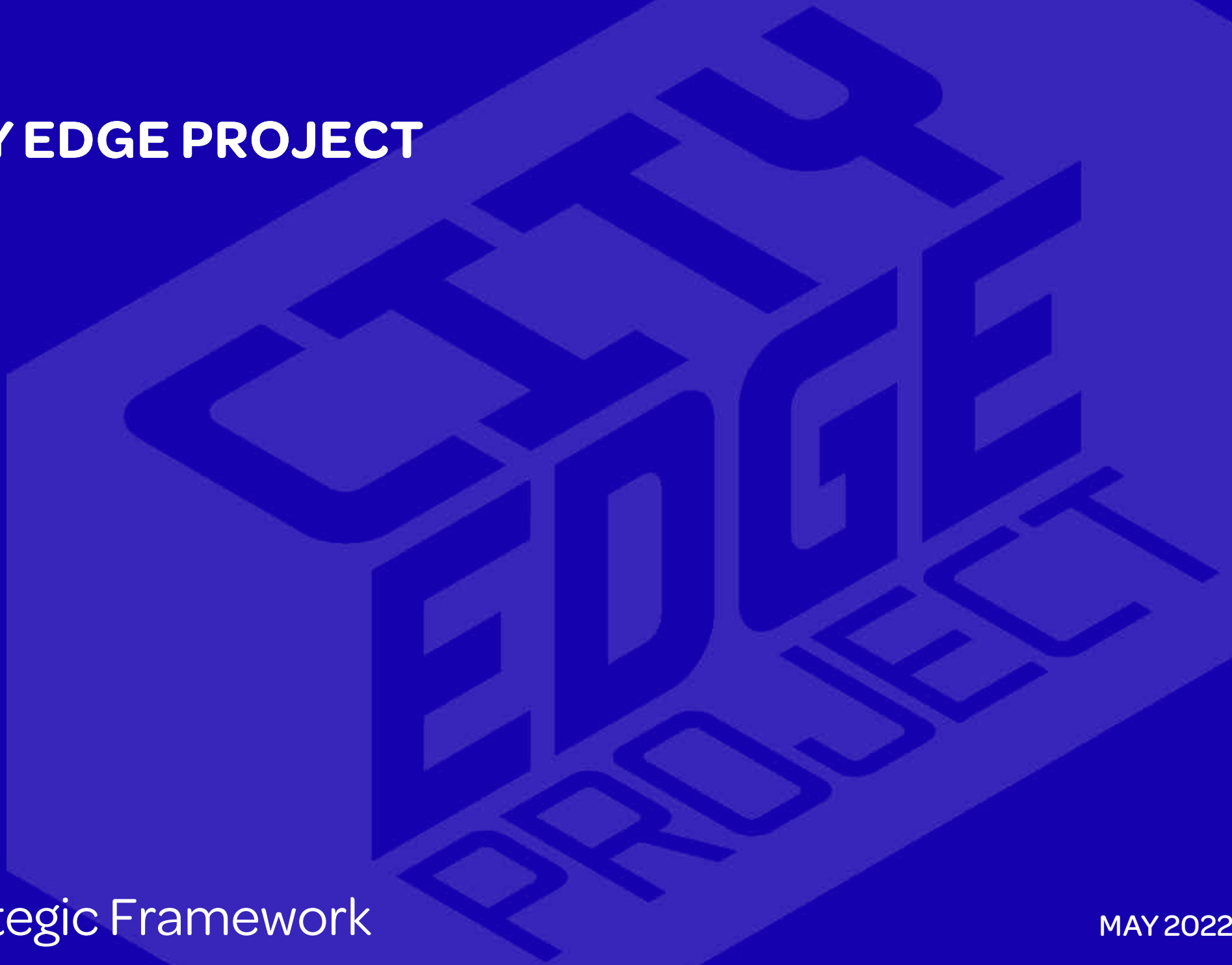
CITY EDGE PROJECT



Strategic Framework

MAY 2022

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1.1 OVERVIEW

1.1.1 PROJECT OVERVIEW

As part of a national strategy to rejuvenate our cities and large towns, whilst concentrating new housing and employment in existing urban areas, South Dublin County Council (SDCC) and Dublin City Council (DCC) have come together in a joint urban regeneration effort.

Unique in Ireland, the City Edge Project is a transformative initiative, re-imagining the Naas Road, Ballymount and Park West areas at the western edge of Dublin City. Creating a new urban quarter, it has the potential for 40,000 new homes and 75,000 jobs, making it one of the largest regeneration schemes in Europe.

1.1.2 THE OPPORTUNITY

This area is identified in the National Planning Framework (NPF) as a part of Dublin that is currently underutilised and has the potential to achieve Government policy in terms of compact growth, at scale.

Covering an area of ca.700 hectares, City Edge is strategically positioned to become an attractive urban extension of the city, where people will be able to live, work, and socialise.

To help achieve this, an international urban design and urban planning team, led by Maccreanor Lavington, was selected to undertake a detailed study of the area and define an aspirational vision for how this part of Dublin City can develop over the coming decades.

This project considers how the regeneration of City Edge can support the delivery of new homes to cater for the various needs of our growing population, help Dublin become a climate resilient City, accommodate the next generation of employment and provide liveable spaces that connect seamlessly with the surrounding neighbourhoods.

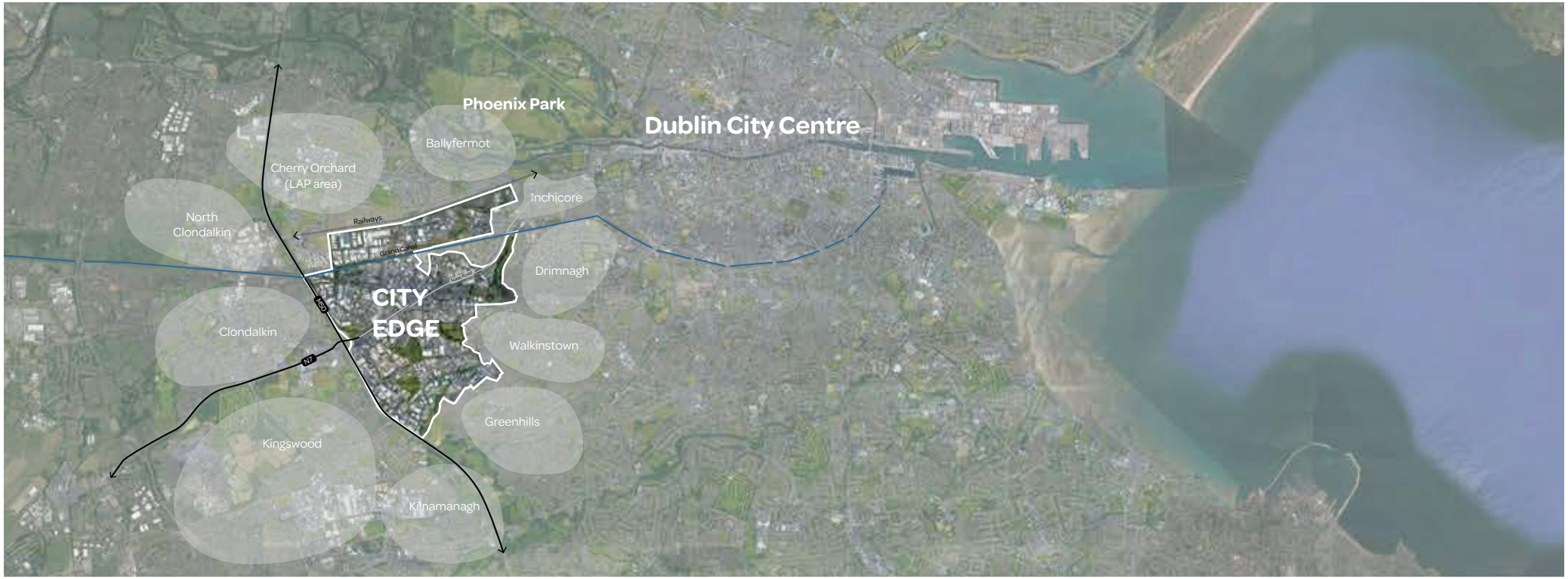


Figure 1. City Edge Project in the context of the Greater Dublin area

1.1.3 SDCC AND DCC - A CROSS-BOUNDARY APPROACH

City Edge straddles the Dublin City and South Dublin County Council functional areas. While this presents operational challenges, it also provides a unique opportunity to work in partnership to achieve the City Edge vision. With a view to this, both authorities have committed via a memorandum of understanding to work collaboratively in order to bring forward regeneration of these strategic lands.

1.1.4 ROLE / PURPOSE

Strategic Framework Purpose
This Strategic Framework is a non-statutory plan that sets out a high-level approach and transformational trajectory for the regeneration of City Edge to create a new liveable, sustainable and climate resilient urban quarter. It will be followed by a more comprehensive Statutory Plan which will guide development at a finer level of detail. It should be noted that as the Strategic Framework is a non-statutory document, it does not form a basis for development consent.

The purpose of the Strategic Framework is:

- To set out a high-level strategies for the regeneration of City Edge, including an overarching vision and strategic objectives;
- To plan for the delivery of strategic infrastructure including streets, parks, public transport and utilities;
- To outline a series of priority actions in the areas of legislation, policy, funding and infrastructure to facilitate the future development of City Edge;
- To seek the support of government departments and state agencies including alignment of relevant policies and programmes and allocation of funding in order to deliver the City Edge vision;
- To provide a context for the preparation of a statutory plan to provide more detailed guidance for the future development of the area.

Environmental Reports
A Stage 1 Appropriate Assessment (AA) Screening has been carried out on this non-statutory Strategic Framework. It has been determined that the Strategic Framework is likely, alone or in combination with other plans or projects, to have a significant effect on European Sites. A Stage 1 Strategic Environmental Assessment Screening (SEA) has also been carried out on this Strategic Framework. It has been determined that the Strategic Framework also falls within the remit of the SEA Directive / SEA Regulations.

In the context that the purpose of the non-statutory Strategic Framework is to inform a Statutory Plan at the next stage of the City Edge Project, the SEA and AA processes will recommence in parallel with the preparation of the Statutory Plan and the need for mandatory SEA and a Stage II AA Natura Impact Report will be further determined.

1.1.5 PROJECT STRUCTURE

The City Edge project comprises of three phases:

- Phase 1 - Baseline Analysis, Preferred Scenario and Strategic Framework
- Phase 2 - Plan Making
- Phase 3 - Implementation

The development of the Strategic Framework has consisted of 3 main components:

- Stage 1: Baseline Analysis – This was undertaken for City Edge with respect to its current characteristics and performance, and its relationship to the City, Region, and Country.
- Stage 2A: Scenario Testing – To determine a preferred role and trajectory for City Edge a process of scenario testing was undertaken. High-level strategic scenarios for the future of City Edge across a series of scales – Country, Region, City, Site – and roles were formulated and appraised against the emerging objectives and vision.
- Stage 2B: Strategic Framework – The creation of a Strategic Framework for City Edge, building on the Preferred Scenario, setting out the high-level trajectory and role for regeneration of City Edge to create a new liveable, sustainable, regenerative and resilient urban quarter.

The City Edge Strategic Framework is the culmination of Phase 1. Phase 2 – Plan Making is scheduled to start in late 2022.

1.1.6 DOCUMENT STRUCTURE

This document is a Strategic Framework which sets out how a plan-led new mixed-use urban quarter can be successfully developed as an organic extension of the city.

This Strategic Framework follows a comprehensive Stage 1 Baseline Study, and summarises the findings from this through the 'Site Today' chapter. The Vision for City Edge is followed by the Spatial Framework, which sets out the holistic, overall strategic and spatial construct of the framework. The component themes are then elaborated on through chapters on Housing, Community, Culture & Arts Infrastructure, Economy, Movement, Natural Infrastructure and Utilities. The Districts & Character Areas chapter gives a closer look around City Edge indicating the approach to urban design, and how the framework can manifest. The Delivery chapter sets out the key infrastructure required, and indicates approaches to how this can be delivered.

1.1.7 ENGAGEMENT

The process of developing the Strategic Framework for City Edge has been informed by public and stakeholder engagement.

Public
A four-week non-statutory public consultation process took place from 9th September to 6th October 2021. The pre-framework public consultation involved the creation of a dedicated website, www.cityedge.ie, acting as an information hub and a digital contact point given the global Covid 19 pandemic; the hosting of live online presentations followed by question and answer sessions; and the 'City Edge International Conference' held over two mornings with speakers including European experts in the delivery of large-scale regeneration projects. The website was viewed by 8,800 people over the public consultation period and approximately 6,000 people attended the live events, with over 400 additional offline views. Full details and the analysis of the public consultation is set out in the Chief Executive's Report, available here.

Stakeholder
In addition, a process of extensive engagement has been undertaken throughout the preparation of the City Edge Strategic Framework with key stakeholders, including existing businesses, landowners, state agencies, and proposed project teams. These perspectives were considered and informed the iterative formation of the Strategic Framework, and positively influenced the objectives and vision for the creation of a resilient urban quarter.

2 THE SITE TODAY

2.1 WIDER CONTEXT - THE ROLE OF THE SITE

2.1.1 ROLE IN GREATER DUBLIN

City Edge is situated within the Dublin functional urban region and economic core area and occupies a strategic location relative to the M50 motorway and N7 economic corridor and is located a short distance to Dublin City Centre to the north east.

City Edge, by its traditional land use typology, has a conglomeration of industrial estates and business parks within a pattern of low-medium intensity development with smaller pockets of residential development pepper-potted throughout. The industrial estates and business parks have access to high quality existing and planned public transport, infrastructure and services and are located in close proximity to Dublin City Centre. Land uses in City Edge have evolved over time from industry and manufacturing to primarily sales and logistics, and a high volume of commuter employees are attracted to the area on a daily basis.

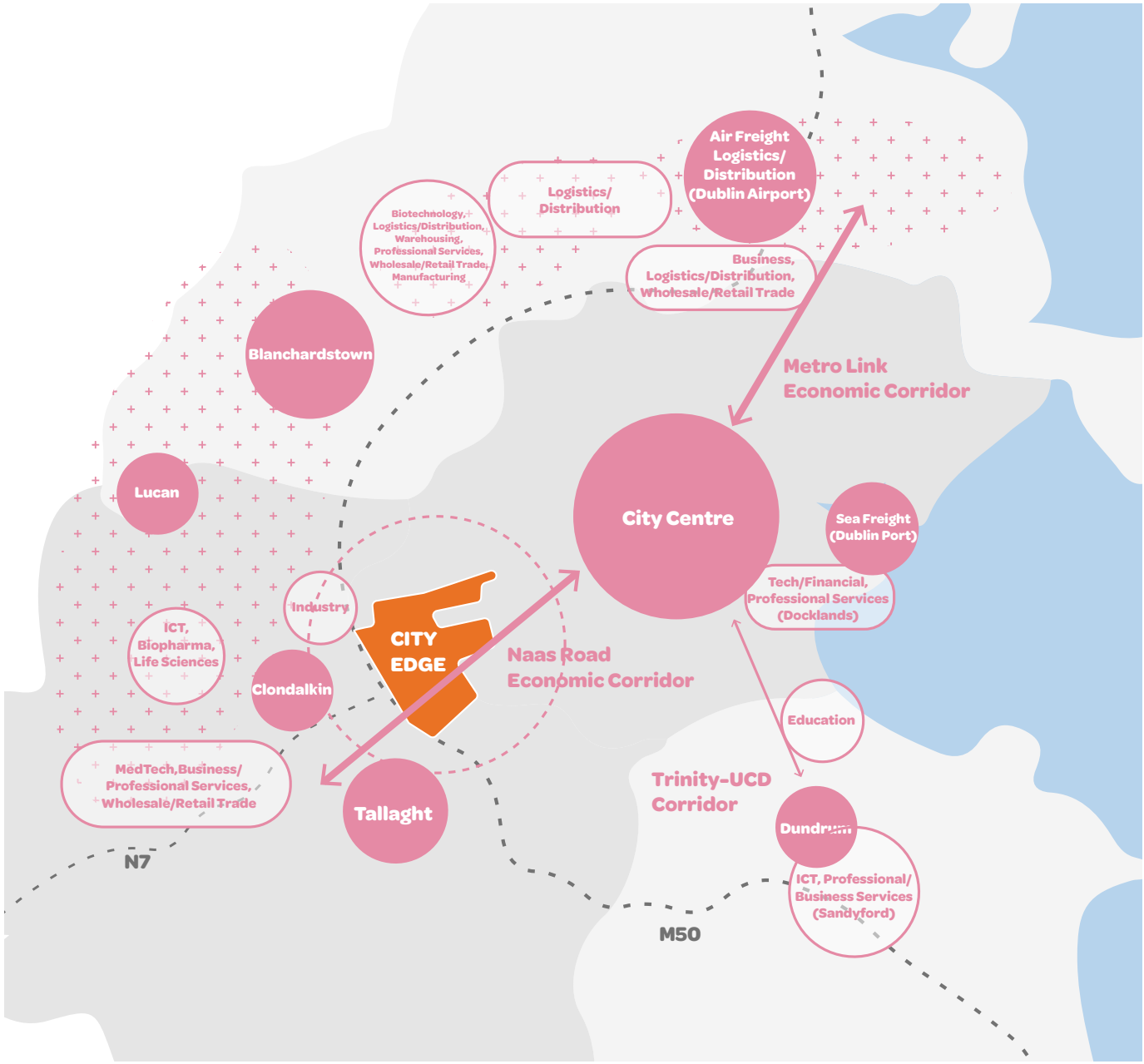


Figure 2. City Edge relationship within Greater Dublin

2.1.1 EVOLVING WIDER REGENERATION CONTEXT

City Edge exists in a wider regeneration context which has seen many sites and areas close to the city centre redeveloped in recent times, or with future plans for re-development. As illustrated by the diagram, City Edge, as a large brownfield landbank, is the logical 'next step' in the regeneration process, evolving from the city centre outwards.

Figure 3. Emerging regeneration context within West Dublin

2.2 EXISTING CHARACTER

2.2.1 THE CHARACTER OF CITY EDGE

City Edge has a diverse mix of mainly industrial, commercial and employment uses that sustains approximately 25,500 jobs across some 1,500 different businesses.

5,000 people live in the area in 1,600 existing homes in well established communities that are intertwined with the surrounding areas of Walkinstown, Drimnagh, Clondalkin and Ballyfermot.

Today the area is criss crossed with existing road and rail infrastructure, utilities, and diverse landownerships.

2.2.2 MORPHOLOGY

The morphology of City Edge reflects the utilitarian nature of predominantly industrial and commercial activity. As a result, in many instances, buildings are set back from the street and surrounded by car parking meaning that streets are not well defined.

Figure 4. Existing principle building typologies of City Edge

2.2.3 CULTURAL AND HERITAGE ASSETS

At 700 hectares in size, City Edge is home to a plethora of hidden gems that can be unearthed to become focal points, helping to shape and inform the future of this regeneration area. The Grand Canal, the River Camac and Drimnagh Castle are important identity and amenity features that can be also promoted and integrated as part of this regeneration.

There are 28 built heritage sites within City Edge. Of these sites Drimnagh Castle is the most architecturally sensitive location, it is a national asset that could be used to draw on as an attractor. The Castle is the last surviving medieval castle with a flooded moat in Ireland.

Figure 5. Grand Canal passing through City Edge

Figure 6. Drimnagh Castle, facing northwest

Figure 7. Bluebell Church, facing southeast

Figure 8. CIE Chassis Factory, the first of Michael Scott's famous trilogy of buildings for the new national transport company

2.2.4 MOVEMENT AND ACCESSIBILITY

City Edge is in close proximity to the City Centre and could provide a huge opportunity for creating a Liveable City based on the principles of walking, cycling and public transport. Today City Edge is served by public transport – the Luas, the Kildare Railway Line and frequent bus services as well as regional and national roads – but there is scope to significantly improve active travel and public transport infrastructure including new rail and Luas stop, new bus routes and cycle lanes.

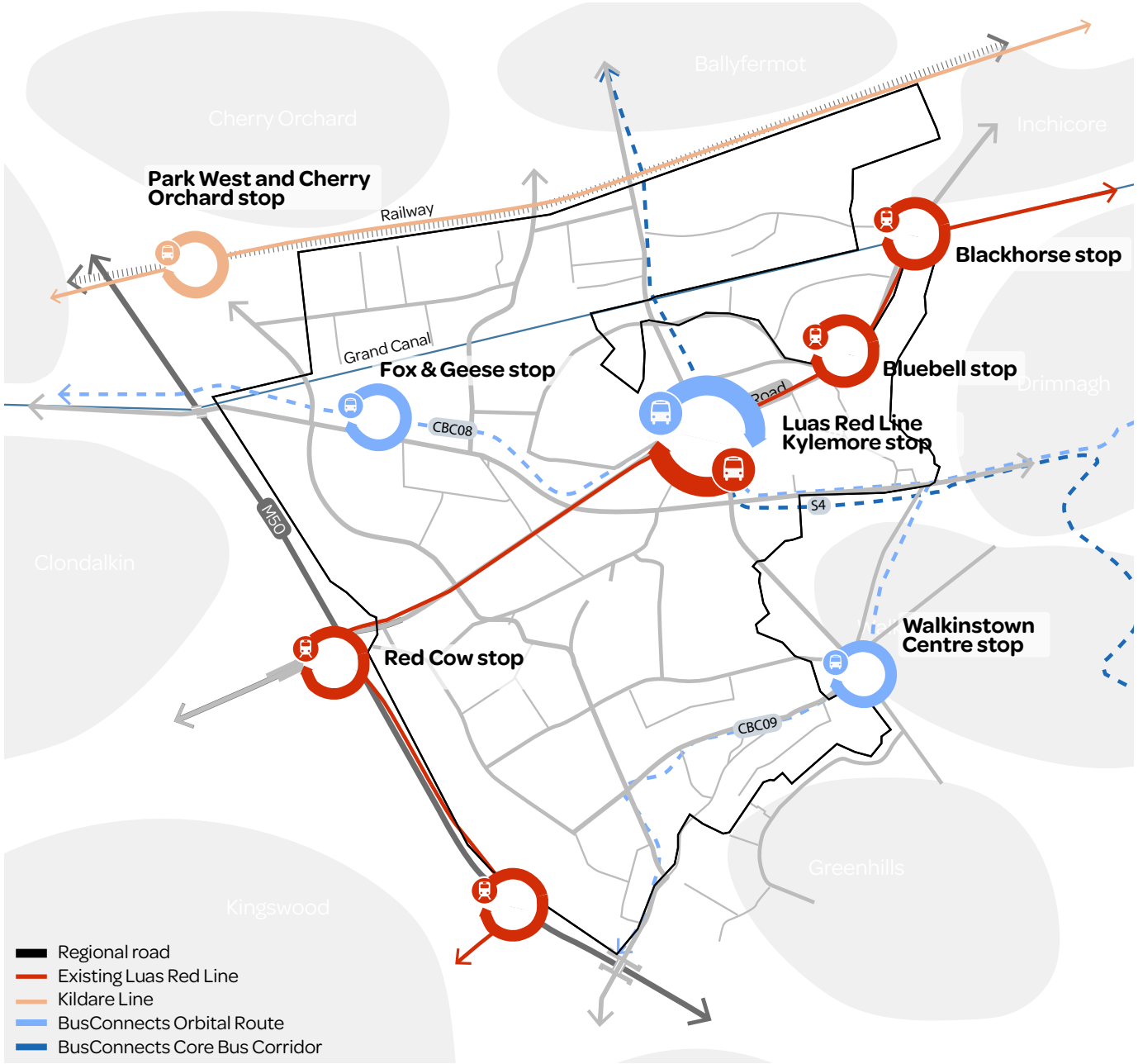


Figure 9. Existing movement

2.2.5 HOMES

Existing

There is an existing residential population of just over 5,000 people, with approximately 1,600 households peppered throughout City Edge. These communities are well established, many in place since before the current industrial businesses emerged.

However, given the proximity of City Edge to the City, there is huge scope to provide much needed new homes: Homes that should be accessible for people of all ages, abilities and income levels; homes that offer people choice, about where and how they want to live and homes that ultimately meet the increasing needs of our city's growing population.

Planning Permissions

As of March 2022, seven relatively significant housing developments have been granted permission within City Edge totalling approximately 3,700 dwellings. There is a cluster of permissions around the Naas Road / Kylemore Road / Walkinstown Avenue Axis.

Figure 10. Apartment Development situated on Killeen Road

Figure 11. Terraced housing situated on Naas Road

Figure 12. Housing situated on Turnpike Road

Figure 13. Apartment complex situated on Slievebloom Road

Figure 14. Development under construction on Old Naas Road

2.2.6 THE ECONOMY

City Edge makes a significant contribution to the economy of Dublin. As identified by the 2016 Census, there were approximately 25,000 jobs in City Edge accounting for 4% of Dublin's employment and contributing approximately €1.98bn per year to the economy. City Edge is estimated to represent ca.2% of Dublin's total GVA.

These existing businesses and jobs are a cornerstone of the Dublin economy and are key to the continued success of the City.

Figure 15. Britvic Ireland situated on Kylemore Park West

Figure 17. FBD insurance situated on Old Naas Road

Figure 16. Red Cow hotel along Naas Road

Figure 18. Retail park situated on Ballymount Road Upper

2.2.7 NATURAL INFRASTRUCTURE

Within City Edge there is limited green cover and a lack of tree canopy cover. Approximately 13% of the area is green with the rest being sealed, impervious paved surfaces.

Walkinstown Avenue Park and Landsdowne Valley Park sit within City Edge and are key assets. Nearby Ballymount Park, Tymon Park and to the north, Phoenix Park provide an important context though are somewhat disconnected.

The River Camac, its tributaries and the Grand Canal all run through City Edge, though the Camac is culverted and canalised for much of its length.

Figure 19. Land adjoining Ballymount Avenue

Figure 20. Park West Road

Figure 21. Runners along the canal

Figure 22. Naas Road

Figure 23. Grand Canal near Kylemore Rd

2.3 CITY EDGE CONTEXT

2.3.1 PHYSICAL CONTEXT & CONSTRAINTS

Key constraints for City Edge that spatially define it include:

- Inchicore switching station which is unlikely to move given its strategic importance
- Impact from existing Seveso sites on uses in their vicinity whilst they remain in operation
- The riparian corridor of the River Camac and tributaries and the associated flood zones which restrict flexibility of proposed land uses such as residential, and require flood risk mitigation measures such as SuDS

Key fixed spatial components within City Edge include:

- Existing residential
- Existing heritage assets
- Existing parks
- The Grand Canal

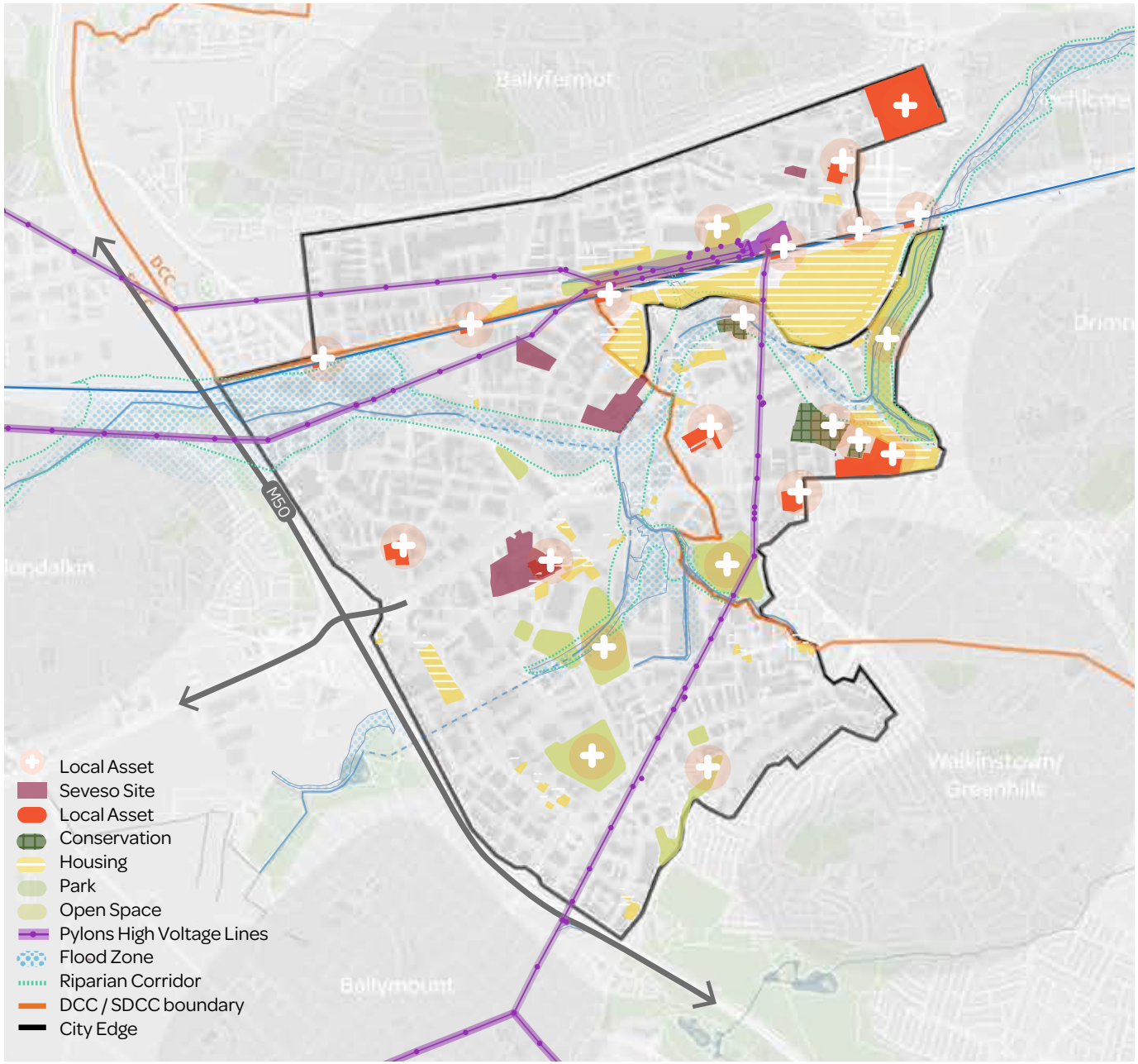


Figure 24. Key assets and contraints

2.3.2 POLICY CONTEXT

National Planning Framework
The NPF provides a long-term strategy for the spatial development of Ireland. The NPF sets out a number of key National Strategic Outcomes (NSOs) which have strategic importance and relevance to the future growth of City Edge. These outcomes include, inter alia:

- Compact Growth
- Sustainable Mobility
- A Strong Economy
- Low Carbon and Climate Resilient Society
- Sustainable Management of Environmental Resources

National Development Plan
The National Development Plan (NDP) has been established to drive Ireland's long term economic, environmental and social progress, and fully integrates with the policy aims of the NPF. Under the NDP, there is a demonstrated need to provide in excess of half-a-million more homes over the period to 2040. Investment in public transport infrastructure will be accelerated to support the development of an integrated and sustainable national public transport system consistent with the NSOs of 'Sustainable Mobility' as well as 'Compact Growth'.

