

Proposed public realm improvement works at:

Duke Street, Anne Street South,
Duke Lane Lower, Duke Lane
Upper, Lemon Street, Anne's Lane
Dublin 2.

Design Report

06.12.2022



Comhairle Cathrach
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Dublin City Council

Rannóg
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na Cathrach

City
Architects
Division

This report was commissioned by Dublin City Council Environment & Transportation Department in conjunction with City Architects division to provide an overview of the proposed public realm improvement works at Duke Street, Anne Street South, Lemon Street, Duke Lane Upper, Duke Lane Lower and Anne's Lane, Dublin 2.

The proposals represents phase 5 of the implementation of the Grafton Street Quarter Public Realm Plan; of which Grafton Street formed phase 1, Wicklow Street & Johnson Court formed phase 2, Chatham Street & Harry St group formed phase 3, and Clarendon St & Clarendon Row formed phase 4.

Document information

Project	Proposed Public Realm Improvement Works at Duke Street, Anne Street South, Lemon Street, Duke Lane Upper, Duke Lane Lower and Anne's Lane, Dublin 2
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DUBLIN CITY COUNCIL

Planning and Development Act 2000 (as amended)

Planning and Development Regulations 2001 (as amended) - Part 8

Applicant: Dublin City Council, Environment & Transportation Department,
Civic Offices, Wood Quay, Dublin 8, D08 RF3F.

Location: Duke Street, Anne Street South, Duke Lane Lower, Duke Lane
Upper, Lemon Street, Anne's Lane, Dublin 2

Proposal:

Pursuant to the requirements of the above, notice is hereby given of proposed public realm improvement works at Duke Street, Anne Street South, Lemon Street, Duke Lane Upper, Duke Lane Lower and Anne's Lane, Dublin 2.

Proposals include the removal and replacement of the existing asphalt and concrete road surfaces with new granite and asphalt carriageways. Existing paved and asphalt footpaths are to be removed and replaced with new granite paving while retaining areas of historic kerbs and paving. The proposals will also involve landscaping works, including new trees and low-level planting, as well as new public seating, feature lighting and play installations.

Some and part of the subject streets and the adjoining buildings are located in the '**South City Retail Quarter Architectural Conservation Area**', '**The Grafton Street and Environs Architectural Conservation Area**' and **Scheme of Special Planning Control for Grafton Street and Environs**. The proposed works are adjacent to Protected Structures on both Duke Street and Anne Street South.

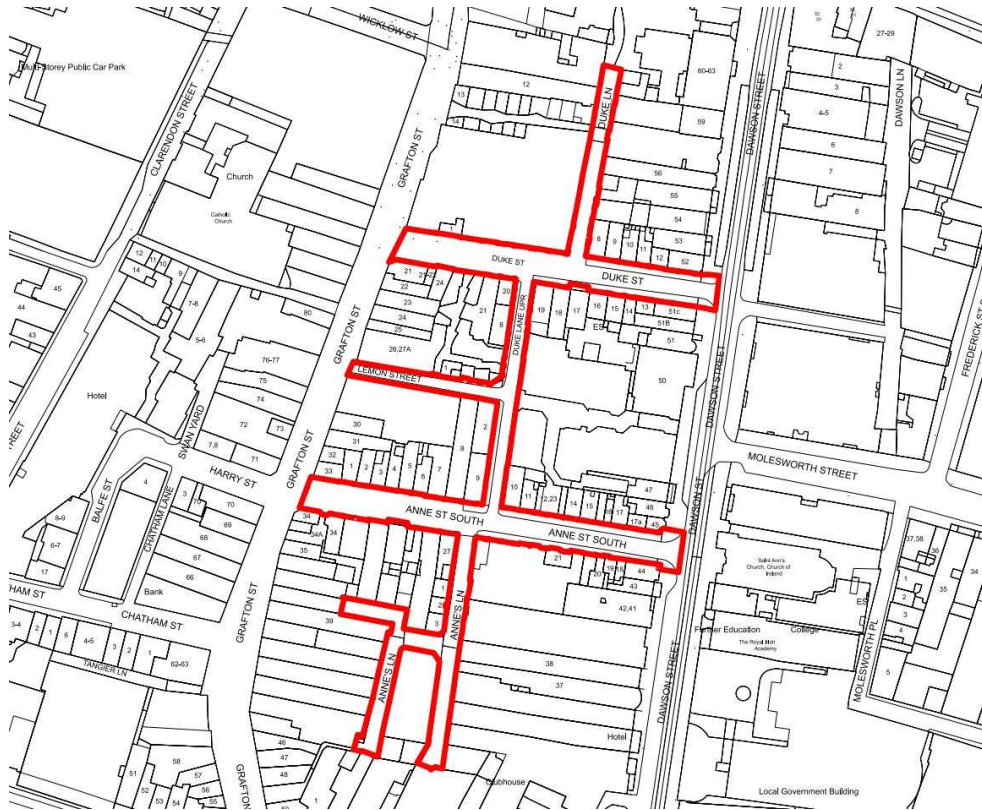


Fig 1: Site location map, not to scale



Fig 2: Artist's Impression of proposed public realm improvements Anne Street South

1.0 Project Overview & Objectives

- 1.1 This Public Realm improvement scheme is a priority project for Dublin City Council as it pursues the implementation of the 'Your City - Your Space', Dublin City's Public Realm Strategy (2012) and 'The Heart of Dublin' Public Realm Master Plan (2016).

This phase of the Grafton Street Quarter public realm improvement works includes Duke Street, Anne Street South, Lemon Street, Duke Lane Upper, Duke Lane Lower and Anne's Lane. These are important pedestrian routes linking South Dublin City's primary retail street, Grafton Street, with the South Georgian City via Dawson Street.

The vision for this scheme, as set out in the Grafton Street Quarter Public Realm Plan 2014, is to extend the high quality Grafton Street experience into this key area. This network of streets and laneways provide great opportunities for place making. By implementing a design, which prioritises pedestrians and public space activation it will add economic value to the city's primary retail core by converting these streets into destinations to visit and linger in, rather than to simply pass through.

The intention is to deliver a high quality canvas for a bustling street life, which will attract the general public throughout the day and night. The design will place a particular focus on universal design and conservation, with new greening interventions, climate action initiatives, with sustainable drainage solutions playing an important role in enhancing this environment.

1.2 Objectives:

1.2.1 Social:

Enhance the pedestrian experience, improve safety, deliver universal design, promote social inclusion, increase seating, provide opportunities for lingering & social / cultural interaction and create areas for people to get together, create a destination within the city, encourage & facilitate street animation, enhance tourist links (Grafton St to Kildare St / Merrion Sq).

1.2.2 Economic:

Increase footfall on the streets, support the vibrancy of the area as an active destination, and support greater economic activity in the area by attracting more people and encouraging occupancy.

1.2.3 Environmental:

Create a high-quality public realm, promote pedestrian movement, increase greening and sustainable urban drainage solutions, de-clutter, reduce pollution & noise, and support a modal shift to sustainable modes of transport & links to public transport.

The Covid-19 pandemic has served to reiterate the importance of pedestrian friendly, flexible outdoor public open spaces to support the ongoing vitality, economy and health of the city.

2.0 Historical Context

- 2.1 The project area emerged in the early 18th Century when the streets, along with Dawson St, were laid out as a single urban ensemble by Sir Joshua Dawson. During the 18th Century the area was one of the most fashionable locations to live in the city. The area continues to thrive today and is the home to many busy shops, bars and restaurants. Its original ordered hierarchy of urban design is still legible with its streets and mews lanes, and Anne Street South aligned on the facade of Saint Ann's Church.



Fig 3: Image of extract from Roques map of Dublin, dated 1757, with red line boundary to project streets, showing the street pattern very similar to that of today

- 2.2 Please refer to the accompanying Archaeological Assessment prepared by Archaeology plan heritage solutions, and the Architectural Heritage Impact Assessment prepared by Dublin City Councils City for more detail on the historical and cartographic development of the area.

3.0 Site Context:

The project area is adjoined on the west by Grafton Street, the premier retail street on the south side of the city since the 1800s and critical to the economic life of the city. It is adjoined on the east by Dawson Street, one the city's main vehicular transport arteries which accommodates the Luas and two BusConnects spine routes.

Streets within the project area serve commuters traveling to work, students travelling to Trinity College and tourists travelling between the shopping and South Georgian City cores. Traffic studies confirm the project area to have a pedestrian dominated environment with low traffic volumes.



Fig 4: Map of project area noting existing Ground Floor building uses

3.1 During the design stage a study of existing ground floor uses in the project area was carried out. The predominant ground floor uses in the area were found to be mostly retail units and eateries.

The restaurants and bars in this area compliment the nearby Grafton Street, a 'Category 1 shopping street' under the Greater Dublin Retail Strategy and the principal

focus of the 'Grafton Street and Environs Scheme of Special Planning Control' in which the extent of provision of non-retail uses at ground floor level is controlled.

