	6	1	1.72	1.90	0.85

7	B	C	236	11	0	238	18	1	0.12	1.65	1.11
7	C	A	62	21	3	77	21	3	1.79	0.08	0.30
8	A	D	355	27	0	348	26	1	0.37	0.11	1.36
8	A	C	157	44	5	176	44	5	1.46	0.08	0.20
8	A	B	42	10	0	58	10	3	2.21	0.17	2.24
8	B	A	1	0	0	3	2	0	1.66	1.79	0.80
8	B	D	51	10	0	32	7	0	2.95	1.04	0.97
8	B	C	6	4	0	3	0	0	1.17	2.55	0.20
8	C	B	3	2	0	2	0	0	0.81	1.80	0.14
8	C	A	17	6	0	17	4	0	0.01	0.74	0.24
8	C	D	30	2	0	19	4	0	2.23	1.12	0.14
8	D	C	15	4	3	15	4	1	0.00	0.11	1.54
8	D	B	49	8	0	49	5	1	0.00	1.13	1.05
8	D	A	42	15	3	51	15	3	1.26	0.05	0.04
9	B	A	133	21	0	176	18	1	3.48	0.63	1.29
9	B	C	356	29	0	339	28	1	0.92	0.08	1.43
9	C	A	0	0	0	2	0	0	2.19	0.79	0.24
10	A	C	21	6	0	2	2	0	5.78	1.98	0.35
10	A	B	0	0	0	1	0	0	1.25	0.80	0.20
10	B	A	28	0	0	26	1	0	0.42	1.02	0.62
10	B	C	329	29	0	312	28	1	0.93	0.08	1.27
10	C	B	1	0	0	4	1	0	2.03	1.61	0.84
10	C	A	7	2	0	17	2	0	2.93	0.35	0.45
11	A	C	26	4	0	36	4	4	1.80	0.10	2.94
11	A	B	0	0	0	3	1	0	2.61	1.22	0.60

11	B	A	17	4	0	56	8	0	6.51	1.63	0.73
11	B	C	333	38	3	267	21	4	3.80	3.03	0.58
11	C	B	9	2	0	35	4	0	5.54	1.42	0.63
11	C	A	58	17	0	58	17	0	0.00	0.02	0.42
12	A	D	116	4	0	59	4	0	6.09	0.10	0.49
12	A	C	237	29	3	237	26	0	0.00	0.49	1.81
12	A	B	214	49	3	214	45	2	0.00	0.69	0.40
12	B	A	168	32	8	55	11	4	10.70	4.59	1.67
12	B	D	208	30	3	269	27	1	3.97	0.65	1.32
12	B	C	43	6	0	39	1	0	0.68	2.76	0.00
12	C	B	27	2	3	14	1	0	2.93	0.85	2.24
12	C	A	199	15	8	208	15	6	0.65	0.05	0.56
12	C	D	15	4	0	22	5	0	1.65	0.39	0.00
12	D	C	19	0	3	26	1	0	1.47	1.04	2.16
12	D	B	101	6	0	102	6	0	0.11	0.19	0.66
12	D	A	68	4	0	166	24	1	9.10	5.41	1.01
13	A	D	7	4	0	1	0	0	3.30	2.64	0.00
13	A	C	324	49	5	339	49	2	0.84	0.09	1.49
13	A	B	10	0	0	9	0	0	0.37	0.99	0.28
13	B	A	136	13	0	137	14	0	0.06	0.22	0.97
13	B	D	133	15	0	97	3	1	3.34	4.16	1.13
13	B	C	105	8	8	76	8	8	3.05	0.13	0.18
13	C	B	52	25	0	68	20	0	2.03	1.00	0.51
13	C	A	275	53	10	196	19	3	5.16	5.68	2.54
13	C	D	23	2	0	0	0	0	6.78	1.95	0.00

13	D	C	43	0	0	48	4	1	0.74	2.71	1.72
13	D	B	16	0	0	16	1	0	0.00	1.30	0.20
13	D	A	8	0	0	3	0	0	2.00	0.45	0.14
14	A	C	190	15	0	197	16	1	0.54	0.20	1.05
15	A	D	59	19	0	95	19	4	4.11	0.00	2.87
15	A	C	103	30	8	94	30	1	0.92	0.08	3.07
15	A	B	7	0	0	0	0	0	3.74	0.00	0.00
15	B	A	7	0	0	0	0	0	3.74	0.14	0.00
15	B	D	29	2	0	51	7	1	3.53	2.28	1.61
15	B	C	8	0	0	8	1	1	0.15	1.30	1.48
15	C	A	49	10	0	49	9	0	0.02	0.07	0.62
15	C	D	18	6	0	34	6	4	3.09	0.11	2.71
16	B	A	7	2	0	7	2	0	0.00	0.07	0.62
16	B	D	30	6	0	57	10	4	4.05	1.65	2.73
16	B	C	70	13	0	95	16	3	2.76	0.69	2.39
16	C	A	110	11	3	95	18	2	1.52	1.76	0.05
16	C	D	5	0	0	5	1	0	0.02	1.68	0.84
16	D	C	2	0	0	3	2	0	0.86	2.03	0.87
16	D	A	39	2	0	39	3	1	0.01	0.91	1.15
17	A	D	2	0	0	10	0	0	3.13	0.73	0.96
17	A	C	431	51	13	414	55	10	0.83	0.49	0.64
17	A	B	33	6	0	44	6	1	1.71	0.13	1.42
17	B	A	16	4	0	45	9	3	5.29	2.07	2.56
17	B	D	7	2	0	12	2	1	1.62	0.07	1.42
17	B	C	3	0	0	0	0	0	2.45	0.00	0.00

17	C	B	4	2	0	0	0	0	2.79	1.93	0.00
17	C	A	332	80	10	225	30	1	6.38	6.64	3.96
17	C	D	13	2	5	29	6	5	3.52	1.90	0.02
18	A	D	4	0	0	0	0	0	2.83	0.00	0.00
18	A	C	76	13	0	92	13	2	1.79	0.08	2.17
18	A	B	6	4	0	6	3	1	0.00	0.32	1.54
18	B	A	8	4	0	8	1	0	0.00	1.92	0.14
18	B	D	164	49	5	104	23	0	5.18	4.29	3.01
18	B	C	47	8	0	5	1	0	8.22	3.49	0.14
18	C	B	47	8	0	0	0	0	9.70	3.90	0.00
18	C	A	88	23	3	101	19	2	1.35	0.75	0.18
18	C	D	172	36	10	151	13	6	1.68	4.77	1.58
18	D	C	194	30	8	180	30	7	1.03	0.09	0.08
18	D	B	234	25	5	234	25	3	0.00	0.06	0.96
18	D	A	14	4	0	0	0	0	5.29	2.76	0.00

Appendix B. Intermediate Scenarios

B.1. Scenario Presentation

A total of five Do Something scenarios were tested in the LAM and are summarised in the table below.

Table 5-3 – Scenarios Modelled

Scenario	Name	Description
Scenario 1	Proposed Scheme	• Douglas St closed to general traffic in front of Nano Nagle and at Eastern end. • One-way system on Douglas St, White St & Rutland St.
Scenario 2	Proposed Scheme with Through Traffic Reduction	• Douglas St closed to general traffic in front of Nano Nagle and at Eastern end. • One-way system on Douglas St, White St & Rutland St. • Through traffic rerouting assumption
Scenario 3	Mary St Northbound – Dunbar St Southbound	• Douglas St closed to general traffic in front of Nano Nagle and at Eastern end. • One-way system on Douglas St, White St & Rutland St. • Through traffic rerouting assumption • The direction of traffic movement along Mary Street, Dunbar Street and Red Abbey Street are reversed.
Scenario 4	Closing Cove Street	Same as Scenario 3 albeit: • Access from Cove Street to Mary Street is closed
Scenario 5	Cove Street one-way Westbound	Same as Scenario 3 albeit: • Cove Street one-way westbound from Mary St

For each scenario, the proposed changes to the network were coded in the LAM and both AM & PM assignments were run to produce traffic flows and routing. The flow difference between the Do Something scenarios and the calibrated base scenario indicates and quantifies the rerouting due to the scheme. Intermediate Scenarios 1-4 are presented below while Scenario 5 is included in chapter 4 of the main report as the preferred option.

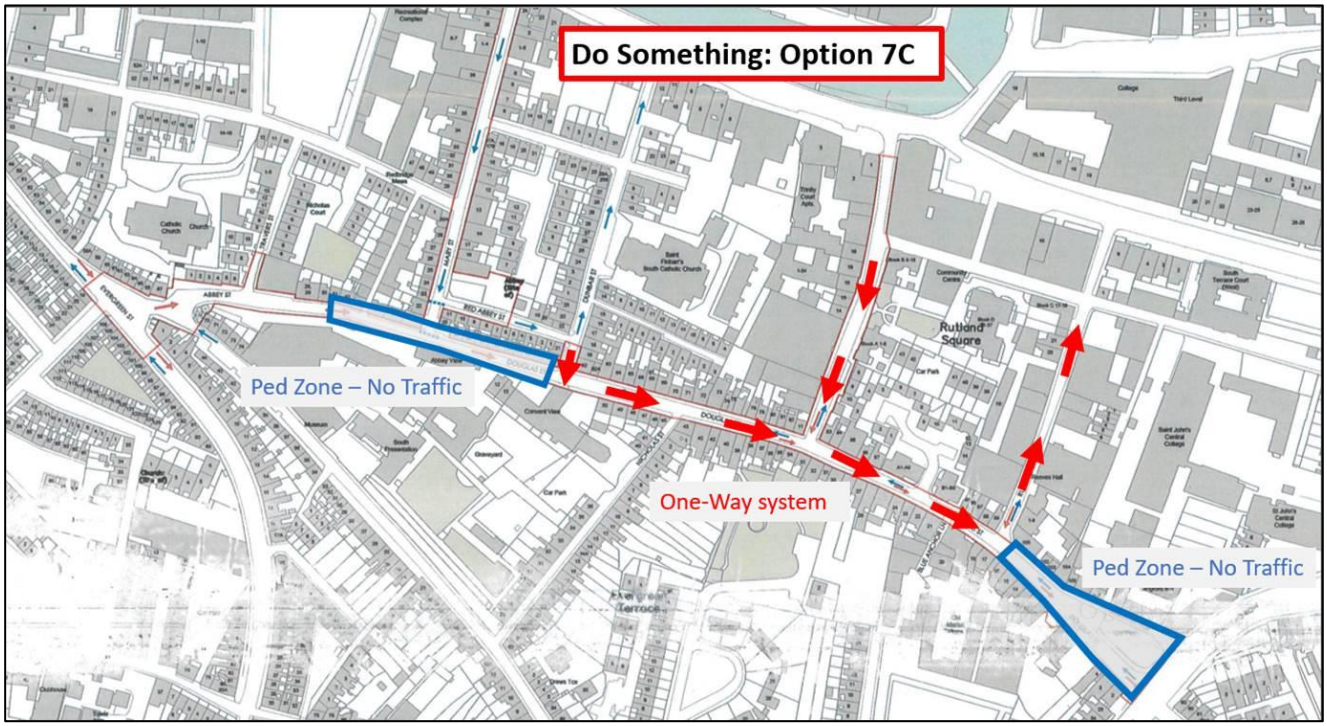
B.2. Intermediate Scenario 1

B.2.1. Scenario Description

The proposed scheme was coded in the Base scenario to create Scenario 1 and it includes the following:

- Upgrading Abbey Street – Douglas St West (front of Nano Nagle Place) into a pedestrian zone.
- Upgrading Douglas Street East (between Rutland Street Junction to Longford Row Junction) into a pedestrian zone.
- Douglas Street from Dunbar Street Junction to Rutland Street Junction to be changed from the existing 2-way system to 1-way system in the eastbound direction.
- Dunbar Street from Red Abbey Street Junction to Douglas Street Junction to be changed from one-way northbound to one-way southbound.
- White Street from Sawmill Street Junction till Douglas Street Junction will be upgraded from 2-way system to 1-way system southbound.
- Rutland Street from Sawmill Street Junction till Douglas Street Junction will be upgraded from 2-way system to 1-way system northbound.

Figure 5-1 – Proposed Measures at Douglas Street/Mary Street for active travel



B.2.2. Modelling Results – Traffic Flows

The modelled traffic flow difference between Scenario 1 and the Base (Do Nothing) for both peak hours are presented in the figures below. The actual flows are included in Appendix B.

It is worth noting that for Scenario 1 the exact same trip matrices as the base were assigned, assuming no mode shift nor traffic rerouting due to the scheme (i.e. worst case scenario from a traffic point of view).

Figure 5-2 – Difference in Do Something and Do Nothing flows (AM Peak)

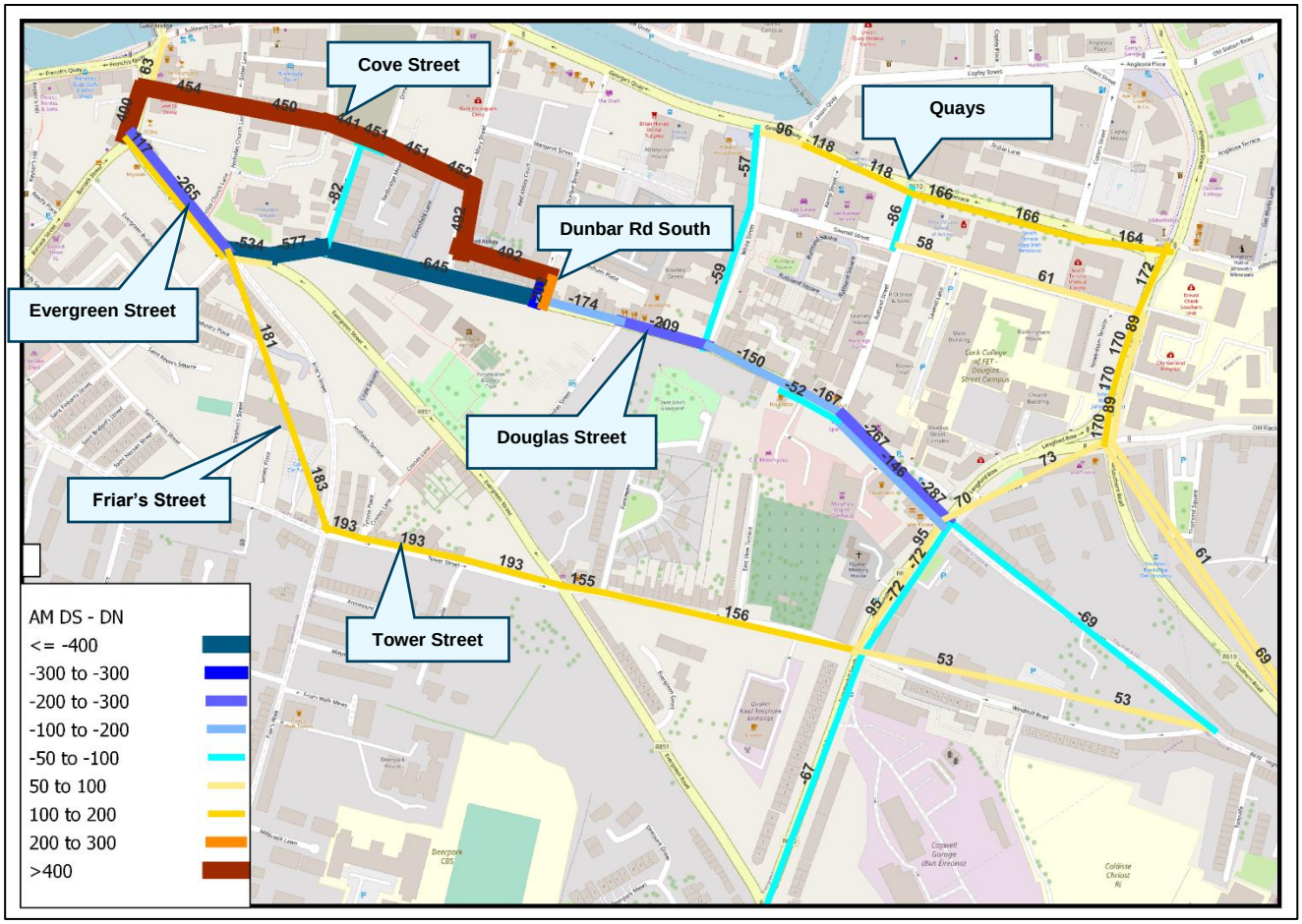
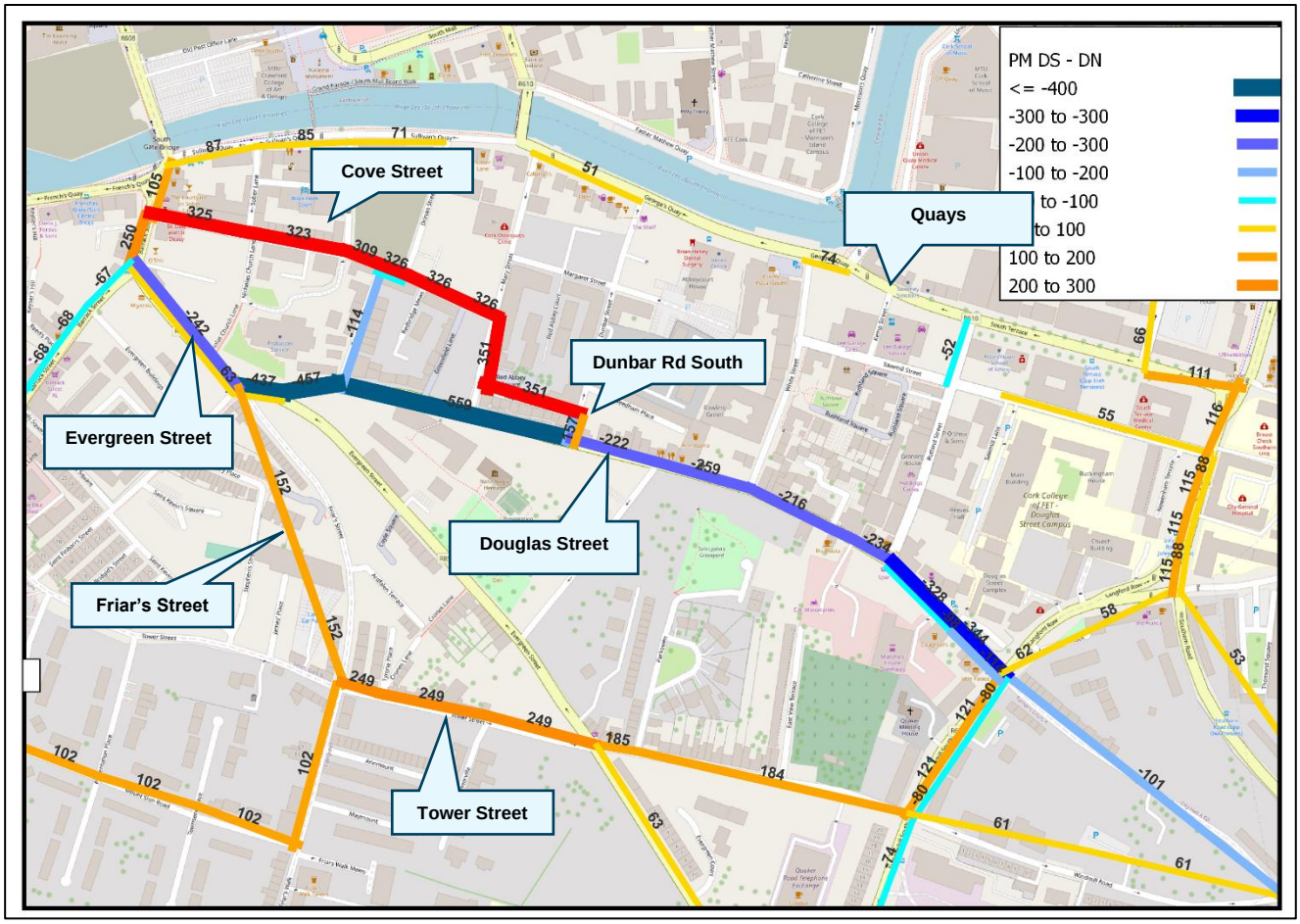


Figure 5-3 – Difference in Do Something and Do Nothing flows (PM Peak)



Key points from these modelling results are:

- Cove Street experienced significant traffic increase due to the rerouting: over 400 vehicles in AM peak and over 300 vehicles in PM Peak.
- Due to road closure and other measures, significant decrease in overall flow on Douglas Street of order of 150-300 were observed.
- Rerouting through Tower Street and Quays in both AM and PM peak hours.