Climate Action Plan 2021
The Climate Action Plan sets out an ambitious course of action over the coming years to address climate disruption. The Plan outlines the current state of play across key sectors including electricity, transport, built environment, industry and agriculture and establishes a detailed plan to achieve a 51% reduction in greenhouse gas emissions by 2030, and sets out a pathway to reach net-zero emissions by 2050, latest.

By adopting regeneration approaches such as land use efficiency in the redevelopment of brownfield sites, facilitating a modal shift to increased sustainable transport use, increased green and blue infrastructure, and delivering energy efficient 'buildings' City Edge can positively contribute to the necessary transition.

SDCC and DCC Climate Change Action Plans
In a collaborative response to climate change in the Dublin Region the four Dublin local authorities, the Dublin Metropolitan Climate Action Regional Office (CARO), and the City of Dublin Energy Management Agency (Codema) came together to develop four Climate Change Action Plans. While each plan is unique to its functional area, a unified approach was taken to examine the challenges responding to submissions that were appropriate and regionalised.

Both Local Authority Climate Action Plans feature a range of actions across five key areas - Energy and Buildings, Transport, Flood Resilience, Nature-Based Solutions and Resource Management - that collectively address the four targets of this plan:

- A 33% improvement in the Council's energy efficiency by 2020
- A 40% reduction in the Council's greenhouse gas emissions by 2030
- To make Dublin a climate resilient region, by reducing the impacts of future climate change-related events
- To actively engage and inform citizens on climate change

Housing for All (2021)
The Government's housing plan is aimed at addressing the housing needs of the nation. It contains pathways aimed at achieving four overarching objectives:

- Supporting home ownership and increasing affordability;
- eradicating homelessness, increasing social housing delivery and supporting social inclusion;
- increasing new housing supply; and
- addressing vacancy and efficient use of existing stock.

Significant publicly owned land in Inchicore under the control of the OPW, CIE and ESB have been identified for transfer to the LDA for the purposes of housing delivery.

Eastern and Midland Regional Assembly – Regional Spatial and Economic Strategy 2031
The Eastern and Midland Regional Assembly (EMRA) Regional Spatial and Economic Strategy (RSES) provides the regional basis for the integration of land use and transport planning in City Edge, informing the preparation and implementation of plans, programmes and projects at all levels. Of particular relevance to the City Edge are the following Regional Strategic Outcomes (RSOs) which are outlined as follows:

1 - Sustainable Settlement Patterns
2 - Compact growth and Urban Regeneration
4 - Healthy Communities
6 - Integrated Transport and Land Use
7 - Sustainable Management of Water, Waste and other Environmental Resources
9 - Support the Transition to Low Carbon and Clean Energy
10 - Enhanced Green Infrastructure

Metropolitan Area Strategic Plan (MASP)
The RSES contains the Dublin Metropolitan Area Strategic Plan (MASP). The MASP seeks to ensure a supply of strategic development areas located at key nodes on public transport corridors for the sustainable growth and continued competitiveness of the Dublin Metropolitan Area.

The MASP supports a sequential approach to development with a primary focus on the consolidation of sites within or contiguous to the existing built up and zoned area of Dublin City and suburbs to achieve higher residential densities in synergy with the provision of public transport, infrastructure and services.

Transport Strategy for the Greater Dublin Area 2016-2035

The current transport strategy for the Greater Dublin Area (GDA) provides a framework for the planning and delivery of transport infrastructure and services across the region. It also provides a transport planning policy around which agencies involved in land use planning can align their plans and projects. Strategic transport infrastructure proposed within the lifetime of the Strategy, with reference to the City Edge Project, includes the following:

- Reopening the Phoenix Park Tunnel Link for Heavy Rail passenger services
- Implementing the DART Expansion Programme with services to Hazelhatch on the Kildare Line
- Luas to Lucan
- Luas Red Line extension to Poolbeg
- Core Radial Bus Corridors N7 / Clondalkin – Crumlin & Tallaght – Walkinstown – Crumlin

Draft Greater Dublin Area Transport Strategy 2022 - 2042

The revised Draft Transport Strategy was published in late 2021 and has been developed to be consistent with the RSES and the NPF with an overall aim of providing "a sustainable, accessible and effective transport system for the Greater Dublin Area which meets the region's climate change requirements, serves the needs of urban and rural communities, and supports economic growth". The Draft Strategy includes measures to foster sustainable development and to fully integrate land use planning and transport planning, as a means of reducing travel demand both in terms of numbers of trips made and the length of trips. These measures include, with reference to City Edge:

- A GDA cycle network
- Tallaght / Clondalkin to City Centre Core Bus Corridors
- Orbital Bus corridors to serve emerging development areas such as City Edge
- Lucan Luas (pre 2042)
- Tallaght-Kimage-City Cente Luas (post 2042)
- Clondalkin-City Centre Luas (post 2042)
- New Light Rail Stops
- Dart+ South West to Hazelhatch-Celbridge
- Fourtracking between Park West Station and Dublin Heuston
- New Rail Station planned for Kylemore
- Development of a Strategy for Sustainable Freight Distribution

Within the context that this Strategic Framework envisages a residential population of approx 85,000 people and an employment population of approx. 75,000 people, the City Edge Project has an implementation horizon beyond 2042. This represents an opportunity for the City Edge Project to inform the transport policy.

South Dublin County Development Plan 2016 - 2022

The South Dublin County Development Plan (CDP) sets out the framework to guide future development within South Dublin, focusing on where people live, work and how they interact and move between these places. The South Dublin CDP designates City Edge lands within its jurisdiction under two zoning objectives that facilitate enterprise and / or residential-led regeneration (Objective REGEN) and enterprise and employment related uses (Objective EE).

The South Dublin CDP sets out that it will support the regeneration of the Naas Road industrial area by promoting more intensive enterprise and / or residential led development at locations proximate to town centres and transport nodes.

Draft South Dublin County Development Plan 2022-2028

The Draft SDCC Development Plan will come into effect in August 2022. It includes zoning objectives as per the current Development Plan that support residential and employment led regeneration, as well as enterprise and employment uses; and policies and objectives which set the scene for the Strategic Framework and a subsequent statutory plan.

Dublin City Development Plan 2016 - 2022

The Dublin City Development Plan (CDP) sets out a new approach to meet the needs and aspirations of the citizens of Dublin, not only for the 6-year life of the plan, but for the long term. This approach is based on the principles of sustainability and resilience on social, economic and environmental fronts. The CDP designates City Edge lands within its jurisdiction under a number of zoning objectives including Z2 (Residential Neighbourhoods – Conservation Areas); Z6 (Employment / Enterprise); Z9 (Amenity / Open Space Lands / Green Network); and Z14 (Strategic Development and Regeneration Zone).

Within the CDP, the Naas Road is identified as one of eight Key District Centres (KDC) which are described as underpinning a wider area and acting as a strong spatial hub providing a comprehensive range of commercial and community services to the surrounding populations. The CDP also designates the Naas Road as a Level 3 centre on the basis that it is a projected growth centre for population.

Draft Dublin City Development Plan 2022-2028

The Draft DCC Development Plan will come into effect in December 2022. It includes policies which set the scene for a statutory plan to follow this Strategic Framework.

Naas Road Lands LAP (Dublin City Council)

The Naas Road Lands LAP was initially adopted in 2013 and has since been extended to 2023. The overall vision for this area set out in the LAP is as follows:

'To create a great place to work and live, and create a new urban identity for the Naas Road lands area plan by regenerating existing developed lands as a sustainable mixed-use area, capitalising on the area's locational advantages and improving the relationship of the lands to their immediate surroundings through improved linkages,

green infrastructure and permeability. As part of this transformation, there will be an increase in the range of land-uses, and improvements in the visual environment, resulting in an increase in street level activity and the general revitalisation of the area.'

The Plan sets out that the Naas Road lands are strategically significant in the city context in that they offer a significant opportunity for future regeneration and improved integration of the area into the emerging fabric of the capital city. The Plan provides a framework for new residential and employment areas with their own distinct character.

Seveso

The Seveso-III Directive (Directive 2012 / 18 / EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amends and subsequently repeals Council Directive 96 / 82 / EC). Sites are categorised as upper tier or lower tier according to the type and quantity of hazardous substances stored at the site. Currently there are 4 Seveso sites within City Edge:

1. BOC Gases Ireland Limited, Bluebell Industrial Estate, Dublin 12 – Upper Tier
2. Irish Distillers Limited, Robinhood Road, Fox & Geese, Clondalkin, Dublin 22 – Lower Tier
3. Kayfoam Woolfson, Bluebell Industrial Estate, Naas Road, Dublin 12 – Lower Tier
4. Iarnrod Eireann, Iarnrod Eireann Maintenance Works, Inchicore, Dublin 8 – Lower Tier

The HSA have recently published the guidance entitled Guidance on Technical Land-use Planning Advice for Planning Authorities and Operators of Establishments under the COMAH Regulations (2022).

The guidance sets out technical land-use planning (LUP) advice to Planning Authorities for developments within the protective Consultation Distances (CD) around Seveso sites. This includes advice of development types that are potentially suitable for defined risk contours within each CD.

3 VISION

3.1 OVERVIEW

3.1.1 DEVELOPING A THEMATIC VISION

The Vision and Objectives for City Edge have been established through a combination of the following:

- Baseline surveys, mapping, data and analysis
- Policy Context
- Best Practice Exemplars and their relevance to the Project
- Stakeholder Engagement
- Scenario Testing to determine a preferred role and trajectory for the future of City Edge

The overarching vision is expanded through a series of project themes, which have a narrative per theme. These narratives are categorised and set the scene for the core objectives, expanding on the overarching vision.

3.1.2 WIDER POLICY CONTEXT

A comprehensive set of Local, Regional and National plans, policies and objectives provide guidance for the development of the Strategic Framework. The objectives for the City Edge project sit within the context of these, and relate directly to City Edge.

The diagram on this page sets out how the Strategic Framework, and its Strategic Objectives, positively embed objectives and principles from Local, Regional and National Policy frameworks, creating a nested relationship.

3.1.3 POLICY OBJECTIVES

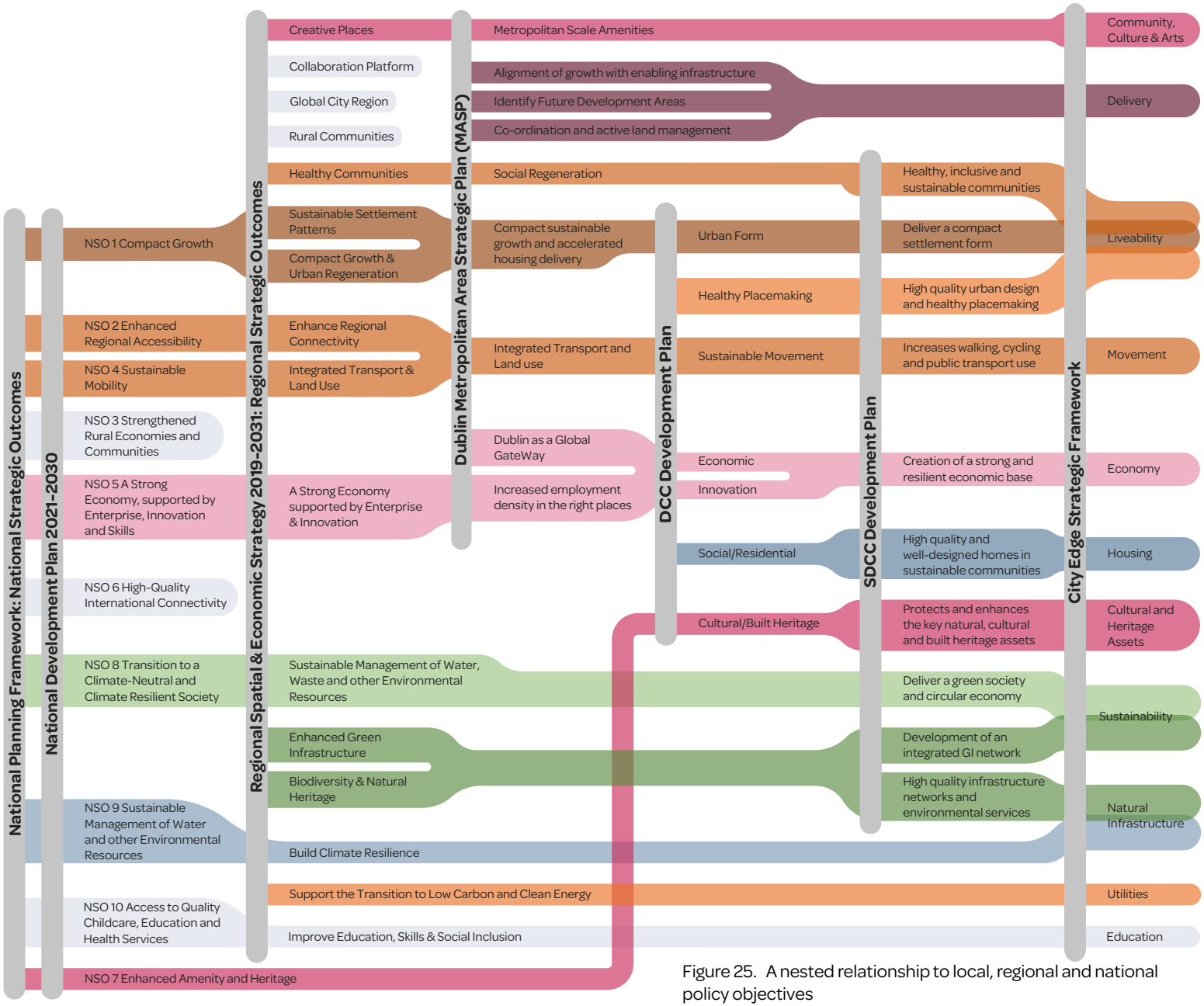


Figure 25. A nested relationship to local, regional and national policy objectives

3.2 SUSTAINABILITY AND RESILIENCE

3.2.1 CONTEXT

Climate change is the biggest challenge we face and it is happening here and now. It has already resulted in increased frequency of heatwaves in most world regions and heavy precipitation events, which contribute to flooding. The predicted future impact of increased frequency and magnitude of events as well as the multiplicity of such events having a cascading and compounding effect is a significant challenge for future sustainable development.

- According to the Intergovernmental Panel on Climate Change (IPCC) 2021 report, the world will probably reach or exceed 1.5 °C of warming within just the next two decades. The global warming and associated changes in temperature, precipitation patterns and sea levels are projected to continue throughout the 21st century, even if the greenhouse gases emissions are drastically reduced.
- The World Economic Forum 2020 (WEF) identified Climate Action Failure and Extreme Weather as one of the greatest global risks. This includes failure of governments and businesses to enforce or enact effective measures to mitigate climate change, protect populations and help businesses impacted by climate change to adapt.
- The UN Sustainable Development Goal (SDG) 13 requires member states to "take urgent action to combat climate change and its impacts". The goal includes targets like strengthening resilience and adaptive capacities, integrating climate change measures into national policies and improving education, awareness and human institutional capacity on climate change.
- Nature is declining globally at rates unprecedented in human history, as reported by the Intergovernmental Panel on Biodiversity and Ecosystem Service (IPBES) in its global assessment on the state of the world's biodiversity and ecosystem services.
- The Climate Action Plan 2021 (CAP) provides a detailed plan for taking decisive action to achieve a 51% reduction in overall greenhouse gas emissions by 2030 and setting Ireland on a path to reach net-zero emissions by no later than 2050, as committed to in the Programme for Government and set out in the Climate Act 2021.

3.2.2 THREE ASPECTS OF SUSTAINABILITY

Climate resilience and sustainability is a global challenge that encompasses economic and social considerations in addition to traditional environmental concerns. The onset of climate change is already having significant impacts upon our society and economy and without effective mitigation and adaptation action, climate change will continue to have far-reaching negative social and economic consequences.

In order to create a truly sustainable and resilient development it is essential that these three aspects are addressed.

Figure 26. The three aspects of sustainability: Environment, society and economy and how they interact.

3.2.3 OPPORTUNITY

The City Edge regeneration project provides a valuable opportunity to make the ambitious, large-scale, systemic interventions required to meet wider sustainability goals. In particular it provides the opportunity to:

- Have a **tangible impact** in meeting the Climate Action Plan targets in relation to a reduction of carbon emissions due to the large-scale nature of the project.
- **Fast-track** meeting the Climate Action Plan targets due to the integrated and large-scale nature of the project.
- Deliver **systemic changes** that will provide multiple benefits and which encapsulate environmental, economic and social themes.
- Create an **equitable society** which offers greater opportunity to more organisations and people.
- Surpass sustainability and create a **regenerative model** in which processes restore, renew or revitalize their own sources of energy and materials.

3.2.4 OBJECTIVES AND PRINCIPLES

- 51% reduction in overall greenhouse gas emissions by 2030.
- Reach net-zero emissions by no later than 2050.
- Achieve 50% green cover.
- 70% renewable energy generation target by 2030.
- To deliver a just transition from a carbon to a green economy.

Sustainability is instrumental in the Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. As such, every theme in the Strategic Framework provides a commentary on how the different elements of the project will contribute to this vision, in line with the wider sustainability goals.

POLICY & GUIDANCE

INTERNATIONAL

-Paris Agreement and the Nationally Determined Contribution (2016)
-Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report AR5 (2018) - AR6 due 2022
-United Nations Sustainable Development Goals (2015)
-Fit for 55
-EU Circular Economy Action
-European Green Deal
-EU Sustainable and Smart Mobility Strategy

CARBON POSITIVE

-Climate Action Plan
-Climate Action and Low Carbon Development Act 2015

ENVIRONMENT POSITIVE

-Climate Action Plan
-Water Framework Directive
-National Water Resource Plan- Irish Water
-Sectoral Planning Guidelines for Climate Change Adaptation, 'Dept of Communications , Climate Action & Environment 2018'
-National Adaptation Framework, 'Dept of Communications, Climate Action & Environment, 2018'
-Govt of Ireland Dept of Culture, Heritage & the Gaeltacht, 'Ireland's Biodiversity Sectoral Climate Change Adaptation Plan'
-Government of Ireland, Water Services Policy Statement 2018 – 2025
-Irish Water Climate Change Policy
-National Biodiversity Plan

ZERO WASTE AND CIRCULAR

-EU Circular Economy Action Plan
-Waste Action Plan for a Circular Economy

CITY EDGE SUSTAINABILITY PROPOSITIONS

TOPICS

BLUE & GREEN INFRASTRUCTURE
-community gardens
-targeted special protection
-optimal land use
-net biodiversity gain
-improve quality of life
-increased resilience protects flora and fauna
-development of grand canal opportunities
-SFRA to set guidance for Flood Risk Assessments for individual developments
-diversification of land use
-nature restoration and protection
-nature based solutions
-educational centres
-adoption baseline
-nutrient neutrality
-target public realm for SuDS improvements
-promote green roofs

FLOODING & EXTREME WEATHER
-lower temperature by planting trees
-emergency response plan
-implement suds
-appropriate building design to prevent overheating of indoor space
-50% green coverage
-water neutrality
-renaturalising the Camac
-river basin management plans
-Camac flood alleviation plan
-lower temperature by capitalising on green space

HOUSING & BUILDINGS
-nutrient neutrality
-energy efficient construction
-fabric first approach
-national retrofits
-promote use of electric heat pumps
-net zero waster to land ll construction
-nearly Zero Energy Buildings (NZEB)

WATER & CIRCULAR ECONOMY
-reduce food waste
-promote waste recycling targets
-recycling targets for waste collectors
-reduce manufacturing of single use plastics
-education for waste segregation
-construction & demolition - end of waste decision making process
-work with Irish designers and retailers to promote -eco-design for clothing and textiles
-development of waste management infrastructure
-develop circular economy sectoral roadmaps

SOCIAL & ECONOMIC
-urban farming
-improve climate literacy
-connected communities
-protect properties
-create public awareness
-promote active travel
-equality, diversity and inclusion
-social inclusion
-climate resilient neighbourhoods
-citizens engagement
-resilience in infrastructure
-equal opportunities
-sustainable energy communities
-promote active travel

UTILITIES & INFRASTRUCTURE
-holistic plan for demand management
-decarbonise public lighting
-extreme weather
-resilience to cater for extreme weather
-foul and potable water to consider changes in water consumption trends
-surface water management to consider sponge -city principles and 50% green cover
-maximise spare capacity in electrical infrastructure

TRANSPORT
-reduce carbon emissions
-autonomous vehicles
-15-minute city principle
-car free districts
-movement frameworks
-public bike facilities
-increase use of biofuels
-electric vehicles
-Tymon to phoenix park greenway
-sustainable transport planning
-electrification of public transport and fleets
-transit orientated development
-support mobility as a service
-active mode infrastructure

ENERGY & ELECTRICITY
-solar roof scope
-renewable fueled CHP
-renewable energy 70% target by 2030
-anaerobic digestion
-district heating and maximise waste heat sources
-heat pumps
-phase out fossil fuels
-support micro generation
-sewer heat recovery pilot
-sewer heat recovery

THEMES

HOUSING
COMMUNITY, CULTURE AND ARTS
ECONOMY
MOVEMENT
NATURAL INFRASTRUCTURE
UTILITIES

Figure 27. City Edge Sustainability Framework

3.3 LIVEABLE CITY

3.3.1 CONCEPT

The liveable city has emerged internationally as a concept for sustainable city design that offers the right conditions to achieve the three pillars of sustainability: environmental, social, and economic. This is often referred to as the 15-minute city principle as its premise is giving residents access to the goods and services they need on a daily or regular basis within a short, safe, and convenient 15-minute walk or cycle. These goods and services include: suitable housing options, shops for groceries, childcare facilities, schools, health-care facilities, public open spaces, spaces for recreation, and frequent affordable public transport.

It takes a holistic approach to build a liveable city: living, working, learning, caring, and playing are all equally important as are amenable, people-centred, interconnected public streets and recreational spaces.

EQUITABLE

Liveable cities are equitable, supporting the less mobile such as elderly people, people with disabilities, children and teenagers, parents of young children or people from lower socio-economic demographics. They provide more access to opportunities for everyone to participate in economic life, improving social mobility.

HEALTH AND WELL-BEING

The 15-minute city principle not only ensures good access to services and resources, it also promotes an active lifestyle by encouraging walking and cycling. People who have good access to green space are three times as likely to be active. An active lifestyle reduces health risks including obesity, cardiovascular diseases, diabetes, and mental health issues. Liveable cities support the creation of cohesive communities, which reduces social isolation, improving mental health and well-being.

ENVIRONMENT POSITIVE

Cities need to adapt to respond to and mitigate further climate change. Liveable cities are designed to have minimal environmental impact by supporting walking and cycling. The subsequent reduced need for frequent, short car journeys improves air quality and reduces carbon emissions. Liveable city design also presents opportunities for climate resilience through the integration of a green and blue infrastructure, enhancing biodiversity, reducing flood risk and the urban heat island effect.

MIXED NEIGHBOURHOODS

The liveable city relies on compact growth, an effective density, and a mixed and balanced community to provide sufficient demand for the viability of a mix of commercial and social functions. The functional integration of a mix of uses, particularly on the ground floor, creates an active streetscape, provides resources and services, improves character, and ensures a perception of community and safety.

DIVERSE AND INCLUSIVE

A diversity of population is crucial for the social and economic sustainability of urban areas. Different socio-economic and demographic traits in the population promotes a mixed and balanced community as well as sustaining a broad range of commercial activity and services that need to be in place to meet the needs of the population in the long term.

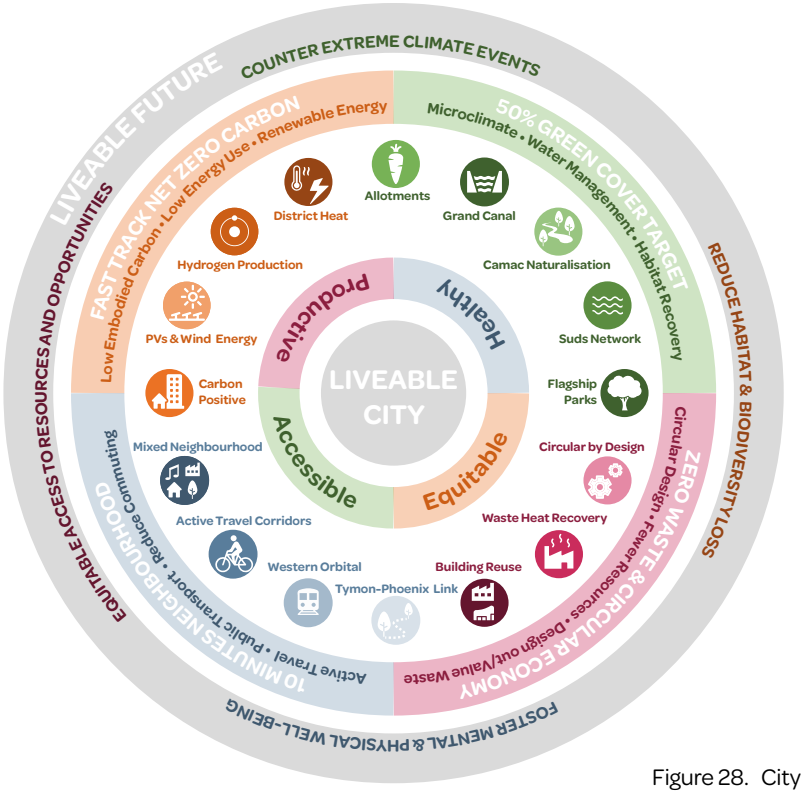


Figure 28. City Edge Liveable City

The overarching vision for City Edge is to support the long-term, resilient growth of the Dublin region by making the most of City Edge. Create a major new Urban Quarter on the edge of Dublin City, providing much needed new homes and employment space for the city, whilst ensuring the area's rich industrial history can continue to play an important role into the future.

Five new neighbourhoods, based on 15-minute city principle, will celebrate the area's existing qualities such as the Grand Canal, the River Camac and Lansdowne Valley Park. Whilst a network of new biodiversity rich parks, green and blueways, public transport, local high streets, community facilities and energy networks will help to meet our shared climate challenges.