- 3.2** An objective of this project is to support these existing uses and strengthen the vibrancy of the area as an active destination.

4.0 Policy Context

4.1 Policy references include:

- 4.1.1 Project Ireland 2040: National Planning Framework
- 4.1.2 Regional Spatial & Economic Strategy for the Eastern and Midlands Region
- 4.1.3 Dublin City Council draft Development Plan 2022-2028
- 4.1.4 Dublin City Development Plan 2016-2022
- 4.1.5 Greater Dublin Area Transport Strategy 2022-2042
- 4.1.6 Dublin City Council Development Plan 2016-2022
- 4.1.7 Dublin City Council Climate Action Plan 2019 – 2024
- 4.1.8 Draft Dublin City Biodiversity Action Plan 2021-2025
- 4.1.9 Dublin City Centre Public Realm Masterplan – The Heart of Dublin, 2016
- 4.1.10 Grafton Street Quarter Public Realm Masterplan, 2014
- 4.1.11 Dublin City Public Realm Strategy – Your City Your Space, 2012
- 4.1.12 Design Manual for Urban Roads and Streets (DMURS) 2016

4.2 National & Regional Policy

Redevelopment of the Duke St and Anne St South public realm aligns with National Strategic Outcomes (NSO) of Project Ireland 2040: National Planning Framework, and includes:

- NSO 1 – Compact Growth: The area for the proposed development is centrally located within Dublin city and is ideally suited to re-use. It promotes effective density and consolidation. The Urban Regeneration and Development Fund (URDF) was established to support more compact and sustainable development through the regeneration of Ireland's cities and towns and is a key tool to give effect to this NSO. Although it is not anticipated that this project will involve URDF funding, it aligns with the plans goal of compact growth through the renovation of existing structures.

- NSO 5 – A Strong Economy supported by Enterprise, Innovation and Skills: The provision of a high-quality public realm will support and attract future enterprise within Dublin city centre and will help to draw and develop a highly-skilled work force to the area;
- NSO 7 – Enhanced Amenity and Heritage: Most of the area surrounding Duke St and Anne St South is surrounded in culturally important buildings, signifying the important heritage value that the area holds. Currently the public realm in a state of disrepair and the proposed works would restore it. These works in turn this will ensure that Dublin City centre gains from increased attractiveness and sense of place; and
- NSO 8 – Transition to a Low Carbon and Climate Resilient Society: The proposed works to the building include energy efficiency upgrades, such as lighting. These will ensure that the street lighting is energy efficient, aiding Ireland's transition to low carbon and climate resilient society

The *Regional Spatial & Economic Strategy* (RSES) for the Eastern and Midlands Region is a strategic plan and investment framework to shape future growth and to better manage regional planning and economic development throughout the 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). While informed by national, EU, and international policies, the RSES is driven at the local level by elected officials, local governments, stakeholders, community groups, and individual citizens.

The RSES identifies urban regeneration and place making as a key priority. This includes the revitalisation and redevelopment of the town centre, involving the regeneration of opportunity sites and their surrounding areas. The strategy therefore supports the development approach of the Duke St Anne St South Public Realm Scheme.

It sets out that local authorities, in developing their core strategies and settlement hierarchies will consider growth enablers for every part of the Region to meet its potential including 'Healthy Placemaking'. This can be achieved by sustained economic growth and employment brought about through the integration of better urban design, public realm, amenities and heritage to create attractive places to live, work, visit and invest in. Focus on placemaking to create attractive and sustainable communities to support active lifestyles including walking and cycling.

4.3 Policy Context

This Part 8 proposal is made in the context of the **Grafton Street Quarter Public Realm Plan** which was adopted by Council in May 2014. This plan for the Grafton Street Quarter sits under the overarching Dublin City Council Public Realm Strategy 'Your City Your Space'.

This Part 8 is the fifth in a series which will facilitate the implementation of the plan for the quarter. It is important therefore that this Part 8 proposal is seen in that context though it does stand alone in terms of the extents of works it covers.

4.4 Dublin City Council Draft Development Plan 2022-2028

'Chapter 4: Shape and structure of the city', section 4.5.6 'The Public Realm' notes:

'A high-quality public realm makes the city a more attractive place to live, work and visit, and provides for an improved quality of life for all. It is an integral part of healthy place making as supported under the Regional Spatial & Economic Strategy. The public realm can have a very positive impact on Dublin's competitiveness with other city regions internationally, both for tourism and for investment. Improvements to the public realm in recent years include the renovation of Grafton Street and implementation of the Docklands Public Realm Masterplan. The ongoing implementation of Your City - Your Space', Dublin City's Public Realm Strategy (2012), will continue to result in significant upgrading of the city's public realm.'

The importance of a quality urban realm for the city's economy, society and environment is interwoven throughout the development plan, and specifically noted in the following policy and objectives:

SC2: City's Character; To develop the city's character by: ... *developing a sustainable network of safe, clean, attractive streets, pedestrian routes and large pedestrian zones, lanes and cycle ways in order to make the city more coherent and navigable and creating further new streets as part of the public realm when the opportunities arise;*

SMT8: Public Realm Enhancements; *To support public realm enhancements that contribute to place making and liveability and which prioritise pedestrians in accordance with Dublin City Council's Public Realm Strategy ('Your City – Your Space'), the Public Realm Masterplan for the City Core (The Heart of the City), the Grafton Street Quarter Public Realm Plan and forthcoming public realm plans such as those for the Parnell Square Cultural Quarter Development and the City Markets Area*

SMT11: Pedestrians and Public Realm; *To enhance the attractiveness and liveability of the city through the continued reallocation of space to pedestrians and public realm to provide a safe and comfortable street environment for pedestrians of all ages and abilities.*

4.5 Grafton Street Quarter Public Realm Plan 2014

The Grafton Street Quarter Public Realm Plan sets out the vision for the future of the public realm in the area. The Grafton Street Quarter is centred on Grafton Street and its supporting network of streets and spaces extending to one of the city's premier squares - St. Stephen's Green to the south, Trinity College and another major public space - College Green to the north, South Great George's Street to the west and over to Dawson Street and Molesworth Street to the east.

The public realm comprises the range of streets, squares and city spaces, small and large, that are the open areas within the city's built fabric. Quality public realm plays a vital role in how the area functions and its attractiveness to those who live in, work in or visit it. The quality of that public realm is created by the cohesiveness of all of its elements - paving, street furniture, lighting, street planting and art work which are set in the context of the buildings and the façades that enclose it.

Whilst the Grafton Street Quarter Public Realm Plan aims to co-ordinate the approach to the public realm in the Grafton Street Quarter and to create coherence throughout the street network, it recognises the need to formulate a design for each unique space and individual streets through the appropriate arrangement of elements.

5.0 Planning

5.1 EIAR / Appropriate Assessment

An EIA preliminary screening document and Appropriate Assessment screening document for the project were reviewed by Dublin City Council's planning department who have confirmed that the proposed development does not require an EIAR or Stage 2 Appropriate Assessment. Please refer to attached supporting documentation which includes the Environmental Impact Screening Report, and the Appropriate Assessment Screening Report.

6.0 Consultations

6.1 Non statutory Public Consultation

A non-statutory online consultation was held at the beginning in the preliminary design process to obtain views on the ongoing pedestrianisation of South Anne Street and future improvements in the general area east of Grafton Street. This consultation was held on the Dublin City Council Consultation Hub and ran from the 31st January 2022 to 20th February 2022.

It was advertised on social media and sent to Dublin Town, Disabled Persons Organisations and the PPN. A leaflet drop to over 1,000 residences and premises in the local area was arranged to ensure the maximum involvement of local residents and businesses in this process.

This consultation sought views on:

- The experience of the current temporary arrangements - revised traffic flows, pedestrianisation of all of South Anne St after 11am, increased outdoor dining facilities
- What worked, what didn't work from a resident, business owner and street user perspective?

- What is important for this space and what specific matters should be prioritised in the future public realm improvement scheme
- Any suggestions for improvements, changes etc.
- Specific details of delivery and waste collection arrangements for businesses in the vicinity

294 submissions were received.

Dublin City Council compiled a summary report which outlines the themes arising from submissions. It is available on the Dublin City Council Consultation Hub <https://consultation.dublincity.ie/traffic-and-transport/duke-street-anne-st-south-public-realm-scheme/>. It should be noted that any views, thoughts and opinions presented in the summary report are those submitted during the non-statutory public consultation, and are not Dublin City Council's.

6.2 Consultation with local businesses and residents

During the preliminary design stage, an information session was held with local businesses and residents to discuss the project. 24 people attended.