As mentioned above, a significant increase in Cove Street was observed. However, the existing geometry of the Cove Street can't sustain such significant increase in traffic volume and there is no scope of upgrade to enhance the capacity of the street. Therefore, further analysis was undertaken to determine origin and destination zones of the vehicles travelling along Cove Street in the future.

B.2.3. Modelling Results – Select Link Analysis

Select Link Analysis (SLA) is employed to determine the number of vehicles originating from different zones and to identify their destinations. The SLA was conducted for the northern part of Dunbar Street (Northbound from Red Abbey Street to Quays) and the southern part of Dunbar Street (this segment is proposed to change to southbound direction from its current northbound direction).

Dunbar Street was chosen because, in the existing scenario, vehicles traveling from the western side of the LAM cordon could use Evergreen Street and Abbey Street to access zones near Douglas Street and Quays. However, due to the upgrade of a portion of Abbey Street from Evergreen Junction to Douglas Street junction to a pedestrian zone, all these vehicles now need to travel along Cove Street and Dunbar Street North to access zones near Quays and need to travel along Dunbar Street South to access zones near Douglas Street.

The result from SLA for both streets for AM Peak is summarised below. The SLA for PM Peak is included in Appendix C.

Figure 5-4 – SLA: Dunbar Street North (Do Something Scenario): AM Peak

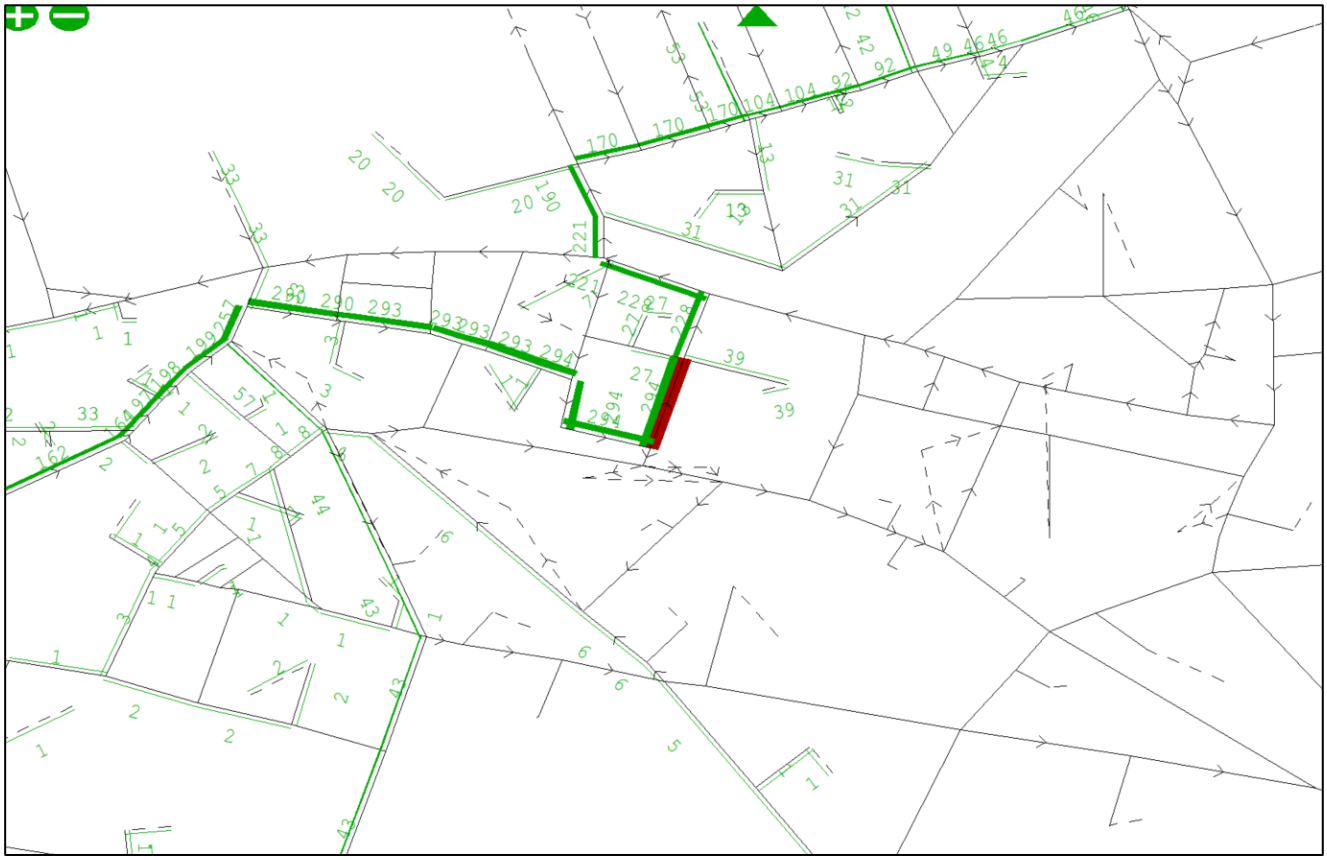
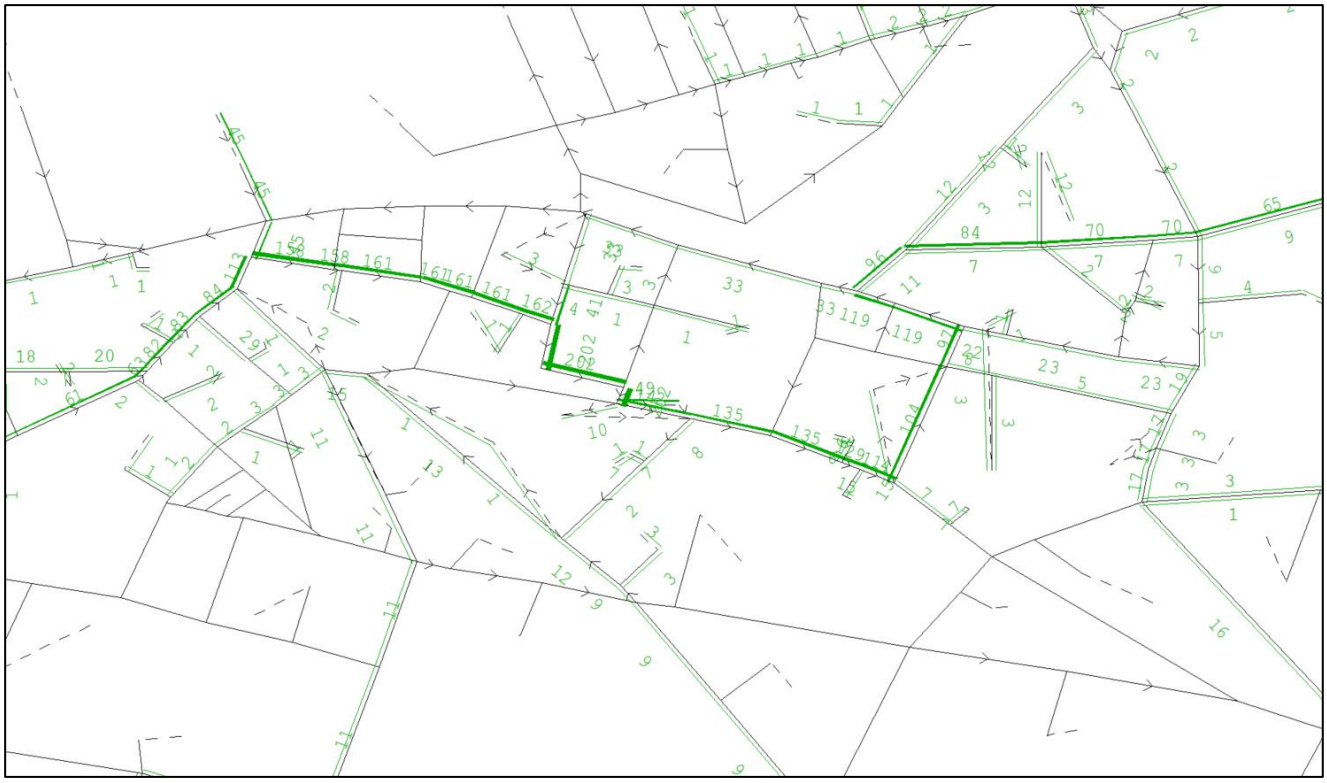


Figure 5-5 – SLA: Dunbar Street South (Do Something Scenario): AM Peak



From the above figures it can be observed that:

- For the Dunbar Street North SLA, 290 Vehicles are heading North, among which 70 with a local destination (e.g. Margaret St) and 220 travelling further, crossing at Parliament Bridge.
- For the Dunbar Street South SLA, around 200 Vehicles were accessing Douglas St via Dunbar St. Out of these around 100 vehicles have a local destination, 30 vehicles have a destination just North of study area (e.g. Copley St) and around 70 are through traffic.

B.2.4. Traffic Redistribution

Based on the analysis above, it is evident that many vehicles are utilising Cove Street for through movements in Scenario 1. However, as previously mentioned, Cove Street's limited capacity won't allow it to handle a high volume of vehicles. Consequently, it is likely that West-East and West-North through movements may seek alternative routes, such as the Wandesford Route, through natural process (delays deterring users) or traffic management measures (e.g. local access only restrictions, speed limits).

Additionally, some vehicles traveling from the South-West part of the model may also opt for rerouting to avoid congestion on Cove Street. Traffic coming from the western corridors of the model (Bandon Road, College Road) with destinations on the island may opt for rerouting to bypass congestion on Cove Street.

Figure below summarises the origin and destination zones from which through traffic is expected to reroute to an alternative outside the study area, with blue indicating the origin zones and purple representing the destination zones.

Traffic between these identified pairs of zones has been removed from the demand matrices for both AM and PM peak hours to create the demand matrices for Scenario 2.

Figure 5-6 – Identified movements to reroute outside the LAM due to the scheme

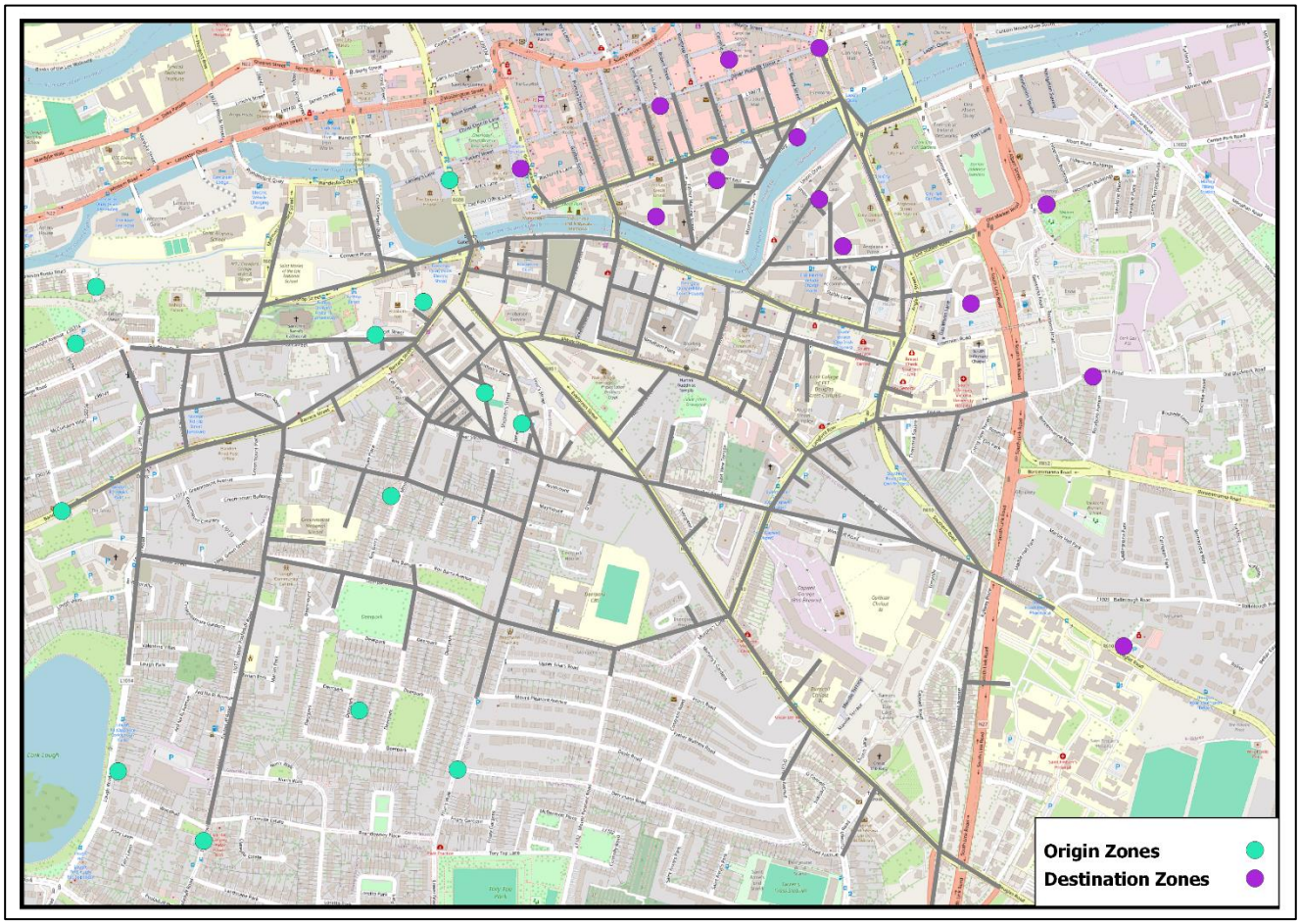


Figure 5-7 – Intermediate Scenario 1 – AM peak hour flows

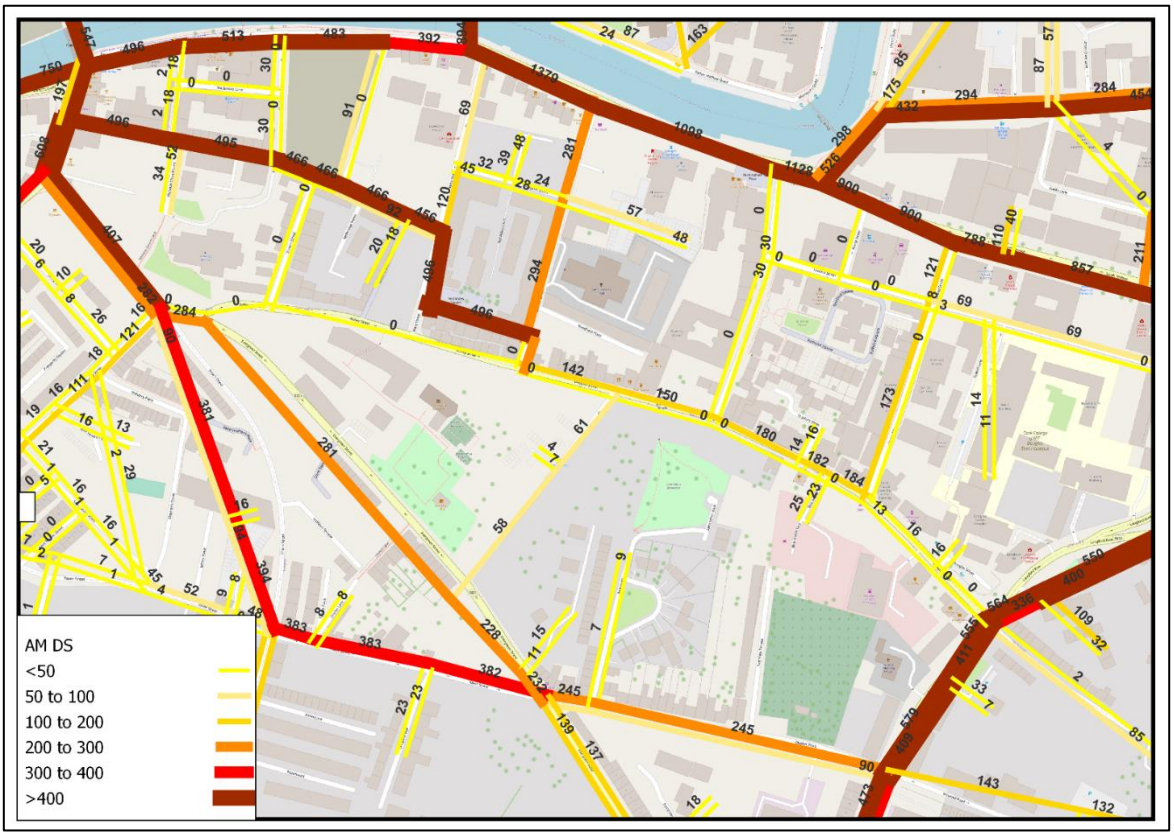
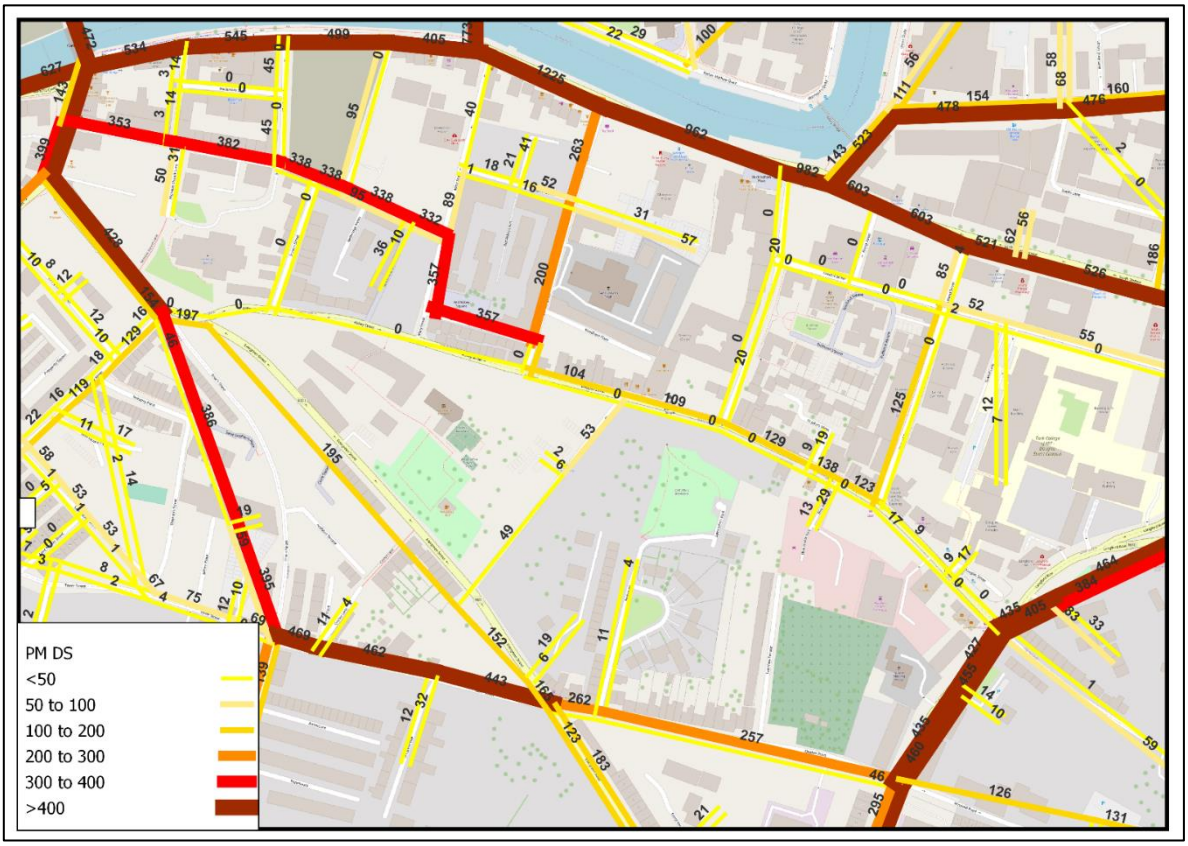


Figure 5-8 - Intermediate Scenario 1 – PM peak hour flows



B.3. Intermediate Scenario 2

B.3.1. Scenario Description

In this scenario it was assumed that the implementation of the scheme will redirect traffic at a larger scale, supported by additional mitigation measures (traffic calming, local access only restrictions) between the zones summarised in the .