Figure 29. The liveable city

3.5 STRATEGIC OBJECTIVES

Theme	Objective	**The objectives below break down the vision into 8 main themes, and were used to direct the tested scenarios and strategic brief.**
LIVEABLE CITY	**Follow compact growth & 15-minute city principle**	Create a compact urban environment with an active travel focus, that supports the health and wellbeing of residents, through access to opportunities, services, resources, and green and natural amenities.
ECONOMY	**Create a resilient and diverse employment offer with scope for up to 65,000 - 75,000 jobs**	Create a resilient and diverse employment offer with scope for between 65,000 and 75,000 jobs.
HOUSING	**Accommodate a range and variety of new homes for up to 75,000 - 85,000 people**	Accommodate a mixed and balanced community of between 75,000 and 85,000 new people with a choice of different housing types, tenures and sizes.
NATURAL INFRASTRUCTURE	**Target 50% green cover**	Target 50% green cover to meet the needs of the future population while promoting a reintroduction of biodiversity and combating climate change impacts such as flood risk.
MOVEMENT	**Focus development on the provision of active and public transport**	Ensure Transport Oriented Development by focussing new mixed-use and compact urban development on enhanced active travel and public transport corridors.
CHARACTER	**Knit into existing neighbourhoods and create a series of character areas that enhance Dublin**	Integrate the renewal of City Edge with existing residential communities by supporting good placeshaping within the five local neighbourhoods and by celebrating local distinctiveness and ensuring climate resilient design.
COMMUNITY	**Integrated urban services and resources**	Support the needs of intergenerational communities through the timely provision of community, educational, health and social facilities.
SUSTAINABILITY	**Fast-track to zero carbon and zero waste**	Fast track to zero carbon and zero waste to help address climate change and promote sustainable communities through the 15-minute city principle.
DELIVERY	**Create a deliverable and credible framework**	Ensure a coordinated approach to the funding and delivery of infrastructure and utilities in order that land can be developed in a timely and coherent manner that realises the City Edge Vision.

3.6 STRATEGIC BRIEF

3.6.1 INTRODUCTION

To determine a preferred direction and create a strategic brief, three high-level scenarios were tested and assessed against the emerging objectives and vision for the Strategic Framework as well as key constraints and opportunities identified during the detailed investigations of City Edge.

3.6.2 SCENARIO TESTING

Scenario 1 promoted a major new commercial centre on the Kylemore Road, which would operate on an international scale and become a focus for new FDI. This large centre would influence the nature of the rest of City Edge. Uses would focus around high density employment, including offices.

Scenario 2 promoted more intensified industrial uses including advanced manufacturing along with some smaller scale residential uses in appropriate locations. Urban-industry, located to the east of City Edge could be more intense, being closely associated with the city centre. Lower density regional industry could form a buffer with the M50.

Scenario 3 explored a more even distribution of nodes, each residential-led, mixed-use, and characteristically distinct from each other. Many of these nodes draw on existing neighbourhoods at the fringes of City Edge, though some are new in response to new transport infrastructure. An amenable setting is a key component with enhanced green and blue infrastructure, creating a liveable environment in which to dwell.

3.6.3 PREFERRED SCENARIO

The strategic brief responds to the results of this assessment, and the approach combines elements from each of the three tested scenarios and integrates them into a combined approach, recognising the positive role a new commercial centre could play, but with a commercial element operating at a more modest scale delivered in time.

The ambition of scenario 1 creates a compelling narrative as comprising a centre of national, and even international significance, whose positive long-term impacts are tangible. However, its scale will likely require growth over time, through a number of iterations and will require major advocacy and investment, and therefore be more challenging to deliver. This brings opportunity to begin with a core focus of City Edge for a primary centre, more considered in scale than that of scenario 1, that can bring in attributes from the other scenarios.

In tandem with this, there are many components from Scenario 3 that can be brought forward, such as the support for 15-minute city principle through a balanced employment approach, and the optimisation of liveable features from the structural components – such as the Camac re-naturalisation.

Together, scenarios 1 and 3 provide a compelling support for the introduction of many of the structural components – most notably the introduction of a western orbital public transport corridor. A combination of scenarios 1 and 3 will help deliver a capacity and scale of development that will optimise the use of centrally located brownfield land in line with national policy, creating the conditions for greater economic return on capital investment in strategic infrastructure provision in City Edge. Given the importance of City Edge's current role, the need for cities to support necessary industry within them, and the importance of existing businesses and a 'just transition' there will always be a place for the urban industry-led approach of scenario 2.

The creation of an attractive setting will be vital, either to attract businesses and employees or residents, or visitors – there is a need to optimise the 'urban stickiness' factor. This will also help to catalyse further growth and intensification.

The increase in employment and residential development at Naas Road will support public transport investment across all three scenarios. Key will be ensuring that transport-orientated development not only focuses around nodes, but also uses new and enhanced transport to catalyse development.

Through developing the preferred scenario, each of these key components has been massaged into a strong and robust framework that creates a genuinely aspirational and mixed piece of city that can support the wider Dublin region.

The preferred scenario was subject to public consultation to gain feedback on the proposals at this stage.

3.6.4 PREFERRED SCENARIO COMPONENTS

MAJOR CENTRE & EMPLOYMENT
Create a major urban centre with a mix of uses, blending employment uses with residential, that can evolve and grow over time

URBAN INDUSTRY
Create clusters of urban industry and workspaces around the strategic road network, to intensify and spatially consolidate these

RESIDENTIAL-LED MIXED-USE
Create a series of inter-connected residential-led mixed-use neighbourhoods across City Edge with supporting employment activity

ANCHORS
Catalytic anchors and uses to support and attract local and global visitors and investment.

MEANWHILE SPACES
On demand temporary / short / medium term spaces and building co-workings, share kitchen, open workshop

SOCIAL AMENITY SPACE & INFRASTRUCTURE
New buildings catering to the new residents and existing communities.

3.6.5 PREFERRED SCENARIO SPATIAL CONFIGURATION

Capacity / Growth figures	
Potential Population	75,000 – 85,000
Potential Employment	65,000 – 75,000
Population growth over time	30-40% delivery by 2040 60-70% delivery by 2070
Employment growth over time	30-40% delivery by 2040 60-70% delivery by 2070
Resources and infrastructure requirements	Schools Park areas Community infrastructure Retail Public transport and active travel facilities Utilities upgrade and provision

The spatial manifestation of the preferred scenario places a major centre at the crossroads of Naas Road and Kylemore Road / Walkinstown Avenue, with a series of nodes across City Edge comprising a mix of uses from urban industry to residential to high density employment and workspace. The spatial configuration relates directly to existing, planned and proposed public transport, and to existing and proposed natural infrastructure. These will help form the setting in which the evolution of City Edge can prosper, supporting sustainable growth in the area.

3.6.6 CAPACITY / GROWTH FIGURES

The table above sets out the quantum of development that has been modelled for within the Strategic Framework. With investment in the area and consequent growth in confidence, allied with certainty regarding the role of the State and the private sector, growth could occur at a faster rate. That scenario will also be fully supported.

Figure 30. Indicative spatial configuration, including potential for a major commercial centre around Kylemore Road / Naas Road.

4 SPATIAL FRAMEWORK

4.1 STRATEGIC APPROACH

4.1.1 INTRODUCTION

The City Edge project has an important role to play in the context of the wider city of Dublin, its regional context and ultimately nationally and internationally. The strategic approach must therefore coordinate with these contexts, support them, and also benefit from them.

4.1.2 STRATEGIC APPROACH

Strategic land-use approach
Land use within City Edge responds to the National, Regional, and local planning context, combined with the potential for growth, whilst recognising the important activities currently within City Edge. Acknowledging the existing industry and the important role these lands play to the operation of Dublin, land use is structured through principal types of employment in the form of urban industry, office-based employment, and urban workspace; alongside residential-led mixed-use. The major centre brings a focus for land use intensification, with the potential for employment and residential intensification across the other nodes existing in parallel.

Strategic spatial approach
The spatial approach responds primarily to transport infrastructure, and coordinates with the proposed transport as part of the NTA's Draft GDA strategy 2022-2042, and with propositions as part of City Edge. Transport Orientated Development is key here. The major centre operates at the heart of City Edge, with a series of nodes offering local areas of focus across City Edge. At the fringes of City Edge the existing neighbourhoods are given a direct relationship to the emerging neighbourhoods within City Edge.

Operating at a National and Regional Scale
The potential scale of growth identified for City Edge places it at a scale comparable to cities such as Limerick, and means its role and significance can be considered at both a regional and national scale. It therefore must consider itself simultaneously symbiotic to the city of Dublin, whilst also considering its role as part of the national and regional structure of cities, and sectors.

City-scale interrelationships
City Edge's primary relationship is with the other major centres in Dublin, looking to the City Centre and to Dublin Docklands. Secondarily it has a wider Dublin region relationship to its satellite centres. Through both of these, the consideration of public transport connectivity, economic sectors, and approach to intensification have all been considered.

Growth over time
As outlined in the Vision, there is potential for City Edge to accommodate 75,000 – 85,000 people and 65,000 – 75,000 jobs. Naturally, this growth is anticipated to come forward incrementally, spread over time, and requires infrastructure to both catalyse it and to keep pace – from natural infrastructure, to public transport, and community, culture & arts infrastructure. The Framework establishes the general configuration for the wider area, primed with the infrastructure necessary.

These growth figures have been based on high-level capacity testing of City Edge, using typology precedents for the core land use types, and taking account of likely long term fixes. These figures have been used to identify indicative requirements and capacity for movement, utilities, green space, community and cultural & arts infrastructure.

The successful delivery over time of a new urban quarter based on the principles of the Liveable City, will need to ensure that the delivery of infrastructure, and associated investments, are aligned with the Strategic Framework growth trajectory. The ongoing monitoring of both growth and infrastructure delivery will be key to delivering liveability, combined with ensuring that the Strategic Framework remains adaptive in response to both current and future trends.

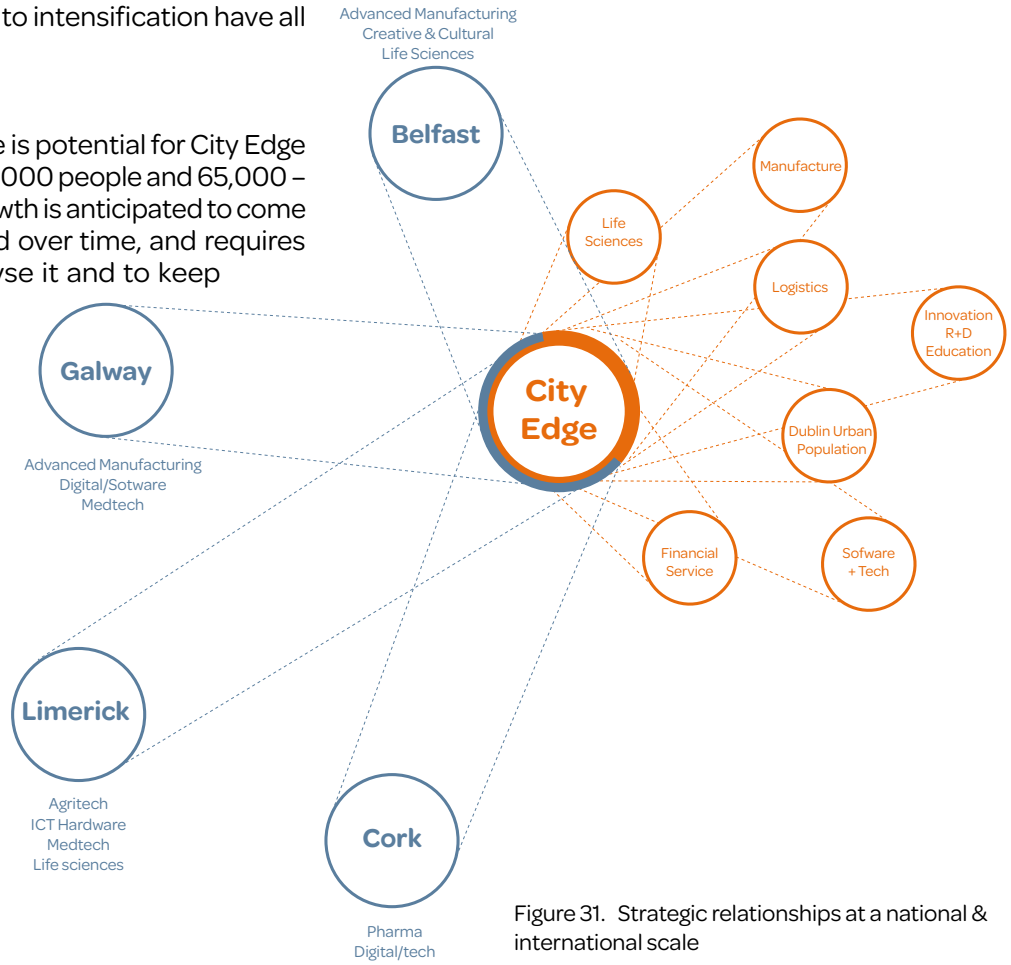


Figure 31. Strategic relationships at a national & international scale

4.1.3 STRATEGIC LAND USE FRAMEWORK

Major components and uses
City Edge must comprise a city-mix of uses that support diversity and resilience of employment and residential uses, whilst delivering the necessary supporting resources and community infrastructure, combined with the ability to respond to future challenges. At a strategic level for the Framework the major uses are considered to be:

- Residential-led mixed-use
- Employment-led mixed-use
- Urban industry

Land uses are set out in more detail later in the Framework, however, at the highest level, the defining element is the mix and interrelationship of uses. There is likely to be a varied mix also of types of use within these categories, and this variety will help to future proof City Edge by giving it a broad appeal and the ability to respond to future changes.

A major new centre
The Strategic Framework identifies the opportunity to deliver a major new centre for Greater Dublin, delivering employment, commercial, retail, leisure, and cultural resources, complimented by a balanced residential offer. Active travel focused, with new radial and orbital public transit to support the scale of the opportunity, and ensure the new centre has a polycentric and synergised relationship with other major centres in Greater Dublin.

This major centre will be supported and complimented by a network of local centres across City Edge. In combination, they are configured to create a series of liveable 15-minute neighbourhoods, whose mix and offers are complimentary, and honed to their contexts.

Catalysts and anchors
Catalysts and anchors may come in the form of particular uses – such as a major employer or industry sector – or

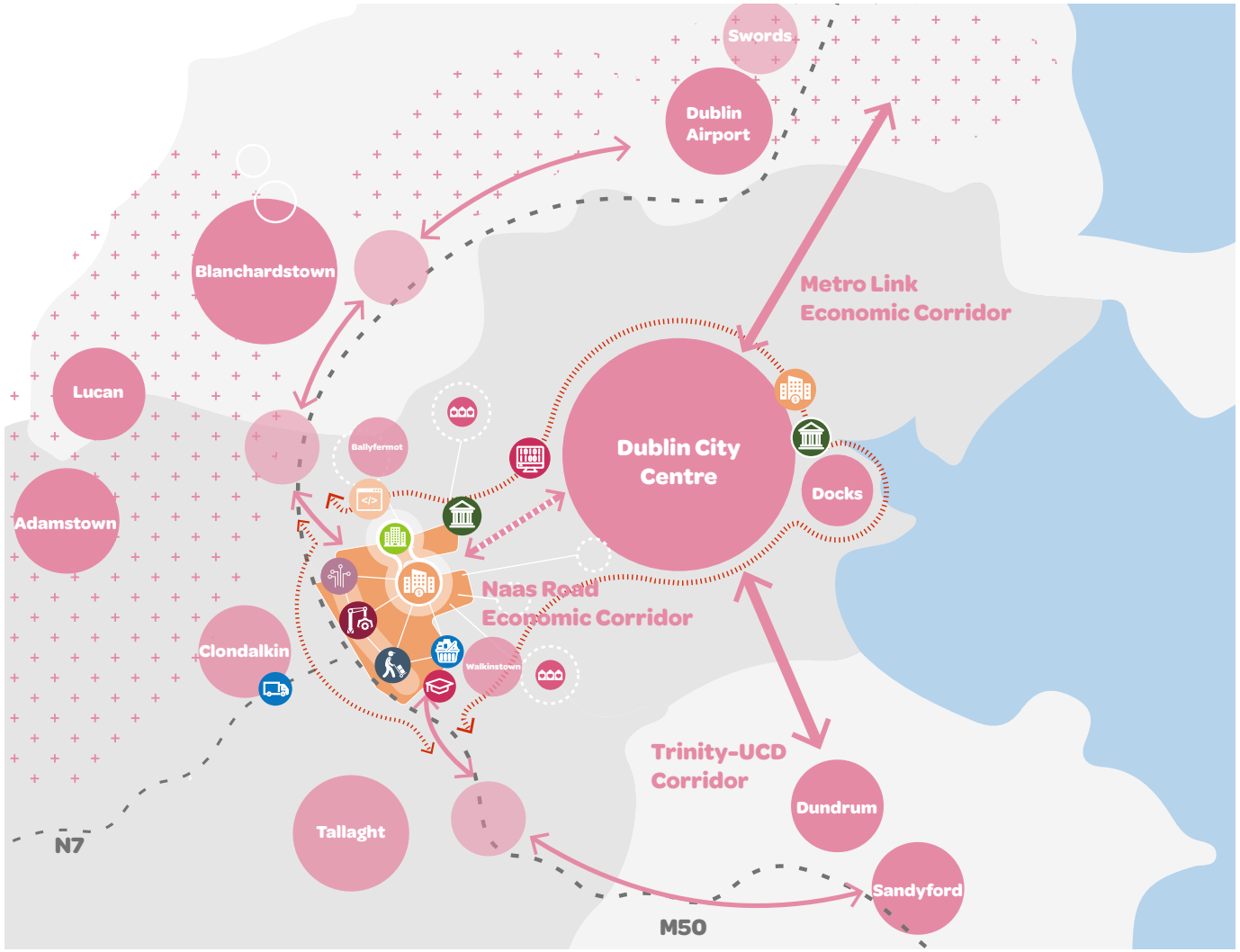


Figure 32. Strategic relationships

in the form of infrastructure that promotes growth. The Framework has been established to allow for these to be accommodated and directs them to the major centre and nodes across City Edge, highlighting that coordinated delivery of catalysts and anchors can generate and support sustainable growth.

Wider spatial connections
For City Edge to operate successfully in the regional context, it must plug into the wider spatial network, taking opportunity from existing movement connectivity, but also by promoting the creation of new infrastructure. Transport Orientated Development is the main driver of growth, and the evolution of City Edge relies on wider connectivity to support it.

4.2 STRATEGIC SPATIAL FRAMEWORK

The Framework is set out through a series of layers that together form a strategic whole. In order to deliver the spatial construct of the Framework, a series of core components have been identified, which provide the skeleton that's needed to unlock the full potential of City Edge. These would typically not be deliverable by individual landowners, but are key in helping to create the place.

The exact nature of these core components may evolve in parallel with further detailed investigations into the Framework in later Phases, but represent the key infrastructure that can support and catalyse growth.

Figure 33. Coordinating infrastructure with growth to create a beautiful piece of city, Zu Neuen Ufern, Siegen, Germany

4.2.1 CORE COMPONENTS

River Camac Re-naturalisation
Deculverting and renaturalising the river Camac and its tributaries to help with climate change resilience, flooding, and to create a positive setting for future growth.

Enhancing the Grand Canal
Create a more attractive setting for the Canal, enhance active travel routes along it, and enhance biodiversity.

Introducing & Enhancing Green & Blue Space
Introducing new parks and enhancing existing parks in coordination with the re-naturalisation of the river and enhancing of the canal, to help with climate change resilience and also create a positive setting for future growth.

Creating a Tymon to Phoenix Greenway
Link to two significant assets in the vicinity of City Edge whilst creating green links both for active travel and for ecology.

Undergrounding Overhead High Voltage Lines
Increase the developable land available and improve the setting of future growth by undergrounding overhead high voltage lines.

Expanding the sewer network
Supporting future growth by expanding the sewer network whilst coordinating with a City Edge-wide SuDS strategy.

Setting out the street network
Create a legible movement network for vehicles that responds to accessibility requirements for different uses, and provides a parallel cycling network.

Creating a cycle network
Creating an attractive active travel and cycling network that encourages modal shift away from cars.

Introducing orbital connectivity
Proposal to augment Dublin's orbital connectivity with two routes passing through City Edge.

Introducing New Stations & Luas to Kimmage
Coordinating with the NTA's Draft GDA Strategy for 2022-2042 to create new stations and stops within City Edge that can catalyse and support growth.

Introducing New Interchanges
Taking the opportunity to coordinate interchanges between modes across City Edge, and to integrate these with new developments.

Setting Out Centres & Nodes
Creating centres and nodes that respond to transport infrastructure and green space and amenity, with a major new centre at Naas Road.

Setting Out Land Uses
Coordinating land uses across City Edge to create a cohesive set of districts that support one another.

4.3 RIVER CAMAC RE-NATURALISATION

4.3.1 DECULVERTING AND RE-NATURALISING THE RIVER

Current situation

- There is significant flood risk across City Edge, particularly within the catchment of the Camac, which need to be addressed to unlock future regeneration potential – new sensitive development would not be able to come forward within these areas, as per SFRA
- The Camac river is culverted in places
- The River Camac Flood Alleviation Scheme (FAS) is now in progress,funded by Office of Public Works (OPW), aimed at enhancing the flood resilience of the Camac

Proposal

- To set the river within a parkscape and create amenity spaces and active travel routes along the river
- To renaturalise the river as much as possible as part of the wider River Camac Flood Alleviation Scheme.
- To reduce flood risk through naturalisation
- To enhance biodiversity through naturalisation
- Climate change adaptation and mitigation

Challenges

- Land take required to re-naturalise the Camac and its tributaries
- Responding positively to climate change adaptation and mitigation, with the timely the delivery of resilient infrastructure
- Balancing ecology & amenity, with considerations such as sharing spaces with nature, artificial lighting, and flood alleviation requirements

Figure 34. River as amenity, set within a park

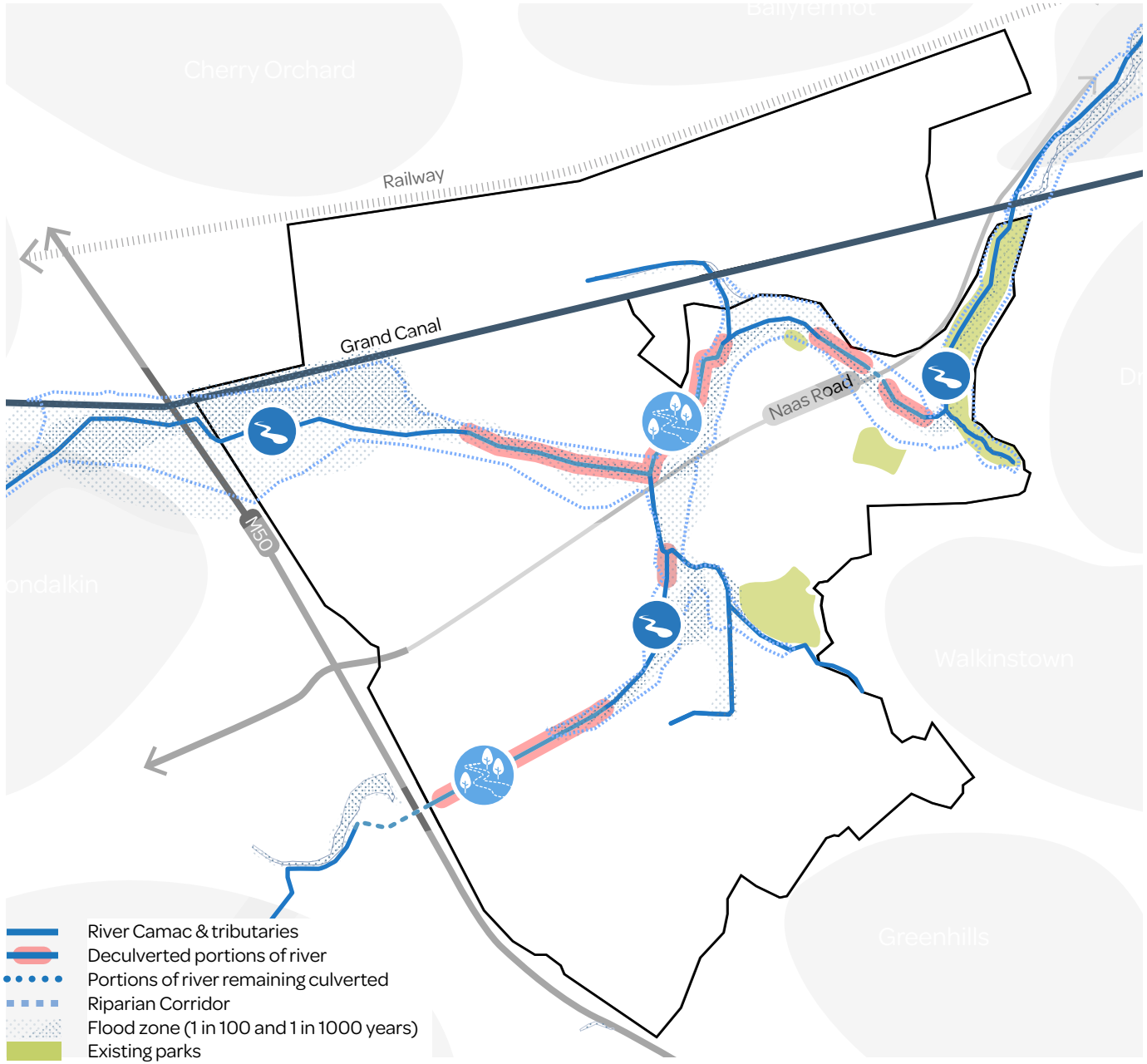


Figure 35. Camac re-naturalisation strategy

4.4 ENHANCING THE GRAND CANAL

Current situation

- The Grand Canal represents a significant amenity in the area but is not addressed in the current land uses
- There is a lack of engagement with the water along the length of the Canal within City Edge
- Active travel routes along its length are not well over-looked and are underutilised

Proposal

- To capitalise on the amenity potential of the Grand Canal by setting it within a linear park, creating a destination and an attraction
- To create a setting for the canal to have recreational uses on the water in association with uses at the water edge
- To improve the active routes along it for walking and cycling by improving pathways and by creating activity along its length either through active commercial uses or spaces
- To create an improved focal point, with development to engage directly with the water and open spaces along its length, with a new local centre fronting the canal
- Dedicate space for a biodiversity and ecology corridor

Challenges

- Land take is required for the linear park
- Balancing the recreational and amenity facilities of the Canal with enhancing ecology and biodiversity

Figure 36. High density of activity - Paddington Basin, London

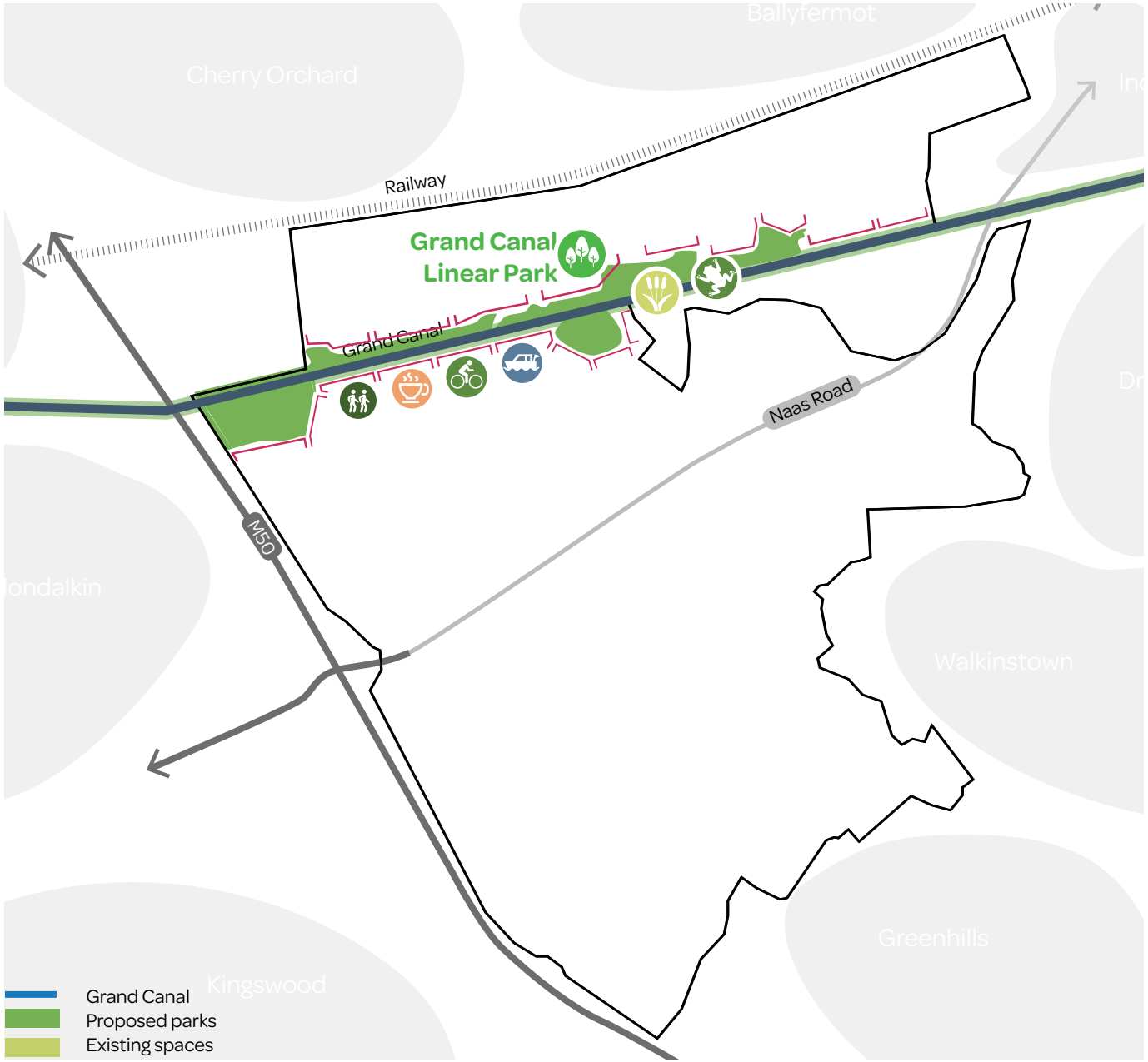


Figure 37. Grand Canal strategy

4.5 INTRODUCING & ENHANCING GREEN & BLUE SPACE

Current situation

- Currently a significant lack of green space and green cover in City Edge
- Notable green amenity spaces in City Edge at Lansdowne Valley Park, around Drimnagh Castle, and at Walkinstown Avenue Park

Proposal

- Introduce new green spaces to support growth in population and jobs as well as support climate change resilience and enhance biodiversity
- Create linear parks along the Grand Canal and River Camac that correlate with the water corridors and support resilience to flooding and sustainable drainage
- Enhance existing parks at Walkinstown Avenue and Lansdowne Valley
- Improve amenity, biodiversity, and increase climate resilience through greening the of City Edge
- Create a greenway linking Tymon Park to Phoenix park, both for recreational use and for a biodiversity corridor
- Create a green link across the M50 to Ballymount Park to offer access to a wider amenity offer

Challenges

- Land take is required
- Balancing amenity & ecology

Figure 38. Boulougne-Billancourt, Paris

Figure 39. Green space strategy

4.6 CREATING A GREENWAY FROM TYMON TO PHOENIX

Current situation
- Lack of ecological, cycling and pedestrian connections connection between Tymon Park and Phoenix Park
- The railway corridor creates a barrier to north-south connections

Proposal
- Create a greenway connection and a continuous eco-logical corridor between the two parks
- Simultaneously provide an active travel corridor whilst also providing amenity and green infrastructure, and supporting enhanced biodiversity
- Connect between existing parks and river courses to optimise use of existing green assets
- Utilise existing corridors and enhance these to focus on greening as opposed to vehicular connectivity

Challenges
- Land take and negotiations with landowners
- Balancing biodiversity and amenity - such as with the lighting strategy and space allocation
- Dimension of existing streets.