Dublin City Council provided a presentation outlining the project objectives and early design schematics. Aspects of the improvement works, include paving, lighting, planting, street furniture and vehicle access were discussed. Attendees highlighted concerns regarding potential anti-social behaviour, future maintenance, licensing, security, litter, bin collections, rodents and disruption due to construction. Further comments were submitted to the design team by email following this meeting.

6.3 Consultation with Disabled Persons Organisations, DPOs

During the preliminary design stage the project team reached out to all DPOs in Ireland, inviting them to submit comments and participate in an Accessibility Workshop for the scheme. The Voice of Vision Impairment (VVI) were particularly interested in the project and Dublin City Council's engaged in significant consultation with this group, both individually and as part of the project's Accessibility Workshop. A representative from the National Platform of Self Advocates also participated in the workshop.

Dublin City Council presented a digital presentation in accessible format, outlining the project objectives, early design principles, existing issues and constraints. Consultation processes, pedestrianisation, clear accessible pedestrian routes, pedestrian crossings, tactile surfaces, traffic restrictions and access for blue badge vehicles, level surfaces, colour contrast, street furniture, bollards and enforcement were discussed.

The VVI provided feedback to the design team and participated in two site visits to discuss the accessibility issues in the area and possible solutions. A record of all discussions and items agreed was shared between the attendees.

6.4 Consultation with Public Participation Network, PPN

During the preliminary design stage, Dublin City Councils' PPN Coordinator invited all PPN members to a digital Accessibility Workshop on MS Teams. It was attended by representatives from groups including National Council for the Blind of Ireland, Disability Federation of Ireland, and the Irish Wheelchair Association.

Dublin City Council provided a digital presentation in Accessible Format, outlining the project objectives, early design principles, existing issues and constraints. Consultation processes, pedestrianisation, clear accessible pedestrian routes, tactile guidance, pedestrian crossings, traffic restrictions, accessible parking, level surfaces, colour contrast, accessible technology, street furniture, bollards, cycle infrastructure and enforcement were discussed. Further comments were submitted to the design team by email following the consultation.

Dublin City Council met with a representative from Disability Federation Ireland on site to discuss the proposals further. A record of discussions and items agreed was shared between the attendees.

6.5 Design development following consultations

Following initial consultations with the various groups the design team carried out detailed and scientific reviews of the scheme to refine the proposals. Concerns and observations were examined in the context of the design proposal and considerable changes were made to the proposal based on the feedback received through consultations, which will serve to improve the accessibility and add vibrancy of this area of the city.

6.6 Future consultation / ongoing engagement

The design team have committed to support the DPOs in understanding the Part 8 application prior to its lodgement, and to continue engagement through the post planning, detailed design process, particularly with regard to the configuration and selection of tactile paving materials.

Dublin City Council are eager to work with the DPOs / PPN to develop design solutions that will improve accessibility for all, and aim to continue this consultation approach on future projects. The design team will also work closely with local businesses, Councillors and residents in developing the detailed design, and will provide updates throughout the process.

6.7 Dublin City Council Internal Consultation

As part of the design process extensive engagement was undertaken with technical departments and other stakeholders within Dublin City Council to ensure that the proposal is fully consistent with current plans and policies of the City Council as well as national guidance and standards.

6.8 Phasing of construction works

The street improvement construction works will be delivered in a series of work-fronts related to an overall traffic management plan. This plan will be designed to minimise the disruption to traffic-movement and to stakeholders during the works. Dublin City Council will engage closely with businesses, residents and other stakeholders to agree this plan during the detailed design stage.

7.0 Design Proposals

7.1 In line with design objectives set out under section 1 above, the vision for this scheme is to extend the high quality Grafton Street experience into this key area, utilising a design which prioritises pedestrians and public space activation to provide opportunities for place making and add economic value by converting these streets into destinations to visit and linger in, rather than to simply pass through.

The intention is to deliver a high quality canvas for a bustling street life, which will attract the general public throughout the day and night. The design will place a particular focus on universal design and conservation, to ensure this space is accessible for all users and that the cultural heritage is protected and enhanced. New greening interventions and sustainable drainage solutions also playing an important role in enhancing this environment.

7.2 Proposals include for the removal of the existing road and footpaths surfaces, and their replacement with new stone or asphalt carriageways and loading areas, with new stone paved footpaths throughout.

7.3 Proposals include narrowed carriageways allowing increased footpath widths and build outs.

7.4 Proposals include the removal of the existing street furniture and their replacement with new street furniture, bicycle stands, seating and urban play furniture.

7.5 Proposals include the introduction of new trees and low level planting.

7.6 Historic granite kerbing, paving and materials are to be retained and reused throughout.

7.7 Proposals include for new public lighting and feature lighting, as well as all necessary service, utility and associated site works.

7.8 The Works will be scheduled on a phased basis, following consultation with local businesses, and any necessary disruption will be kept to a minimum.

8.0 Traffic

8.1 Current traffic arrangements are as below:

Existing traffic flows		
Street	6am – 11am	11am – 6am
Duke Street (eastern end)	Two way traffic	Two way traffic
Duke Street (western end)	Closed to traffic	Closed to traffic
Duke Lane Lower	Two way traffic	Two way traffic
Duke Lane Upper	Two way traffic	Two way traffic (local access only)
Lemon Street	Two way traffic	Closed to traffic
Anne Street South (eastern end)	Two way traffic	Closed to traffic
Anne Street South (western end)	Single way traffic, travelling westwards towards Grafton St	Closed to traffic
Anne's Lane	Two way traffic	Two way traffic

8.2 The proposal aims to build on this regime, retaining the traffic flows throughout but with the following additional restriction proposed at the entry to the project area from Dawson Street:

The east end of Duke Street will have Goods Vehicles and Local Access Only between 06:00-11:00 and Local Access Only from 11:00-06:00. Proposed traffic flows are as below:

Proposed traffic flows		
Street	6am – 11am	11am – 6am
Duke Street (eastern end)	Two way traffic: Goods Vehicles & Local Access Only	Two way traffic: Local Access Only
Duke Street (western end)	Single way traffic, travelling westwards towards Grafton St: Goods Vehicles & Local Access Only	Closed to traffic

Proposed traffic flows		
Street	6am – 11am	11am – 6am
Duke Lane Lower	Two way traffic: Goods Vehicles & Local Access Only	Two way traffic: Local Access Only
Duke Lane Upper	Two way traffic: Goods Vehicles & Local Access Only	Two way traffic: Local Access Only
Lemon Street	Closed to traffic	Closed to traffic
Anne Street South (eastern end)	Two way traffic: Goods Vehicles & Local Access Only	Closed to traffic
Anne Street South (western end)	Single way traffic, travelling westwards towards Grafton St: Goods Vehicles & Local Access Only	Closed to traffic
Anne's Lane	Two way traffic: Goods Vehicles & Local Access Only	Two way traffic: Local Access Only

Note: Proposed vehicular restrictions will also apply to cyclists.

- 8.3** There is no on-street parking within the project area. Following consultation with DPOs it was agreed to maintain local vehicular access to the centre of this area, via Duke Lane Upper and Anne's Lane, for pick up and drop off, supporting Universal Accessibility. It is also proposed to install a new disabled parking bay on Duke St for blue badge holders.
- 8.4** New Loading Bays are proposed on both Duke Street and Anne Street South to provide designated safe spaces for loading and to address the existing informal loading arrangements. Three loading bays are proposed on the western end of Duke Street and four loading bays are proposed on Anne Street South. All seven loading bays will be time-plated to limit loading to the Grafton Street loading hours of 06:00 – 11:00 each day.
- 8.5** Traffic Trials were carried out from 28th February to 6th March 2022. Traffic cones were used to mark out the proposed new carriageway widths and alignments as well as the new footpath build out on Duke Street. Traffic volumes were monitored adjacent to the junction with Dawson Street to ensure that there would be no negative impacts on the Luas caused by queuing vehicles. Vehicle movements were monitored and proposed kerb alignments were amended to establish that the necessary manoeuvres would be possible with the new design. The kerb radii and alignments immediately adjacent to the junctions between Dawson Street and both Duke Street and Anne Street South are proposed to remain as existing to avoid any interference with Luas operations.

9.0 Universal Access

- 9.1** One of the priority objectives for this project is to improve the pedestrian experience. The Dublin City Public Realm Strategy 'Your City Your Space' 2012, states:

'The council intends that all projects undertaken can be accessed, understood and will appeal to all regardless of ability, age or knowledge.'

- 9.2** The 7 Principles of Universal Design, listed below, have been considered during the design process, and a comprehensive consultation process has taken place with DPO's and PPN bodies, as noted in section 5

Principle 1: Equitable Use

Principle 2: Flexibility in Use

Principle 3: Simple and Intuitive Use

Principle 4: Perceptible Information

Principle 5: Tolerance for Error

Principle 6: Low Physical Effort.