Therefore, through traffic between these zones were removed and assigned to the same network as Scenario 1. The proposed infrastructure is identical between scenario 1 and 2, the only difference is the demand matrices.

B.3.2. Modelling Results – Traffic Flows

The modelled traffic flow difference between Scenario 2 and the Base (Do Nothing) for both peak hours are presented in the figures below. Maps representing actual flows are included at the end of the section.

Figure 5-9 - AM flow Difference between Do Something Scenario 2 and Do Nothing

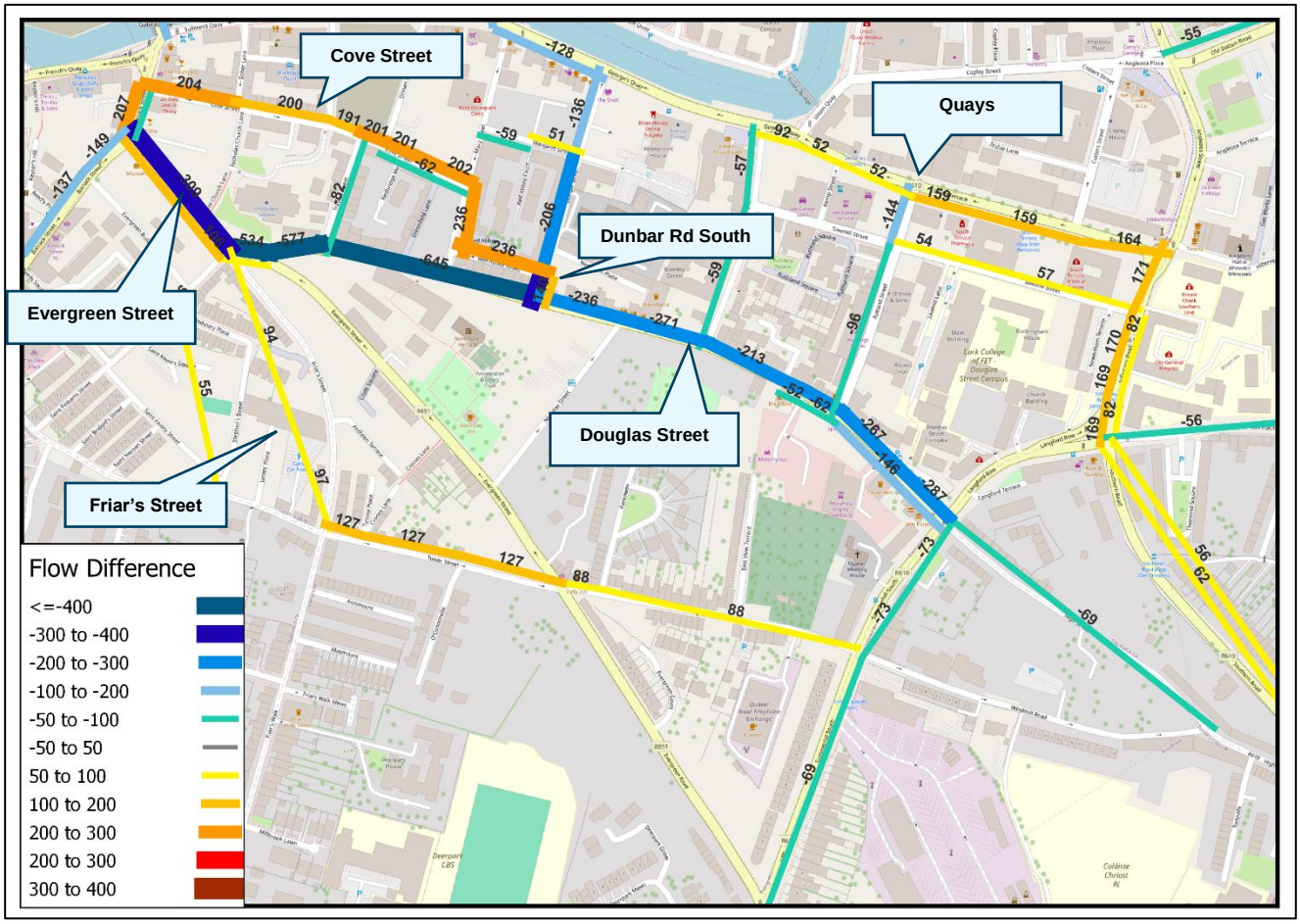
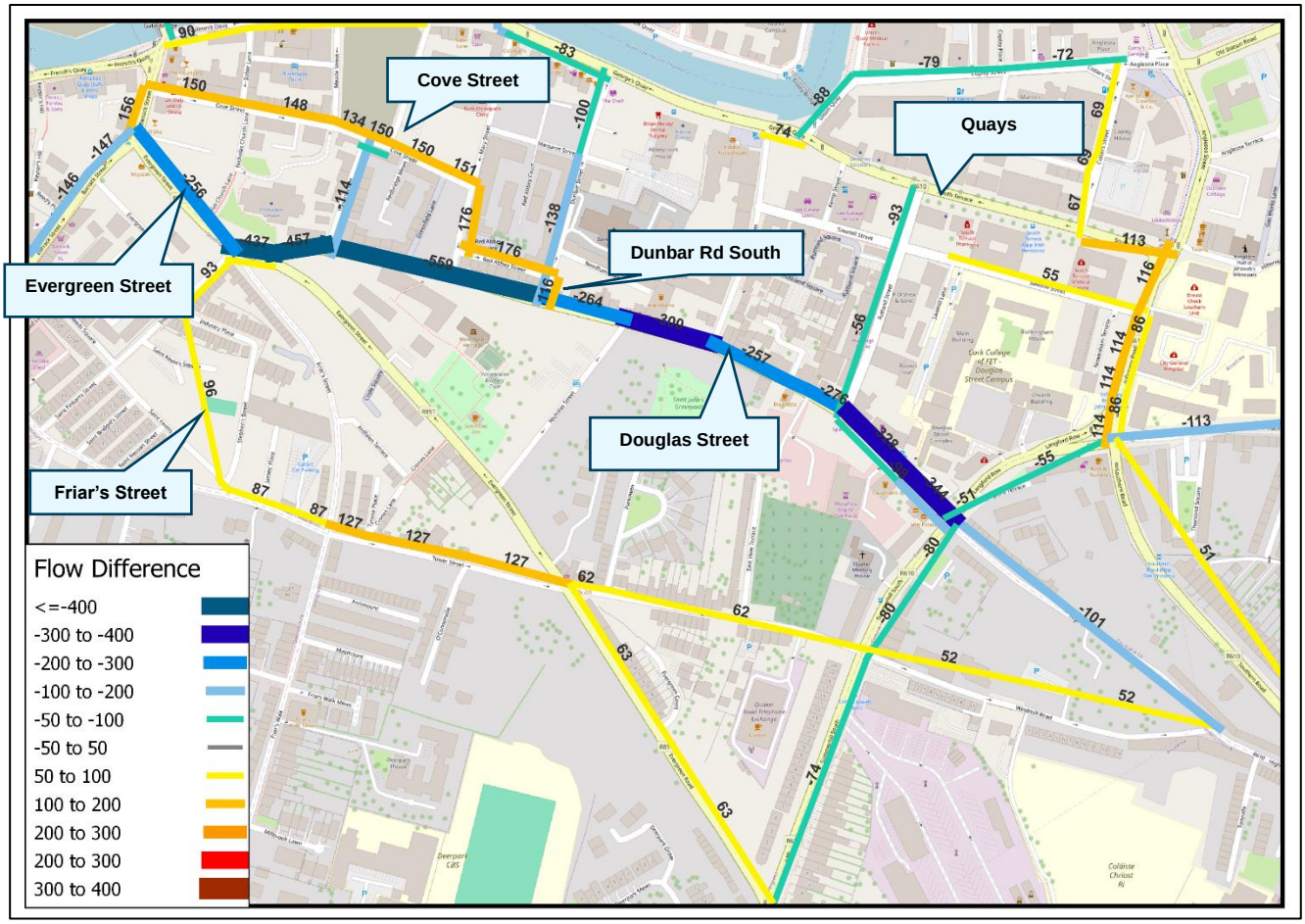


Figure 5-10 - PM flow Difference between DO Something Scenario 2 and Do Nothing

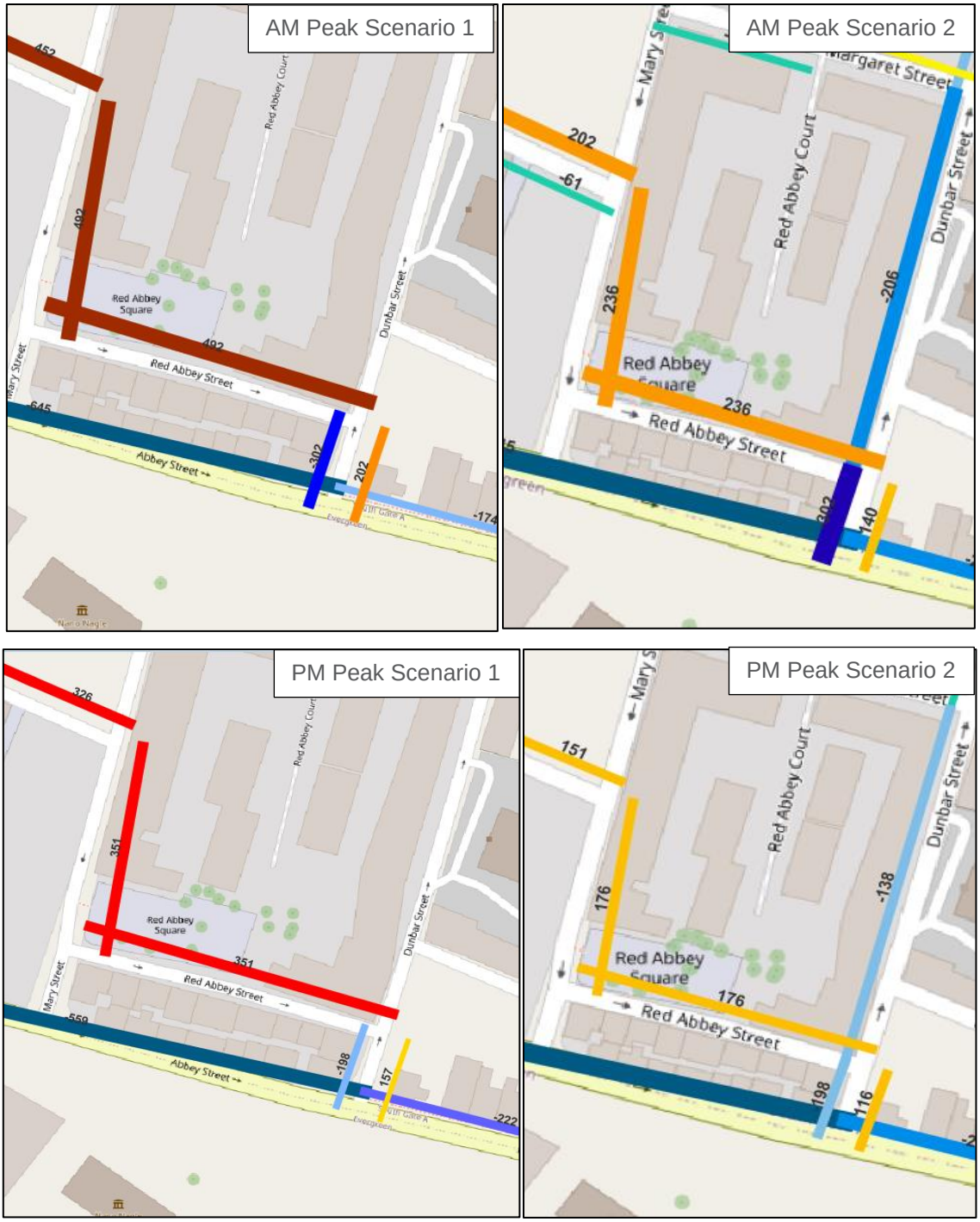


From the above figures following important points can be observed:

- When compared to Do Nothing scenario, the number of vehicles travelling on Cove Street and Mary Street are increasing by 150-200 vehicles per hour for both peak hour periods. However, when compared to Do Something Scenario 1, the traffic flows are lower by 150-250 vehicles for both AM and PM peak, due to the rerouting assumption.
- The number of vehicles along the Mary Street and Red Abbey Street is estimated to increase by around 200 vehicles per hour when compared to Do Nothing scenario.
- For the southern part of the Dunbar Street, as compared to Do Nothing Scenario, an increase of 120-140 vehicles per hour is estimated.

The comparative number of vehicles for Do Something Scenario 1 and 2 are shown in the figures below.

Figure 5-11 - Flow Difference between Do Something Scenario 2 and 1 for Red Abbey and Dunbar Street



The traffic increase on Mary St and Red Abbey St is lower in Scenario 2 compared to Scenario 1. However, the actual volume of traffic remains above 200 pcu/hour in both peak hour periods, which can be considered too high to implement the proposed public realm scheme. Nevertheless, to further reduce traffic along Red Abbey St, an additional scenario (Scenario 3) was developed.

Figure 5-12 - Intermediate Scenario 2 – AM peak hour flows

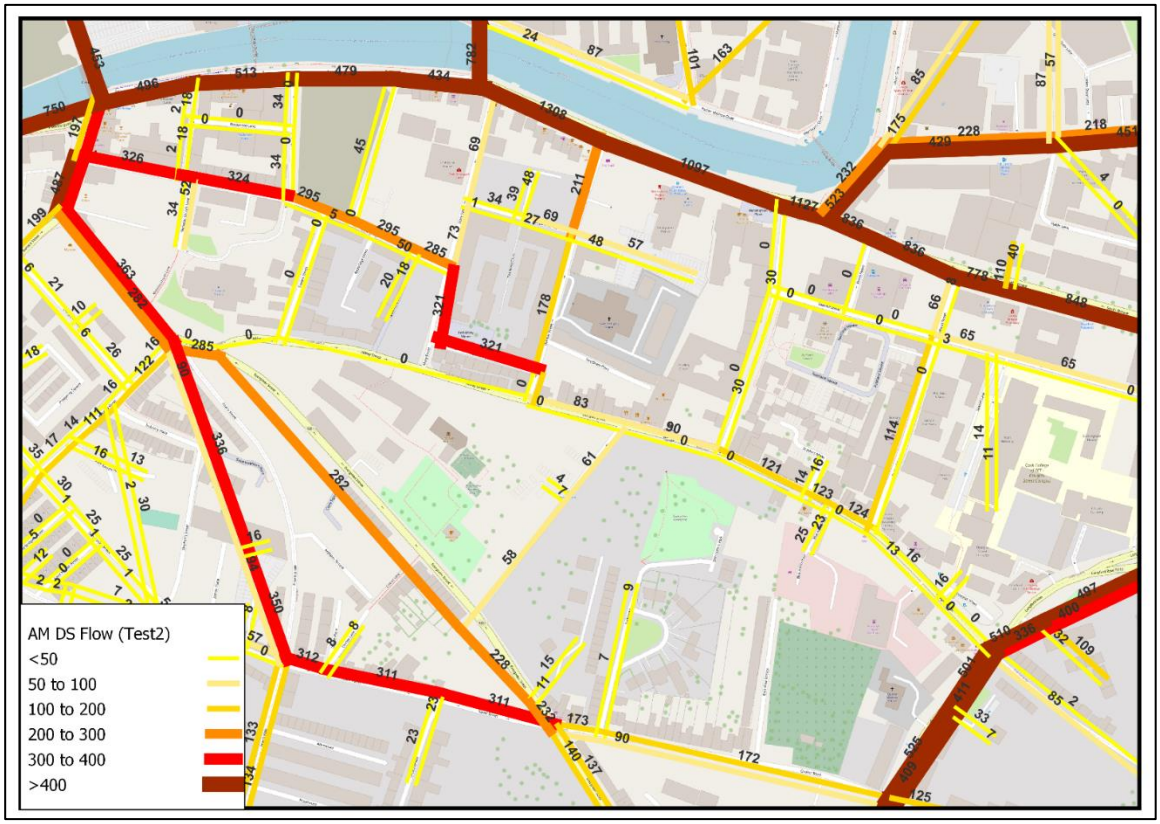
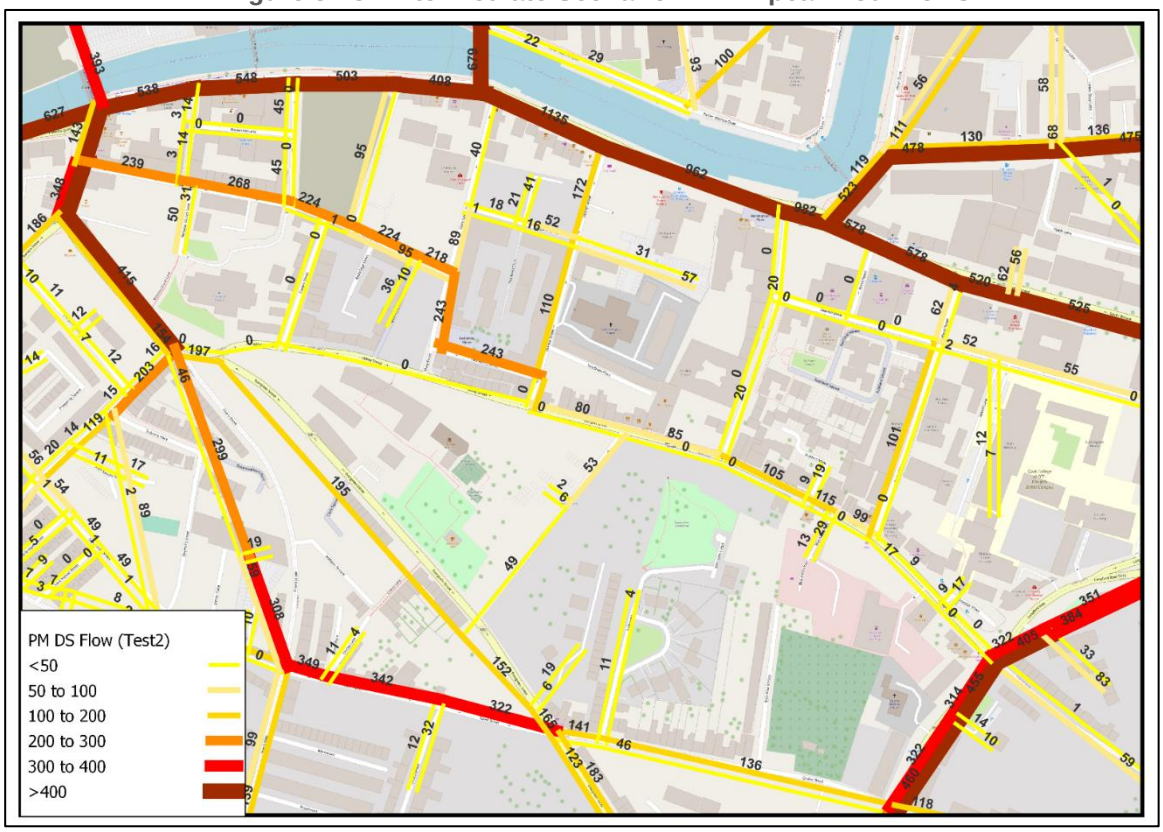