Figure 40. Street greening with space for walking and cycling

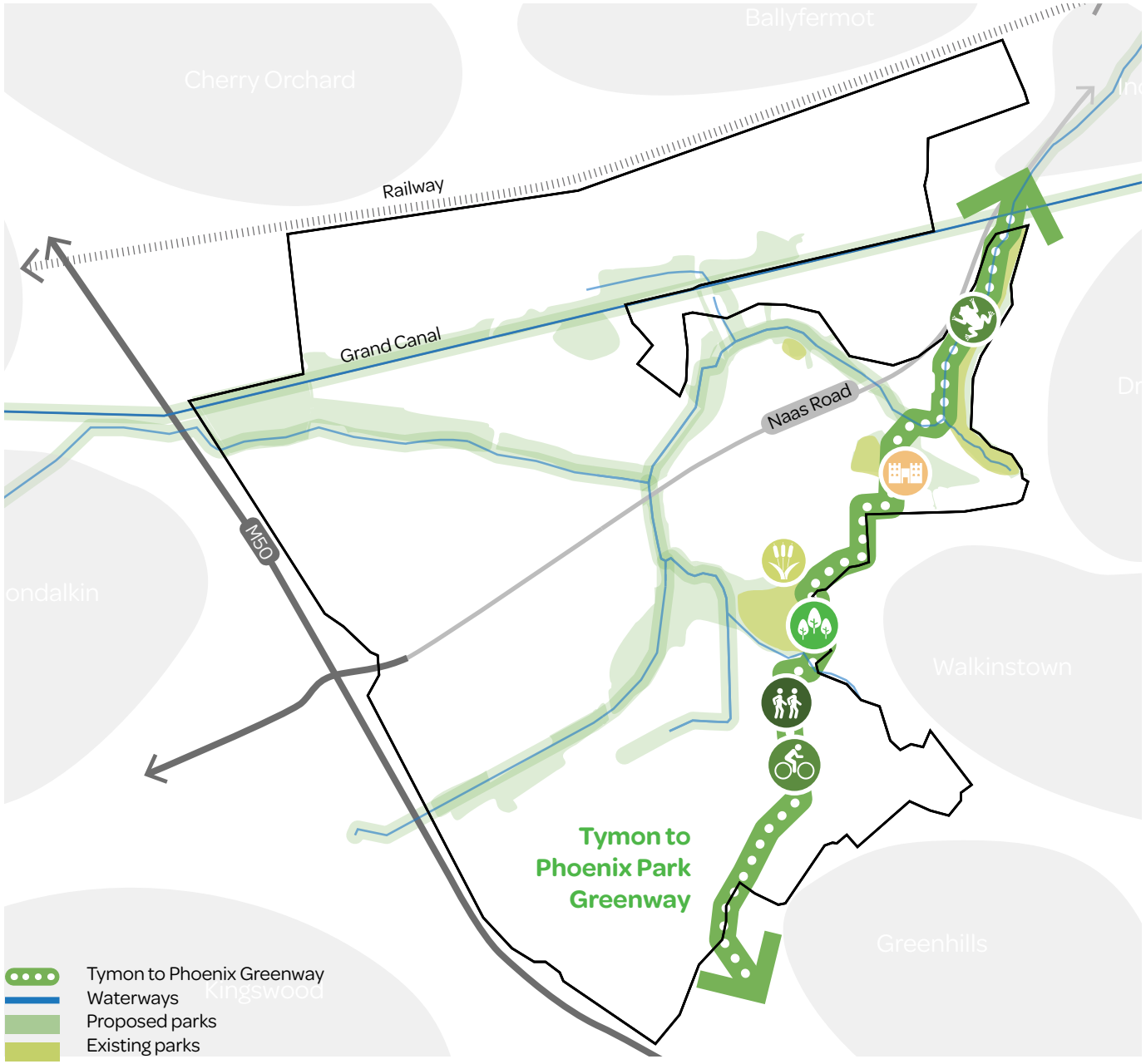


Figure 41. Green space strategy

4.7 UNDERGROUNDING OVERHEAD HIGH VOLTAGE LINES

Current situation

- Inchicore ESB substation is key infrastructure for the Dublin region that will need to be retained
- The substation serves as the confluence of the 110KV and 220 KV overhead lines from the South and West, with the high voltage transmission heading eastward via underground cabling.
- Pylon corridors are a constraint to development potential, with exclusion zones for certain use types and consultation zones along their length
- Pylons are perceived as undesirable visual obstacles for an urban context, with negative health implications
- A number of 38kV lines are already undergrounded in City Edge

Proposal

- To underground overhead high voltage lines from the Inchicore substation outwards to Walkinstown Avenue Park in the south, and to Park West Industrial Park in the west (exact routing to be considered at a later stage)
- Increase developable area and create an attractive parkscape along the Canal through undergrounding, by releasing up to 15-19 ha in the priority areas, or a total of 30-40 ha across the whole of City Edge
- Create a more attractive setting for potential businesses and residents
- Increase environmental amenity along undergrounded sections

Challenges

- Continuity of electricity supply
- Maintenance
- Delivery
- Range of costs depending on length and nature of undergrounding
- Multi-agency coordination required

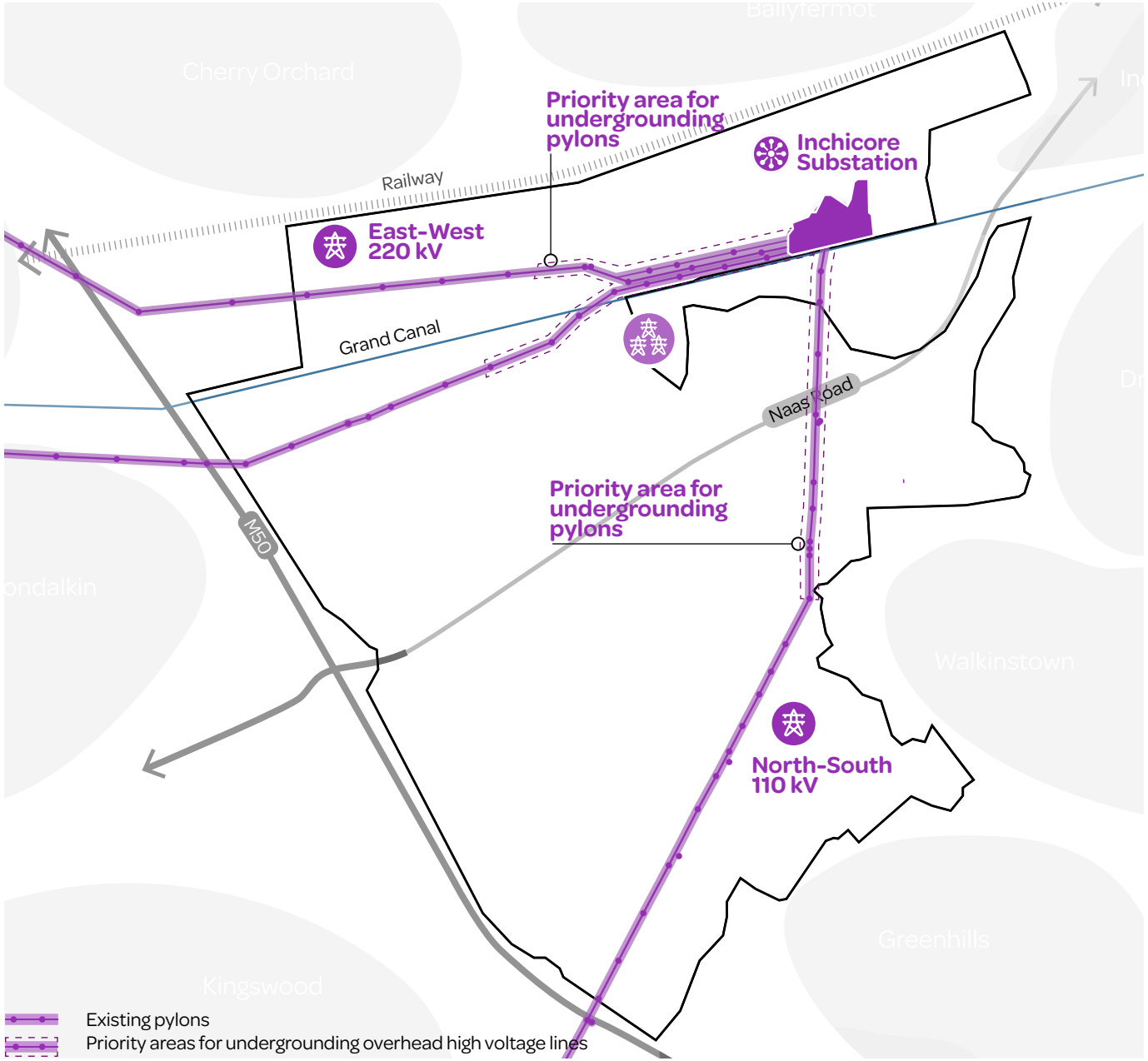


Figure 42. Undergrounding overhead high voltage lines strategy

4.8 EXPANDING THE SEWER AND POTABLE WATER NETWORKS

Current situation

- The 9B Sewer is operating close to its design capacity and will struggle to accommodate further increase in foul discharge.
- City Edge is prone to fluvial, pluvial, and sewer flooding, exacerbated by surface water runoff
- City Edge is predominantly hard standing, increasing water run-off speeds.
- The Greater Dublin Strategic Drainage Study (2005) identified a number of options for upgrades within the 9B sewer system:
  - New Combined Storm Overflow (CSO)
  - Overflow pipeline from Ballymount CSO to Grand Canal stormcell
  - Upsize the connection of the 9B sewer and the 9C sewer
- The River Camac Flood Alleviation Scheme (FAS) is now in progress and funded by Office of Public Works (OPW).

Potential Options

The following options as standalone measures or in combination along with those contained within the GDSDS are to be considered in order to provide additional capacity in the 9B Sewer catchment.

- Reinforcement of the existing 9B Trunk Sewer
- Provision of Stormwater Storage
- Reduction in surface water run-off by introduction of sponge city principles through coordinated green infrastructure and SuDS across City Edge

An opportunity for co-ordinated delivery with the WSP (Water Supply Project) for potable water

Challenges

- Routeing for the additional trunk sewer will need to be considered further at Statutory Plan stage, in consultation with Irish Water and consider other utility corridors and transport infrastructure within City Edge.

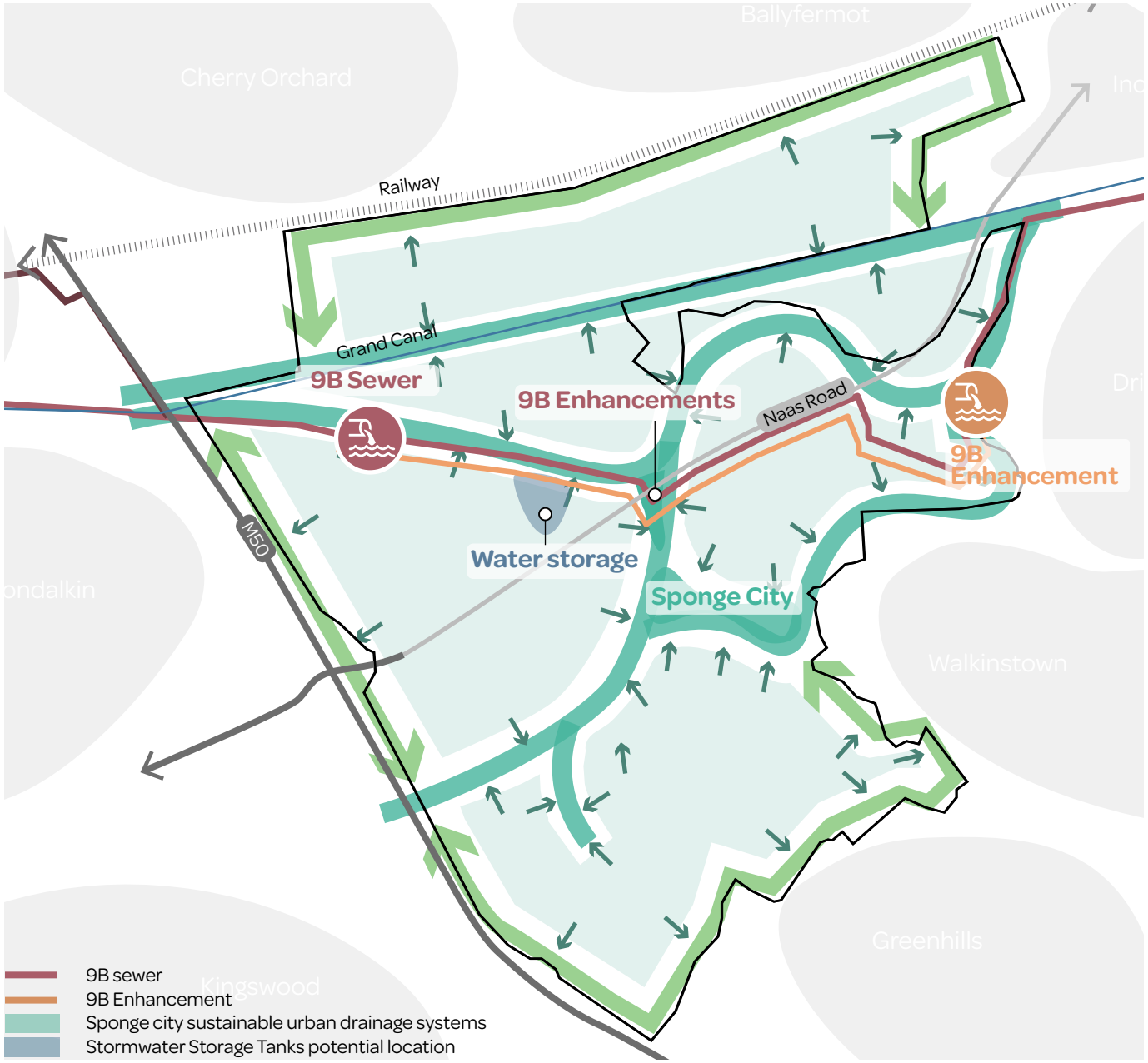


Figure 43. Water management strategy

4.9 SETTING OUT THE STREET NETWORK

Current situation

- A number of connections to be completed have been highlighted in Development Plans for SDCC and DCC
- BusConnects routing will change the nature of streets
- Cycle infrastructure is limited
- Naas Road has an important role as a corridor for movement in an east-west direction.

Proposal

- Set out a clear street hierarchy for City Edge in the context of the wider movement network
- Recharacterise the Naas Road into three sections, to ensure the maintenance of its role in the strategic road network
- Complete missing links in the street network
- Introduce a cycling network through cycleways in every street, as well as cycleways in greenways such as along the Grand Canal and Camac river

Challenges

- Encouraging modal shift away from private car use to minimise pressure on roads from new development
- Accommodating modes side by side in certain areas of compromised width

Figure 44. Segregated cycle lanes and street greening incorporated into a busy street

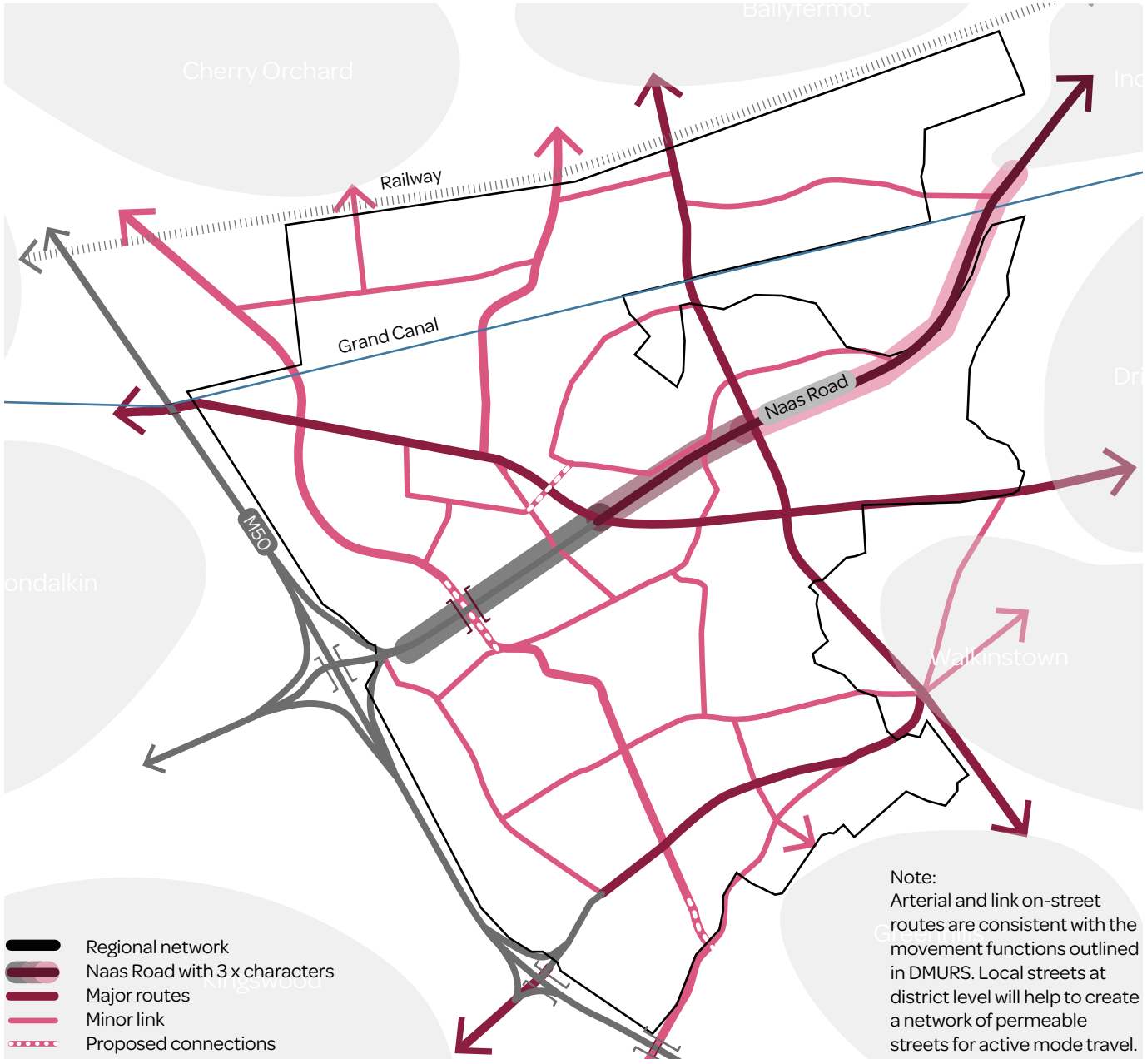


Figure 45. Street network and high streets hierarchy

4.10 CREATING A CYCLE NETWORK

Current situation

- Cycle connectivity is poor across City Edge, with only intermittent provisions of dedicated cycleways

Proposal

- Introduce a cycle network along both dedicated green-ways and alongside all roads
- Segragate cycleways and create a safe and attractive cycling environment
- Provide cycling infrastructure that supports the modal shift away from car usage, including storage and parking solutions

Challenges

- Encouraging modal shift away from private car use to minimise pressure on roads from new development
- Accommodating modes side by side in certain areas of compromised width

Figure 46. Urban Green Cycling Route, Queens Plaza, New York

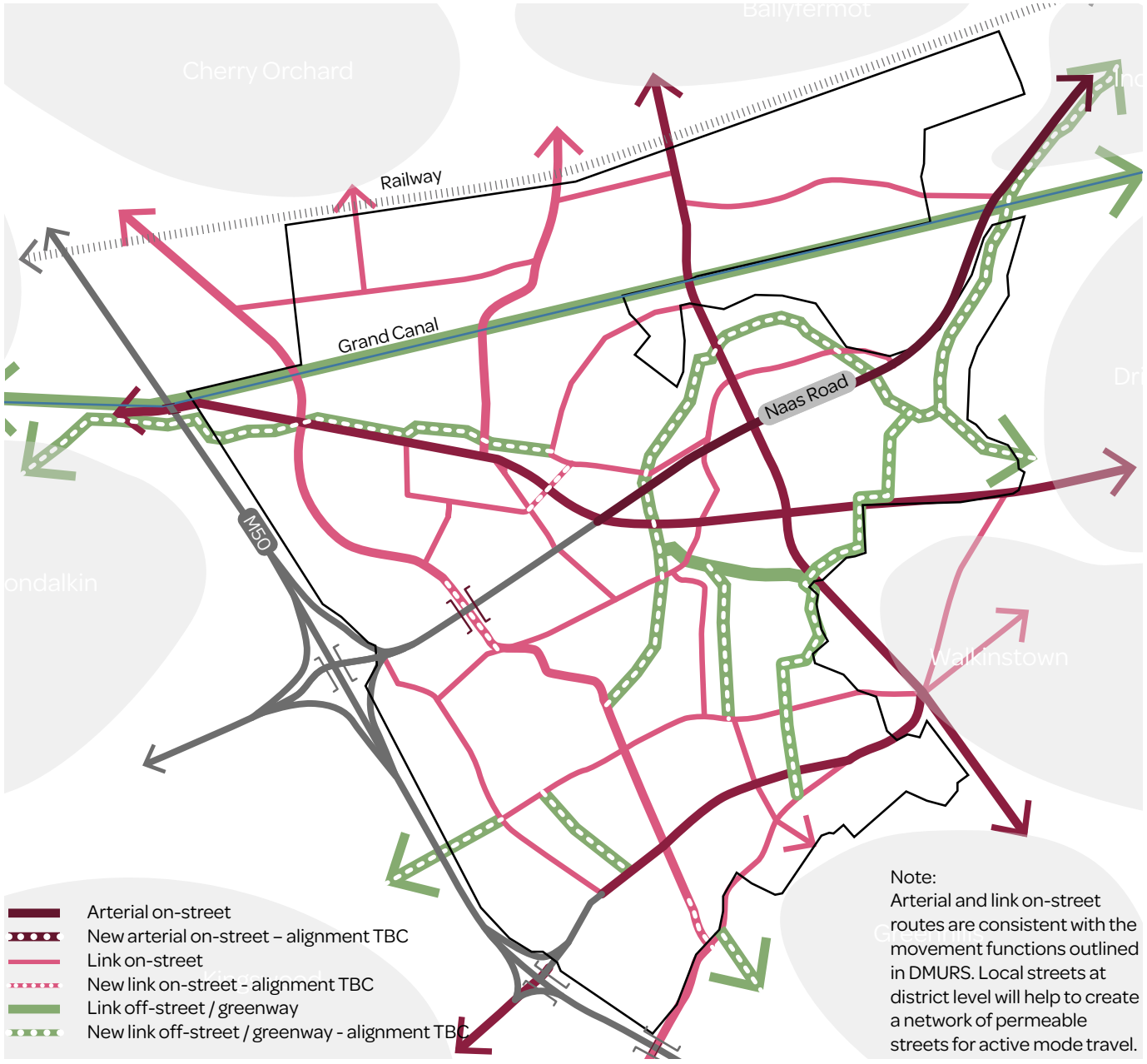


Figure 47. Street network and high streets hierarchy

4.11 INTRODUCING ORBITAL CONNECTIVITY

Current situation

- There is currently no high-capacity orbital public transport connection around Dublin
- BusConnects proposals exist to introduce some orbital connectivity
- Public transport is currently focused on radial

Proposal

- Introduce two new public transport orbital routes, an inner and an outer route, passing through City Edge as part of wider, Dublin orbital connections.
- The inner orbital could be a higher capacity mode to support the new major centre
- These routes would accommodate public transport and whilst they may begin with higher frequency bus routes, they would retain the ability to accommodate higher capacity modes such as Luas lines or a metro in the future.
- This additional public transport would connect the Naas Road into its surroundings and act as a catalyst for growth along these new transport corridors.