Principle 7: Size and Space for Approach and Use

9.3 Continuous Accessible Path of Travel

A key priority of this design is the provision of a continuous clear accessible path for pedestrians on both sides of the street on Duke St and Anne St South. Design proposals for this project, have reduced vehicular carriageways as much as possible, providing increased footpath widths and build-outs. The resultant clear footpath space available at its minimum is 1.8m.

The proposed continuous clear accessible path for pedestrians will be located on the footpath. Pedestrians will only interact with vehicular traffic at designated crossing points at junctions which will be indicated using standard tactile paving. To define the outer edge of the continuous accessible path of travel the design indicates in-ground planting with upstand kerb edges where space is available. On the east section of Anne St South along the southern edge of the carriageway and the west section of Anne St South and Duke St along the northern edge of the carriageway space is not available to introduce planters as guidance tools / landmarks,. These areas have no traffic throughout the day except for very small numbers of delivery vehicles between 6-11am. The design proposes a textured hazard strip to identify the carriageway zone as well as a dished drainage channel running along the edge of the carriageway to again provide an additional indicator of the change in use.

9.4 Level Carriageway

- 9.4.1 Due to the restricted nature of the historic streets in the project area the average clear continuous accessible path of travel available in the scheme area is only 1.8m. The Design Team note that this is narrower than the requirements of DMURS, the mandatory design manual for all urban design in Ireland. DMURS refers designers designing footpaths in areas with high pedestrian footfall to Transport for London's 'Pedestrian Comfort Level Guidance (PCG)'. The PCG states that a clear width of 3.3m is required to provide comfortable movement for pedestrian volumes of between 600 to 1200 pedestrians/hour. The Public Realm Masterplan includes a Pedestrian Spatial Calculator to define the appropriate width of footpath required for various levels of pedestrian use. Conscious of the restricted widths available in Dublin, the Public Realm Masterplan proposes a 3m wide footpath for volumes of 600 to 1200 pedestrians/hour.
- 9.4.2 Following consultation with the DPOs the design team carried out a full analysis of available footpath widths, pedestrian numbers and traffic counts to inform the design. The following are the average peak (two-way) hourly traffic volumes and pedestrian volumes:
- Duke St: 32 vehicles/hr (during delivery hours), 1,452 pedestrians/hr (lunchtime)
- Anne St Sth: 30 vehicles/hr (during delivery hours), 1,335 pedestrians/hr (lunchtime)
- 9.4.3 The data shows a pedestrian dominated environment with low traffic volumes. Traffic volumes on all streets fall comfortably within the 'low traffic volume' threshold of 100 vehicles per hour. A full report on the existing traffic and space data and an assessment on kerb arrangements is provided in the 'Footpath Assessment' document in Appendix 1 of this report.
- 9.4.4 The nature and context of each street in the area was reviewed and different kerb arrangements are proposed depending on the specific conditions at each location.
- 9.4.5 The portion of Duke Street between Duke Lane Upper and Dawson Street is the location of the highest number of vehicular movements in the project area with 24 hour vehicular access and tight turning movements in and out of the adjacent laneways. On that basis, and in the context of discussions with DPOs, it is proposed to maintain the raised kerbs on the eastern half of Duke Street (from Duke Lane Upper to Dawson St). This results in kerbs to 63% of Duke Street.
- 9.4.6 Traffic volumes are extremely low throughout the remainder of the project area. Anne Street South is almost entirely closed to traffic, (except during delivery hours, and the very low volumes of vehicular traffic accessing Anne's Lane via Duke Lane Upper where the average peak volume is 11

vehicles per hour) and due to the high volumes of pedestrians and very low volumes of vehicles, a level surface is proposed for Anne Street South.

- 9.4.7 In pedestrianised areas, where large volumes of pedestrians are present, a carriageway level with the footpath allows pedestrians to move freely on the full width of street. This is beneficial to sighted pedestrians – including the mobility impaired, people with buggies and the elderly as level changes and potential trip hazards are removed, the street can be crossed at any location and pedestrian congestion on narrow footpaths is eased. Level surfaces assist with traffic calming where vehicles are present and pedestrian priority streets are designed so that drivers should feel they are a guest.
- 9.4.8 We note that the level carriageway is not useful to individuals with a visual impairment and that they must be provided with a safe space to navigate the street. As set out in Section 8.3 above, a safe accessible route will be provided on all streets, both where there is a flush or a raised kerb. The accessible route will be away from the vehicular area and will be protected by tree pits and kerbed planted areas so vulnerable users will not have to interact with vehicles except at designated crossing points.

The design team believe that the safe space proposed will be more useful to individuals with a visual impairment if there is the release valve at busy periods for sighted pedestrians to make space on the safe space by moving into the carriageway zone.

Differential materials will be used for the footpath and carriageway to indicate the change in purpose and the design team also propose to use a textured hazard strip to identify the carriageway zone. A drainage channel will also run along the edge of the carriageway, which will provide an additional indicator of the change in use.

The Design Team have agreed in principle the proposal to introduce a textured hazard strip with the VVI (Disabled Persons Organisation) and have committed to working with the Disabled Persons Organisations during the detailed design stage to develop the physical nature of this element.

Following Disabled Persons Organisations consultation a kerbed zone is proposed at the far eastern end of the Anne Street South adjacent to the Dawson St junction with dropped kerbs at crossing points.

- 9.5** Following concerns raised by the PPN and DPOs this project will trial the omission of bollards along the edge of the footway/carriageway as these represent hazards to the visually impaired. Agreement has been reached with Dublin City Council Parking Enforcement that dedicated fixed penalty notice staff will patrol this area. Their primary role is to issue fines to those vehicles where clamping may be inappropriate, such as short stay offences, footpath parking, obstructing pedestrian space and clearway blocking. They have powers to issuing tickets under the Local Authorities (Traffic Warden) Act 1975, and amendments.

- 9.6 Uncontrolled pedestrian crossing points with tactile paving indicators will be provided at all junctions within the scheme. Following consultation with DPOs dropped kerb uncontrolled pedestrian crossings will be provided at the Dawson Street junctions to assist with accessibility and orientation.
- 9.7 Different materials will be used for the footpath and carriageway to indicate the change in purpose, and Dublin City Council will continue to engage with the DPOs during detailed design stages to develop a suitable product to differentiate the areas for those with visual impairments.
- 9.8 A Stage 1 Road Safety Audit has been carried out and is included in this Part 8 submission, further Road Safety Audit will be carried out at each stage of the project.

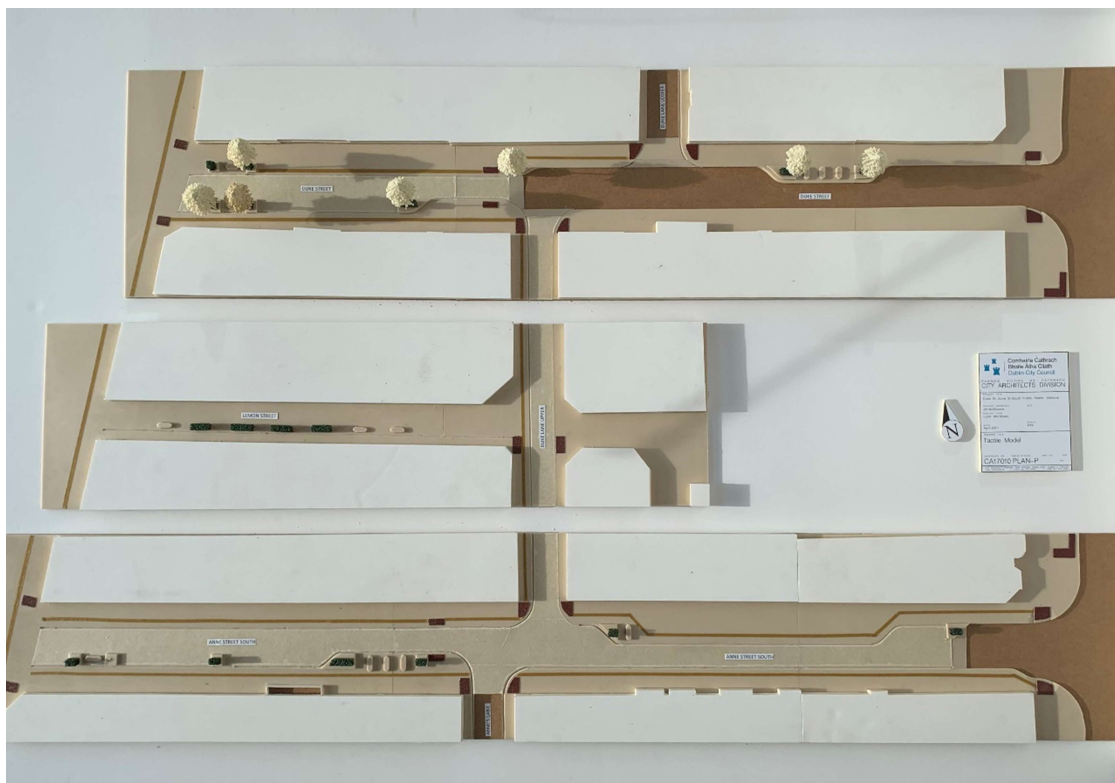


Fig 5: Architectural Tactile Model made following consultations as an alternative to assist people with visual impairments in understanding proposals.