Figure 5-13 - Intermediate Scenario 2 – PM peak hour flows



B.4. Intermediate Scenario 3

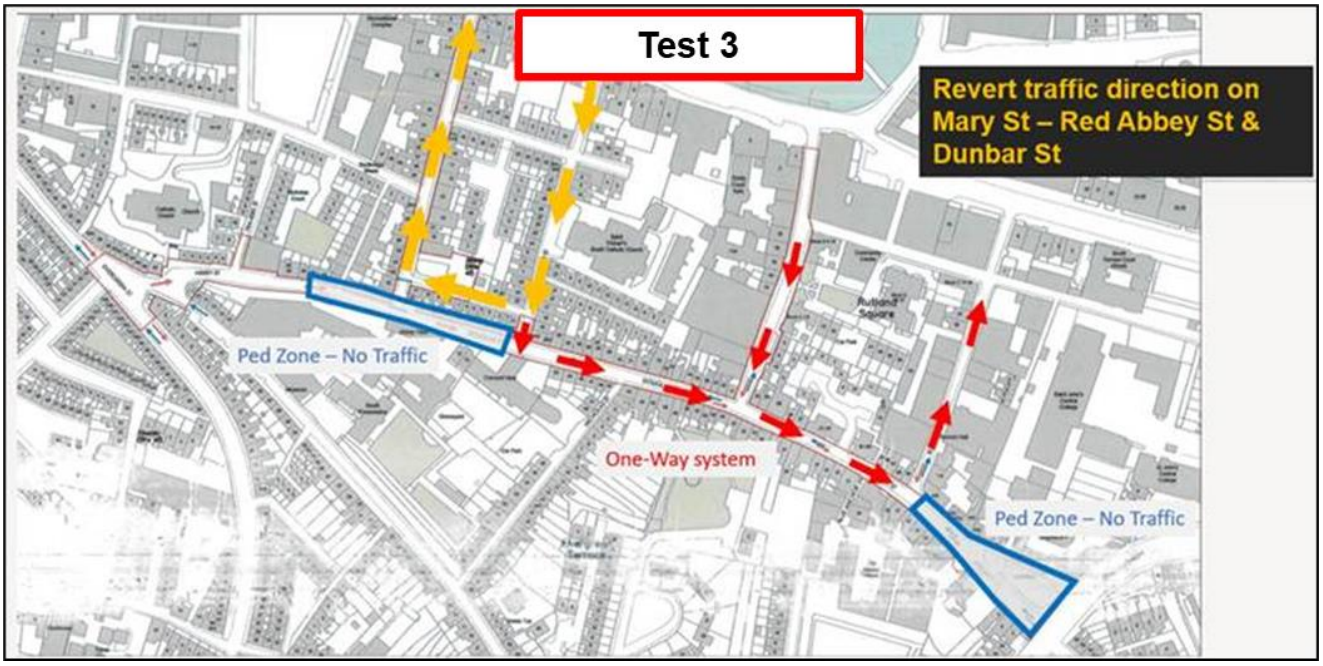
B.4.1. Scenario Description

Scenario 3 is built on Scenario 2 with the following modifications:

- Reverting the direction of Dunbar Street to southbound from Quays to Douglas St
- Reverting direction of Red Abbey Street to westbound direction
- Reverting direction of Mary Street to northbound direction

These upgrades are summarised in figure below.

Figure 5-14 - Reversal of Traffic Direction on Mary Street/Red Abbey Street and Dunbar Street



The main aim of Scenario 3 is to remove the traffic on Red Abbey Street by providing direct access to the quays from Cove Street via Mary Street.

B.4.2. Modelling Results – Traffic Flows

The modelled traffic flow difference between Scenario 3 and the Base (Do Nothing) for both peak hours are presented in the figures below. The actual flows are included in Appendix D.

Figure 5-15 - AM flow Difference between DO Something Scenario 3 and Do Nothing

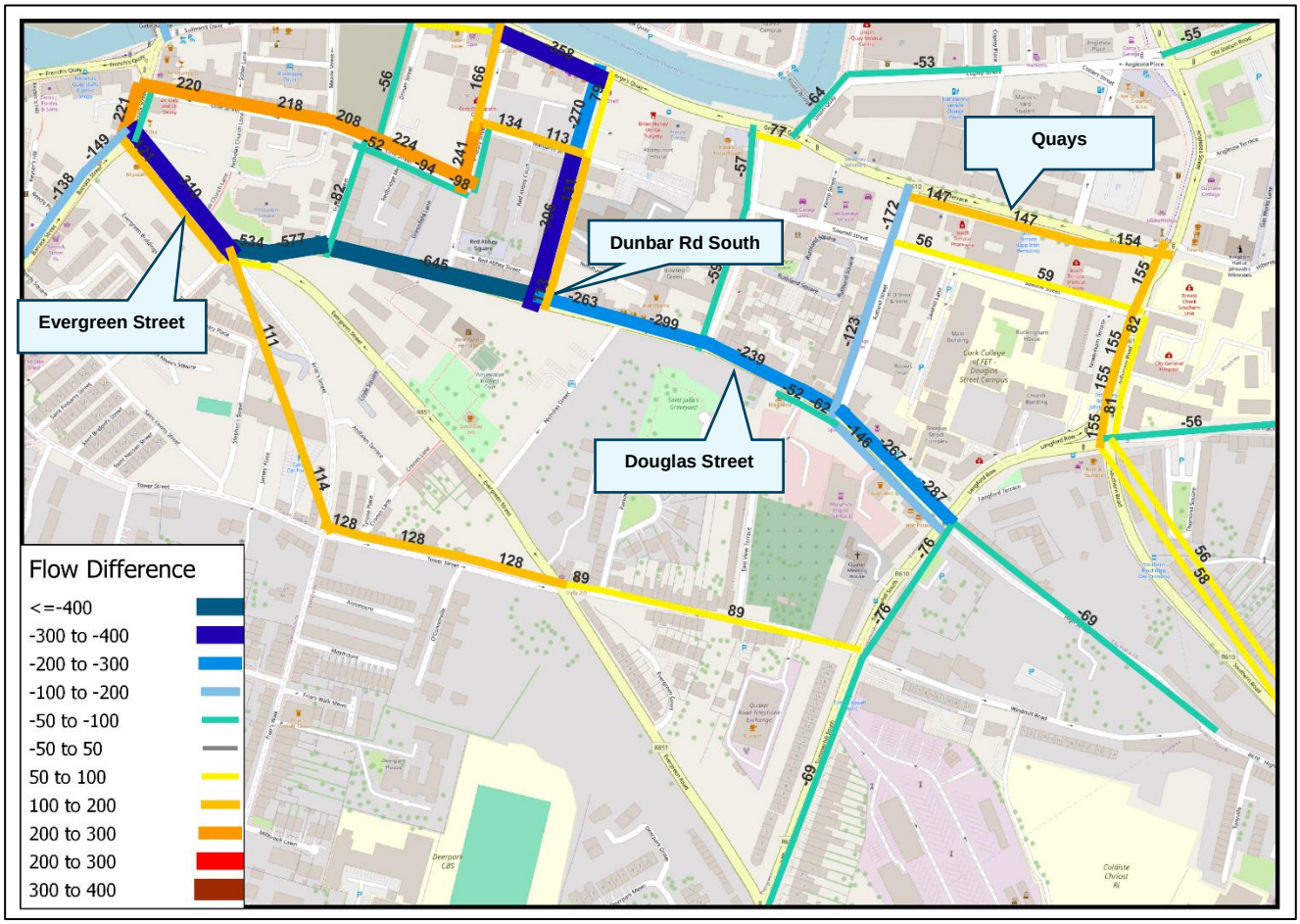
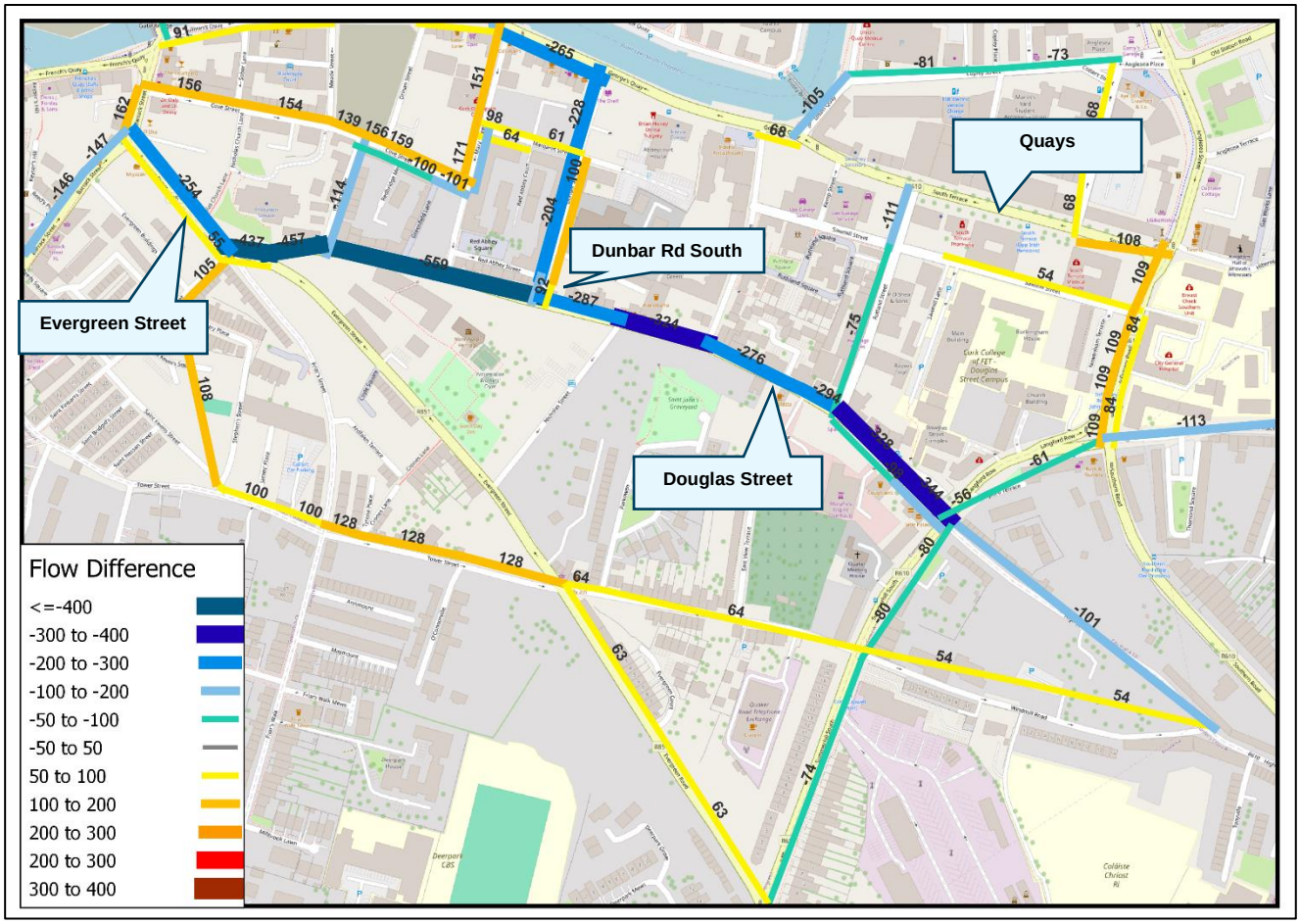


Figure 5-16 - PM flow Difference between DO Something Scenario 3 and Do Nothing



From the figures above following important points can be observed:

- The number of vehicles along Cove Street is similar to Do Something Scenario 2
- Very low traffic on Red Abbey Street (<50 pcu/h in both peak periods), similar to current situation.
- There is an increase in Mary Street northbound traffic. This is because traffic coming from Cove Street and accessing Quays will divert through Mary Street being more direct route.
- The estimated traffic on Dunbar Street to be less than 150 pcu/hr in both peak periods.
- Access to Douglas Street from Cove Street is maintained in this scenario, though more circuitous via Margaret St.
- Accessibility to Douglas Street from the Quays is maintained through Dunbar Street.
- Slight traffic reduction on Douglas Street, White Street and Rutland Street, compared to Scenario 2, was observed due to reversal of traffic direction.

Figure 5-17 – Intermediate Scenario 3 - AM Peak Hour Flows

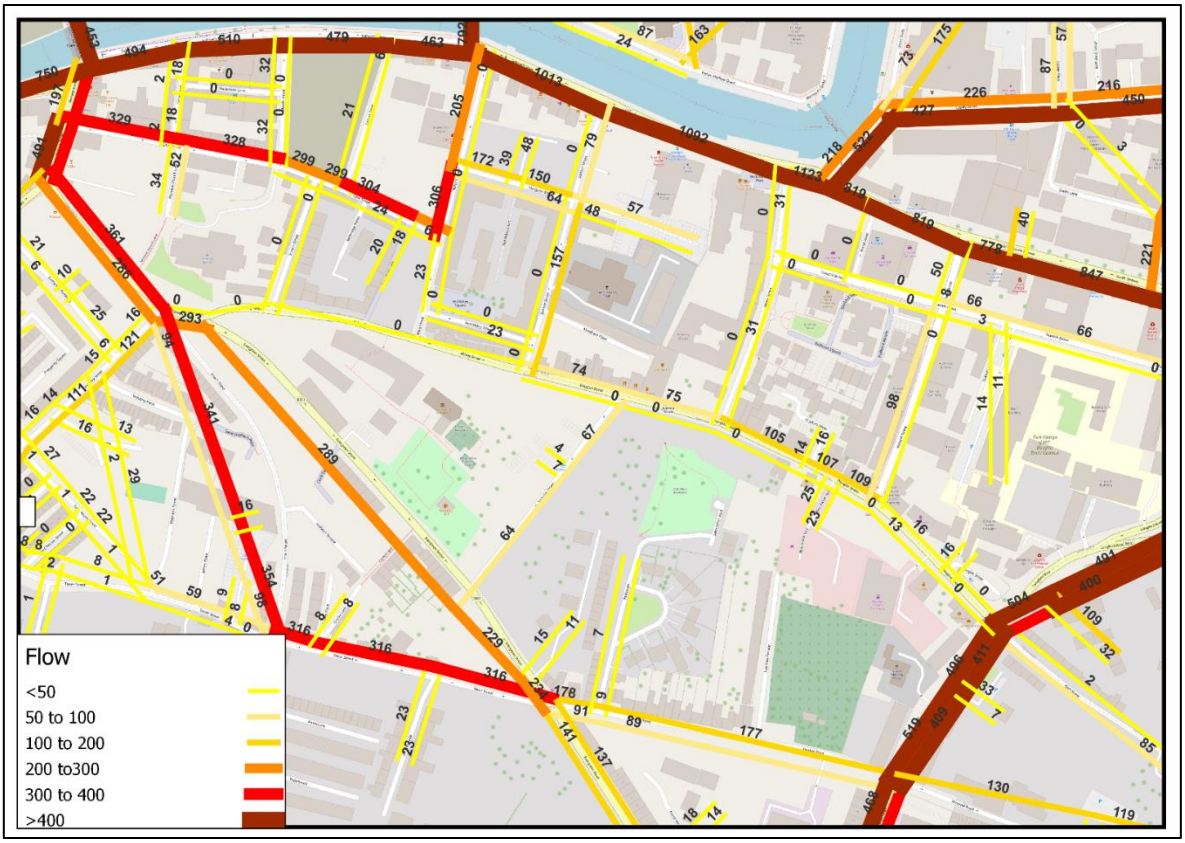
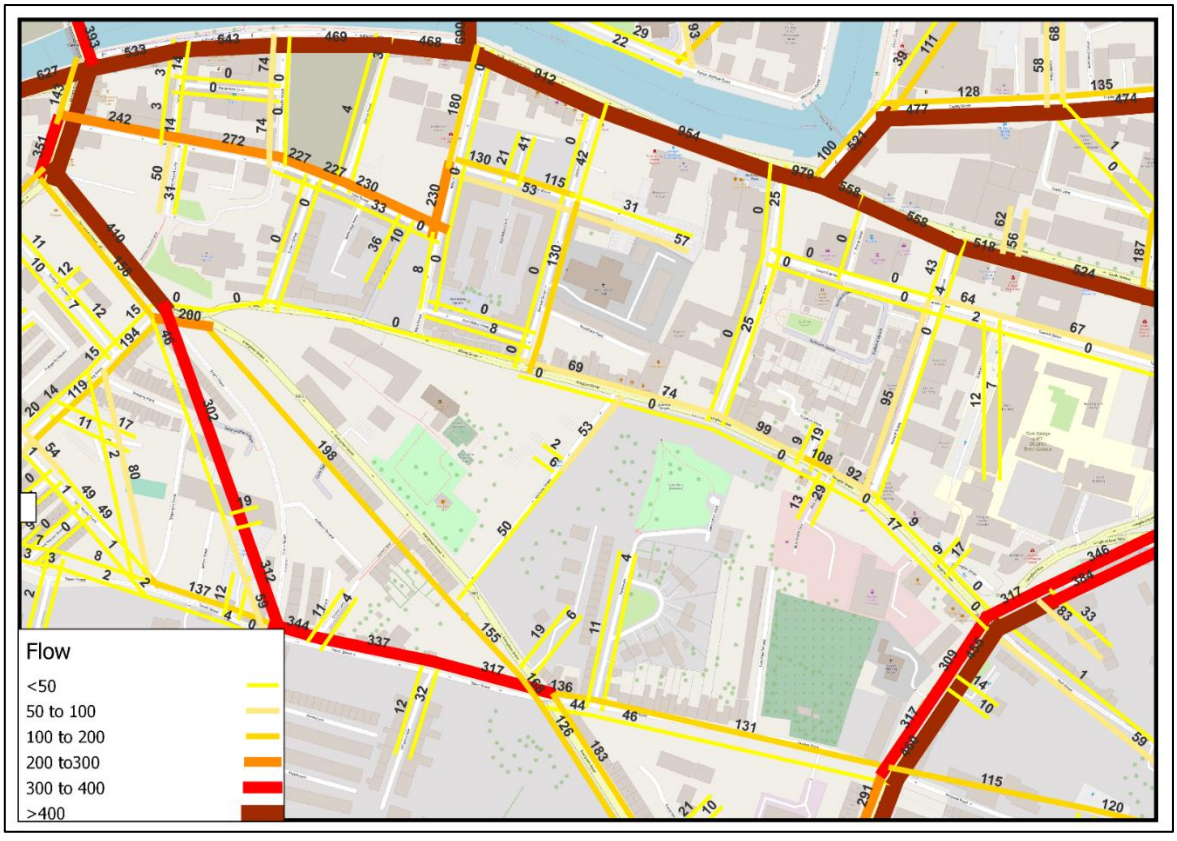