Challenges

- Delivery of infrastructure to encourage aspirational growth
- Delivery of infrastructure that allows upscaling capacity in the future in relation to growth

Figure 48. Mixed use and multi-modal interchanges. Utrecht, The Netherlands

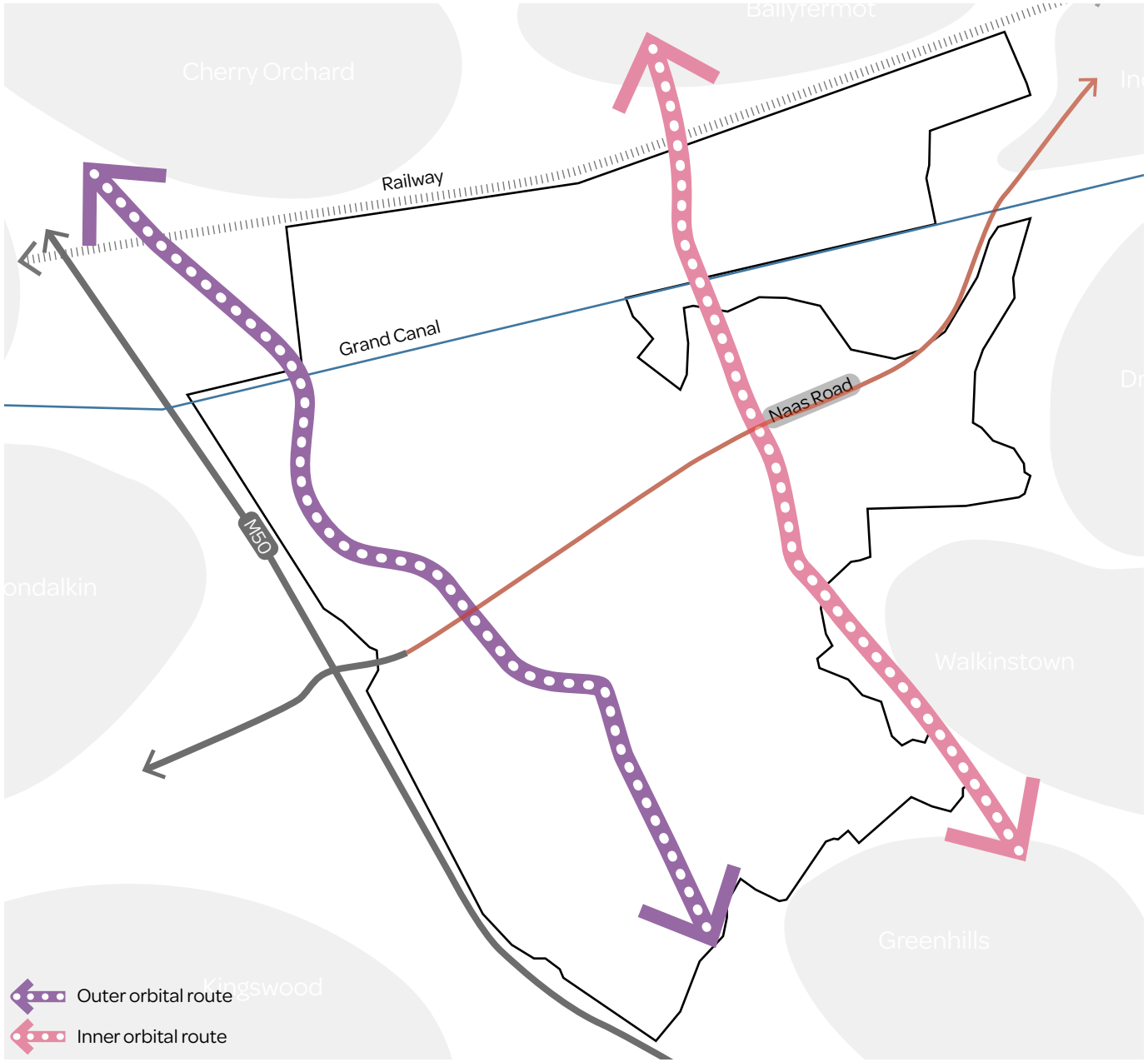


Figure 49. Proposed orbital connectivity

4.12 INTRODUCING NEW STATIONS & LUAS TO KIMMAGE

Current situation

- The NTA's GDA strategy 2022-2042 sets out provision for new Luas stops, a new Luas line, and a station at Kylemore
- Three Luas line stops currently within City Edge, with a heavy rail station on the periphery

Proposal

- Accommodate a new station at Kylemore
- Accommodate a new Luas stop on the Naas Road, located to the west of the Hamburger junction
- Potential to direct the proposed Luas Kimmage line through City Edge and accommodate stops around Walkinstown and Calmount Road

Challenges

- Delivering transport infrastructure to catalyse growth rather than retrospectively responding to growth

Figure 50. Public transport interchange. Tilburg, The Netherlands

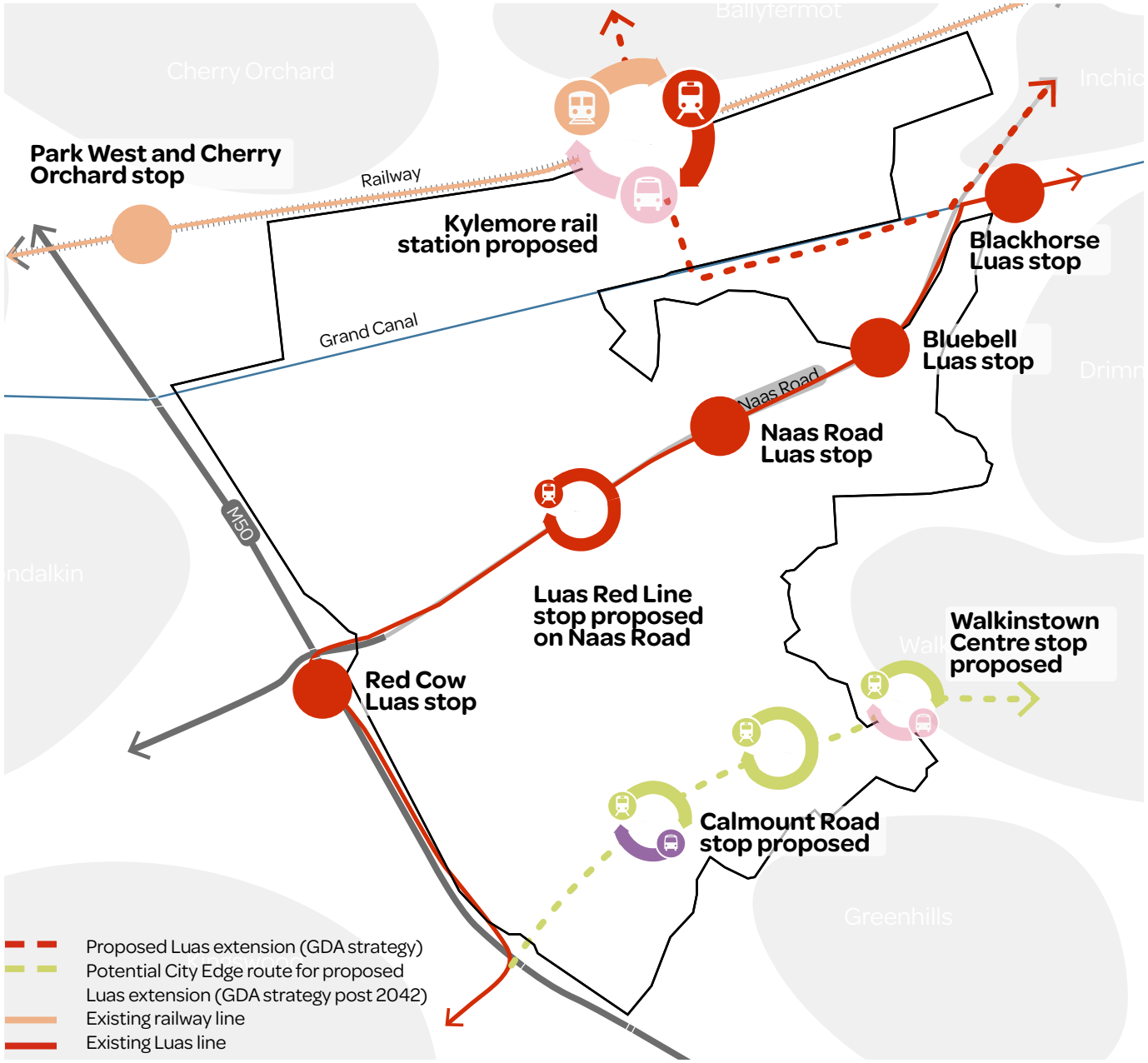


Figure 51. New public transport stations

4.13 INTRODUCING NEW INTERCHANGES

Current situation

- The NTA's GDA strategy 2022-2042 sets out provision for new BusConnects routes through City Edge, alongside Luas extensions and new routes

Proposal

- Create new interchanges and associated hubs at Kylemore station and Naas Road Luas stop that coordinate with new development
- Accommodate BusConnects stops and set up interchanges with other modes
- Create interchanges between modes and with the proposed orbital connections
- Use the interchanges to catalyse development around them, promoting Transport Orientated Development

Challenges

- Accommodating interchange with future planned transport provision

Figure 52. Integrated modes alongside neighbourhood resources, Rotterdam-Alexander metro & rail interchange

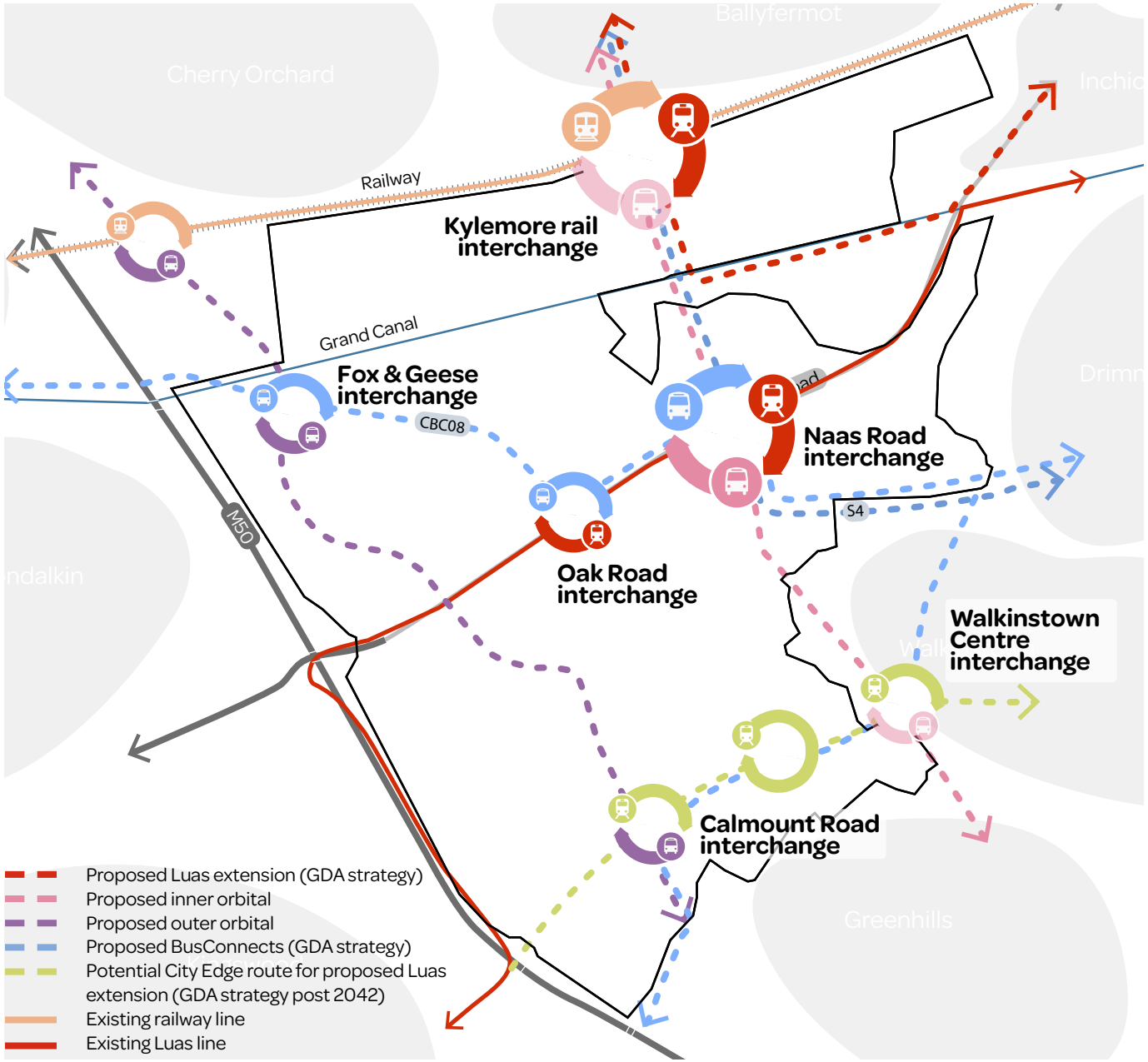


Figure 53. New public transport stations

4.14 SETTING OUT CENTRES & NODES

Current situation

- No clear centre or focus of activity exists in City Edge
- Existing neighbourhoods, centres and nodes exist at the periphery of City Edge, which can related directly to City Edge

Proposal

- The locations for the centres and nodes have been developed to take advantage of transport connectivity, access to green space and amenity, and in order to support increased intensification and mix of land use
- Introduce a major new centre focused at the crossroads of Naas Road and Kylemore Road
- Introduce a node and high street emanating from the proposed Kylemore heavy rail station, stretching to the south to link with the Naas Road centre
- Introduce smaller nodes in relation to transport infrastructure:
  - west of Killeen Road, between the Grand Canal and Camac river, on the BusConnects corridor
  - south of Knockmitten Lane in relation to the proposed Luas stop on Naas Road
  - west of Walkinstown, an extension of the existing node
  - linear node along Calmount Road, east of Ballymount Avenue
  - linear node along Oak Road and Ballymount Avenue focused on employment

Challenges

- Catalysing the types of development to support the approach to land use in the Framework

Figure 54. Centres and nodes

4.15 SETTING OUT LAND USES

Current situation
- Predominantly industrial and wholesale employment uses
- Small pockets of residential

Proposal
- Evolve the area to accommodate higher density employment alongside residential and community infrastructure, whilst accommodating existing uses
- Create a commercial focus of high density employment activity focused around the new major centre at Naas Road, and at Kylemore
- Create a concentration of industrial and employment uses along the eastern side of the M50 corridor
- Create a series of residential-led mixed-use nodes that focus ground floor commercial activity, Including urban workspace, around high streets and transport interchanges, with residential and employment uses filling the spaces between

Challenges
- Catalysing the types of development to support the approach to land use in the Framework

Figure 55. New active centre, Amsterdam Zuidas, The Netherlands

Figure 56. Illustrative uses map

4.16 SPATIAL CONFIGURATION

Illustrative Framework Plan
This plan brings together the layers of the spatial framework to demonstrate how they perform as a collective whole. The activities and characters of the plan are figuratively included, offering a flavour of the potential that City Edge has to offer.

City Edge has been divided into five districts, introduced in the map below. The scale of these districts presents the ability to deliver a self contained development outcome. Defining elements of the districts include; land use, centres & high streets, the movement network & natural infrastructure.

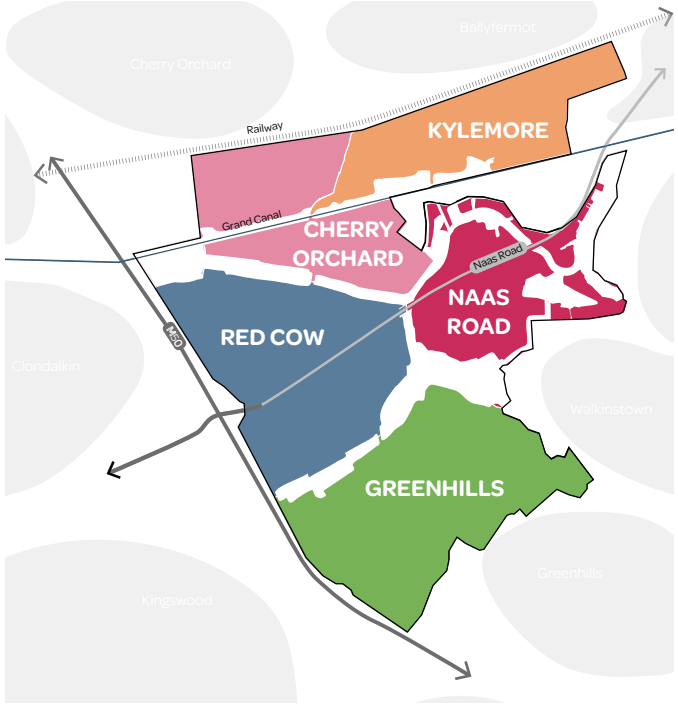


Figure 57. Districts

Figure 58. Illustrative spatial configuration and character map

5 HOUSING

5.1 HOUSING VISION

5.1.1 VISION

To foster vibrant, balanced and sustainable residential communities within each of the City Edge Districts offering a diverse choice of high-quality homes and tenures while ensuring that residential development is of an appropriate scale.

5.1.2 HOUSING PRINCIPLES

- Seek a balanced choice of tenure types within each City Edge District with a contribution from each residential and mixed-use residential block.
- Seek a mix of dwelling types to cater for the needs of single occupants, sharers, students, families and older people across each neighbourhood block.
- Seek a mix of dwelling sizes including 1, 2, 3 and 3 bed+ homes
- Ensure that all housing development accords with 15-minute city principle in terms of access to social infrastructure and a mix of uses including parks, open spaces, convenience stores, childcare, employment and public transport.
- Ensure that residential and mixed-use residential developments are of a human scale and density to support good placeshaping and connected residential communities while promoting compact city principles.
- Make efficient use of City Edge in a manner that reflects its brownfield location within the Metropolitan Area of Dublin City, within a strategic development corridor and with access to existing, proposed and planned high-quality public transport.

Figure 59. The close proximity of housing, services, office and public realm create a vibrant t and liveable neighbourhood. King's Cross, London

5.2 HOUSING DELIVERY

Bringing forward the optimal housing options within City Edge is a primary component of the regeneration project. The area is ideally located to accommodate a significant uplift in housing for which a strong demand presently exists both at city, regional, and national levels. Over recent times, housing in Ireland has been impacted by issues including affordability, lack of supply, increasing demand in general and social housing need, as well as poorly located homes with limited access to services. At a strategic level, the roles of the State and private sector are significant in the delivery of housing and commentary around these are set out below together with housing delivery models.

5.2.1 THE ROLE OF THE STATE AND THE PRIVATE SECTOR

The Role of the State

Responsibility for housing, at a government level, is given over to the Department of Housing, Local Government and Heritage (the DHLGH) whose remit for housing and planning is to support the sustainable and efficient delivery of well-planned homes and vibrant inclusive communities. The DHLGH works with a number of different actors including the Land Development Agency (LDA), approved housing bodies (AHBs), local authorities (LAs) and the Housing Agency. The most recent policy document prepared by the government in tackling the housing crisis is entitled 'Housing for All (2021)' which, in summary, seeks to improve Ireland's housing system and deliver increased housing of all types up to the year 2030.

The establishment of the LDA will direct a focus on delivering housing on State-owned lands and over the longer term it will look to drive strategic land assembly while working with both public and private sectors. There are lands within the City Edge area that are in state ownership and which the LDA are currently assessing the future development potential for. The state led delivery of homes on these lands can make an important contribution to delivering much needed new homes and the City Edge vision.

Amongst their various responsibilities, Local Authorities have a key role to play in relation to the provision and management of housing, and in particular, social and affordable housing. Within City Edge, the future delivery of social and affordable housing as per Part V of the Planning and Development Act 2000 (as amended), coupled with SDCC and DCC delivering homes on the small amounts of land in their ownership within City Edge area, will play an important role in housing delivery and in achieving a mixed and balanced community.

In addition, Approved Housing Bodies increasingly play an important role in social housing provision. These bodies provide and manage social rented housing and presently have a stock of over 30,000 homes in Ireland with 520 AHBs in operation. The Housing for All report sets out the intention for the State to play an increased role in building more social and affordable housing in Ireland.

The Housing Agency is a government body that works in tandem with the DHLGH, LAs and AHBs in the delivery of housing throughout Ireland. One of their key functions is to enable supply and demand throughout the housing sector.

The Role of the Private Sector

A significant amount of the developable land with the City Edge area is within private ownership and enabling more intense mixed-use development to come forward on these lands will be required to realise the City Edge vision.

The role of the private sector in delivering homes has increased significantly in Ireland over the past number of decades. This sector now delivers the vast majority of units on the ground. The role of the private sector is recognised within the Housing for All report which emphasises the need for both public and private sectors to work together in meeting the target of delivering an average of 33,000 homes annually.

5.2.2 HOUSING DELIVERY MODELS

There are a number of housing models that could be deployed by various agents across City Edge to deliver new homes including:

Local Authority / Approved Housing Body (AHB) Model
The local authority is essentially the housing developer regarding the delivery of new social and affordable housing which is then allocated to individuals who are on the housing waiting list for that authority area. This model historically provided large volumes of housing in Ireland but in recent decades has reduced significantly. The Housing for All report states that local authorities will be provided with annual targets for delivering social housing to 2030.

Part V
Housing is constructed by private developers who then allocate 10% of the total number of units to the local authority as required under Part V of the Planning and Development Act, 2000 (as amended). It should be noted that the Affordable Housing Act has brought forward changes to Part V that will increase the percentage of social and affordable housing from 10% to 20% where certain conditions apply (for e.g. date of land purchase, zoned residential land) with provision for cost rental units to also be provided.

Cost Rental
Housing is delivered by the State or local authorities. In this model, the unit rent is used to cover the cost of constructing the housing over the long-term period of a loan. The tenant only pays an amount that covers the cost of delivering, managing, and maintaining the home with no profit to the provider. This model was brought forward by the Housing for All report, which sets a target of 18,000 units to be provided under this model by 2030.

Public-Private Partnerships
This model provides a delivery structure whereby social and affordable housing homes remain under State ownership after an agreed period (such as 25 years). The model is delivered in partnership with private sector developers who finance and construct the housing and Approved Housing Bodies or local authorities who are responsible for allocating and managing the accommodation. The State provides the development land for the housing and the site remains in its ownership with the private developer receiving payments over an agreed period (such as 25 years). The increased use of this model is an objective of the Housing for All report.

Private Sector Model
This model places the private developer as the central entity that brings forward the land, finance and construction of the residential development which is then sold on the private market for a profit or alternatively is privately rented to tenants long term.

Land Development Agency
The LDA has been given a statutory footing under Housing for All and the Land Development Agency Act (2021) to deliver affordable housing on public lands. Housing for All lists OPW,CIE and ESB owned lands in Inchicore for transfer to the LDA for the purpose of delivering residential units in City Edge.

5.3 CHALLENGES

In principle, the provision of homes within City Edge aligns with national and regional policy to deliver compact growth on underutilised brownfield lands within a strategic residential and employment development corridor in the Metropolitan Area of Dublin City and that have access to public transport.

National, Regional and Local Policy documents and legislation on housing and planning in Ireland, present a number of challenges associated with creating sustainable residential communities in City Edge. These are as follows:

1. Addressing Interim Housing Need and Demand Assessments and securing a mix of dwelling types, dwelling sizes and tenures while avoiding an over-concentration of mono tenure developments with mono dwelling sizes, as are currently accepted by national policy and have heretofore been permitted in City Edge;
2. Adopting a plan led approach to creating neighbourhoods of an appropriate density and scale within the context of national policy that facilitates increased building heights; and
3. Recognising the delivery challenges associated with bringing forward residential development and fostering residential communities on brownfield lands where there is an existing mix of commercial uses.

The strategic positioning of City Edge and its potential to accommodate a large population, presents an opportunity to adopt a bespoke approach to housing delivery including in relation to the dwelling mix, tenure and the scale / massing of residential development.

To further elaborate on the current challenges to deliver sustainable communities and to inform the approach to housing under this Strategic Framework, research on best practice sustainable residential development has been commissioned together with an analysis of residential developments permitted in City Edge. A juxtaposition of findings is set out further below together with a series of recommendations.

The capacity of City Edge is also reviewed against the relevant provisions of the Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region (2019).

5.4 CITY EDGE INTERNATIONAL AND LOCAL HOUSING RESEARCH

Independent research has been commissioned as part of the City Edge Project in relation to what makes a Liveable City from the perspective of housing coupled with analysis of best practice international case studies.

The purpose of this research, which is summarised in this chapter, was to demonstrate a best practise approach to:

- delivering high density residential development that promotes balanced and sustainable communities with access to a choice of different dwelling types, sizes and tenures; and
- delivering neighbourhoods that are human in scale and support connected communities.

Conclusions on the findings on the International Best Practice Case Studies are briefly set out below before being compared with Local Case Studies on permitted housing developments in City Edge.

To provide further context to the findings, feedback received on the theme of housing during public consultation on the Preferred Scenario for City Edge, as presented in the Chief Executives Report on Submissions Received (December 2021), is also summarised.

This work and feedback serve to further highlight the need to formulate specific and robust housing policy for City Edge.

5.4.1 COMPONENTS OF A LIVEABLE CITY

To inform the analysis of International Best Practice Case Studies, optimal components of liveable housing and liveable neighbourhoods were first researched to identify principles against which the case studies could be assessed. These components were identified through a review of academic research on the Liveable City including aspects relating to the 15-minute city principle, sustainable development and urban design.

The findings from this research was distilled down to a set of succinct parameters and criteria to assess both the International Best Practice Case Studies and the Local Case Studies (See assessment matrix template and sample assessment of Le Trapeze, Paris on the following pages).

These parameters cover the following aspects of development:

- Housing and built densities
- Building heights
- Mix of housing types
- Mix of unit sizes
- Mix of tenures
- Social mix
- Tenure blind residential
- Bespoke dwelling standards
- Lifelong neighbourhoods
- Access to open space
- Access to public transport and active travel
- A mix of uses
- Attracting a Major Anchor

These parameters should be used as to inform assessment criteria contained in the statutory plan that will follow this Strategic Framework.

LIVEABLE NEIGHBOURHOOD MATRIX

LIVEABLE HOUSING MATRIX

HOUSING

1.	Housing density	min. 70 dph (gross) min. 100dph (gross) high intensity areas
2.	Exceptional quality threshold for higher density	150 dph (net)
3.	Built density (all uses)	Net FAR and Plot Coverage Ratio relates to character*
4.	Compact Urban Form	4 to 8 storeys perimeter blocks
5.	Mix Housing Types (houses, flats, duplex, GF units)	no mono type development
6.	Mix of Unit Sizes (1B, 2B, 3B,...)	% based on local needs and policy
7.	Mix of Tenures (social rent, rent, market sale)	% based on local needs and policy
8.	Social Mix (families, elderly, students, couples, sharers)	including provision for
9.	Equitable dwelling standards	y / n
10.	Life long neighbourhoods and housing adaptability	y / n
11.	Tenure Blindness	y / n
12.	Access to open green space	y / n
13.	Access to Sport and Play	y / n
14.	Access to transport nodes	y / n
15.	Active travel	y / n
16.	Mix of uses (employment, retail, social infrastructure, culture / leisure)	y / n
17.	Major Anchor	y / n

NATURE AND OPEN SPACE

1.	Play	in 400 m (5 min walk)
2.	Park	in 1,2 km (15 min walk)
3.	Large park or natural area	in ca.5 km (15 minutes biking)
4.	Informal sport	in 1,2 km (15 min walk)
5.	Sport facility or centre	in ca.5 km (15 minutes biking)
6.	Community gardens	in ca.5 km (15 minutes biking)
7.	Safe Open Space (overlooked and active)	y / n
8.	Areas of biodiversity	in ca.5 km (15 minutes biking)

ACTIVE TRAVEL

1.	Sidewalks	y / n
2.	Bike lanes (segregated or bikes sharing streets)	y / n
3.	Wayfinding (connectivity to key destinations)	y / n
4.	Safe streets (cars but also overlooked)	y / n
5.	Access to Local Public Transport	in 400 m (5 min walk)
6.	Access to Metropolitan / Regional PT	in ca. 1-2 km (15 min walk)

FUNCTIONS

1.	Grocery stores	in ca. 1-2 km (15 min walk)
2.	Commercial district	in ca.5 km (15 minutes biking)
3.	Cafés, restaurants and pubs **	in 12 km (15 min walk)
4.	Cultural Activities (e.g. museum, theatre, concert hall)**	in ca.5 km (15 min biking)
5.	Leisure Activities (e.g. cinema, clubs)**	in ca. 1-2 km (15 min walk)
6.	Community centres (e.g. volunteering, faith) **	in ca. 1-2 km (15 min walk)
7.	Library**	in ca. 1-2 km (15 min walk)
8.	General Medical Practices**	in ca. 1-2 km (15 min walk)
9.	Pharmacy**	in ca. 1-2 km (15 min walk)
10.	Hospital**	in ca.5 km (15 minutes biking)
11.	Nursery	in ca. 1-2 km (15 min walk)
12.	Schools	in ca. 1-2 km (15 min walk)
13.	College**	in ca.5 km (15 miN biking)
14.	Life-long learning opportunities**	in ca.5 km (15 min biking)
15.	Job opportunities (number and diversity)	in ca. 1-2 km (15 min walk)
16.	Main employment hub (number and diversity of jobs)**	in ca.5 km (15 min biking)
17.	Elderly day care**	in ca. 1-2 km (15 min walk)

Figure 60. Liveable Housing and Liveable Neighbourhood Matrix

* Prescribed FAR and Plot Coverage Ratio standards should be plan led.
* * In the case of early phases of development, these facilities / amenities should either be existing, permitted or planned when applying this matrix to any plan area.