10.0 Environment & Sustainability

- 10.1 Climate action considerations have been considered throughout the design, with particular focus on mobility, planting and biodiversity, material specification and energy reduction included to minimise the impact on climate change.
- 10.2 In line with 'Your City - Your Space', Dublin City's Public Realm Strategy (2012) this proposal implements a movement hierarchy with walking prioritised, followed by cycling, public transport and lastly private transport.

The design encourages a shift towards more sustainable transport modes by providing more pedestrian and cyclist friendly environments / infrastructure. Access for delivery vehicles is restricted to a limited period, carriageways have been narrowed as much as possible to slow traffic, car parking has been omitted apart from one disabled parking bay and cycle stands provided.

Footpaths have been widened to create to enhance the pedestrian experience, allowing opportunities for seating and space for people to meet and congregate.

- 10.3** An essential part of place-making is the appropriate layout of urban planting schemes to improve the visual quality and environmental richness of the city. The expansion of Dublin's tree canopy coverage, which is low in comparison with other similar cities, is an important objective of the 'Grafton Street Quarter Greening and Furniture Strategy' 2016.

Ground penetrating surveys of the project area identified cellars and extensive utility services under much of the footpaths and carriageways. City Architects worked in conjunction with Dublin City Council Parks Department to find suitable locations for planting opportunities and to select tree species suited to this urban environment (i.e. can withstand drought, pollutants and urban heat).

Greening proposals for this project include a mix of in-ground planting, trees, and raised planters, which offer the following benefits:

- Reduce pollutants in the air – healthier air, healthier city.
- Help cool streets in the summer – shading and holding moisture.
- Help warm streets in the winter by trapping air below their canopies.
- Their visual presence reduces stress levels of city inhabitants and visitors.
- Visually attractive and softens the urban street landscape.

The proposals will also link with and extend the tree planting recently completed on Harry Street, Chatham Street and Clarendon Street.



Fig 6: Trees on Chatham Street

- 10.4 Opportunities to develop habitats has also been considered as part of the urban planting scheme and different species of tree are proposed for each street to encourage and support biodiversity.
- 10.5 Surface water management and SuDS (Sustainable Urban Drainage Systems) help reduce flood risk, prevent pollution and create and sustain better environments for both nature and people. A preliminary Surface Water Management Plan has been prepared for the project, which sets out the constraints and design approach for management of surface water in this area. This will be developed further in the detailed design stage. The implementation of SUDS forms an integral part of green infrastructure as set out in Dublin City Councils Development plan. This project includes, where possible, measures such as tree pits and paving laid to open planting. A detailed SuDS design will be prepared as part of the next stage of the project.
- 10.6 Dublin City Public Realm Strategy 'Your City Your Space' 2012 notes,

'The provision of a high quality public realm has an environmental impact, whether through the environmental cost of the materials used or the resources used for maintenance and renewal. Future works and practices need to take these into account when decisions are made. Coordinated efforts are required to reduce such impacts. The design of the public realm affects the city's ability to withstand or accommodate the impacts of a changing climate.'

Proposals include for the retention and reuse of existing historic paving and kerbs for both conservation and sustainable reasons. This reduces the amount of new material required and old material going to landfill. Local stone e.g. Leinster granite has been

specified where possible to limit the carbon footprint, and each materials durability, maintenance and recycle potential has been considered as part of circular economy.

- 10.7** Subject to obtaining permission from the building owner, LED wall mounted fittings are proposed throughout the scheme to deliver public lighting. The omission of lighting columns serves to declutter the streets, while wall mounted fittings require less raw material and less maintenance. LED's offer a positive sustainable impact, by reducing electricity consumption.



Fig 7: Wall mounted public light fitting

- 10.8** Feature lighting is proposed along Duke Lane Upper, Lemon Street and Anne's Lane, which includes commercial grade, low energy rated, festoon lighting to provide a high quality backdrop for activity and animation. The feature lighting will be mounted at a height so as not to interfere with servicing the street, and will be supported by a cable system fixed to buildings. The exact locations of fixings will be agreed during detail design stage in conjunction with property owners.



Fig 8: Precedent image of festoon lighting

10.9 Proposed vertical feature lighting installations are proposed at key locations to support street activation. The exact position and detailing of the installations will be agreed during detail design stage in conjunction with property owners.

10.10 A water bottle refill station is proposed on Duke Street to provide free drinking water and to reduce plastic waste.



Fig 9: Image of water bottle refill station on Clarendon Row

- 10.11 Green procurement and sustainable construction management waste plans (which minimise landfill, encourage recycling, salvaging) will be incorporated into the projects delivery.
- 10.12 Working with Smart Dublin, proposals will integrate smart technology within existing fabric where possible.
- 10.13 Quality materials are proposed to ensure durability and minimise future maintenance requirements.

11.0 Archaeology and Conservation

- 11.1 The streets within the project area were laid out as a single urban ensemble in the early 1800's, and are located within what is now the main shopping area of the south city centre.

Despite later interventions into the essentially Georgian fabric, the streets original urban layouts have remained largely unchanged over time. However, as some the most intensively used streets in the city it is not surprising that little historic paving has survived.

11.2 Architectural Conservation Areas:

Some and part of the subject streets and the adjoining buildings are located in 'The South City Retail Quarter ACA' (Architectural Conservation Area), adopted 5th March 2007.

Some and part of the subject streets and the adjoining buildings are located in 'The Grafton Street and Environs ACA', adopted July 2006.

11.3 Protected Structures:

The project area contains a number of protected structures. Please refer to the accompanying Conservation Report for a full list of protected structures which adjoin the proposed works area and the conservation method statement for same.

11.4 Zone of archaeological potential & Record of Monuments and Places

The Study Area lies within the zone of archaeological potential of the historic town of Dublin. While there are no specific Record of Monuments & Places (RMP) listed sites in the project area itself, there are a number in close proximity. Please refer to the accompanying Conservation Report & Archaeological Report for a full list of the Record of Monuments & Places nearby.

- 11.5 While much of the historical fabric on the streets have been lost, substantial sections of historic kerbstones remain on Duke Street and Anne Street South, and an isolated patch of original paving can be seen outside The Duke Pub on Duke Street. Historical cellar lights and coal holes can also be seen on the streets.

The surviving historical material is of architectural, technical, historical and artistic significance, which enriches the setting of the historic buildings along the street.

The 'Study of Historic Street Surfaces in Dublin' prepared by Lotts Architecture and Urbanism, 2009, notes:

Historic Street surfaces help define the character and identity of a place. Aside from their visual appeal they are tangible evidence of the history of a town, and can deepen the understanding among citizens of the cultural heritage of their city. Well maintained and properly conserved street surfaces are an expression of a confident, caring society and foster civic pride amongst residents and admiration from visitors. Incremental loss of such features of the historic environment erodes this value and depreciates the character of the city.

Visual distinctiveness in the public realm is a valuable asset which adds to the quality of life associated with the city in a time when international competition has intensified between cities for the ability to attract tourists and knowledge-based industries. Modern paving, even if it is of high quality, rarely achieves the distinctiveness which is intrinsic to well-worn traditional street surfaces, made of indigenous materials following long established practices.

- 11.6** The proposals includes for the reinstatement of historic paving and kerbing in their original locations as far as practically possible so as to protect the legibility and understanding of the historic streets and the line of their pavements. No alterations are proposed to historic cellar lights, other than remedial work where required.
- 11.7** During the design stage consultations were carried out with Dublin City Council's Conservation Officer and City Archaeologist. Archaeology Plan Heritage Solutions consultancy services were engaged to carry out an archaeological assessment on the proposals and an Architectural Heritage Impact Assessment (AHIA) was prepared by a design team member with Grade 2 conservation accreditation. See supporting documentation.
- 11.8** Proposals are to be carried out in line with Department of Heritage Advice Series for Paving, including best conservation practice procedures on the lifting and relaying of historic street surfaces.

12.0 Material Palette

- 12.1** In line with the Grafton Street quarter public realm plan and its completed phases, this project will predominantly use the Grafton Street Quarter palette of materials, with light grey Leinster Granite to pathways and Iberian Granite to carriageways. This visually calm material palette will complement the existing facades and streetscapes, and avoid visual conflict.
- 12.2** Asphalt is proposed on carriageways for busier trafficked stretches and for single entry served laneways.