Figure 5-18 – Intermediate Scenario 3 - PM Peak Hour Flows



B.5. Intermediate Scenario 4

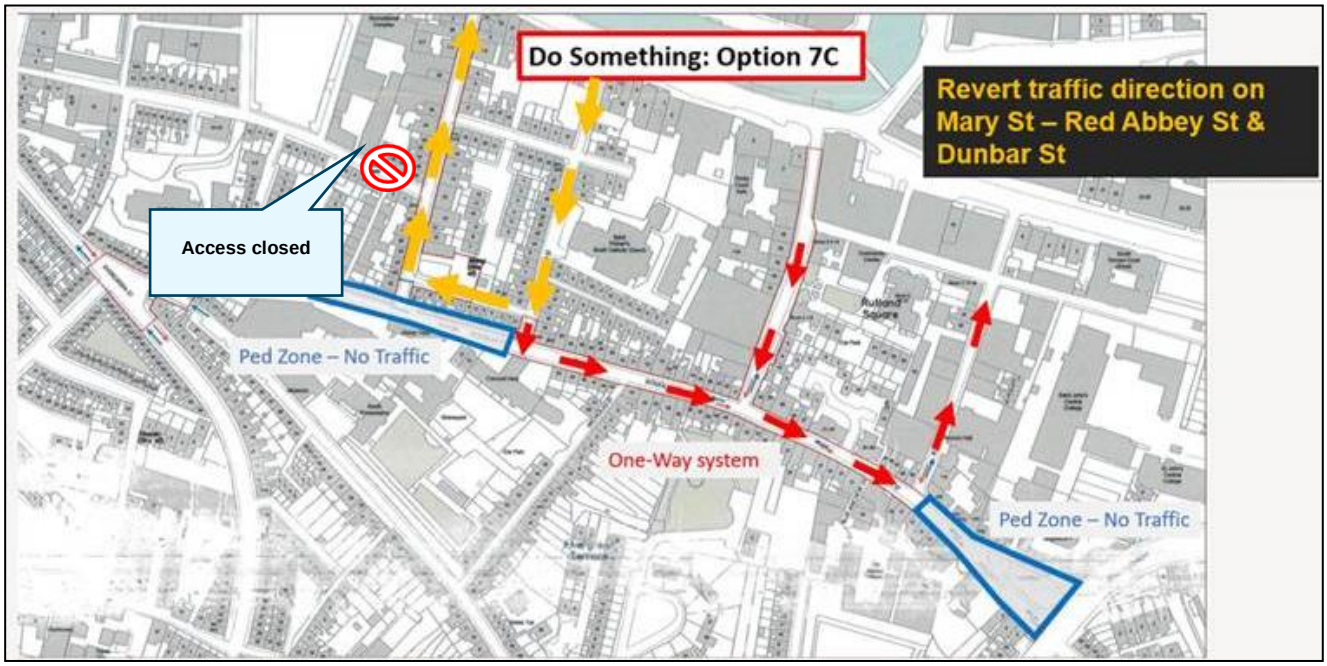
B.5.1. Scenario Description

An additional scenario, Scenario 4 was built on Scenario 3 albeit:

- Closure of access from Cove Street to Mary Street was closed.

These upgrades are summarised in figure below.

Figure 5-19 - Reversal of Traffic Direction on Mary Street/Red Abbey Street and Dunbar Street



The main aim of Scenario 4 is to confine Mary Street, Red Abbey St and Margaret St solely to local access.

B.5.2. Modelling Results – Traffic Flows

The modelled traffic flow difference between Scenario 4 and the Base (Do Nothing) for both peak hours are presented in the figures below. The actual flows are included in Appendix D.

Figure 5-20 - AM flow Difference between Do Something Scenario 4 and Do Nothing

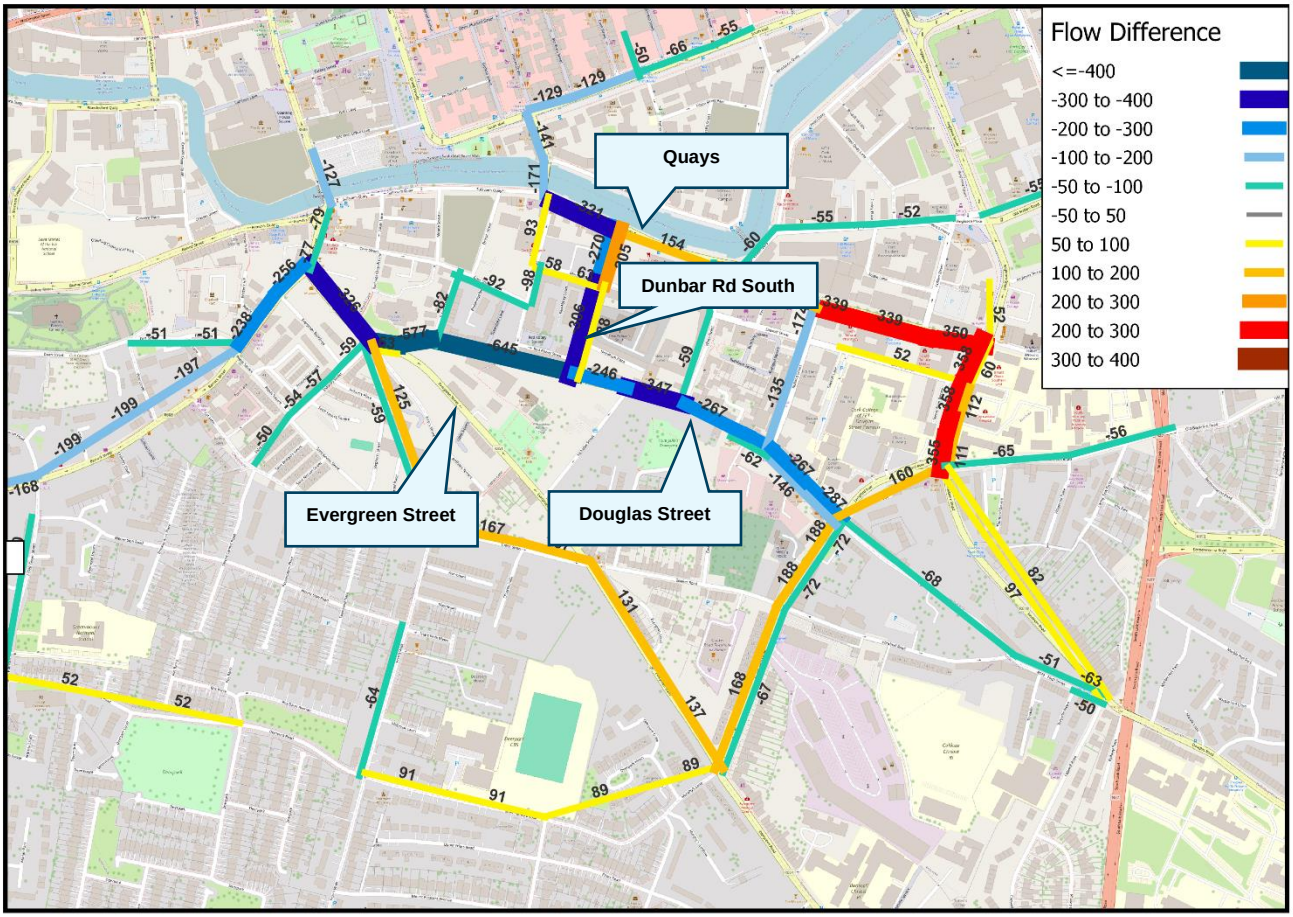
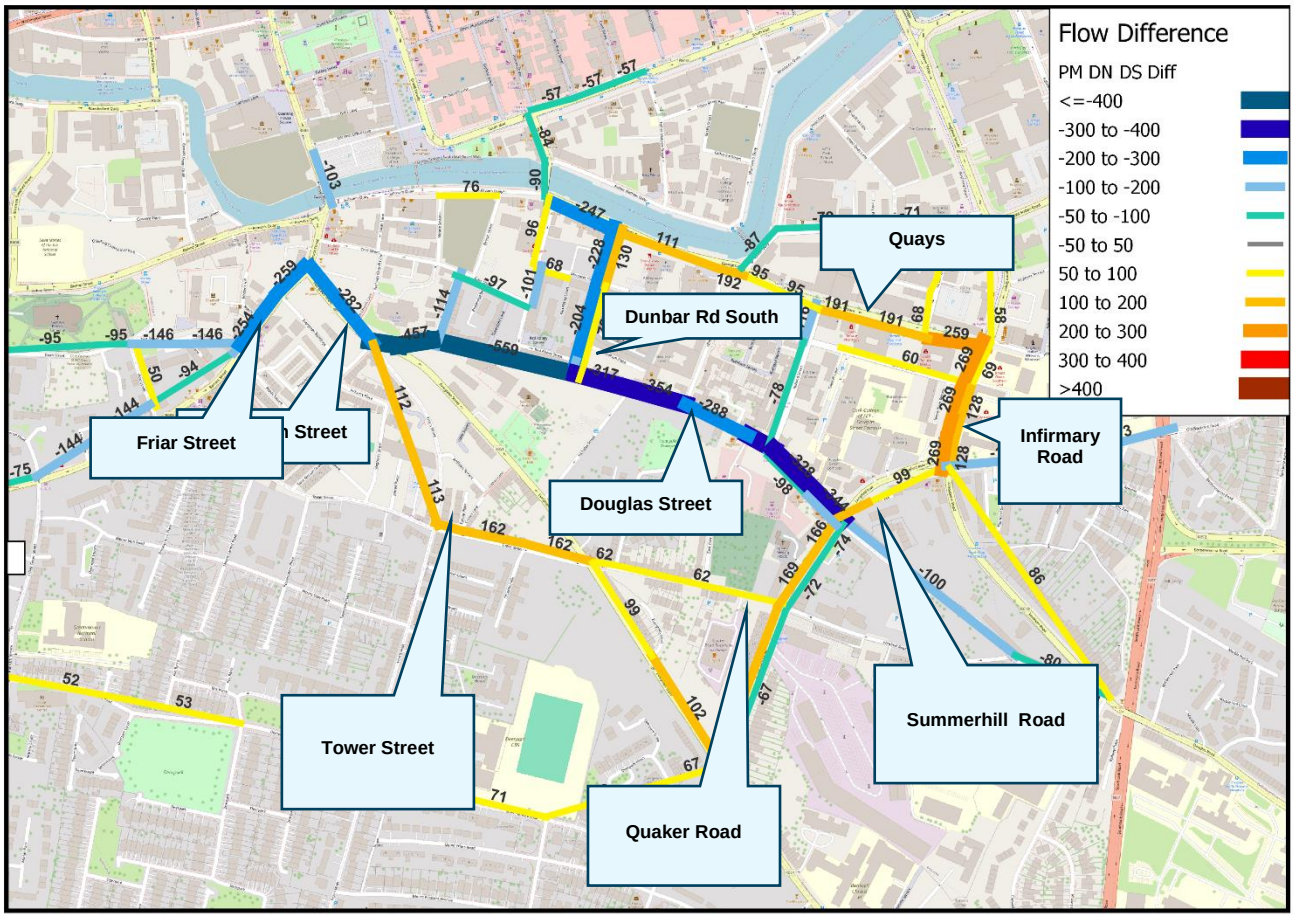


Figure 5-21 - PM flow Difference between DO Something Scenario 4 and Do Nothing



From the figures above following important points can be observed:

- The number of vehicles on western section of Cove Street is similar to Base Scenario (50pcu/h).
- The traffic from Western parts of the study area going towards the quays and zones North of Douglas Street are now redirected towards Friar Street, Tower Street, Quaker Road before joining Summerhill Road and Infirmary Road & South Terrace link (R610).
- As compared to Do Nothing (Base scenario), for Do Something Scenario 4, the maximum increase in traffic along the above links was found to be approximately 380 pcu/hr during the AM peak and around 270 pcu/hr during the PM peak.
- The traffic on Cove Street, Mary Street, and Red Abbey Street is estimated to be less than 100 pcu/hr, which is suitable to implement a low traffic public realm scheme. Similarly, traffic on Dunbar Street is estimated to be lower than 200 pcu/hr across both peak periods, which can be considered an acceptable level for an active travel scheme.

Figure 5-22 – Intermediate Scenario 4 - AM Peak Hour Flows

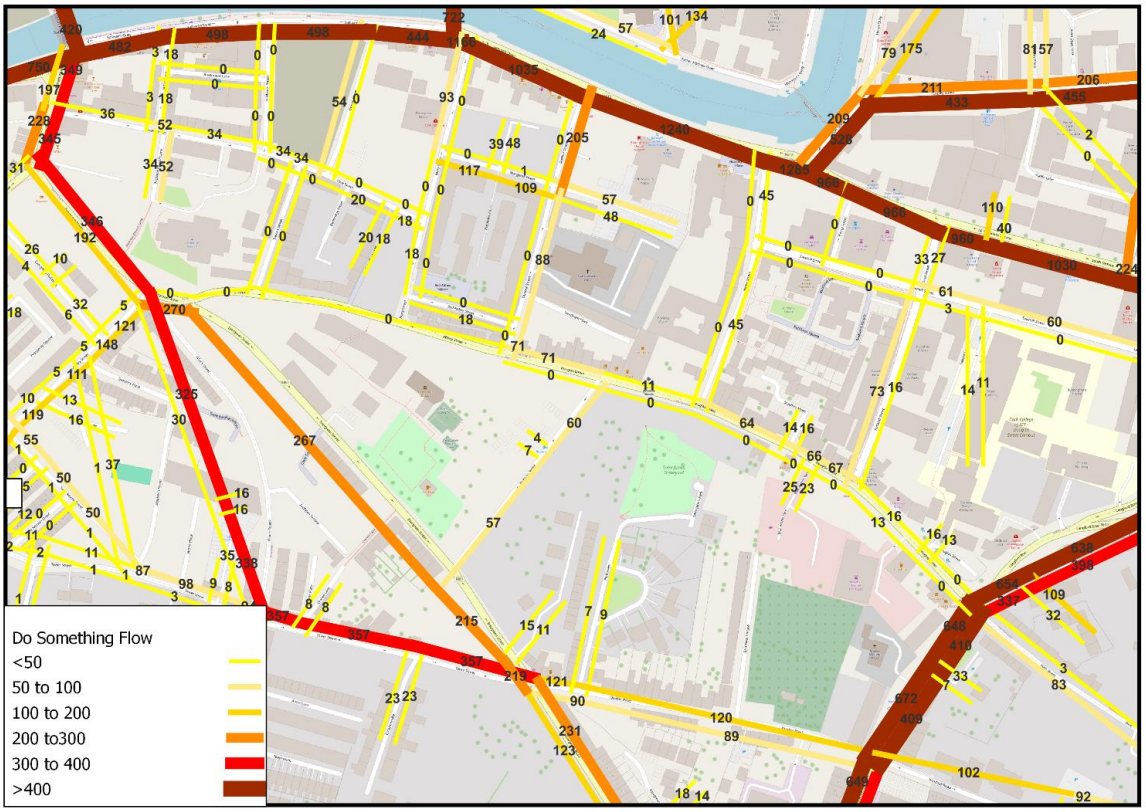
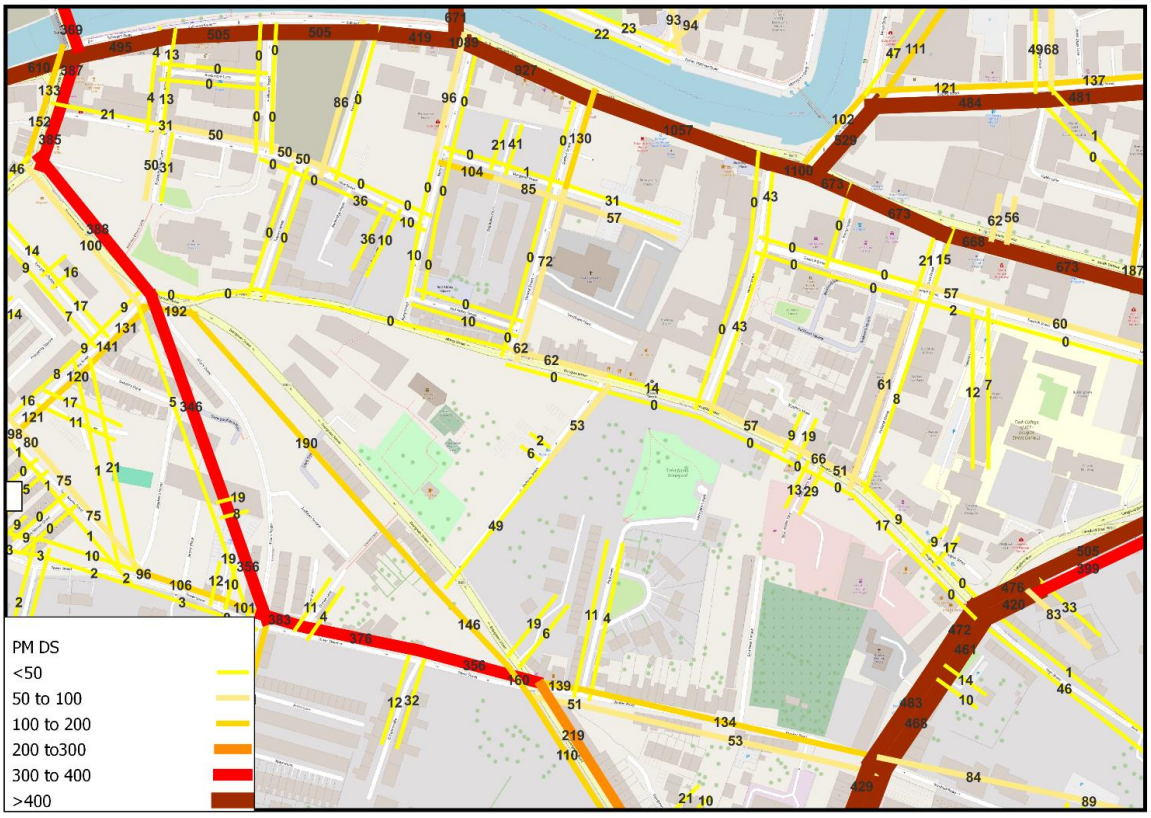


Figure 5-23 – Intermediate Scenario 4 - PM Peak Hour Flows



B.6. Intermediate scenarios key findings

This section summarises the key findings from the modelling done on this project.