Sample Assessment Matrix - Le Trapeze, ZAC Ile Seguin, Paris

	Parameter	Assessment Criteria	Y / N	Note
1.	Minimum Housing Density	> 70dph (gross) > 100 dph (gross) high intensity areas		ca.150dph gross density and ca. 300dph net density. Mixed use ca. 50% residential.
2.	Exceptional quality threshold for higher density	> 150dph (net) - required high design quality triggers assessment row 9 (Equitable Dwellings Standards).		ca. 300dph net density. Highest quality of public realm, integrated SuDS and green streets.
3.	Built Density (all uses)	Efficient use of land for character and location (mixed use urban quarter)		Estimated Net Density (FAR)= ca. 4 Estimated Plot Coverage Ratio = ca. 55%
4.	Compact Urban Form	Perimeter block, main datum 4-8 storeys		Main Datum 8 storeys with set backs. The development is high density however the urban form is compact and height limited.
5.	Mix housing types	Variety of: flats, houses, ground floor units with independent access, duplex		Apartments in blocks. Ground floor mostly allocated to retail and employment. Few ground floor apartment, raised from street using communal access (no own door on street)
6.	Mix of unit sizes	Balance of units sizes: 1B, 2B, 3B, 3+B Presence of family size units and not disproportionately of smaller units		The building examples analysed provide a balanced share of large and small units as shown in the pie charts on the opposite page.
7.	Mix of tenures	Balanced mix of: market sale, affordable / social rent, private rent.		ca. 30% social and affordable rent and 70% market sale, limited number of low social rent units (high priority needs social rent) (1.2%).
8.	Social mix	Families, singles / couples, multi-occupation-households, multi-generation households, senior and assisted living, students		Significant number of family size units. Housing dedicated to young workers and students. (No information available on wheelchair accessible and senior units)
9.	Equitable dwelling standards	Outlook and privacy, storage, private outdoor amenity, communal space		Generous shared courtyards and streets provide privacy and daylight. Most buildings have generous private balconies. Generous landscaped courtyards provide communal amenity for each macro-lot (No information available on storage and private amenity).
10.	Life long neighbourhoods	Homes flexibility and different types of homes in the area		Good provision of family size units. (No information available on wheelchair accessible and senior units)
11.	Tenure blindness	Same design standards across tenures		Consistent design quality across tenures. Same space standard, materials and details.
12.	Access to open green space	Neighbourhood Green within 5 minutes walk and large park within 15 minutes biking.		50% open space, 50% of which dedicated to nature. Good provision of communal open space in courtyards. Bois de Boulogne Park within 15 minutes by bike.
13.	Access to Sport and Play	Within 5 minutes walk		Sports fields are part of the central park and within walking distance to the site edge
14.	Access to transport nodes	Within 15 minutes walk		Two underground stops are within the site boundary
15.	Active travel	Connected to walking and cycling routes		Extensive network of segregated bike lanes with landscape buffer (see images page 40-1)
16.	Mix of Uses	Mix of Residential, employment, commercial and social infrastructure		Balanced mix of uses integrated into each macro-lot
17.	Major Anchor	Metropolitan or regional scale		Seine Musical, Ile Seguin

Excellent according to livable housing definition
Performing well according to livable housing definition
Performing well with some issues
Not performing well according to livable housing definition

Figure 61. Active Travel and SuDS, Le Trapeze

Figure 62. Park, Le Trapeze

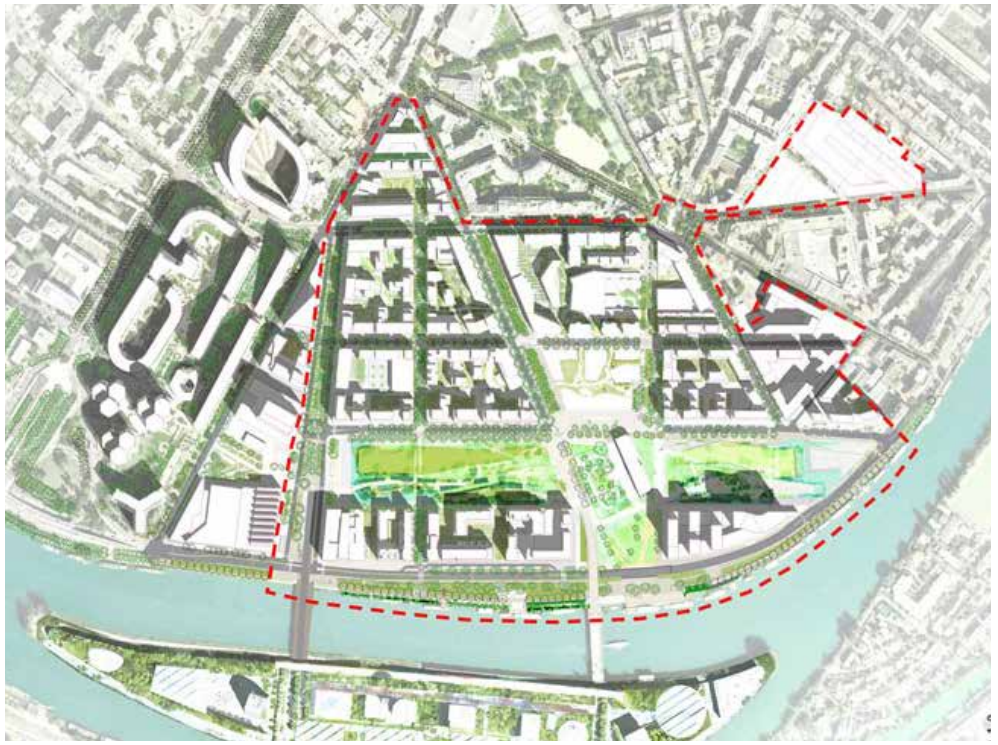


Figure 63. Master Plan, Le Trapeze, Boulogne Billancourt, Paris

5.5 INTERNATIONAL CASE STUDY FINDINGS

As illustrated on the previous page, the case studies performed well when assessed against the components for Liveable Housing and Liveable Neighbourhoods and the main findings in relation to these are collectively summarised below in relation to density, urban form / building height, housing mix, size mix, tenure mix, social mix, housing standards (including private open space), access to public transport and mix of uses.

Density

- The case studies selected focus on the challenges of higher density and showcase a range of net densities between 300 and 500 dph. They all achieve a high built density, with a net plot ratio -FAR- estimated between 4 and 6.

Urban Form

The case studies have a consistent approach and define liveable urban form, creating optimal conditions to develop a mix-use city even at higher density. This is based on:

- **Street-based placeshaping:** the masterplans are based on a traditional network of streets well-defined by the buildings.
- **Plot Coverage Ratio:** Plot coverages are above 50% in all case studies. Making good use of the building footprint contributes to limiting heights while achieving high density.
- **Urban Form:** There are well-defined perimeter blocks in all case studies, with continuous fronts on the edge of the plot that form a consistent street section.
- **Ground Floor:** Ground floors interface with and provide surveillance along streets while providing access. Retail and services are integrated on the ground floor, creating lively streets in the three case studies.
- **Townscape:** In all case studies, there is a recognisable shoulder height, ca. of 8 storeys, which creates a recognisable urban townscape typical of European cities. This maintains a human scale on the street, with taller elements integrated into the block to achieve higher density.

Figure 64. King's Cross- Perimeter Block formed of three buildings. 7 / 8 storeys datum with tower up to 16 storeys.

Figure 65. Le Trapeze - Large Perimeter Block with buildings around generous courtyard. 8 storeys datum with set-backs.

Figure 66. Zuidas - Perimeter blocks formed of one building. Main datum 8 storeys, towers up to 20 storeys.

Tenure Mix

- The case studies strive to create inclusive and fair neighbourhoods, accessible to residents of different socio-economic levels and needs, providing a range of tenures, including affordable / social rent, free-market rent, homeownership, and affordable homeownership.
- Across the case studies, at least ca. 30% of the homes are affordable homeownership or affordable / social rent.
- **Mix tenures at the urban block or urban quarter scale:** The case studies review shows that different types of tenures are mixed in close proximity or on the same urban block if the urban block comprises multiple buildings. The case studies review shows how tenures can share services and amenities.
- **Tenure blind development:** The case study review shows that the quality of the development does not depend on tenure, with the same design standards - materials, details, and layouts. However, the unit size mix differs across tenures, with a larger proportion of family sized units in the social rental sector.

Figure 67. Plot R5, Kings Cross, example block

Figure 68. Macro-Lot B3, Le Trapeze, example block

Figure 69. Example area from Gershwin Quarter, Zuidas.

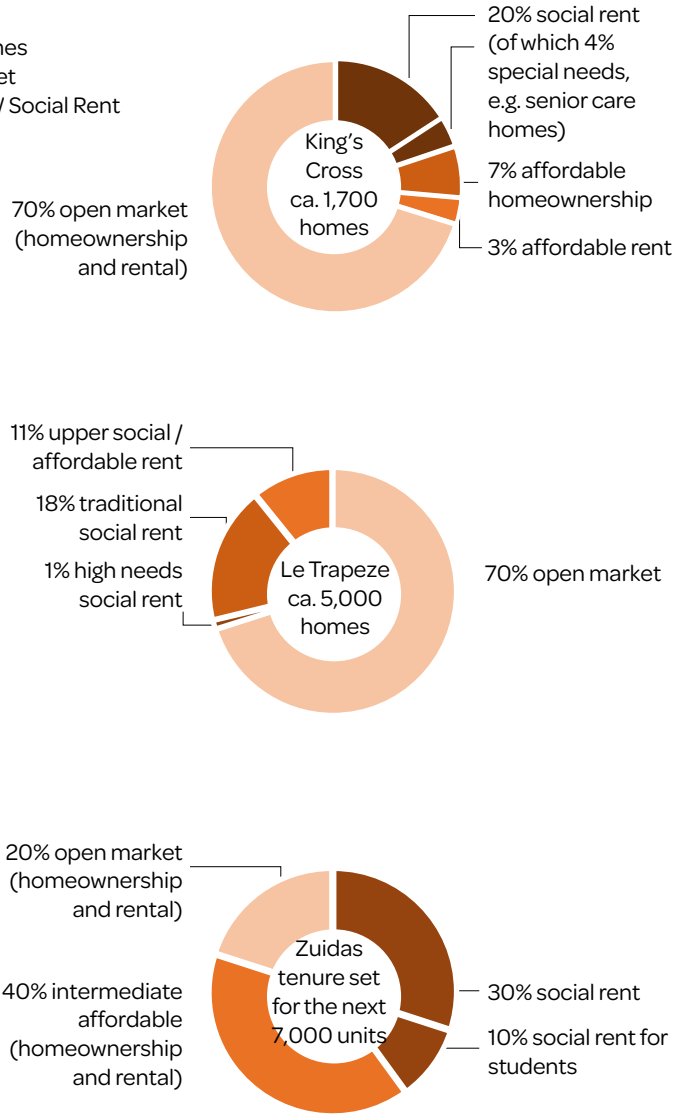


Figure 70. Comparative tenure mix across the case studies

Dwelling typology, unit size mix, and social mix

- The case studies provide a range of dwelling typologies to cater for different household compositions, including families, singles and couples, young people and students, sharers and senior residents.
- **Apartments:** Apartments in apartments block is the most common dwelling typology provided by the high-density case studies analysed, with a small proportion of ground floor duplex, houses and penthouse apartments present in one of the case studies.
- **Unit size mix at the building scale:** The case studies review shows that units of different sizes can be provided within one building, including family size units. Different unit sizes can be arranged around the same core and on the same floor.

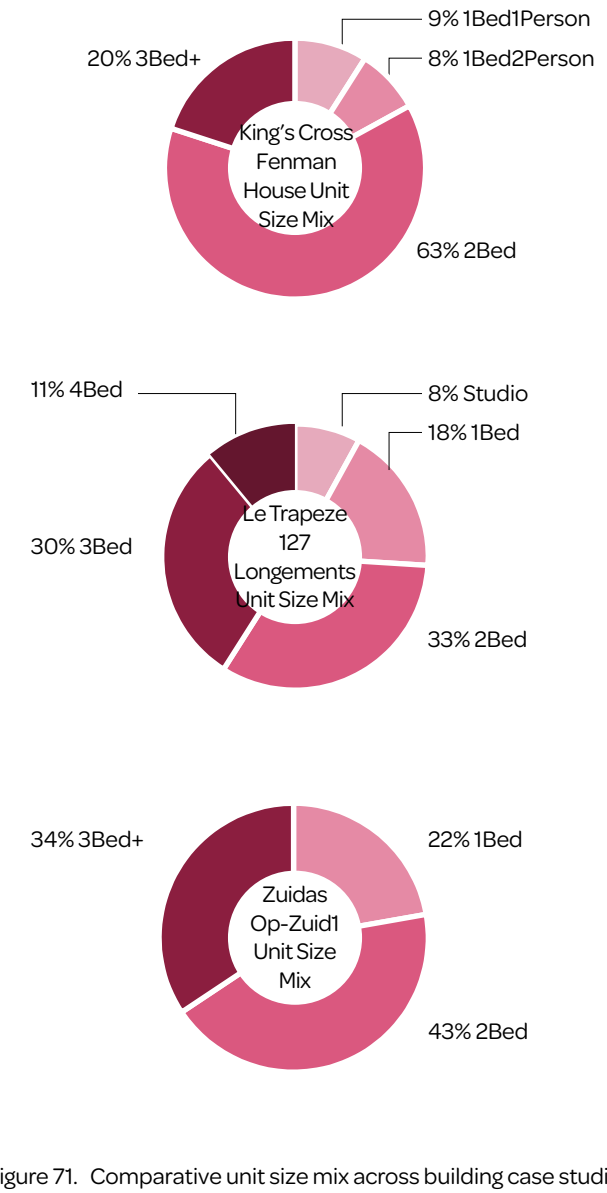


Figure 71. Comparative unit size mix across building case studies

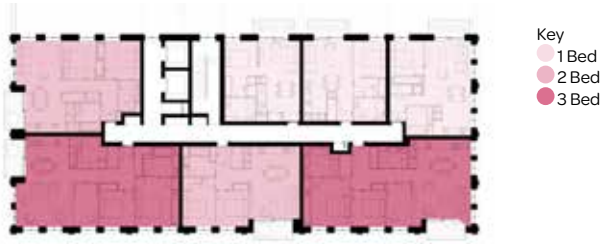


Figure 72. Fenman House, Kings Cross, typical floor

Figure 73. 127 Longements, Le Trapeze, Boulogne Billancourt, typical floor

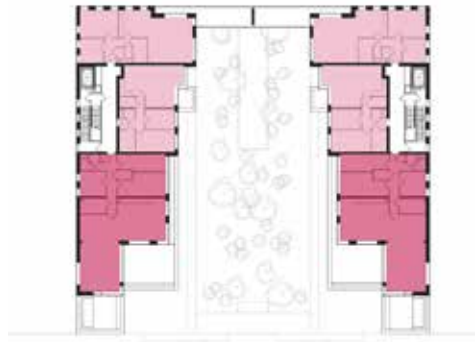


Figure 74. Op-Zuid, Zuidas, typical floor

Family Apartment Units

- Homes with three or more bedrooms are considered family units. They are successfully provided as apartments integrated into apartment buildings within the case studies.
- Family size units are provided in every building of the case studies analysed. The minimum share of family units observed at the building scale is ca. 15%; the maximum is ca. 40%. Local authorities retained a degree of control over the proportion of family units either through policy, negotiation during the planning process or by participating in private-public partnerships.

Figure 75. **3Bedroom Apartment -Kings Cross.**
5 People Apartment;
Min. 86 m²;
Private balcony ca. 5 m²;
Storage space ca. 2,5 m²

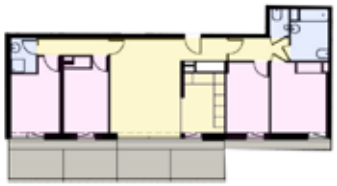


Figure 76. **4Bed Apartment - Le Trapeze**
ca. 105 sqm
Private Balcony ca. 20 m²
Storage ca. 1.5 m²

Figure 77. **3 Bedroom Flat - Zuidas**
Gross Areas: ca. 130 m²
Storage: ca. 2.5 m²
Private roof terrace: ca. 60 m²

Social Mix

- The case studies reviewed include specialistic housing provisions catering for the specific needs of students, young people, and senior residents.
- The quantum of specialist housing is not consistent across the case studies.
- The diversity of housing choice supports lifelong neighbourhoods that offer different living solutions as life evolve, allowing residents to remain connected to their local community.
- UK case study includes a portion of units that can be adapted to wheelchair standards within every building, with requirements of oversized units around ca. 10% of the overall units in each building.

Housing Standards

- Housing standards are prescribed differently by policy across the case studies analysed, resulting in different sizes of homes and provision of storage and amenities.
- **Storage:** Provision of storage space within dwellings is included in the case studies analysed; however, it has been noted that the standard dimensions, between 1.5 and 3 sqm and depending on the dwelling size, are below the requirements of the Irish Space Standards.
- **Private outdoor amenity space:** Private outdoor amenity space is provided to most of the units in the case studies. The size can be related to the number of rooms of the dwellings according to minimum standards prescribed by policy. In the building case studies analysed, private outdoor amenity often exceeds the minimum requirements, including generous terraces and balconies.

Figure 78. Le Trapeze, Goulden Building 156 student housing units

Figure 79. Kings Cross, Roseberry Mansion, Senior Accommodation

Figure 80. Kings Cross, Fenman House, Family Unit

Mix of Uses

- All three case studies performed well in terms of providing for a balanced mix of uses that integrates housing with employment, retail and social uses.
- Housing accounts for between ca. 30% and ca. 50% of the overall floor space, and more than one-third is dedicated to offices and workspaces.
- All the case studies are completed by a major anchor, functioning as a catalyst for the development and attracting visitors from the metropolitan or regional scale.
- Two case studies are also located on main transport hubs, with national and international rail connections. In these two examples, there is a high share of high profile office space for corporate businesses.

Proximity to Open Space

- In all case studies, between a quarter and a half of the site area is dedicated to open space.
- The high-density case studies analysed suggest that generous open space is critical, and can be provided in different forms.
- Outdoor amenity space is provided as private, communal / semi-private, and public across the case studies, including parks, squares, communal gardens, play, sport, blue infrastructure and pedestrian areas or linear parks.
- Open space is provided near homes within 400m or 5 minutes walk or within courtyards and larger green areas, such as metropolitan parks can be reached in 15-minutes biking.

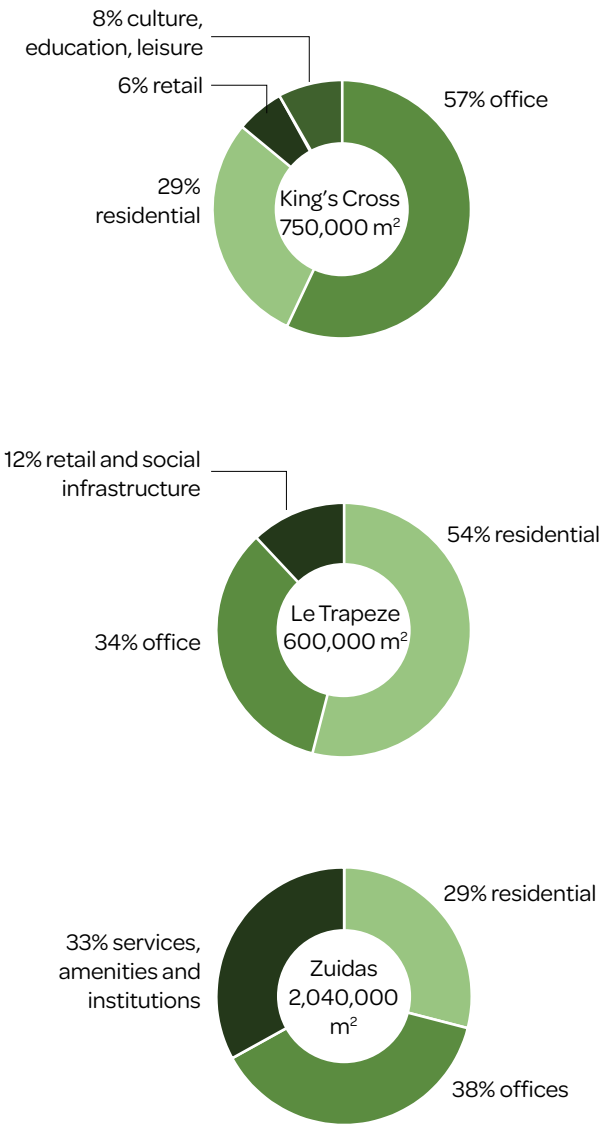


Figure 81. Comparative land use mix across the case studies

Figure 82. King's Cross, London - Public open space ca. 40%

Figure 83. Le Trapeze, Boulogne Billancourt - Open space ca. 50%, with 50% dedicated to green in communal courtyards, city park and green streets

Figure 84. Zuidas, Amsterdam - Open space on site mostly dedicated to sport, canals and green streets. Outstanding green space provision on the site edge.

5.6 CITY EDGE CASE STUDY FINDINGS

In addition to an assessment of international case studies, we have also assessed a number of the recently permitted planning applications in the City Edge Project Area against the same matrix and parameters on the Liveable City. These permitted developments provide an opportunity for comparison against research on the Liveable City and comparison against the International Best Practice case studies with the purpose of tailoring recommendations around promoting sustainable residential communities. The next section provides further analysis on this, but in summary there is a concern that the continuation of the current trend of applying national housing policy and standards to some 40,000 new dwelling envisaged across City Edge could result in unsuccessful mono-functional and mono tenure environments with a low standard of amenity.

As of March 2022, seven relatively significant housing developments have been granted planning permission in the City Edge Project Area totalling ca. 3,700 dwellings. Of the seven major planning permissions in City Edge, four were granted permission within the current housing planning policy context in relation to apartment standards and building heights and were therefore selected for assessment against the Liveable Housing and Liveable Neighbourhood Matrix.

These four developments, account for ca. 2,000 of the permitted dwellings and were granted permission on a case by case basis after the introduction of Specific Planning Policy Requirements (SPPRs), under Section 28 of the Planning and Development Act 2000 (as amended), that support Build to Rent Housing Developments and increased building heights and densities, and therefore are considered to represent relevant local case studies. Further to a more recent SPPR that presumes against shared accommodation / co-living development, none of the case studies include such accommodation.

All four local case studies were assessed against the same Liveable City Matrix used to assess the International Best Practice Case Studies referenced in Section 5.5 above. The Local Case Studies did not perform well when assessed against these components particularly in terms of mix of uses, tenure and unit sizes. The outcome of this assessment of the 4 case studies is collectively summarised below.

Density

- Across the four City Edge local case studies, the average density permitted was 190 units per hectare (net) with densities ranging from 166 units per hectare at the lower end to 255 units per hectare at the higher end.

Urban form / building height

- Building heights averaged between 4-8 storeys, which is positive, however, schemes typically included tall additional buildings with one case study including a 15-storey element.
- Blocks were laid out in partial permitted blocks. The achievement of full perimeter blocks appears to have been inhibited by the relatively piecemeal nature of landownership, which in a number of instances has resulted in building block arrangements that are less than optimal.

Dwelling Typology, Social and Size Mix

- All 2,000 dwellings are apartments with no houses or duplexes.
- Ca. 95% are studio, one bedroom and two bedroom in size.
- There is no express provision to accommodate older people, students or families.

Tenure Mix

- 90% of permitted homes are private (Build to Rent and Built to Sell)
- 10% are social under Part V of the Planning and Development Act
- 35% are Build to Rent
- 55% are private market dwelling / Build to Sell

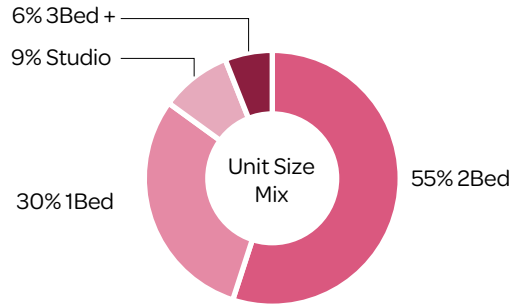


Figure 85. Combined Unit Size Mix from City Edge Case Studies

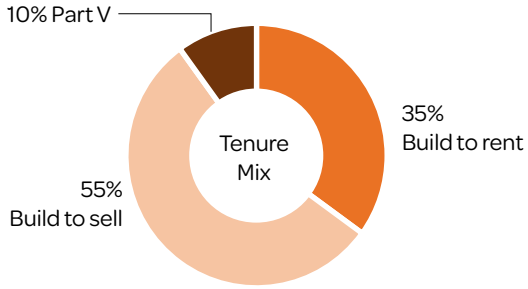


Figure 86. Combined Tenure Mix from City Edge Case Studies

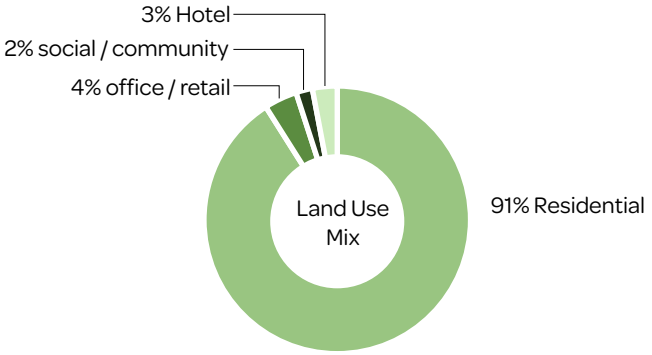


Figure 87. Combined Land Use Mix from City Edge Case Studies

Housing Standards

- Of the 780 units permitted as Build to Rent apartments, ca. 50% will have no private open space, which limits their flexibility and attractiveness for a range of future occupiers. The lack of access to private open space will also place more pressure on the delivery of public open space.

Mix of Uses

- The mix of uses across the 4 residential schemes ranges from 86% to 98% in favour of residential use. For the two of the case studies with the lowest mix of uses of (2% and 3% non-residential) the combined alternative land uses are limited to small creches, a café, a meeting and community space. When considered collectively, the provision of employment, community, cultural and retail uses across the 4 case studies is relatively low with an absence of recreational uses.

Proximity to Open Space

- All 4 local case studies performed reasonably well under this performance criteria by reason of their proximity to playing pitches and Lansdowne Valley Park or Walkinstown Avenue Park. In addition, one of the case studies includes for a contribution of publicly accessible linear parkland.

5.6.1 COMPARISON OF PERFORMANCE BETWEEN INTERNATIONAL CASE STUDIES AND CITY EDGE CASE STUDIES

Further to the assessments above, the International Best Practice Case Studies performed well against the principles of Liveable Housing and Liveable Neighbourhoods when compared to the City Edge Case Studies particularly in the areas of dwellings size mix, tenure mix and dwelling standards (private open space provision) and mix of uses.

In terms of dwelling size mix, all three International Best Practice case studies delivered a relatively high proportion of 2 and 3-bedroom apartments while providing choice for families (minimum of 15% in every building) and older people together with a mix of tenures. Valuable examples of how integration between different tenures, unit types / sizes can be achieved at high densities have been identified. Examples also included apartments with own door access to the street. Private open space provision for all three international case studies are also much more generous when compared to permitted development in City Edge. Semi-private / communal space was also largely more generous. Higher densities were achieved with a balanced mix of uses that included examples of a high proportion of employment, cultural, leisure and retail floorspace.

In contrast, if the typologies and mix of homes permitted within City Edge today is applied across all future housing within City Edge this approach would be considered to be at variance with creating a mixed and balanced sustainable residential community by reason of the following combined conditions:

- The lack of tenure mix for different socio-economic households (90% private rental and private market accommodation);
- The absence of accommodation choice for different household sizes (95% studio, one bedroom and two bedroom);
- The absence of family sized units or homes for older people to cater for different household needs;
- The lack of private amenity space for ca. 390 dwellings (build to rent units) equating to 20% of overall permitted dwellings; and
- The low proportion of employment, community, education and convenience shopping uses to serve the needs of 2,000 dwellings.

The performance of the City Edge Case studies in comparison to international best practice case studies, further highlights the need to formulate bespoke guidance and recommendations around housing for City Edge particularly in the context that the local case studies were largely granted permission within the current national housing and planning policy context.

5.7 CITY EDGE PUBLIC CONSULTATION FINDINGS

To provide further context to the independent research that has been commissioned as part of the City Edge Project in relation to what makes a Liveable City from the perspective of housing, findings from the public consultation programme carried out on the City Edge Project over a four-week period between September and October 2021 are briefly presented below and have been sourced from the City Edge Project Chief Executive's Report on Submissions Received (December, 2021).

The specific theme of Housing featured relatively prominently with 19 observations raised in submissions, making this topic the fourth most frequently raised out of a total of 291. Submissions on this topic came from a mix of local residents / groups, a development company, a local representative, the Dublin Chamber of Commerce, the Eastern and Midlands Regional Assembly and the Land Development Agency.

The observations, which sometimes overlapped, largely related to:

- The need to address issues of housing delivery and affordability in general;
- Problems with an oversupply of (inter alia) 2-bed apartments with a shortage of (inter alia) 3-5-bed apartments;
- The need to build 2, 3 and 4 bedroom affordable family homes;
- Problems with build to rent housing in terms of affordability and quality;
- Providing for a tenure mix that includes cost rental housing, alongside private, social and affordable housing;
- The need to increase social and affordable housing;
- The need to provide housing for first time buyers, single people, families and older persons;
- Providing homes that are flexible over time to different household needs including families;
- The need for homes and apartments that are suitable for long term occupancy / ownership and encourage suitable communities with access to adequate storage, private amenity space, semi-private / communal space and children's play;
- The opportunity to utilise Urban Development Zones envisaged under Housing for All;
- The need to increase the height of development and density to achieve the 10-minute city;
- Focusing on high quality housing located in close proximity to employment with high standards of private and public amenities; and
- The opportunity to advance the National Planning Framework and MASP / RSES and to contribute to population targets.

It is noted that many of these submissions raised issues that correspond and confirm much of the research on the optimal components of liveable neighbourhoods as set out above particularly those relating to dwelling size, tenure mix, social mix, dwelling standards and the principles of the 15-minute city principle and sustainable neighbourhoods. This provides a further evidence base to help inform recommendations on housing that are set out further below and seek to respond to the challenges facing City Edge.

5.8 CITY EDGE SHORT TO MEDIUM TERM HOUSING CAPACITY

Chapter 12 (Delivery) of this Strategic Framework suggests the following population and housing growth figures over an approximate 50-year timespan, which are additional to existing population and housing currently located within the City Edge Project Area:

- 2031: 7,500 people with ca. 3,500 homes
- 2035: 12,000 people with ca. 5,000 homes.
- 2070: 85,000 people with ca. 40,000 homes

To put the 2031 figures into context, the Eastern & Midland Regional Assembly Regional Spatial & Economic Strategy (RSES) for 2019 – 2031 allocates capacity for an additional 66,000 people within the South Western Corridor of the Dublin Metropolitan Area Strategic Plan (MASP). In relation what makes up this capacity, the MASP references the City Edge Project Area within South Dublin County and Dublin City Council (as Naas Road / Ballymount) plus residential development areas along the Luas Red Lines in Tallaght and Saggart / City West as well as Adamstown, Clonburris and Kishoge within the Western Suburbs of South Dublin County. The core strategies contained under the Dublin City and South Dublin County Development Plans for 2022- 2028 (currently draft) allocate a combined capacity of ca. 43,000 people for these areas. It is therefore considered that sufficient short to medium terms capacity has been allocated under the MASP to accommodate the City Edge Project to allow development to progress up to 2031.