13.0 Street Furniture

- 13.1** Places to rest areas in the form of public benches are proposed to make the area more accessible to vulnerable users including the elderly.

Following consultations at design stage, all public benches are proposed to have a solid base to assist long cane users. The benches will be located away from the clear accessible route along the street and will have arm rests to make them more age-friendly.



Fig 10: Image of bench on Chatham Street with Leinster granite base, timber seat and backrest and metal arm rest

- 13.2** Outdoor dining opportunities are a critical element in achieving the objective of enhancing the street and will be accommodated and delivered in line with normal street furniture licencing arrangements. Wider footpaths are proposed in order to maximise the space available for space activation through outdoor dining while also providing a continuous accessible path of travel for pedestrians in the public realm.
- 13.3** An interactive play installation is proposed on Lemon Street to support age friendly street activation and inclusivity in line with the Living Streets principle set out in the Heart of Dublin City Centre Public Realm Masterplan. The play installation will be developed at detail design stage and any potential vertical elements will be so positioned to avoid impacting on pedestrian movements or emergency vehicle access requirements.

13.4 Sheffield cycle stands are proposed to promote active travel to the area in line with sustainability and environmental goals. Five Sheffield stands will be located on the carriageway on the eastern end of Anne Street South adjacent to the junction with Dawson Street. This will provide cycle parking for a total of ten bicycles, with cycle parking located off the footpath to ensure safety for vulnerable pedestrians. Opportunities to provide additional cycle parking on Dawson Street are also being investigated.

Cycle parking locations have been selected to align with the Dublin City Council strategy for the area where cyclists arriving from Dawson Street would dismount, park their bikes and proceed on foot towards Grafton Street to the west. Within the project area, cycling will be permitted wherever vehicular movements are permitted.



Fig 11: Image of stainless steel Sheffield bicycle stands on Clarendon Street

13.5 Street furniture (benches, bins, cycle stands etc) have been selected to ensure durability and minimal maintenance. The designs will take account the needs of vulnerable users including positioning the street furniture outside of accessible routes.



Fig 12: Image of Dublin City Council litter bin

14.0 Supporting documentation

14.1 Supporting reports, included within this Part 8 submission, include:

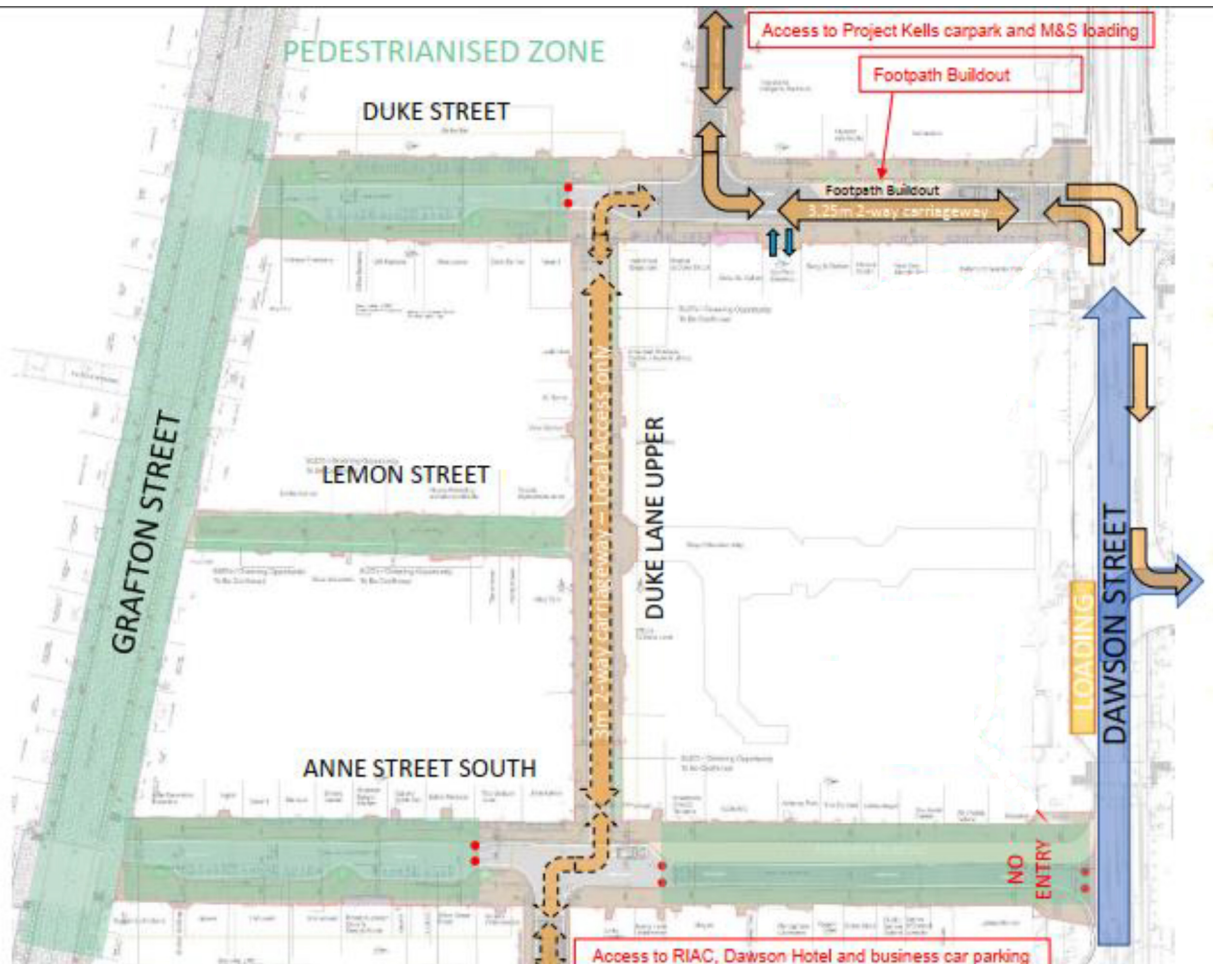
- 14.1.1 Planning Report
- 14.1.2 Archaeological Assessment
- 14.1.3 Conservation Report – Architectural Heritage Impact Assessment
- 14.1.4 Appropriate Assessment Screening Report
- 14.1.5 Environmental Impact Assessment – Preliminary Examination Report
- 14.1.6 Preliminary Construction Plan
- 14.1.7 Stage 1 Road Safety Audit
- 14.1.8 Autotrack checks of turning movements
- 14.1.9 Easy Read Project Summary
- 14.1.10 Text Description of Drawings

15.0 Appendix 1

Footpath Assessment

Footway Assessment for Duke St/ Anne St South Road Design & Construction Division-July 2022

Proposed traffic arrangements, after 11am, will see Duke St (West) and Sth Anne St East and West pedestrianised after 11am. 24 hour vehicular access will be maintained on Duke St (east) and the laneways, as shown on this map:



In order to assess the footway requirements for this scheme traffic and footfall counts were undertaken at three locations in April 2022. The results are recorded in the following table, these are split into data for the peak delivery hours and peak pedestrian hours.

Location	Average Peak Hourly Pedestrian 2-Way Flow (Delivery Hours 0600 to 1100hrs)	Average Hourly Traffic Flow (Excl. Bikes)	Average Peak Hourly Pedestrian 2-Way Flow (Non-Delivery Hours 1100 to 0600hrs)	Average Hourly Traffic Flow (Excl. Bikes)
Peak Hour	1000hrs to 1100hrs	1000hrs to 1100hrs	1300hrs to 1400hrs	1300hrs to 1400hrs
South Anne Street (West)	609	7	1391	0
South Anne Street (East)	511	29	1278	0
Duke Street (West)	614	1	1544	0
Duke Street (East)	501	22	1359	12

Table 1

Relevant guidance documents for designing footpath widths:

DMURS Figure 4.34 Pedestrian Activity and Footway Width and DCC Public Realm Masterplan, Appendix B: Recommended Widths from TfL Pedestrian Comfort Guidance for London (PCG).