For scenario 1, the scheme implementation results into a significant increase in traffic on Cove Street. Cove Street has limited capacity and catering for that level of traffic might be challenging. A Select Link Analysis shows that zones on the west side of the study area are using Cove Street for through movement due to the closing of the western end of Douglas Street. Hence, through traffic that would reroute if traffic calming, and local restrictions were implemented was identified and removed from the matrices for scenario 2.

For scenario 2, the through traffic diversion at larger scale and mitigation measures within the study area help to reduce traffic on Cove Street. As compared to Do Something Scenario 1, the volume of traffic along Cove Street, Red Abbey Street, Mary Street South and Dunbar Street South are lower by around 50-250 pcu/h. The volume of traffic along Red Abbey Street and Dunbar Street is estimated above 200 pcu/hour during both peak hours, which can be considered too high to implement a public realm scheme. Nevertheless, an additional scenario (Scenario 3) was considered to reduce traffic further along Red Abbey St.

In scenario 3, the direction of Mary Street, Red Abbey Street and Dunbar Street were reversed as compared to the existing traffic arrangement. The reversal of traffic direction of Mary Street, Dunbar Street and Red Abbey Street helped to significantly reduce traffic on Red Abbey Street, Dunbar Street South and Mary Street South. A slight reduction in traffic was observed for Douglas Street, White Street and Rutland Street. There is an increase in Mary Street northbound traffic, due to traffic coming from Cove Street and accessing the Quays. This itinerary is more direct, shorter and more suitable for that level of traffic than the Mary Street-Red Abbey Street-Dunbar Street route in scenario 2.

In scenario 4, the access to Mary Street from Cove Street was closed. This allowed the use of Cove Street and Mary Street for local purpose only. Due to this, the vehicles travelling from West towards zones near Quays and Douglas Street were redirected towards Friar Street, Tower Street, Quaker Road before joining Summerhill Road and Infirmary Road & South Terrace link (R610). The maximum increase in traffic along these streets was observed to be 280-380 pcu/hr for both peak hours. The traffic along Dunbar Street, Red Abbey Street and Mary Street was observed to be less than 200 pcu/hr which can be considered acceptable for active travel scheme.

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A.2 Non-Statutory Consultation Feedback

SUMMARY OF COMMENTS RECEIVED

Non-Statutory Public Consultation (2-3 September 2024)

Issues / Suggestions raised.	No. of Comments	Type of Comment	Designers Comment	Design Action / No Action	Description of Resolution	Responding Designer	Response
Concerned about reduced parking	19	Design Comment	To be reviewed	Action	Where can we introduce parking without compromising the design too much? - White St to Rutland St	JMLA	Addressed (3 additional car parking spaces created)
Look for solutions for Bins	7	Design Comment	To be reviewed	Action	Complete bin strategy report - Look at the spatial impact of the bins on the street - Prehaps implement in one area.	ATKR	A bin strategy has been prepared to provide bin storage locations for pedestrianised streets.
Concerned parks & benches will attract anti-social behavour	3	Anti Social Behaviour Comment	To be reviewed	Action	Increasing amount of seating will mean seating for all. Add handrails etc to prevent sleeping etc.	JMLA	Developing this as part of a detailed package for Magnaparte.
Include childerns play area at Langford Row area. Consider mini parks in Barcelona for inspiration.	3	Design Comment	To be reviewed	Action	As previously discussed can we introduce play elements along the street? Maybe street furniture is playful.	JMLA	This will be presentated mainly in the 3D visuals by Magnaparte. JMLA will provide examples, references and locations.
Add in dog bins with bags	2	Design Comment	To be reviewed	Action	CCC to determine if Operations are in favour	-	
Can the deparment of social protection use the existing entrance onto George's Quay	2	Design Comment	To be reviewed	Action	CCC to dicsuss with Operations	-	
Concerened about the change of direction of flow on Mary St.	2	Design Comment	To be reviewed	Action	Based on this comment and others review the traffic flows.	ATKR	Design team is currently reviewing alternative traffic configurations.
Concerened about vehicle access from the city to Red Abbey St.	2	Design Comment	To be reviewed	Action	Based on this comment and others review the traffic flows.	ATKR	Design team is currently reviewing alternative traffic configurations.
Grants for local business / residents to paint building fronts	2	Comment about funding for none design works	Outside Scope	Action	CCC to consider	-	
Pedestrian lights on Summerhill South will need to give adequare time for crossing	2	Design Comment	To be reviewed	Action	Will be dealt with as part of signal design.	ATKR	Traffic and pedestrian signals will be developed to the appropriate standard during final design.
Add additional bike bunkers for resident bike parking	1	Design Comment	To be reviewed	Action	Can we review bike parking? We need to provide enough but not too much. More can be added later by consultation with the residents	JMLA	Addressed (4 shefield stands replaced with 4 bike bunkers on douglas street. Total of 15 bike bunkers in total throughout the scheme)
Add additional general bike parking	1	Design Comment	To be reviewed	Action	Can we review bike parking? We need to provide enough but not too much. More can be added later by consultation with the residents	JMLA	All locations for bike parking have been used. 8 Shefield stands have been removed to incorporate other comments. 72 standard bike spaces 15 bike bunker spaces 6 cargo bike spaces 30 bike rentals
Add electric car stations	1	Design Comment	To be reviewed	Action	Will be included in the design.	ATKR	Design team will work with CCC to identify proposed electric car stations as required.
Add more didicated play spaces for children and young people	1	Design Comment	To be reviewed	Action	As previously discussed can we introduce play elements along the street? What about a slide, bouncy thingy? Basketball hoop	JMLA	This will be presentated mainly in the 3D visuals by Magnaparte. JMLA will provide examples, references and locations.
Add seating outside Callanans Bar	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Seating to be owner organised. The width of the pavement does not proide scope for permanent outdoor seating.
Concerened that if there is flooding on Georges Quay residents will not be able to get to their homes	1	Design Comment	To be reviewed	Action	Cars can be allowed to exit the area via the pedestrianised section at NNP - No Design Chagnes Needed - CCC to engage with operations	-	
Concerned about traffic flow when Rutland St. floods	1	Design Comment	To be reviewed	Action	Cars can be allowed to exit the area via the pedestrianised section at NNP - No Design Chagnes Needed.	-	
Concerned there will be conjestion due to creche drop off	1	Design Comment	To be reviewed	Action	Additional spaces on Douglas Street will help this	ATKR	
Concerned with parking being removed between 143 and 107 Douglas St.	1	Design Comment	To be reviewed	Action	Can we do anything here? Do we want to do anything here?	ATKR	We have included 3 spaces along this stretch.
Consider access for Red Abbey Court Residents.	1	Design Comment	To be reviewed	Action	Allow for an opening - up to Red Abbey Court to gate it if they wish.	JMLA	Addressed
Design to consider access for visually and mobility impared	1	Design Comment	To be reviewed	Action	Will be designed in accordance with universal design guidance	ATKR	Design team has coordinated with Access group after this meeting, will be a focus during final design.
Design to include sustainable urban drainage	1	Design Comment	SUDS is incorporated into the design	Action	Will be included in the design.	JMLA	Already Included
Design to keep light polution as low as possible	1	Design Comment	LUX levels will be in line with local regulations	Action	Lighting will be designed in accordance will the relevant standards	JMLA	Detail Design
Eliminate corners which are used as toilets	1	Design Comment	To be reviewed	Action	If possible	ATKR	Cannot modify building lines, but will consider modifications where possible.
Engage planning department re potential development sites	1	Comment about potential development sites	Outside Scope	Action	CCC to forward to Planning for Review	-	
Ensure design allows for Christmas Crib to be located in Red Abbey Tower	1	Design Comment	To be reviewed	Action	Can be included	JMLA	Detail Design

SUMMARY OF COMMENTS RECEIVED

Non-Statutory Public Consultation (2-3 September 2024)

Ensure the enviroment department is 100% behind the planting & horticulture thereafter	1	Design Comment	Continue to coordinated with parks throughout the design process	Action	CCC will engage with Parks on this	-	
Ensure the local hard to reach, eldery, transient renters, international community are consulted	1	Comment about Consultation Process	Flyers have been provided to all locals to inform them of the design. Contact details have been provided to contact the design team.	Action	Continue to inform locals as project progresses	-	
Impressed with proposed bin set down area for Needham Place	1	Positive Comment	To be reviewed	Action	This could be a trial for the area	JMLA	No Action - Other areas are retained as discussed
Include a post occupancy evaluation (> 1 Year)	1	Future Works Comment	To be reviewed	Action	Design Team could comission a survey pre & post construction	-	
Increase planting at North End of Mary St. to attract people coming over Parliament Bridge	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Underground utilities do not allow any more planting to be added in this area.
Increase the heights of the planters near the laurels.	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Currently at seat hight (450mm above ground)
Install bollards where required to prevent illegal parking	1	Design Comment	To be reviewed	Action	Design to prevent this	JMLA	bollards are included in red abbey square
Loading areas requried for businesses	1	Design Comment	To be reviewed	Action	Where?	JMLA	Large loading bay currently beside Fionnbarra. (11M LONG)
Partner businesses to planters outside premises	1	Design Comment	To be reviewed	Action	CCC to discuss with operations	-	
Planter outside Cork Flower Studio should fall towards shop front	1	Design Comment	To be reviewed	Action	Noted	JMLA	this will inDeveloping this as part of a detailed package for Magnaparte.
Please consider closing Douglas St. on Sundays to allow residents to experience pedestrian streets	1	Comment for Operations	Not Applicable to Design	Action	Forward to Operations for Review	-	
Project to accommodate grants / schemes for residents & businesses to paint and clean their buildings	1	Comment about funding for none design works	Outside Scope	Action	Cork City Council to persue funding	-	
Proposed seating areas are too linear. In need of more face to face seating.	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Developing this as part of a detailed package for Magnaparte.
Publicans need seating area outside for socializing	1	Design Comment	To be reviewed	Action	In design already	JMLA	Already Included
Reivew access to Dunbar St.	1	Design Comment	To be reviewed	Action	Traffic flow changes	ATKR	Design team is currently reviewing alternative traffic configurations.
Requested a bike share at the ETB campus or by Paddy the Farmers	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Paddy the Farmers is outside of the project area. It was previously noted that a bike share has to be made up of minimum 30 bike stands. There isn't space for this at the Langfort row park. (22x1.8 m)
Requested more seating in pedestiranised areas	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	
Requested signs for St. Johns Mews (Private Parking)	1	Design Comment	To be reviewed	Action	Is it private	ATKR	Outside of CCC remit. Up to the management company to manage as they see fit.
Requested street art	1	Design Comment	To be reviewed	Action	CCC to consult with arts officer	-	
Requested that design is destinctive	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Already Included
Requested that history of area be used in design	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Already Included
Requested that parking spaces outside medical centre be 30min only	1	Design Comment	To be reviewed	Action	Can convert one to 15 min - Discuss with Medical Centre	-	
Requested that spaces can facilitate outdoor events	1	Design Comment	To be reviewed	Action	Yes, provide water and electricity connections	JMLA	Already Included (Langfort row park and Red Abbey Square)

SUMMARY OF COMMENTS RECEIVED

Non-Statutory Public Consultation (2-3 September 2024)

Use native Irish trees & Plants	1	Design Comment	To be reviewed	Action	Landscape	CSR	We appreciate the focus on integrating native species into the urban landscape. While native plants are vital for biodiversity and ecological resilience, an exclusively native planting scheme can be challenging in urban settings. The constraints of an urban environment, such as limited soil volume, high pollution levels, and space restrictions, often mean that exclusively native species are not always suited for street trees or confined spaces. In such settings, the selection of native species that can thrive in these conditions is relatively limited. Instead, a thoughtfully selected mix of hardy, non-invasive species—including some native and pollinator-friendly plants—can be more sustainable. By combining native species with well-adapted non-natives, we can support biodiversity and create a more robust habitat for pollinators.
Use space outside Fionnbarrs as a multi use space. Small Van deliveries, bin collection area, keg collection area, bar seating area monitored by Fionnbarra's	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Tables removed. Atkins to check if there is enough space here for a small van to park.
Widen footpath outside the Gables Bar	1	Design Comment	To be reviewed	Action	Would this remove parking?	JMLA	In order to provide additional cap parking spaces along this street, the footpath outside Gables is restricted to 1.8m
Would like to see space designed as attractive, fun, friendly to draw all the community in .	1	Design Comment	To be reviewed	Action	Consider in design	JMLA	Already Included

A.3 Stage 1 Road Safety Audit

AtkinsRéalis

Stage 1 Road Safety Audit Report

Cork City Council

30/04/2025

5218684DG00400040

MARY ST, DOUGLAS ST & WHITE ST PUBLIC REALM ENHANCEMENT SCHEME

AtkinsRéalis - Baseline / Référence

Notice

This document and its contents have been prepared and are intended solely as information for Cork City Council and use in relation to Mary Street, Douglas Street & White Street Scheme

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This document has 29 pages including the cover.

Document history

Document title: Stage 1 Road Safety Audit Report

Document reference: 5218684DG0040

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
0	Draft Report	KL	SK	EON	EON	15/04/25
1	Report	KL	SK	EON	EON	30/04/25

Client signoff

Client	Cork City Council
Project	MARY ST, DOUGLAS ST & WHITE ST PUBLIC REALM ENHANCEMENT SCHEME
Job number	5218684
Client signature/date	

Contents

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Figures

1. Introduction

1.1 Background

This report describes the findings of a Stage 1 Road Safety Audit associated with the Mary Street, Douglas Street & White Street Public Realm Enhancement Scheme.

The scheme involves upgrading Mary Street, Douglas Street, and White Street to improve pedestrian and cyclist facilities, reduce through traffic, and enhance the public realm. The proposed development will consist of the following:

- Upgrading & widening of footpaths including the introduction of controlled and uncontrolled pedestrian crossing points through-out the scheme
- Re-alignment of the junction between Friar St. & Evergreen St. to provide traffic calming measures and provide controlled and uncontrolled pedestrian crossing points
- Re-alignment of the junction between Evergreen St. & Abbey St. to provide traffic calming measures and provide controlled and uncontrolled pedestrian crossing points
- Conversion of Abbey St. into a shared surface two-way Cul de sac street, incorporating removable barriers at the junction between Abbey St. and Mary St. allowing emergency vehicle access through to Douglas St. from Abbey St.
- Introduction of a landscaping area that maintains pedestrian stairway access between Abbey St. and the Southern End of Travers St.
- Creating a Cul de sac street on the Northen section of Travers St.
- Creation of a shared active travel facility on Douglas St. between the junctions with Mary St. and Dunbar St. with emergency vehicle access only.
- Conversion of Douglas St. into a one-way east bound street between the junctions of Dunbar St. and Rutland St.
- Introduction of a small city park on the eastern end of Douglas St and removing vehicle access to and from Douglas St. from the junction with Langford Row.
- Converting the existing signalised junction between Langford Row and Douglas St. into a Protected Junction with protected cycle facilities.
- Conversion of Douglas St. into a shared surface two-way Cul de sac street, between the junction with Rutland St. and the new city park
- Conversion of Meade St. into a one-way south bound street
- Conversion of Drinan St. into a one-way north bound street
- Conversion of Cove St. into a one-way east bound street between the junctions with Meade St. and Drinan St.
- Conversion of Cove St. into a one-way west bound street between the junctions with Mary St. and Goulds Sq.
- Upgrade of Red Abbey Sq. including traffic calming along Red Abbey St, the removal of railings around Red Abbey Tower and introduction of enhanced landscaping and lighting measures
- Conversion of White St. to a one-way south bound street
- Provision of contraflow cycle facilities to allow two-way cycle access along one-way streets for portions of Cove St, Mary St, Red Abbey St, Dunbar St and Douglas St.

- Introduction of raised tables and crossing points at street junctions through-out the scheme
- Introduction of landscaping measures including trees, planter beds and Sustainable Urban Drainage Systems (SuDS) measures through-out the scheme
- Introduction of seating elements through-out the scheme.
- Introduction of bike parking through-out the scheme
- Introduction of TFI shared bike scheme on Abbey Street
- Introduction of community shared bin storage on Abbey St. & Dunbar St.
- Undergrounding of all overhead cables through-out the scheme
- Introduction of enhanced lighting through-out the scheme.

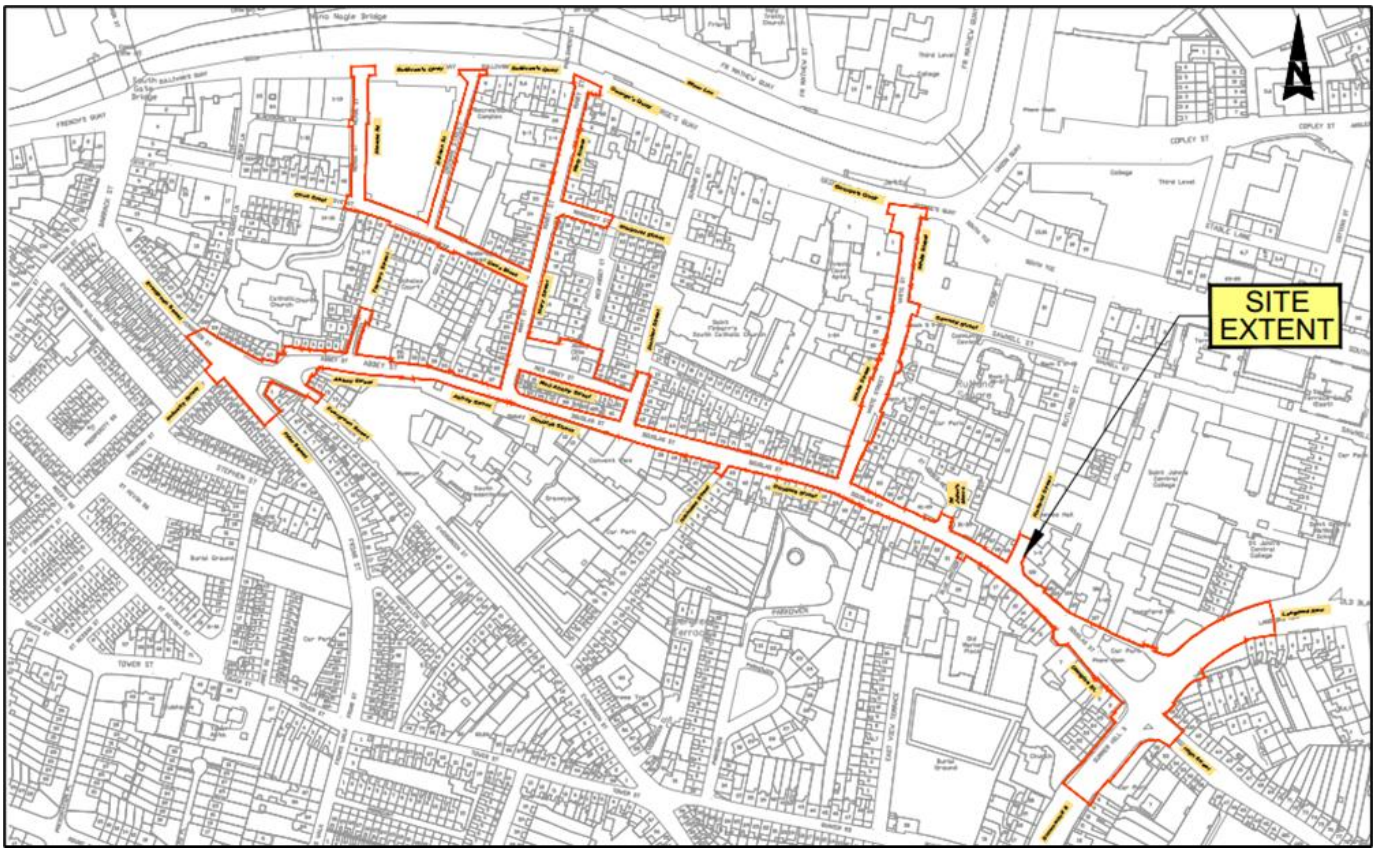


Figure 1-1 - Site Location Map

1.2 Site Inspection

A site inspection was undertaken on the 16th of April 2025. The weather conditions at the time of the site inspection were cold and overcast with some showers.