However, the next RSES and MASP will need to ensure that there is sufficient housing allocation identified within City Edge to meet the potential of the area. Currently no long terms capacity figures have been projected under the MASP for the South Western Corridor and the preparation of a statutory plan following this Strategic Framework will provide the opportunity to inform any revised RSES in terms of factoring in the City Edge Project's substantial development potential after 2031.

5.9 CITY EDGE FRAMEWORK HOUSING RESPONSES & RECOMMENDATIONS

As aforementioned, it is considered that the continuation of the current trend of applying national housing policy and standards to some 40,000 dwelling envisaged in City Edge could result in unsuccessful mono-functional and mono tenure environments with a low standard of amenity.

The research and findings from this chapter together with background research on National, Regional and Local Policy documents (including Interim HNDAs for Dublin City and South Dublin County) and legislation on housing and planning in Ireland are brought together in the form of a series of bespoke recommendations set out below that are relevant to City Edge.

The recommendations, which are advisory but provide a Direction of Travel and are intended to inform a statutory plan, seek to address the challenges facing the City Edge Project in terms of the delivery of high density residential development in a plan led manner that promotes balanced and sustainable communities with access to a choice of different dwelling types, sizes and tenures while delivering neighbourhoods that are human in scale and support connected communities.

The recommendations should be tested and refined further under the statutory plan that will follow this Strategic Framework and should also be informed by the advancement of HNDAs for Dublin City and South Dublin County.

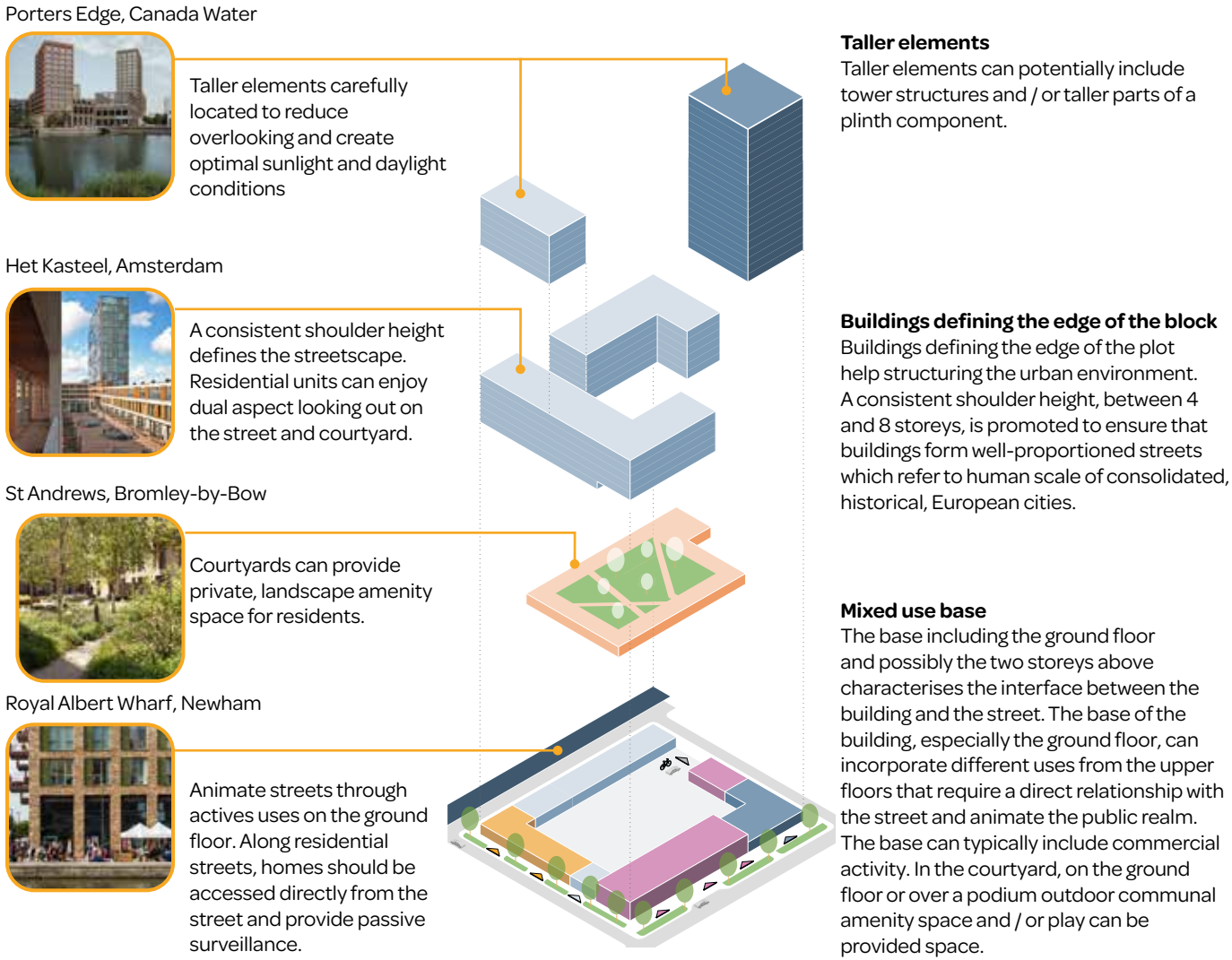


Figure 88. Illustrative urban block | Source: Maccreanor Lavington

Density
Density is a crucial element to achieving compact growth and the principle of the 15-minute city principle. With reference to Chapter 11 (Districts & Character Areas) of this Strategic Framework, the critical minimum residential densities required across City Edge to support sustainable neighbourhoods are as follows:

- **Minimum:** 70 dwellings per hectare (gross) is considered to be a minimum requirement for Residential Led Mixed-Use areas outside of Transport Corridors and Centres. Reduced densities below this minimum may be required on sites proximate to existing low-density residential neighbourhoods.
- **Transport corridors and centres:** Minimum densities of 100-120 dwellings per hectare (gross) on lands identified as, see Chapter 11 (Districts & Character Areas):

  – Residential Led Mixed-Use areas along the Naas Road, the two planned BusConnects routes, the Red Luas Line, the planned Luas Line F to Lucan and the two orbital transport corridors proposed under this Strategic Framework;
  – Local High Street and High Street areas; and
  – Mixed Use Employment and Residential areas.

The above suggested minimum densities have been informed by research on the Liveable City including the 15-minute city principle and also accord with the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (DEHLG, 2009) in relation to Brownfield Sites within city or town centres particularly those that are close to existing or future public transport corridors.

It is acknowledged that in some instances densities on particular plots of land may exceed the density levels set out above. In these cases, as a performance measure, all development with densities above 150 dwellings per hectare (net) should be scrutinised very carefully in the context that such developments can pose challenges in relation to fostering connected and diverse residential communities. Such developments would need to provide a relatively high proportion of family units, when compared to HNDA analysis, while incorporating significant elements of planning gain in the form of generous contributions to the public realm such as parks, greenways, blueways or community facilities in addition to the standard public, semi-private / communal and private open space requirements. Development proposals above this density on sites within close proximity to existing low density residential communities would also need to be considered in a manner that seeks to avoid abrupt transition in density.

Consideration should also be given in relation to the suggested plot ratios in Chapter 11 (Districts & Character Areas) of this Strategic Framework and densities that have been prescribed under the Height and Density guidelines contained in the Appendices of the Dublin City and South Dublin County Council Development Plans for 2022 – 2028 (currently at draft stage).

Figure 89. Upwards of. 150dph. Mainly apartment blocks, Royal Wharf.

Figure 90. Mix of houses and apartment blocks ca. 70dph Stadstuinen.

Urban Form and Building Height

Well defined perimeter blocks should be used as the default arrangement for development across City Edge, where feasible. This urban form should be used to make efficient use of urban lands, create the conditions for high density development, create a format for a mix of uses and contribute to townscapes and placeshaping.

Building heights should accord with those set out under Chapter 11 (Districts & Character Areas) of this Strategic Framework while taking cognisance of the performance / analysis criteria set out under the Height and Density guidelines contained in the Appendix of the Dublin City and South Dublin County Council Development Plans for 2022 – 2028 (currently at draft stage). In order to avoid abrupt transitions in building heights, reduced building heights may be necessary on sites within close proximity to existing low rise residential communities. Further to research on liveable cities, building heights of more than 8 / 9 storeys would need to be carefully considered. With reference to Urban Development and Building Heights Guidelines for Planning Authorities (DHPLG, 2018) building heights above this threshold will need to be designed to the highest architectural standards and will need a balanced mix of dwelling sizes together with a balanced mix of housing, social, community and commercial or employment uses.

Unit Size and Social Mix

To provide for well-balanced community and different household compositions, a diverse range of dwelling unit sizes and dwelling typologies should be provided within each urban / perimeter block in City Edge. Different typologies also need to be accessible for households of different socio-economic levels.

The South Dublin County Council Development Plan for 2022 – 2028 (currently at draft stage) requires that proposals for residential development shall provide a minimum of 30% three bedroom residential units unless it can be demonstrated that this is not necessary. The Dublin City Development Plan for 2022 – 2028 (currently at draft stage) requires planning applications that include residential accommodation of 15 units or more in the North Inner City and Liberties Sub-City Areas to include a minimum of 15% three or more bedroom units and a maximum of 25%-30% one bedroom / studio units.

Informed by this together with the findings on the International Best Practice Case Studies, the following unit size mix should be considered for residential development in City Edge and should be tested at statutory plan stage:

- A minimum of ca. 20% three or more bedroom units; and
- A maximum of ca. 30% one bedroom / studio units.

In the context of Housing Strategy and HNDA figures on social housing waiting lists in terms of unit sizes, the application of the above suggested unit size mixes should be considered on a case by case basis when it comes to consideration of social and affordable housing proposals.

Figure 91. St Andrews - six storeys perimeter block integrating taller elements, London, Maccreanor Lavington.

Figure 92. Main building datum of nine storeys with set backs in large perimeter blocks, Le Trapeze.

Dwelling Typologies
It is recognised that a mix of dwelling types will support diverse and balanced communities with improved housing choice. It is also noted that the recommended densities for development in City Edge would largely limit the choice of dwelling typologies to apartments. However, with reference to the Urban Design Manual - A best Practice Guide (DEHLG, 2009) and, considering the challenges facing City Edge, residential development will be encouraged to provide a mix of:

- own door ground floor residential units;
- own door ground floor duplex units;
- a variety of dwelling types to include duplexes and town houses within and around existing residential communities, where appropriate; and
- where possible on larger sites provide a variety of dwelling types including houses and duplexes.

Tenure Mix
To achieve a well-balanced community with households from different socio-economic backgrounds and needs, mixed tenure developments should be pursued. As per the Urban Design Manual - A best Practice Guide (DEHLG, 2009), such development should be 'tenure blind' with social and affordable units physically indistinguishable from those built for social rent, sale or rent at market prices.

The increase in the statutory provision to 20% in relation Part V of the Planning and Development Act 2000 (as amended) under the Affordable Housing Act 2021 with the inclusion for affordable housing, improves the opportunity to achieve a balance of tenures.

Interim HNDA carried out as part of the Draft Dublin City Development Plan 2022 to 2028 identifies a 36.7% need for social homes and 29% need for affordable homes while factoring in existing unmet demand.

Interim HNDA carried out as part of the Draft South Dublin County Council Development Plan demonstrated that at least 26% of households will need state support for housing excluding unmet demand. When factoring in unmet demand, it is calculated that the proportion of households in South Dublin County needing state support is likely to be in excess of 35%.

This creates a challenge to secure a higher proportion of social and affordable housing under the City Edge Project. Securing this through private development would require a legislative change, which is outside the control of the City Edge Project.

However, it should be noted that the Land Value Sharing and Urban Development Zones Bill 2021 furthers the potential for an increased level of social and affordable housing on lands designated as a UDZ, which may in time, be the case for City Edge. There is also a small amount of public-owned land within the City Edge that could be progressed for housing by SDCC, DCC and the LDA which would include higher proportions of social and affordable housing. Within this context, the overall proportion of housing that can be delivered in the form of social and affordable housing may likely exceed 20%. In the case of lands controlled by the LDA, it is acknowledged that the remit for the development of these lands is one which focuses on the delivery of up to 100% affordable and social housing on such relevant lands.

The advancement of HNDA and the progression of a statutory plan will present the opportunity to further explore how an increased provision of social and affordable housing could be secured across City Edge along with achieving tenure blind development.

In terms of the need for Build to Rent Units (BTR) in City Edge, the Draft South Dublin County Council Development Plan 2022 – 2028 references SPPRs from the Apartment Guidelines, while the November 2021 version of the Draft Dublin City Development Plan sought to limit such dwellings.

Figure 93. Southerland Road - Mix of mews houses and apartments in the block, London, Levitt Bernstein Architects

Figure 94. Royal Albert Wharf - Mix of own door ground floor duplex units (three storey units) and apartments in perimeter block, London, Maccreanor Lavington

To avoid mono tenure developments, but being cognisance of the potential future need for Build to Rent accommodation, limiting the proportion of BTR accommodation across City Edge to no more than approx. 50% of housing (excluding social and affordable housing) should be explored in the context of:

- Extant planning permission for ca. 2,000 Build to Rent Units in City Edge representing 55% of permitted housing units on the lands;
- The absence of commencement of construction of the permitted Build to Rent Units;
- The Interim HNDA for Dublin City identifying that 18% of additional households between 2022 and 2028 will be able to afford private rental accommodation; and
- The Interim HNDA for South Dublin County indicating that private rented accommodation will account for ca. 27% of household tenure;

Purpose built rental schemes that are delivered as fully Affordable or Social housing such as social rental and affordable / cost rental models in City Edge, should be excluded from suggested limits on BTR accommodation.

These considerations should be further explored at statutory plan stage and after the advancement of HNDA.

Dwelling Standards
Further to research on liveable city principles and creating sustainable residential communities that have a choice of housing that is flexible to household needs, the application of dwelling standards should also be tenure blind. Housing development across City Edge should therefore be assessed equally particularly in relation to private open space and storage regardless of tenure. This approach would be akin to the Draft Dublin City Development Plan 2022 – 2028, which presumes against excessive derogation from dwelling standards for Build to Rent units in terms of private amenity spaces, in particular, and seeks to ensure that there is no difference in standards with regards to the provision of external communal open spaces and public open space.

Housing for Older People
The advancement of HNDA and the progression of a statutory plan will present the opportunity to further explore needs in terms of housing for older people and appropriate ways to meet these needs with a choice of accommodation including assisted and age friendly living. To ensure an intergenerational community and place, at this stage, it is expected that a proportion of homes for older people will be sought within the statutory plan. In the interim, there should be a presumption against such accommodation for older people being provided in areas that are remote from community infrastructure, permeable walking routes, parks, convenience retailing and public transport.

Student Accommodation
Student accommodation will have a role to play in providing a mix of housing types. This will be assessed on a case by case and it will be important to avoid an overconcentration of student accommodation in any one location / district. In line with guidance on Student Accommodation, purpose-built student accommodation should be provided on campuses or in suitable locations which have convenient access to third level colleges, especially by foot, bicycle and high quality and convenient public transport.

Traveller Accommodation
Traveller Accommodation in City Edge should be provided in accordance with the Dublin County Council and South Dublin County Council Traveller Accommodation Programmes, which seek to meet existing and projected accommodation needs of members of the Travelling Community.

Inclusive and Accessible Housing
As per the Urban Design Manual - A Best Practice Guide (DEHLG, 2009), residential development in City Edge should strive to deliver housing that is inclusive, accessible for all and designed in accordance with Part M of the Building Regulations.

Mix of Uses
Proximity of housing to a mix of uses is considered to be fundamental to the viability of neighbourhoods particularly for achieving the 15-minute city principle of providing access to employment, convenience retail, education and community uses etc. The sequencing of such uses should be delivered in tandem with residential development with reference to Chapters 6 (Community, Culture & Arts), 7 (Economy), 11 (Districts & Character Areas) and 12 (Delivery) of this Strategic Framework with the prescription of use mixes to be explored at statutory plan stage.

Proximity to Open Space
Further to the fundamentals of sustainable neighbourhoods, housing across City Edge should have access to a hierarchy of open spaces and a network of greenways and blueways that provide for a range passive and active activities for all age groups. In line with Chapters 9 (Natural Infrastructure), 11 (Districts & Character Areas) and 12 (Delivery) of this Strategic Framework, this would require the delivery of linear parks, major parks and local / community parks in addition to the standard public open spaces requirements under the Dublin City Council and South Dublin County Council Development Plans.

5.10 HOUSING SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Housing Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

- Ensure a balanced mix of dwelling types, sizes, and tenure to create life-time neighbourhoods and a sustain-able, mixed community.
- Housing to be in accordance with 15-minute city principle: forming a compact urban environment with an active travel focus, that supports the health and wellbeing of residents, through access to opportunities, services, resources, and green and natural amenities.
- Promote high quality design in housing delivery which makes urban living attractive and is in accordance with National design standards.
- Promotion of adaptable / lifetime housing standards to cater for the life cycle of people's needs.
- Ensure the tenure blind application of housing standards, particularly in relation to access to private out-door amenity space and secure storage facilities.
- Deliver compact urban growth of an effective density and make efficient use of the underutilised brown-field lands.
- Promote housing to make use of passive design and fabric first principles: an optimal building form to reduce heat loss and good daylight penetration, and to take advantage of solar gain.
- Promote whole life carbon solutions, with targets set by the asset owner as part of their carbon management process
- Promote near zero energy buildings (NZEB) using sustainably sourced materials that have low to zero embodied energy and CO2 emissions.
- Promote net-zero waste to land fill construction and demolition through the reuse of demolition and excavated materials through building design and an end of waste decision making process.
- Energy efficient construction - Promote the use of structural materials that have low to zero embodied energy and CO2 emissions.
- Promote the need and support for National retrofits
- Promote the approach of Nutrient and water neutrality
- Promote use of low Carbon fuel and electricity options like heat pumps and solar PV.
- Promote and align with Near Zero Energy Buildings (NZEB) and Net-Zero Carbon Buildings
- Promote the use of renewably fuelled CHP, Anaerobic digestion, District heating, micro generation, and sewer heat recovery at district and block level energy supply

6 COMMUNITY, CULTURE & ARTS

6.1 COMMUNITY, CULTURE AND ARTS INFRASTRUCTURE VISION

6.1.1 VISION

Provide Community, Cultural and Arts (CCA) infrastructure from the outset, to catalyse communities and support their growth; incorporating CCA infrastructure within developments, alongside housing, and at an early stage. Connect key community buildings, and nurture CCA to help build the evolving identities of places and neighbourhoods within City Edge.

6.1.2 OBJECTIVES AND PRINCIPLES

City Edge CCA infrastructure is guided by following key Objectives and Principles. They recognise CCA is interwoven with the quality of the local environment, economic vitality and the health and wellbeing of communities and visitors.

- Community buildings should interrelate and engage with parks, retail and commercial activity, and offer safe permeability at different times of the day.
- Support community health and wellbeing through community buildings, promoting active travel and active lifestyles through their use.
- Build opportunities for meaningful social connection and reducing sedentary lifestyles through good quality social, recreation and active travel options for all age groups.
- Encourage community and neighbourhood building through offering spaces and facilities that connect people in ways that have meaning for them, such as through food, sport, culture, social and public health supports.
- Create multi-functional facilities: community and civic buildings can be used for family and cultural celebrations such as weddings and memorials.

These objectives sit within the current and evolving policy framework and seek to direct the nature of provision for City Edge as well as promote how to step beyond policy.

Figure 95. Multi-use building, incorporating a library alongside apartments, at the heart of the community Rainham Library, London

6.2 COMMUNITY, CULTURE AND ARTS INFRASTRUCTURE CONTEXT

6.2.1 BASELINE SITUATION

Current provision of community, cultural and arts (CCA) infrastructure within City Edge is light given the low population. What is there, however, supports the wider city, and takes advantage of the nature of the area such as sports facilities and re-used sheds for contemporary music venues.

Adjacent neighbourhoods currently house CCA infrastructure, such as community centres in Walkinstown, Knockmitten, Bluebell and Cherry Orchard. Given their proximity to City Edge these will help support early emerging communities, though a dedicated provision will need to be delivered in tandem with the anticipated growth in residential and jobs population.

Going forward a key requirement of achieving the objectives of a liveable city, will be determining the community infrastructure needed to support the early development, and ensuring its timely delivery in advance of need.

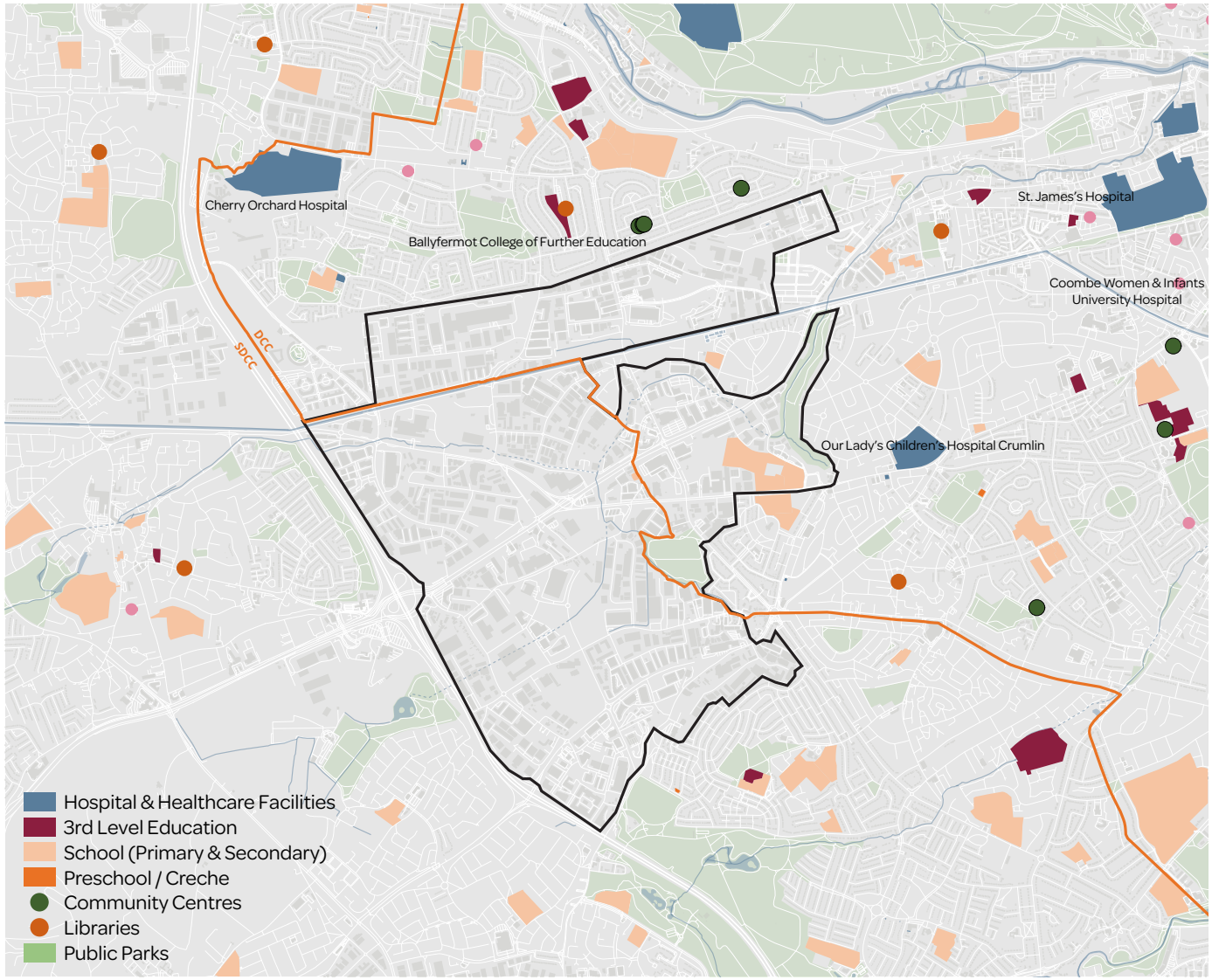


Figure 96. Map of social infrastructure in and around City Edge

6.2.2 POLICY & GUIDANCE CONTEXT

National guidelines exist as well as guidelines within the SDCC and DCC Development Plans in relation to Community infrastructure provision. These give requirements that may change over time, but which provide a context for CCA infrastructure provision:

Primary care centres
One facility per 7,000-10,000 population as identified by the Department of Health.

Childcare facilities (SDCC)
One facility providing 20 places per 75 dwellings in new residential areas in accordance with the Childcare Facilities Guidelines for Planning Authorities (2001), subject to certain flexibility which may be applied under Circular PL3 / 2016.

Childcare facilities (DCC)
For new residential schemes, one childcare facility will be required unless there are significant reasons to the contrary. A benchmark provision of one childcare facility per seventy-five dwellings is recommended (and a pro-rata increase for developments in excess of seventy-five houses).

Other land uses are identified in Appendix 13.2 and 13.3 of the Development Plan as potentially requiring childcare facilities e.g. large office / commercial developments should provide at least one facility to cater for staff children.

Schools (SDCC)
Department of Education and Skills standard that 11.5% of the population will require a primary school place and 7.5% will require a post primary school place.

Schools (DCC)
To facilitate the provision of new schools, school extensions and third-level institutions and to have regard to the provisions of the DoEHLG and DES (2008).

To seek to reserve lands for educational purposes in locations close to the areas of greatest residential expansion or greatest amount of unmet demand for school places and adjacent to community facilities in order that the possibility of sharing facilities can be maximised in accordance with the Department of Education and Skills' Joint Code of Practice (2008)

Community centres (SDCC)
One large multi-functional centre of approximately 1,200m² – 1,800m² per 8,000 population and / or smaller local community centres (350–650 m²) as may be identified by the local authority to meet local need. Such local need ma ybe determined by demographic accessibility or other factors.

Public Open Space and Parks (SDCC)
- Overall standard of 2.4 hectares per 1,000 population.
- New Residential Development on Lands Zone RES-N - Minimum 15% of site area.
- New Residential Development on Lands in Other Zones including mixed use - Minimum 10% of site area.
- Institutional Lands / 'Windfall' Sites - Minimum 20% of site area

Public Open Space and Parks (DCC)
- 2.5ha to 3.6ha of parks per 1,000 population benchmark for green / recreational spaces
- New development and public open space along river corridors. To ensure that new development, in terms of siting and design, responds to the character, importance and setting of the cities rivers where the context allows, and to require public open space which is to be provided as part of new development, to supplement riparian buffer zones so as to support the attainment of 'good ecological status' or higher for water bodies, flood management, the conservation of biodiversity and ecosystem functions.

Libraries (SDCC)
3,000 residents support the need for a library of at least 500m².

Libraries serving populations in excess of 3,000 within the catchment area should be scaled to be appropriate to the needs of the community and the services required.

Sports facilities
Encouraging co-location and consolidation of sports facilities and pitches, and the retention of existing facilities.

The Baseline study of the existing CCA infrastructure and the information and thresholds contained in the South Dublin County and Dublin City Development Plans as set out in this section, have informed community infrastructure requirements as set out in Chapters 11 (Districts & Character Areas) and 12 (Delivery).

6.2.3 PROJECTS – PLANNED & PROPOSED

There are currently no planned major projects for CCA infrastructure within City Edge, other than childcare.

6.2.4 OPPORTUNITIES & CHALLENGES

There will be a major challenge to build neighbourhoods from within an industrial context to support a residential / mixed use with a diverse population. However, good community infrastructure (parks / arts centre / libraries / sports / civic space / community centres / mobility hubs)all act as engines of community development and neighbourhood building. The Framework can integrate these around key nodes and centres.

Timely delivery of community infrastructure given limitations of public land is a key consideration.

There is an opportunity to position City Edge as a place where anchors and bigger cultural uses want to come, potentially in the longer term, but there is also an opportunity to foster this to create a strong identity – fundamental to the evolution of a place that doesn't lose its soul.

Existing Assets

Celebrating, re-using, renovating, and repurposing existing assets will help to ensure that City Edge has the cultural backbone to support its future identity.

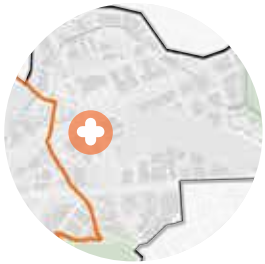
Many assets exist within City Edge and the Strategic Framework seeks that these are retained and utilised to support the continuity of the City Edge identity.

These assets, if made available, can be used as anchors, wayfinding markers, and even touristic attractions as is already the case with Drimnagh Castle. The set included here is not exhaustive, and efforts will need to be made to ensure hidden gems are brought to the forefront of people's attention.