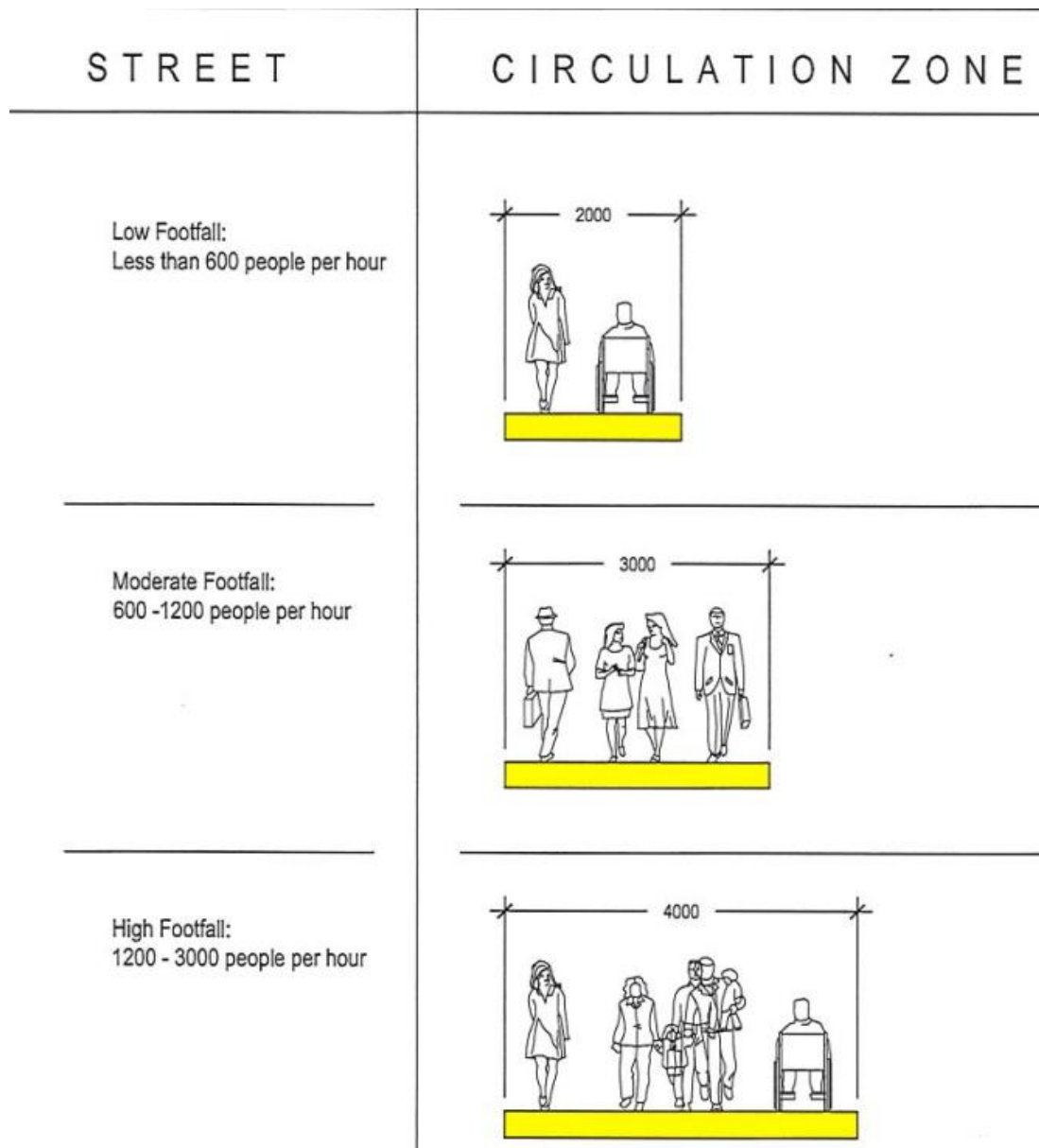
- DMURs states minimum footpath width should be 1.8m and recommends that Designers consult PCG for further guidance for high pedestrian activity locations.
- PCG recommends the following minimum footpath widths in high street tourist areas if there is no street furniture (except street lights) to allow space for people walking in couples or families with prams etc.

Description	Minimum Recommended Footpath Width
Low Flow < 600 persons per hour	2.6m
Active Flow 600 -1200 persons per hour	3.3m
High Flow >1200 persons per hour	3.3m (Enough for comfortable movement up to 2000 pph)

Table 2

- The DCC Public Realm Masterplan utilised these Guidance Notes and developed a Pedestrian Spatial Calculator. Pedestrian flows were categorised into 4 ranges Low, Moderate, High and Very High. For each category a minimum unobstructed width of pavement or

'Circulation Zone' was recommended for different types of streets e.g. segregated footpaths, pedestrian/shared zones etc:



We will now compare the minimum proposed 'Design Clear Routes' with the recommended 'Circulation Zone'.

Assume pedestrians can only walk on the footpath:

Location	Average Peak Hourly Pedestrian 2-Way Flow (assume 50:50 split per footpath)	DCC Pedestrian Flow Classification (P41)	Minimum DCC Circulation Zone (P41)	Proposed Design Clear Route (Footpath)	Difference	Assessment
Peak Hour	1300 to 1400hrs					
South Anne Street (West)	696	Moderate Footfall (600-1200/hr)	3m	1.8 (N) 1.7 (S)	-1.2 (N) -1.3 (S)	Fail Fail
South Anne Street (East)	639	"	3m	1.8 (N) 2.0 (S)	-1.2 (N) -2.0 (S)	Fail Fail
Duke Street (West)	772	"	3m	1.8 (N) 1.8 (S)	-1.2 (N) -1.2 (S)	Fail Fail
Duke Street (East)	680		3m	1.8 (N) 1.3 (S)	-1.2 (N) -1.7 (S)	Fail Fail

Table 3

Assume Pedestrians can use both the carriageway and footpath:

Location	Average Peak Hourly Pedestrian 2-Way Flow (Delivery Hours 1100 to 0600hrs)	DCC Pedestrian Flow Classification (P41)	Minimum DCC Circulation Zone (P41)	Proposed Design Clear Route (Footpath & Road)	Difference	Assessment
Peak Hour	1300 to 1400hrs					
South Anne Street (West)	1391	High Footfall (1200-3000/hr)	4m	8.7m	4.7m	Pass
South Anne Street (East)	1278	High Footfall (1200-3000/hr)	4m	9m	5m	Pass
Duke Street (West)	1544	High Footfall (1200-3000/hr)	4m	8.8m	4.8m	Pass
Duke Street (East)	1360	High Footfall (1200-3000/hr)	4m	8.8m	4.8m	Pass

Table 4

Assessment

The geometry of Duke St and Sth Anne St is such that it is not possible to achieve the minimum footpath widths recommended for high street tourist locations in both the PCG and DCC's footpath width calculator from the Public Realm Masterplan document

The only options that achieve the required circulation space is where pedestrians are allowed to use the full width of the carriageway. Notwithstanding the wayfinding benefits of a raised kerb, its inclusion at locations where there are high volumes of pedestrians moving on and off the footpath would be a trip hazard and an obstruction to those with buggies and wheelchairs.

Recommendation:

Duke St West and Anne St South (East and West) be pedestrianised after 11am and should have a flush kerb to allow those who choose to do so to use the carriageway. Kerbs will be maintained on Duke St (East) due to the slightly higher vehicular movements, and the fact that this area will not be pedestrianised after 11am

Investigate alternative way finding and hazard identification measures for use by the visually impaired at locations where flush kerbs are provided.

16.0 Appendix 2

Surface Water Management Report – Preliminary Design

Duke Street Anne Street South Public Realm Scheme

Surface Water Management Report- Preliminary Design

Introduction

Dublin City Council have committed to the delivery of a high quality public realm of international standard across the Grafton Street Quarter. The purpose of this improved public realm is to provide a safe, comfortable, attractive pedestrian environment where pedestrians can walk with ease and enjoy a range of planned and unplanned activities and where business can prosper. This scheme involves upgrading the Duke St/Anne Street South public realm using high quality materials and introducing greening and public seating to improve the experience of the area.

Existing Drainage System

Historically the Stein River travelled through this area until it was incorporated into the public sewerage system. The streets comprising the Scheme, are drained by the existing combined sewer network. The closest surface water sewer to the site is the Poddle River running under Dublin Castle, which is some 440 metres as the crow flies from the western end of Anne Street South and Duke Street. Removal of the Scheme from the combined network and connection to the surface water network would therefore involve laying a significant length of surface water pipeline through the city centre. Works of such a scale are beyond the scope of this Project, so it is not proposed to introduce a separate surface water network as part of this scheme.

The project team have approached Irish Water (IW) to assess the condition of the existing combined sewer system. IW have engaged a contractor to carry out an inspection of the existing network and will carry out any necessary sewer rehabilitation or other remedial works before this project goes to site.

Flood Risk Initial Assessment

Refer to Flood Maps in Appendix No. 1.

OPW Flood Risk Mapping information indicates that the project area is in the category of Flood Zone C i.e. low probability of flooding – areas where the risk of flooding is less than 0.1% annually (or 1 in 1000 years) for both rivers and coastal flooding. Therefore the Development is appropriate from a flood risk perspective (subject to flood hazard from sources other than rivers and coast meeting normal proper planning considerations).

In this case the main flood risk is Pluvial flooding resulting from water run-off and ponding in low spots following intense rainfall or drainage flooding due to failure or inadequacies of the sewerage system.

Pluvial flood mapping identify one location in the vicinity of No. 1 Anne's Lane with pluvial depth of greater than 0.5m.