1.3 The Team

The Road Safety Audit Team members were as follows:

Team Leader: Eileen O'Neill PCert (RSA) CEng MIEI

Team Member: Sylwia Kielak MEng MIEI

A copy of the TII auditor approval documentation for the audit team is included in Appendix A of this Report. The following are the details for any other who attended the audit.

Observer: Klaudia Lewanska MEng MIEI

1.4 The Design

The following drawings were examined as part of the Stage 1 Road Safety Audit (RSA) process:

Table 1-1 - Information Provided

Drawing No.	Drawing Title	Revision
5218684-ATK-ZZ-ZZ-DR-GE-920024 to 9200031	Road Markings	-
5218684-ATK-ZZ-ZZ-DR-GE-920024 to 92000312	Traffic Movement	-
2207_P-001-301	General Arrangement Layouts	-
23227-CSR-DR-1-711-716-2	Landscaping Drawings	-

1.5 Previous Audits

No previous audits were carried out for this scheme.

1.6 Road Safety Audit Compliance

1.6.1 Procedure and Scope

This Road Safety Audit has been carried out in accordance with the procedures and scope set out in TII publication number GE-STY-01024 – Road Safety Audit.

As part of the road safety audit process, the Audit Team have examined only those issues within the design which relate directly to road safety.

1.6.2 Compliance with Design Standards

The road safety audit process is not a design check, therefore verification or compliance with design standards has not formed part of the audit process.

1.6.3 Minimising Risk of Collision Occurrence

All problems described in this report are considered by the Audit Team to require action in order to improve the safety of all the scheme and minimise the risk of collision occurrence.

1.7 Road Safety Collision Analysis

No existing collision statistical information was provided to the audit team. Currently, access to the Road Safety Authority we site has been removed for use by third parties and as a result no analysis of existing collision information has been carried out by the audit team.

2. Road Safety Issues Identified

2.1 Problem: Desire Line for Pedestrians

Location: Friar Street to Abbey Street

The proposed upgrade includes the provision of a crossing on Friar Street and the desire line for pedestrians wishing to travel from Friar Street to Abbey Street may be impeded by the proposed planting area. This could lead to pedestrians walking within the planted/grassed areas and may result in slips, trips or falls.

Figure 2-1 – Obstacles within Desire Line form Friar Street to Abbey Street

Recommendation

The Audit Team recommends that the Designer reviews the expected desire line and location the proposed landscaping to ensure no obstruction for pedestrians.

2.2 Problem: Landscaping within Pedestrian Crossing Tactile Paving

Location: Abbey Street Pedestrian Crossing

The proposed upgrade includes the provision of a crossing on Abbey Street and it appears that the proposed planted area is within the extent of the tactile paving being provided. This could lead to pedestrians walking within the planted/grassed areas and may result in slips, trips or falls.

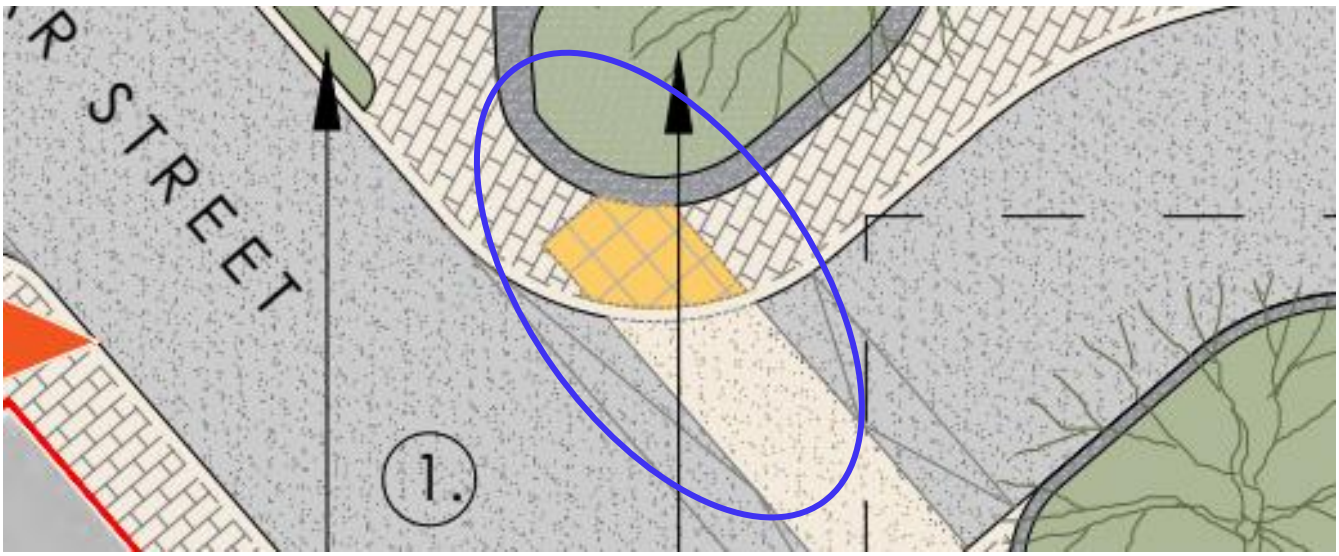


Figure 2-2 - Tactile Paving within Landscaping Feature

Recommendation

The Audit Team recommends that the Designer reviews the extent of the proposed landscaping to ensure no obstruction for pedestrians.

2.3 Problem: Visibility at Junction

Location: Abbey Street / Evergreen Street

At the same location on Abbey Street the proposed landscaping is positioned at the junction and my interfere with the visibility requirements. Poor visibility at junctions can lead to rear-end and side swipe type collisions.

Figure 2-3 – Landscaping Proposals at the Abbey Street/Evergreen Street Junction

Recommendation

The Audit Team recommends that the Designer reviews the positioning of all hard and soft landscaping and ensure these features do not impede visibility requirements.

2.4 Problem: Width of Pedestrian Crossing

Location: Abbey Street

At the same crossing on Abbey Street, it appears that the proposed crossing is narrower than other crossing. Insufficient width at crossing can lead to pedestrains stepping into the road (Friar street) to avoid others. This could result in pedestrian/vehicular type collisions

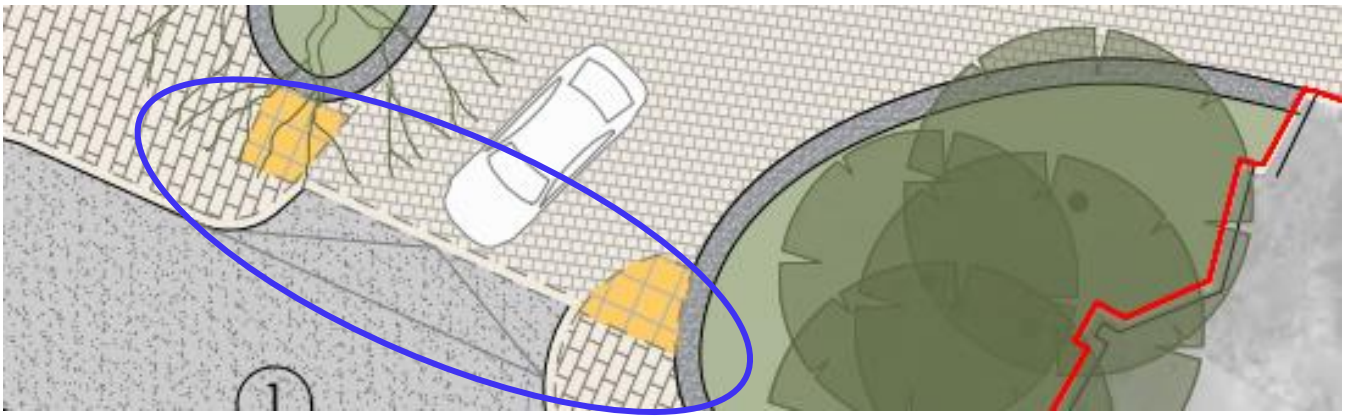


Figure 2-4 - Proposed Pedestrian Crossing on Abbey Street

Recommendation

The Audit Team recommends that the Designer reviews the width of all pedestrian crossing to ensure adequate space has been provided.

2.5 Problem: Gradient at Junction of Evergreen Street and Friar Street

Location: Evergreen Street / Friar Street Junction

The proposed schem indicates that the alignment of Evergreen Street approaching Friar Streeet will be realigned to provide a more square approach. This proposal will move the carriageway to the steepest location. Steep gradients can lead to loss of controll and vehicle / vehicle and vehicle and pedestrian type collisions.

Figure 2-5 - Proposed Junction Layout at Evergreen Street and Friar Street Junction

Recommendation

The Audit Team recommends that the Designer reviews the gradient/dwell area at the junction of Evergreen Street / Friar Street.

2.6 Problem: Access for all Users

Location: Travers Street

The proposed scheme includes the reinstatement of the existing historic limestone steps with planting to one side. It is noted that access will be provided by means of steps only with a cycle rail for bike users. It is unclear how wheelchair users of families with prams will access this street. Inappropriate access could result in slip, trips or falls.

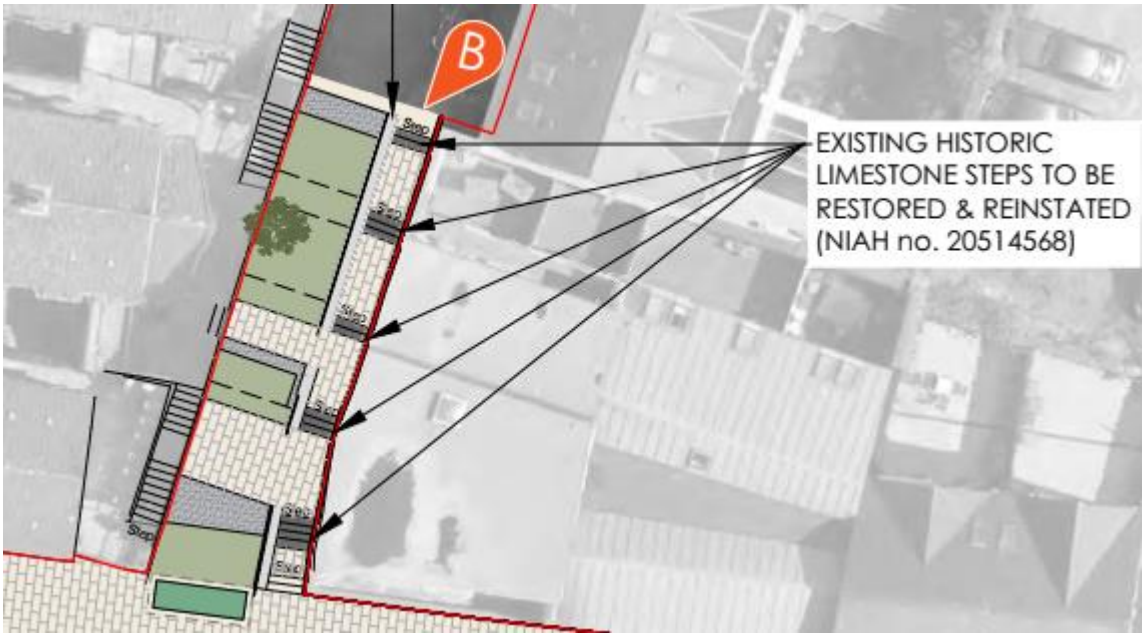


Figure 2-6 - Access & Landscape Proposals at Travers Street

Recommendation

The Audit Team recommends that the Designer reviews the provisions on Travers Street to ensure access is provided for all users.

2.7 Problem: Location of Pedestrian Crossing

Location: Douglas Street / Rutland Street

The proposed scheme has positioned the crossing around the corner from the desire line with little space for waiting pedestrians. This could result in pedestrian/pedestrian type collisions.

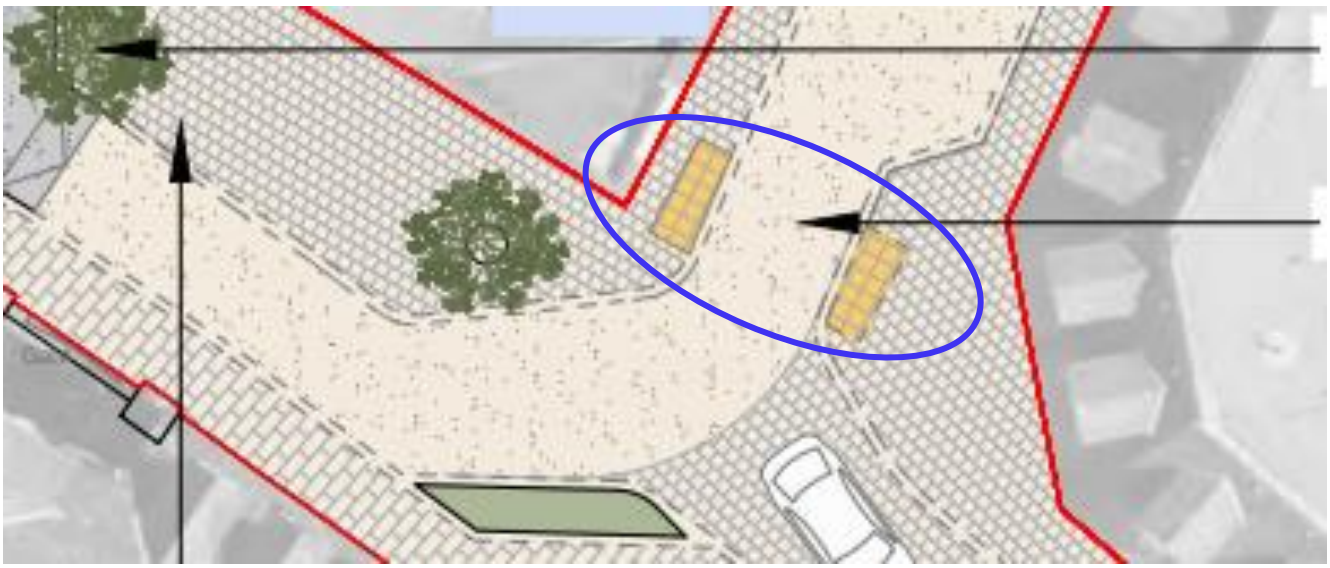


Figure 2-7 – Pedestrian Crossing Proposals at Rutland Street

Recommendation

The Audit Team recommends that the Designer reviews the pedestrian crossing provisions on Rutland Street to ensure adequate space for all users.

2.8 Problem: Angled Parking Provision

Location: White Street

The proposed scheme has included angled parking on White Street, and it is unclear from the drawings if adequate space has been provided to manoeuvre in and out of the spaces. Insufficient space could result in material damage and vehicle / vehicle type collisions.

Figure 2-8 - Proposed Alignment along White Street West

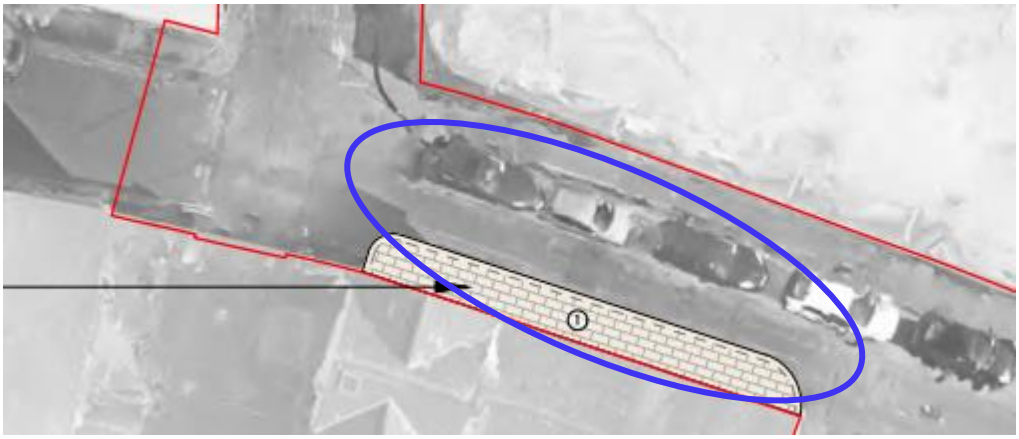
Recommendation

The Audit Team recommends that the Designer reviews the angled parking provision to ensure adequate space has been provided to complete the manoeuvre safely.

2.9 Problem: Existing Parking on Cove Street

Location: Multiple Locations

The proposed scheme has included a build out along Cove Street. Currently at this location there is parking on the northern side and a lane width to the south for vehicles to travel along Cove Street. It is unclear from the drawing if adequate space has been provided to retain the existing parking and provide a lane for vehicular traffic. Insufficient lane widths can result in vehicle /cycle type collisions.



Recommendation

The Audit Team recommends that the Designer reviews the residual road width and ensure sufficient space is provided.

2.10 Problem: Disable Parking Space

Location: Multiple Locations

It is unclear from the drawings the exact dimensions of the diasable parking spaces being provided. Disabled users require more space than than the standard parking spces and insufficient space could result in pedestrian/vehicular type collsions.

Figure 2-9 - Example of Disable Parking Space being the same Width as the Standard Parking Space

Recommendation

The Audit Team recommends that the Designer reviews the dimensions of the proposed disabled parking spaces and ensure adequate space has been provided.

2.11 Problem: Level Differences

Location: Multiple Locations

There are a number of locations where there appears to be a level difference between the carriageway and the adjacent pedestrian area, given that the proposed scheme appears to be implement flush pedestrian and vehicular areas in most places . Inconsistency with the application of level differences may lead to slips, trips and falls.

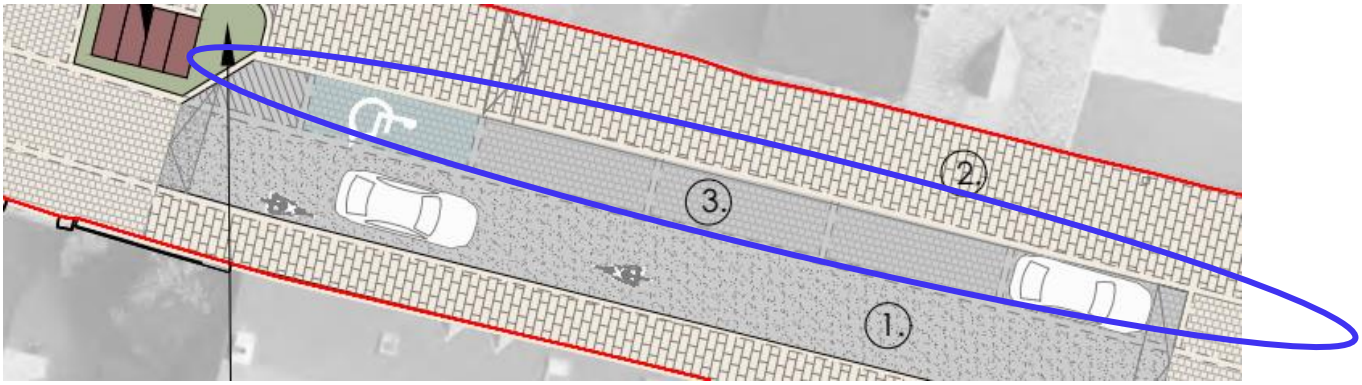


Figure 2-10 - Proposed area of Carriageway and Parking with Level Difference to the Footpath Area.

Recommendation

The Audit Team recommends that the Designer reviews the provision of areas of level difference and assess if this may be an issue for vulnerable users. In required, the Designer needs to utilise contrasting materials to clearly indicate the level difference.

2.12 Problem: Positioning Traffic Signal Poles

Location: Abbey Street & Summerhill South

There are a couple of locations where there are proposed signalised crossings and it is unclear from the drwaings if sufficient width has been provided to allow a push button/signal be provided to the right of the crossing at a disance back from the carriageway. The proposed location of the poles may introduce a pinch point and result in pedestrians stepping intot he carriageway. This may result in pedestrian/vehiclual type collisions.

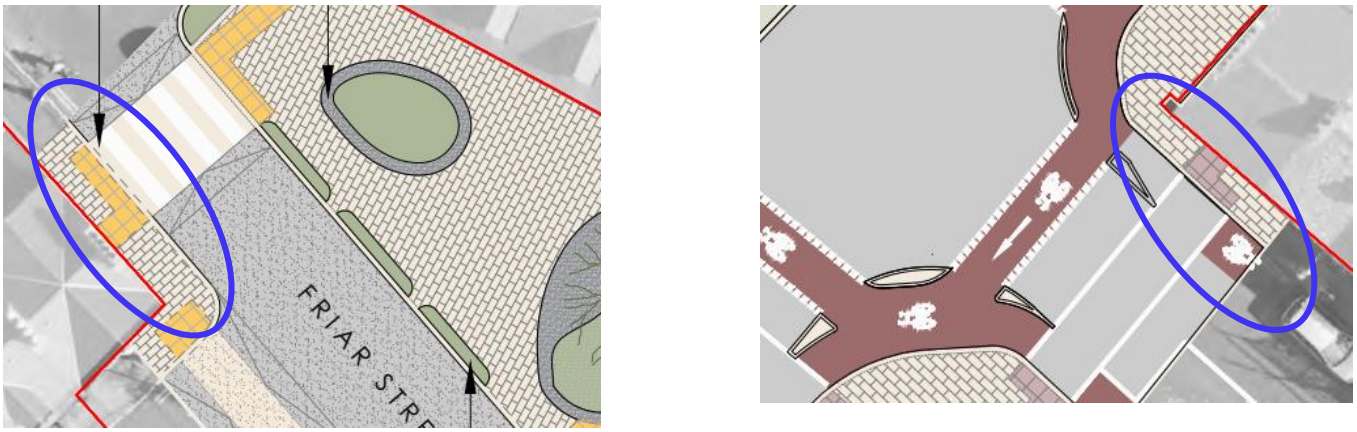


Figure 2-11 - Locations where Traffic Signal Poles will be Required at Narrow Footpath Locations

Recommendation

The Audit Team recommends that the Designer reviews the footpath widths and the possible positioning of signal poles.

2.13 Problem: Waiting Areas for Cyclists

Location: Summerhill South

The scheme has included a wrap around junction for cyclkists at the junction of Summer Hill South and High Street which is an improvement to the current provisions at this junction. It is unclear from the drawing if Adequate space has been provided to ensure waiting cyclists do not block other free fow movements. This could result in cyclist/cyclist or cyclist / pedestrian type collisions.

Figure 2-12 - Cycle Provision at the Junction of Summerhill South & High Street.

Recommendation

The Audit Team recommends that the Designer reviews the provision for waiting cyclists in conjunction with signal phasing.

2.14 Problem: Material Palette

Location: Throughout the Scheme

Where the choice of materials and colour palette is too similar the proposed design may result in trips and falls for vulnerable road users

Figure 2-13 - Material Colour Palette

Recommendation

The Audit Team recommends that the Designer reviews the choice of materials to ensure clear definition at changes in level and usage.

2.15 Problem: Access to the Proposed Pavilion

Location: Langford Row Neighbourhood Garden

The design includes the provision of a proposed pavilion within the proposed Langford Garden. From the drawings it appears that access to this pavilion is by means of steps, without a handrail, as it is unclear if a ramped access has been provided to the rear. The provision of steps will exclude some users and may cause trips and falls for vulnerable users.

Figure 2-14 - Proposed Pavilion at Langford Row Gardens

Recommendation

The Audit Team recommends that the Designer reviews the access provisions to the proposed pavilion to ensure all users can access safely.

2.16 Problem: Vehicle Access

Location: Abbey Street

The design includes the provision of a two-way section of carriageway along Abbey Street and it is unclear from the drawings how a vehicle can access this section of carriageway, turn around safely and exit onto Friar Street. Tis could lead to possible vehicle/pedestrian type collisions.

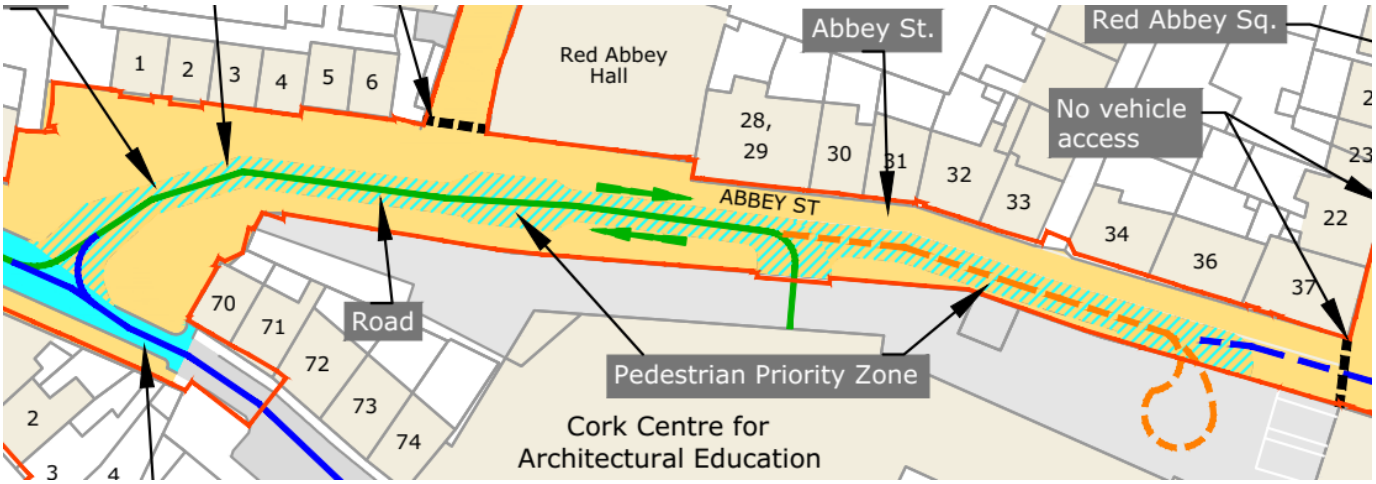


Figure 2-15 - Section of Two-Way Carriageway on Abbey Street

Recommendation

The Audit Team recommends that the Designer reviews the vehicular movement along this cul-de-sac section of Abbey Street.

2.17 Problem: Vehicular Movement

Location: Cobh Street / Mary Street

The design indicates that Cove Street will be changed from two-way to one-way as part of this scheme. The traffic movement drawings show Cove Street, from Mary Street, travelling in a westerly direction to the junction with Drinan Street. At this point traffic along the remainder of Cover Street will be travelling in an easterly direction with no works proposed at the junction of Cove Street and Drinan Street. This layout could possibly result in head-on type collisions.

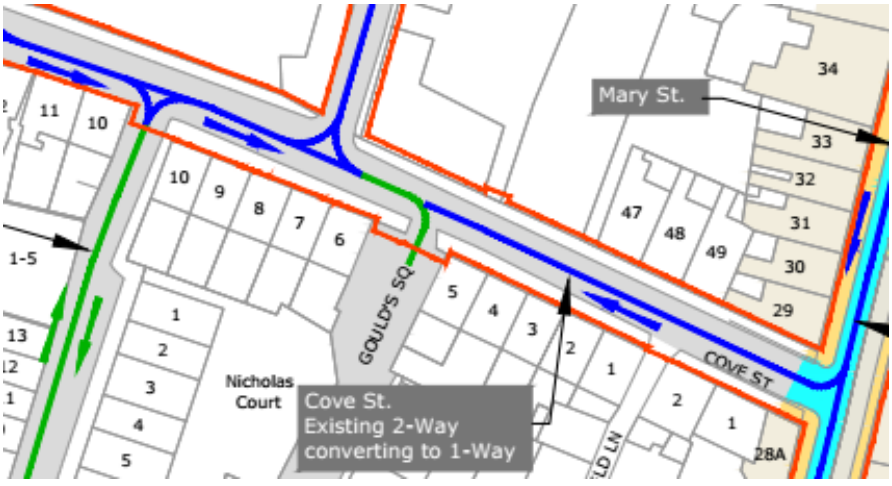


Figure 2-16 - Extract from Traffic Movement Drawing showing the Direction of Flow along Cove Street.

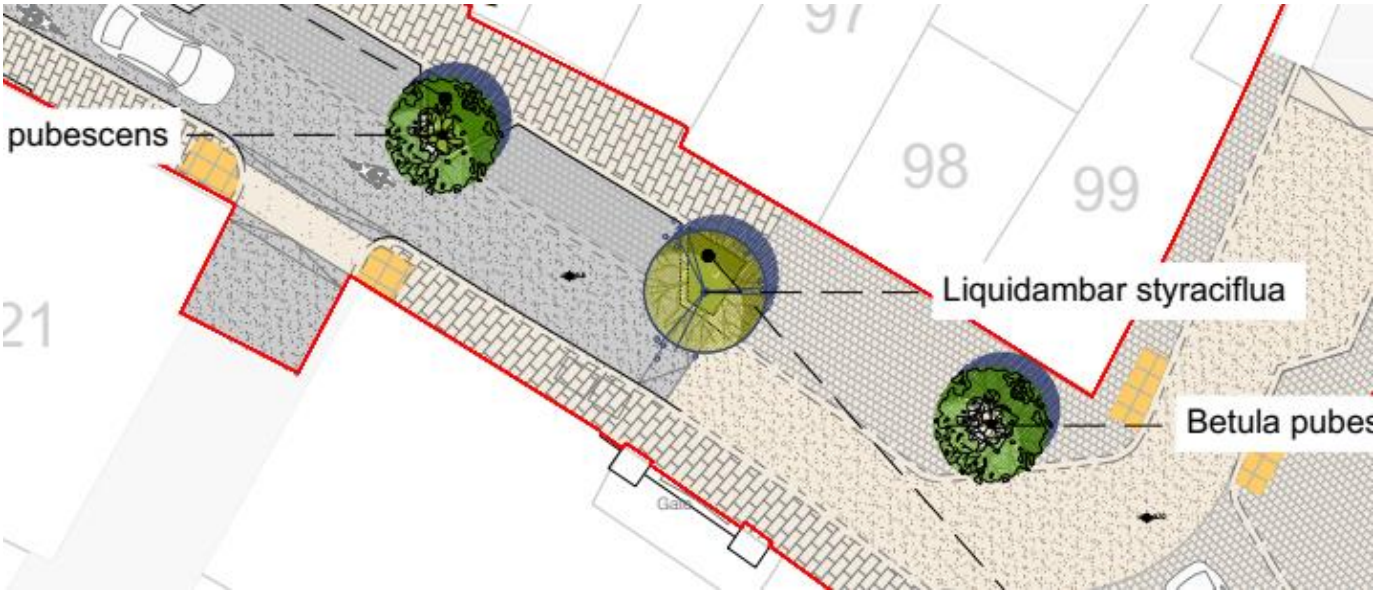
Recommendation

The Audit Team recommends that the Designer reviews the vehicular movement along Cove Street.

2.18 Problem: Landscaping Blocking Public Lighting

Location: Throughout the Scheme

At this stage the audit team have not been provided with an indicative public lighting design. It is assumed the scheme will be lit to sufficient levels for the proposed users. However, the positioning of proposed trees will have to be coordinated with the public lighting to ensure the trees will not block the light. Poor shed of light can result in slips, trips and falls.



Recommendation

The Audit Team recommends that the Designer reviews the provision/location of trees in conjunction with the proposed public lighting design.

2.19 Problem: Drainage Provisions

Location: Throughout the Scheme

At this stage the audit team have not been provided with an indicative drainage design. It is assumed the scheme will be drained sufficiently to ensure no standing water. Standing water can result with the collection of mud or freeze in cold weather and may result in slips, trips and falls.

Recommendation

The Audit Team recommends that the Designer reviews the provision/of gullies and chambers in the context of level differences and trip hazards for pedestrians/cyclists.

3. Audit Team Statement

3.1 Certification

We certify that we have examined the drawings and documents listed in Chapter 1 of this Report.

3.2 Sole Purpose

The Road Safety Audit has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the road safety aspects of the scheme.

3.3 Implementation of RSA Recommendations

The problems identified herein have been noted in the Report together with their associated recommendations for road safety improvements. We (the Audit Team) propose that these recommendations should be studied with a view to implementation.

3.4 Audit Team's Independence to the Design Process

No member of the Audit Team has been otherwise involved with the design of the measures audited.

3.5 Road Safety Audit Team Sign-Off

Eileen O'Neill
Audit Team Leader
AtkinsRéalis

Signed: 

Date: 16/04/2025

Sylwia Kielak
Audit Team Member
AtkinsRéalis

Signed: 

Date: 16/04/2025

4. Designer's Response

4.1 Preparing a Response to the Road Safety Audit

The Designer should prepare an Audit Response for each of the recommendations using the Road Safety Audit Feedback Form attached in Appendix B.

When completed, this form should be signed by the Designer and returned to the Audit Team.

4.2 Returning the Feedback Form

Please return the completed Road Safety Audit Feedback Form attached in Appendix B of this Report to the following email or postal address:

Email Address:	Eileen.ONeill@atkinsrealis.com
Postal Address:	Road Safety Engineering Team AtkinsRéalis Unit 2B 2200, Cork Airport Business Park, Co. Cork T12 R279 Tel.: +353 21 4290317

The Audit Team will consider the Designers response and reply indicating acceptance or otherwise of the Designers response to each recommendation.

4.3 Triggering the Need for an Exception Report

Where the Designer and the Audit Team cannot agree on an appropriate means of addressing an underlying safety issue identified as part of the audit process, an Exception Report must be prepared by the Designer on each disputed item listed in the Audit Report.

APPENDICES

Appendix A. Auditor Approval

A.1 Audit Team Leader

Eileen O Neill
Atkins House
150 Lakeside Drive
Airside Business Park
Swords, Co.Dublin

Date: 25/11/2022

Ref: EO109345

re: APPROVAL AS ROAD SAFETY AUDITOR

Dear Eileen O Neill,

You meet the qualification and experience requirements for Road Safety Audit as follows:

Scheme Category	Audit Team Status	Team Leader Expiry Date
Road Scheme	Team Leader	31/05/2025
Development Scheme	Team Leader	31/05/2025

The above assessment is based on information supplied and the qualification and experience requirements of National Roads Authority in accordance with HD 19 “Road Safety Audit”. Further approval through RSAAS must be sought for the proposed road safety audit team for each audit undertaken on a National Road.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer
roadsafetyaudits@tii.ie

A.2 Audit Team Member

User

First Name: Sylwia

Last Name: Kielak

Email: sylwia.kielak@atkinsrealis.com

Auditor Ref No.: SK277103

Organisation: Atkins

Registered: Yes

Eligible as team member: Yes

Eligible as team leader: No

Client: Yes

Auditor: Yes

Team Member Approval Date: 14/10/2024

Appendix B. Road Safety Audit Feedback Form

Scheme: Mary Street, Douglas Street, White Street Upgrade Scheme

Audit Stage: Stage 1 Road Safety Audit

Date Audit Completed: 28/04/2025

	To be completed by the Designer			To be completed by the Audit Team
Paragraph No. in Safety Audit Report	**Problem accepted (yes/no)**	**Recommended measure accepted (yes/no)**	**Alternative measures (describe)**	**Alternative Measures accepted by Auditors (yes/no)**
2.1	Yes	No	Planters are seat height, and pose a minimal risk for slips, trips or falls. Pedestrians wanting to go East will follow the building line, and those going south will follow kerbline.	Yes
2.2	Yes	Yes		
2.3	Yes	Yes		
2.4	Yes	Yes		
2.5	Yes	Yes		
2.6	Yes	No	The existing Travers St is not conducive for wheelchairs or prams due to the extremely steep gradient of the existing roadway. The only safe way for pedestrians to cross the area is using stairs. The adjacent Mary St is being improved to accommodate pedestrian and cycle access between Abbey/Douglas and Cove St and would be the safer alternative for wheelchairs or prams. Ramped access along Travers is not feasible for this scheme.	Yes
2.7	Yes	Yes		
2.8	Yes	No	Vehicle turning templates have been applied already to verify the adequacy of provided angled parking.	Yes
2.9	Yes	No	The markings drawings have placed double yellow and the project plans to provide parking restrictions to prohibit parking on	Yes

	To be completed by the Designer			To be completed by the Audit Team
Paragraph No. in Safety Audit Report	**Problem accepted (yes/no)**	**Recommended measure accepted (yes/no)**	**Alternative measures (describe)**	**Alternative Measures accepted by Auditors (yes/no)**
			the north side of the buildout location. The intent of the buildout is to provide a chicane and offset vehicles to improve sight distance at the Travers St junction.	
2.10	Yes	Yes		
2.11	Yes	Yes		
2.12	Yes	Yes		
2.13	Yes	Yes		
2.14	Yes	Yes		
2.15	Yes	Yes		
2.16	Yes	Yes		
2.17	Yes	No	Markings and Signage are proposed at the junction with Drinan St to clarify the allowable movements.	Yes
2.18	Yes	Yes		
2.19	Yes	Yes		

Signed by the Designer:  **Date:** 30/04/2025

Signed by the Audit Team Leader:  **Date:** 28/04/2025

Signed by the Client: **Date:**

AtkinsRéalis

WS Atkins Ireland Limited
Unit 2B
2200 Cork Airport Business Park
Cork
T12 R279

AtkinsRéalis - Baseline / Référence

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