Sustainable drainage measures will be investigated as part of the scheme, where possible existing gully connections will be reused and road gullies will be installed at low points.

The initial flood assessment indicates in general no significant risk of fluvial or fluvial flooding due to the proposed development.

Sustainable Drainage

A Landscape Architect will be appointed for the detailed design stage of this project and will investigate methods of introducing SuDS into the scheme. The intention is that the tree pits will be SuDS tree pits but the extent of these will be dependent on existing utilities. Slit trenches will be used to verify the extent of SuDS measures that can be implemented. It is proposed to introduce in ground planting at a number of locations, in particular Lemon Street, will be investigated as a possible location for a rain garden.

The possibilities for harvesting water from down pipes will also be investigated, during the detailed design stage, but this will be subject to space constraints and receiving permissions from property owners as there are a number of private landings along many of the building lines.

Hardstanding Area

It is not proposed to introduce any additional hardstanding in this area. There will in fact be a reduction due to the introduction of tree pits and in-ground planting. There will be some new build outs introduced as part of the design that may require some additional gullies, but in the first instance, it is proposed to investigate a SuDS solution for any of these new locations.

Vertical Alignment

In general existing ground levels will be maintained so there will be no increased risk of flooding. The main change is in the eastern side of Anne Street South, where the carriageway levels are being raised to create a flush surface. Granite channels will be provided at each side of the carriageway to manage surface water as per the design on Grafton Street/Chatham Street areas.

Presence of Cellars

DCC Flood Defence Unit has estimated there are 63 cellars on South Anne Street and Duke Street by way of a visual survey carried out in 2016. A GPR Survey of the area was carried out by TST Engineering in 2015 which indicated the location of cellars and identified that many of the cellar heads have very little cover over them, with some circa 100mm below the surface. The GPR survey also identified a significant number of underground utilities within the site boundary of the Scheme. An extract from the GPR survey is included in Appendix No. 2 for reference. A consultant structural engineer has conducted a cellar and private landing survey in the area. The results of this survey confirm the high number of cellars underneath the public footpath. The presence of such a significant number of cellars and underground services severely restricts the sub surface space that is available for use for attenuation of surface water.

Permeable Paving

Permeable paving is permitted *“on all parking and loading bays, where there are no more than two parking spaces”* according to Road Maintenance’s *Construction Standards for Road and Street Works in Dublin City Council*. The use of permeable paving is not currently permitted on footpaths or carriageways. The Scheme involves the removal of all on-street parking on Anne Street South and Duke Street. The proposed new layout includes loading bays at the western end of Anne Street South and Duke Street. Consequently, there is limited space available within the Scheme extents for conversion to permeable paving. Furthermore, the areas identified as possible sites for loading on Anne Street South and Duke Street are adjacent to cellars. The presence of cellars is a barrier to installation of permeable paving due to the possibility of inadvertently creating a pathway

for surface water to enter cellars that may not be watertight. In addition to this, the paving over a cellar is the responsibility of the building owner under Section 35 of Public Health Acts Amendment Act 1890. Paving over or around such cellars with a permeable pavement would therefore likely require the building owners consent, which may not be forthcoming due to concerns relating to water ingress.

Material Palette

The Scheme shall use the Grafton Street Quarter palette of materials, generally comprising of Leinster granite and azul platino paving, with asphalt on Duke Street (East) and in the laneways. The Road Design Division investigated whether permeable paving could be provided using natural stone rather than concrete pavements. Indications from suppliers were that permeable paving constructed from natural stone pavements is suitable for domestic or pedestrianised areas only. Since there are currently no weight restrictions for vehicles loading in the Grafton Street Quarter, any loading bays provided need to be robust enough to withstand loading by heavy goods vehicles. The use of paving materials meant for domestic or pedestrian traffic only would be inappropriate for use in such loading areas, and as per above there would also be concerns locating permeable paving close to the network of old cellars. As such, it will not be possible to implement permeable paving on the Scheme without deviating from the Grafton Street Quarter palette of materials and creating potential risk of damage to the existing building's structure.

Public Areas

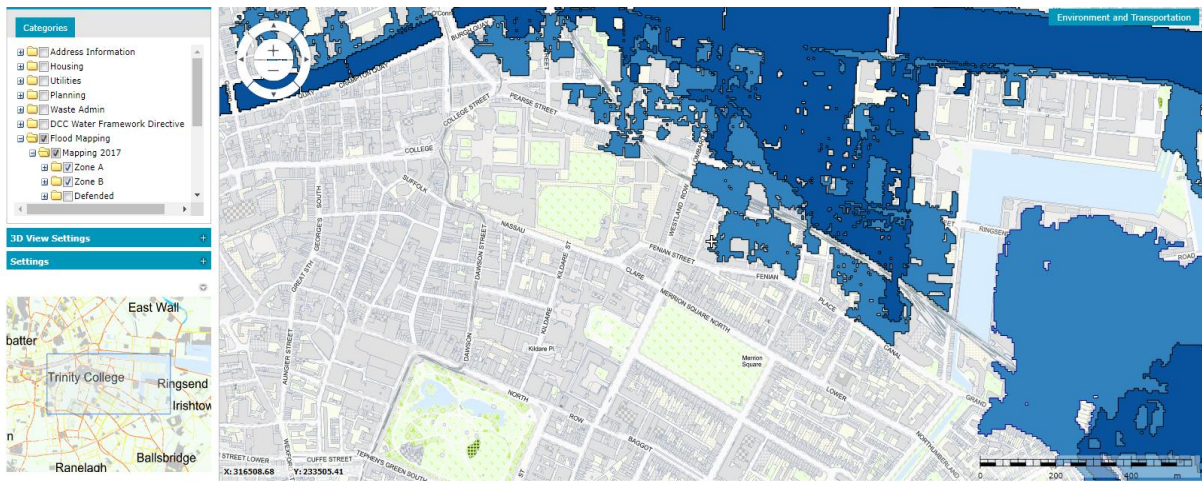
There are no plans to install gates to block off any existing public roads. All current public areas in charge to Dublin City Council will be fully accessible at all times to DCC maintenance crews and other public utilities.

Construction Stage

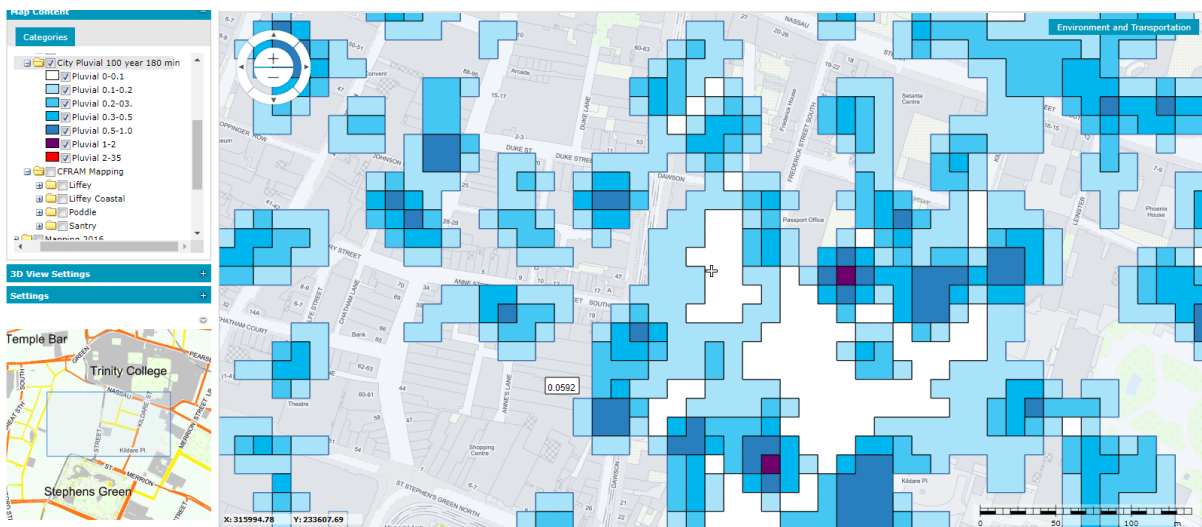
A final Construction Management Plan will be developed by the Contractor, prior to works commencing on site. This plan will include a Construction Environmental Plan, which will outline the measures that will be implemented on site to manage and control any environmental impacts (noise, vibration, air quality - dust, water contamination etc.), that project construction work activities may generate and which may impact on the general public, local properties and environment.

The existing drainage network will be protected during the works i.e. no discharges will be permitted to public sewers and control measures will be implemented to prevent spills etc. Pre- and post-construction CCTV surveys will be carried out of the existing network.

APPENDIX 1 – FLOOD MAPS



FLOOD MAPPING 2017 – FLOOD ZONES A & B



CITY PLUVIAL FLOODING 100 YEAR 180mins

APPENDIX 2 – GPR SURVEY MAP