3 John Power factory

1 Drimnagh Castle

4 Mercedes (ex VW) factory, Naas Road



2 Bluebell Cemetery and Church

5 Chassis Factory, Inchicore

6.3 COMMUNITY, CULTURE AND ARTS INFRASTRUCTURE FRAMEWORK RESPONSE

6.3.1 COMMUNITY INFRASTRUCTURE

City Edge proposes to create an inclusive and dynamic approach to community infrastructure, that acknowledges the urban setting and the interrelationships this can positively support. The exact locations of community infrastructure are not set out, however the need to relate this infrastructure to growth is highlighted, and the notional locations and distribution can be seen in Chapter 11 (Districts & Character Areas).

Across all types of community infrastructure there is an opportunity for outreach to existing facilities in the region, such as hospitals and further education, which can augment their offers through provision of supporting infrastructure in City Edge.

Community engagement will play a pivotal role in shaping and informing the layout of community facilities throughout City Edge.

Schools & childcare facilities

- City Edge is an urban setting that suits co-location of primary schools with mixed-use development, and parallel provision of childcare facilities.
- The design and delivery of schools within urban blocks and in compact forms will be discussed and explored with the Department of Education.
- Stacked urban primary schools, with multiple forms of entry would be appropriate in City Edge
- Co-locating secondary and primary schools, and taking opportunity to share facilities where appropriate, will support the compact approach to provision

Community centres, primary care centres & libraries

- The ambition for City Edge is to integrate these facilities into the urban fabric, becoming part of mixed-use developments, and thus operating at the hearts of neighbourhoods.

Sports

- Integrate sports facilities and pitches into an urban setting, creating multi-use facilities and avoiding using natural infrastructure provision as sports facilities.
- A high intensity of smaller children's play facilities spread out across City Edge with a movement away from standard play facilities in favour of natural play and landscaping features.

Community Infrastructure in compact urban form

Space is at a premium in an urban setting, and in City Edge it will be necessary to optimise land use. To achieve this, CCA infrastructure can sit within mixed-use buildings or blocks that incorporate with other uses such as residential.

Primary schools as part of residential blocks, with play space on the roof as well as in shared public space can become the new normal, encouraging community cohesion and a trusting approach to safe neighbourhoods.

Community, healthcare and sports facilities can overlap with one another, focusing on health and wellbeing through lifestyle choice, whilst again promoting community cohesion.

Figure 97. Primary school integrated into an urban block, Kop Van Zuid, Rotterdam

Policy sets out quantum per inhabitant, but it is the role of developments themselves to ensure they can integrate community infrastructure successfully, and in a compact way. Whilst individual developments may not reach the necessary threshold to trigger the need for a primary school or similar infrastructure, they will be part of the cumulative growth that will trigger their requirement. Therefore, coordination of provision through collections of landowners by way of masterplanning is necessary for each neighbourhood.

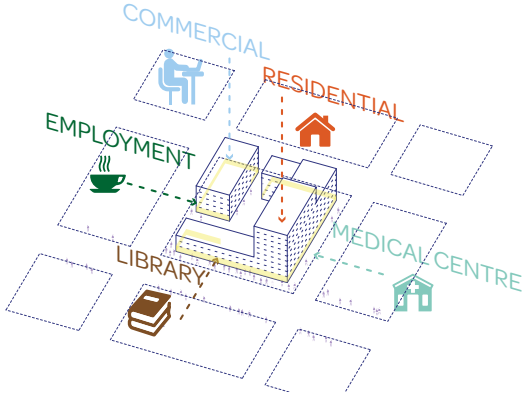


Figure 98. Community uses integrated in the ground floors of blocks

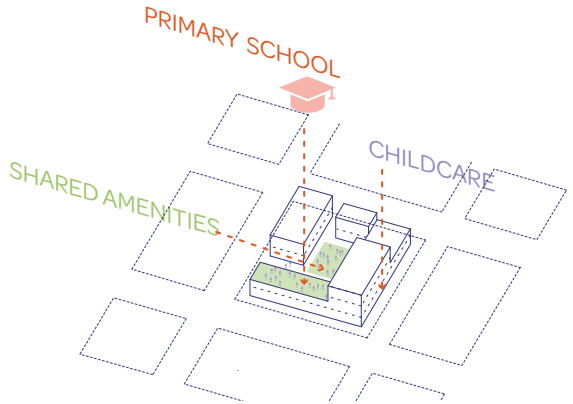


Figure 99. Compact urban schools

6.3.2 CULTURAL & ARTS INFRASTRUCTURE

A commitment to Culture and Arts for the City Edge regeneration process is essential to understanding the context of the project, where and how the public will engage with Culture and Arts and where cultural infrastructure will be placed. The preparation of a Culture and Arts Strategy is a key recommendation for future City Edge work. The basis for a Culture and Arts Strategy would be to serve both the existing communities and the new high-density urban centres whose population sizes will be greater than those of many counties around the country. It will place Culture and Art at the heart of new urban development close to transport corridors. It will provide both a mechanism for implementation and momentum for delivery.

Figure 100. Re-use of industrial heritage
Van Nelle factory Swan Market, Rotterdam

Figure 101. Historic industrial buildings re-purposed and collected under a contemporary roof
Le Fresnoy National Studio for Contemporary Art, France

Celebrating & creating heritage & assets

As highlighted, there are a number of assets within City Edge that can be used to bolster its identity both now and in the future. Some of these are nationally recognised such as Drimnagh Castle and Bluebell Cemetery. For these in particular, creating an empathetic setting is key. At present they are hidden and not contextualised to a manner befitting their importance, and this setting can be greatly improved in City Edge.

For other assets, many of these are undocumented, or currently under the radar, and developments must seek to find hidden assets that can support local identity. From a sustainability perspective, re-use is often better than to rebuild. A key component of these is the industrial heritage in City Edge. Some of this is understood, though undercelebrated buildings and heritage must be unearthed.

Beyond this, what City Edge can offer is the opportunity to create future heritage – for new architecture to be created in a manner befitting the huge potential that this area represents, that can be championed and celebrated for generations to come. These can manifest as anchors and attractors.

Repurposing buildings

Within City Edge there are a number of built assets that may not be identified formally. As part of the regeneration, and the evolution of the area, the opportunity exists to repurpose these and renovate them. Taking an approach of re-use will support the wider sustainability objectives for Ireland, and will also help to transition the area without losing its built identity.

The reuse or continued use of older buildings is a key component of sustainable development and energy conservation practice, as the most carbon neutral building is a building that already exists. The retention and careful rehabilitation of historic buildings including Industrial buildings, allows the materials and embedded energy of these structures to be retained and thereby contribute to carbon footprint reduction. Demolition and replacement of such buildings where there are reuse options represents a waste of their embedded energy and such proposals will be discouraged and subject to rigorous scrutiny.

The large factories / industrial sites provide landmark buildings along the Naas Road – including the Mercedes Factory, John Power Factory and Chassis Factory, Inchicore. These buildings in particular, are of great architectural and social value and hold a wide range of opportunities for reuse.

There is massive opportunity and potential to reuse existing and vacant buildings and to utilise those buildings to enhance the character of the area and to retain the identity of the built environment. Therefore, as part of new developments, an assessment should be made with regard to the repurposing of existing buildings and retention and adaptive reuse of landmark historic buildings within City Edge. It is considered that an agreed plan is required in assessing and identifying those buildings while setting out the feasibility and requirements for adaptive reuse.

Figure 102. Custom-designed workspace for the creative, digital and high-tech industries, Boxworks and Engine Shed, Bristol

Figure 103. Individual studio spaces in 45 converted containers Containerville, Cambridge Heath, London

Figure 104. Temporary studios, offices, retail, double decker bus cafe, and event space, Blue House Yard, Wood Green, London

Meanwhile uses

There is huge potential here given the existing fabric for meanwhile uses to catalyse cultural activity, seed growth and help nurture identity.

Culture and leisure meanwhile uses have the potential to seed a shift in the local character in a rather short time span, increasing the dynamics of different neighbourhoods, attracting both locals and new visitors. Creating a sense of place is crucial for both short and long term aspirations of the area. The existing amenity provisions on site, such as parks and the Grand Canal, can be the first ones to act as anchors for new neighbourhoods, followed by other provisions / buildings.

There is already a meanwhile use culture within City Edge, with an underground night-time economy, and this component can be something to harness in evolving the nature of building use in the future.

Meanwhile uses in City Edge offer the opportunity for local businesses, creative enterprises, organisations and the communities to engage in informing the future urbanity of the area. It provides a way to activate the area and make it an attractive place to live and work. Giving the opportunity to fledgling enterprises to gestate, take hold and flourish with the potential to find permanent homes within the area, will create a rich and mature diversity in the future that would otherwise not be possible.

Temporary workspaces have the potential to seed a shift in the local character in a rather short time span, increasing both the footfall and the diversity of a specific area.

This 'method' can be employed particularly in areas where the current character is envisioned to change, such as Kylemore. Temporary workspaces could be a strategic step in realising the vision while supporting the area's aspiration to higher density employment. Community gardens / allotments should also be considered on transitional sites.

Figure 105. Distillery brings together science, community & nature with access to education, Stillgarden Distillery, Dublin

Figure 106. Sustainable camp site in a green city oasis
Culture Campsite, Rotterdam

Figure 107. Elements of the creative economy.

The Creative Economy

The essence of the creative economy is in the configuration of relationships between culture, creativity, technology and economy. It is living at the intersection of all of them. Nowadays it has become an important source of income and jobs, generating positive human development, promoting cultural diversity and social inclusion and empowering small start-ups and freelance creatives.

This includes industries such as art, gastronomy, technology, design, industry and education among others. It is also worth thinking that these temporary interventions could themselves be the legacy in the public realm. They could remain in the space as timeless pieces that adapt to new conditions – pieces that mutate and become playgrounds for the community.

There are an array of different possibilities when it comes to envisioning a spatial framework for meanwhile uses within City Edge. Beyond the obvious physical space, meanwhile use can also include digital spaces, temporary spaces, mobile spaces or open spaces. A key aspect of the project will be to identify the appropriate interventions for the different conditions and challenges found on site.

Role of Commercial Culture and Scale

City Edge presents a significant opportunity for high impact commercial cultural provision, which in combination with not-for-profit cultural provision would have a catalytic impact on creating an enriching environment that would attract future investment and reinforce the concept of place shaping in its truest sense, as each of the neighbourhoods within the regenerated area could be characterised by some level of cultural offering, which collectively would cultivate the 'stickiness' factor in attracting future commercial investment, jobs growth and residential development. There is a sliding scale of cultural facilities from the high impact, 'big bang' cultural offering that acts as a marker or differentiator for the area to the more subtle cultural offering that grows from the ground and the existing community. This area needs this combination of mushrooms (things that evolve and grow from the area) and parachutes (the cultural interventions that are critically important to sustain a potential new population of 85,000 people). All levels of cultural intervention are important and need to be understood in a project of this scale.

Numerous examples of commercially led cultural provision exist, with the delivery of a film production village or an E-gaming facility of international proportions creating opportunities for a domino effect of supporting ancillary facilities emerging, which would have a positive impact on the economy, the physical environment, social diversity, and the creation of cultural assets of scale. It is also important to realise that the influx of cultural parachutes is important but the role of codesign is essential, whilst also ensuring new facilities are located in the right areas. Delivering the right facility in the right location where there is a meaningful and tangible connection with the local community is of critical importance.

Destination Place

With the regeneration of this area there is a necessity for the creation of a destination and further consideration needs to be given to the role of Arts and Culture in creating a destination of national significance. There is potential to delivery a cultural anchor that would serve to aid the creation of a destination, but it would also put a marker down that Arts and Culture is central to the reimagination of this place. It has long been mooted that Ireland needs a concert hall with a capacity greater than 400 people for the hosting of large-scale events for national audiences, and City Edge may be the perfect location.

Outlier Facilities

Development of outlier facilities at an early stage of City Edge's delivery is an extremely important requirement to ensure Culture and Arts are recognised as an intrinsic part of the development process and the creation of a sustainable community. The need for long-term investment in Culture and Arts is also a prerequisite.

Figure 108. The National Opera House in Wexford, Ireland | Source: Keith Williams Architects

A Uniquely Cultural Place
Given the scale of development proposed and its associated timeline, City Edge is going to be a canvas for innovation and experimentation, whilst it will also act as a disruptor in challenging conventional thinking and practice. With this in mind, provision of housing for artists and the encouragement of collectives specifically for artists to live and create a unique sense of community, aiding the creative economy and supporting education should be considered as part of forthcoming development.

Culture and Arts should become part of the nervous system of the place and more importantly, the community. Aligned with this, is the creation of opportunities to engage artists to co-design programmes and facilities with communities, whilst facilitating channels for people to express their feelings on change around them, which will foster a bottom-up approach to the development of the area and instil a greater sense of ownership.

Co-designed provision, and youth led provision
Rooting City Edge as a living vibrant community.

Phased Development
There is importance in delivering arts and culture infrastructure within the early stages of development in any of the neighbourhoods of City Edge. This is true of all community, cultural and arts infrastructure.

Arts provision and programming
Arts provision and programming will in many respects define the cultural identity of City Edge. It provides opportunity to focus on:

- Local, sustainable and participatory arts rather than more passive forms of 'cultural consumption'
- Creative Places through Co-design of programmes
- Extensively connected to local, national, and international networks

Arts Infrastructure
The development of the arts in City Edge is dependent on truly integrating the arts into communities across the new neighbourhoods. To achieve this, it is necessary to encourage artistic activity at all levels within communities. This includes providing well considered and designed arts infrastructure to enable community participation in the arts, working and living spaces for artists and infrastructure for the presentation of art in all its forms. Key principles to the creation of arts infrastructure are:

- Undertaking research at the earliest stages of development
- Offering dedicated spaces for the creation and presentation of artworks
- Embracing the principles of co-design to ensure excellence of design

Public Art
Public Art, both permanent and temporary, can enhance the public domain, create identity and add greatly to the new neighbourhoods. Public Art includes work in all art forms and can bring added meaning to the physical and social context of the city.

Dublin City Council and South Dublin County Council recognise the value and relevance of public art and invests in this area of work, as part of their arts and cultural agenda and because of their potential to link to other fields of living and working. Both local authorities have extensive experience and strong track records in commissioning public art across all art forms and forms of expression. The understanding of national policy, including the Per Cent for Art Scheme, as well as knowledge of international practice, offers great opportunities to develop a creative and impactful public art programme linked to City Edge. Key to the successful development of a public art programme is:

- Integration with urban development at the earliest stages. Public art programmes can reaffirm the ambition of City Edge and help animate the area with an active arts programme, bringing momentum to the project and communicating the aspirations of the area in a very visible and inclusive way.
- Developing a strategic approach and programme
- Planning and designing infrastructure and the public realm to accommodate all forms of public art including permanent sculpture, street art, performance, exhibition, and installations.

Public Art Commissioning
The principal sources of funding for public art in Ireland are under the Per Cent for Art Scheme. This is a government initiative whereby funding is provided to commission public art as part of the development of capital projects and infrastructure. Public Art will be commissioned in adherence with the National Guidelines for the Per Cent for Art Scheme and following funding levels as published by the Government. The National Guidelines give scope for commissioning of new artwork across all artforms. It embraces all forms of artistic practice including, durational art – theatre, music, film, etc. – temporary art projects and permanent art. The guidelines also permit the pooling of funds, that is the collecting of funds accrued from individual capital projects into a central source of funding. This offers potential to create a coherent programme rather than initiating multiple once off commissions.

6.3.3 INDICATIVE CCA INFRASTRUCTURE REQUIRED

In order to set the context for growth of City Edge, indicative CCA infrastructure provision in relation to potential growth is outlined here, responding to current policy, and based on a potential population of 85,000:

Primary schools	approx. 20 x 3FE
Secondary schools	approx. 6 x 6FE
Primary care centres	approx. 9
Community centres	approx. 11
Green cover	50% (Framework objective)

Libraries and Cultural Assets will also be needed in City Edge. The location, quantum and delivery of such will be researched and confirmed at statutory plan stage.

Table 1. Indicative CCA infrastructure provision

6.3.4 CREATIVE, EARLY EVENING & NIGHTTIME ECONOMIES

The vision for City Edge is to create an attractive, diverse, creative, productive, and inclusive urban quarter. In order to support this vision, and Liveable City Objectives, the Strategic Framework seeks to foster and nurture the creation of early evening & nighttime economies. The early evening & nighttime economies are considered key elements of the city-mix that can be instigated early in the regeneration process.

The linking of evening & nighttime activity and uses to the character, attributes, and unique settings within City Edge, be those built or natural, offers a means to instigate a City Edge culture. The Strategic Framework advocates the seeding and incubating of cultural production and exposure early, as a means of establishing the creative economic growth trajectory of City Edge, whilst contributing to the future characters of the various neighbourhoods and districts.

It will be important to develop land use and management strategies that ensure that City Edge provides a broader offer throughout the day, evening and night across the various neighbourhoods and districts:

- Experiential retail that supports local production and helps activate streets and spaces
- An expanded leisure offer that helps support a more experiential centres approach, integrated with retail
- Cafes and restaurants that promote activity throughout the day and support an early evening economy, activating streets and spaces across City Edge
- Developing an early evening eating out offer, ensuring that it is safe and attractive for all including families with children
- Integrating cultural activities and uses, including the potential for destination-based events and festivals
- The development of nighttime economy, potential uses include food and beverage, cinemas, theatres, music venues, and nightclubs.
- Create desirable and attractive offers to residents and visitors alike

Seeding the early evening and nighttime economies, combined with enhanced retail, business and residential offers, will allow for the creation of new jobs whilst supporting the vitality and long-term viability of City Edge.

6.4 COMMUNITY, CULTURE AND ARTS SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Community, Culture and Arts Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

- Promote compact urban growth and 15-minute city principle by locating CCA infrastructure in mixed-use buildings or urban blocks that incorporate other uses such as residential.
- Support health and wellbeing with community buildings that promote active travel and active lifestyles through their use.
- Build opportunities for meaningful social connection and reducing sedentary lifestyles through good quality social and recreation options for all age groups.
- Retain and utilise existing assets, including artists, to support the continuity of the City Edge identity. Celebrating, re-using, renovating, and repurposing existing assets will help to ensure that City Edge has the cultural backbone to support its future identity and help to meet wider environmental sustainability targets.
- Encourage community and neighbourhood building by incorporating CCA infrastructure within developments from the outset that offer spaces and facilities that connect people in ways that have meaning for them.
- Encourage culture and leisure meanwhile uses that have the potential to rapidly shift local character and increase the dynamics of different neighbourhoods, attracting both locals and new visitors.
- Empower small start-ups and freelance creatives, increasing opportunities for employment in the creative economy.
- Encourage inclusivity and diversity through the creation of multi-functional facilities such as community and civic buildings that can be used for family and cultural celebrations such as weddings and memorials.
- Encourage experiential retail, cafes and restaurants that support local production and promote activity throughout the day and early evening, activating streets and spaces.
- Encourage community buildings to relate to and engage with parks, retail and commercial activity.
- Promote the use of Community gardens
- Promote the need for educational centres, citizens engagement, social inclusion, improve climate literacy and create public awareness
- Promote the use of Urban farming practices
- Establish connected communities
- Promote the use of climate resilient neighbourhoods, Sustainable energy communities and protect properties
- Ensure climate change does not result in an increased financial burden on marginalised persons and / or those in lower income groups

7 ECONOMY

7.1 ECONOMIC VISION

7.1.1 VISION

City Edge currently plays a key role in the Dublin economy. The area occupies a strategic location in the city which, over time, has helped to create an important industrial and employment area. This role is expected to continue into the future.

The vision for City Edge is to create a resilient and diverse employment offer that is underpinned by high value employment opportunities within a re-imagined and re-purposed economy. The economic regeneration of City Edge will also incorporate a gradual transition towards urban industry and innovation.

'A strong economy allows cities to grow and provides employment, housing and services for its inhabitants...'

A strong economy will be crucial for City Edge as it will facilitate growth and provide employment, housing and services for its inhabitants. Businesses and investment are attracted to cities with strong economies that are resilient and which look to the future.

Principles
As illustrated overleaf, the future economy of City Edge is centred on four key principles being:

Growth: economic growth through a range of measures such as creating high density employment and attracting high value sectors.

Opportunity: re-purposing the economic structure of City Edge.

Diversification: attract new and emerging sectors to complement existing valued industries.

Resilience: responsive to changing economic conditions

'By 2070, City Edge will have been transformed into a new mixed-use quarter for Dublin, underpinned by a resilient and competitive economy...'

City Edge will continue to be a significantly valuable location for the city, and it will characterised by high density employment and an increased resident population.

City Edge will be an attractive location for businesses and a place where people will want to live, to work and to socialise through the creation of attractive urban environments.

City Edge will have a resilient and competitive economy through a diversification of sectors. It will offer high value employment opportunities which in turn will provide additional social and environmental benefits, creating a solid foundation for economic prosperity. The defined economic objectives set out as to how City Edge can grow its economy, attract and retain jobs, and become a valuable business location in order to meet the aspirations of its future residents and workers within a new mixed-use neighbourhood for Dublin.

7.2 ECONOMIC DEVELOPMENT PRINCIPLES

Growth

Cities are economic growth generators. City Edge presently has a low density of employment across a large physical area. The regeneration process will seek to deliver economic growth through a range of measures such as creating high density employment attracting high value sectors, building on the role and value of existing intensive industries and creating the right economic landscape that will combine to increase its economic value to Dublin.

Opportunity

City Edge offers a once-in-a-lifetime opportunity to economically regenerate a large area of Dublin into a new mixed-use quarter. Central to this aim is the opportunity to repurpose the economy of City Edge in order that the economic structure of the area is sustainable over the long term and continues to add value to the wider Dublin City economy.

Diversification

The City Edge economy is one that is presently centred around a number of traditional employment sectors. In order for its economy to grow, while realising industry will continue to have a role, it will need to diversify its sector base and attract new and emerging sectors that will provide a range of high density and high value jobs that will be attractive to a highly qualified and skilled workforce. Diversification will marry existing and new sectors to create the optimal sector mix for City Edge.

Resilience

Having a resilient economy in place for City Edge is a key principle of economic development as it promotes strength and competitiveness. A resilient economy is one that is responsive to changing economic conditions and can assist in withstanding economic shocks (such as the pandemic) while providing job opportunities across a range of high value sectors.

Employment

From a base of ca.25,000 jobs to ca.75,000 jobs in City Edge with gross earnings of potentially ca.€4 billion annually

Value

A potential increase in value from just under ca.€2 billion to ca.€13 billion Gross Value Added (GVA) to the Dublin City economy annually

Residents

From a resident population of just under 5,000 people to potentially ca.85,000 people living in City Edge

7.3 ECONOMIC OBJECTIVES

'The vision for City Edge is to create a resilient and diverse employment offer that is underpinned by high value employment opportunities'

Economic Objectives	Aligned Economic Development Principle	Economic Benefits for City Edge
Employment growth based on high density and employment creation	Growth	• High density employment growth of ca.65,000 – ca.75,000 jobs (including existing jobs) • Employment creation within existing and new sectors • Creation of highly valued and attractive jobs • Increased salary generation and GVA for Dublin City • Increased spend on local goods and services through increased critical mass of employees / residents (increasing through time)
An economy that is robust, resilient, and competitive	Resilience	• Solid economic foundation for growth and development • Robust against future economic shocks • Implementation of a monitoring system can maintain economy's resilience and competitiveness and identify issues for action / resolution at periodic intervals
Co-ordinate and integrate economic growth in tandem with other land use	Diversification	• Diversity of employment opportunities generated • Infrastructure identified, funded and delivered to support growth • Clusters of urban industry interspersed with employment and residential uses
Attraction of a major anchor as an employment catalyst for City Edge	Opportunity	• Catalyst and spark for growth • Critical mass of employees / residents generated in the area • Promotes City Edge as a 'business friendly' location within Dublin and capable of accommodating major employment uses
Maintaining an important and high value economic location and function for Dublin	Resilience	• Regeneration will strengthen City Edge's role within the Dublin's economy adding value for the City • Economic value of existing sectors and their contribution to the future value of City Edge • Creation of optimal sector mix (existing and future uses)
Facilitating / assisting the retention and relocation of existing businesses	Opportunity	• Existing sectors can play a key role in the regeneration process over the long term • Importance of sector modernisation • Opportunity for lands to be brought forward for redevelopment / site assembly
Economic transition incorporating new and emerging sectors	Diversification	• City Edge can provide the optimal location for new and emerging sectors • Create a niche role within the employment environment (e.g. sector clustering / hub development) • Proximity to third level institutions can provide a highly educated workforce, particularly to support new / emerging future sectors • Using meanwhile uses to secure early development wins
Promote a major new centre with commercial uses at Kylemore	Growth	• Promoting a major centre can assist with delivering growth through attracting major anchors to City Edge • Capitalising on existing, planned and proposed public transport and active movement corridors to attract a critical mass of people
Promote local centres with high street uses across City Edge	Opportunity	• Creating vibrancy and vitality throughout City Edge through the provision of services and facilities for residents and employees • Allows for building efficiency through delivering a mix of uses at different floor levels (e.g. ground floor focus on commercial activities such as retailing and food and beverage with residential and commercial at upper levels).

7.4 ECONOMIC CONTEXT

7.4.1 CITY EDGE BACKGROUND

City Edge is a long established industrial and commercial area of Dublin City. The area has long been recognised as a primary employment area over several decades, initially providing the space required for traditional industry to locate and grow within the city. The area continues to retain an important function both in employment and economic value terms.

The development of City Edge and its environs began around the middle of the 20th century with city development reaching as far as Lansdowne Valley Park to the west. From the middle to late 20th century, urban development had continued outwards and had moved beyond the River Camac Valley area. At this point in time, the development of more industrial uses had begun, as opposed to the middle of the 20th century where residential development was dominant.

Land uses in City Edge have since evolved over time from initially light and heavy industrial uses to include additional wholesale / retail, business, logistics / distribution and warehousing uses.

7.4.2 CITY EDGE ECONOMY – BASELINE

City Edge is a conglomeration of industrial estates and business parks within a pattern of low-medium intensity development with smaller pockets of residential development pepper-potted throughout. The industrial estates and business parks have access to high quality existing and planned public transport, infrastructure and services and are located a short journey from the City Centre. City Edge attracts a high volume of commuter employees on a daily basis which also brings indirect economic benefits to the local area

'Demand for industrial, logistics / distribution and warehousing floorspace has increased significantly in Dublin and remains high...'

One of the key land use issues affecting the Greater Dublin Area and, in particular City Edge, is the current demand for industrial land / property. Over the last number of years, the demand for industrial, logistics / distribution and warehouse floorspace has increased significantly.

The Covid-19 pandemic has exacerbated this demand, with a substantial increase in online retailing / e-commerce behaviours leading to an increased demand for logistics / distribution space. Along with the pandemic, Brexit has also had a key impact on supply chains and the related demand for the aforementioned floorspace.

Given the issues which exist, industrial rents and land values have been increasing. Rising values are having an impact for City Edge, and particularly for development viability, given its industrial nature and quantum of industrial lands across its area. Historically, industry has had a lesser value when compared to commercial or residential uses for example, however that situation has now changed and the premium value of industry is now very much recognised in today's property market. This issue may impact site assembly and land availability in City Edge.

The current trend in the Dublin market is for any new warehousing space to be pre-let in advance of construction. The demand for industrial land / property doesn't show any sign of abating over the short-term which is expected to continue to drive land / property values up.

A primary component in attracting new business / sector growth will be to ensure that City Edge is a well-connected and sustainably accessible location. This is particularly important when attempting to bring new workers to City Edge from other locations around Dublin, and ultimately trying to attract them to permanently relocate to the area.

In terms of transportation, a component of the strategic vision is to develop City Edge in a manner that maximises existing and proposed sustainable transportation opportunities. This will help to link City Edge with surrounding communities, promote walking and cycling modes and enhancements to public transport. Through the delivery of an enhanced transportation offer, City Edge will become a more attractive economic location.

There are a number of planned public transport projects that will provide potential economic benefits for the City Edge economy such as a new railway station at Kylemore (pre 2042 as per Draft NTA Strategy); the reconfigured Luas Red Line route from Tallaght-Kimmage-City Centre (post 2042 as per Draft NTA Strategy); and BusConnects that will improve City Edge's accessibility with 3 routes serving the area: Clondalkin to Drimnagh (CBC08); Greenhills to City Centre (CBC09); and Liffey Valley Bus Interchange to UCD Bus Interchange (Orbital Route S4). These sustainable transport options will also help to meet the target reduction in enterprise emissions by ca.40% as set out within the Climate Action 2021.

The Strategic Framework proposes a number of sustainable transport projects for City Edge which include the Kylemore Rail Interchange, Naas Road Luas stop and inner and outer orbital public transport routes. These proposals would further enhance the connectivity of City Edge and promote the area's economic locational potential. Through the potential future delivery of such transport infrastructure, there exists the opportunity to focus new high density development in locations within City Edge that will be served by high frequency transport. Aligned with improving public transport is the delivery of blue and green infrastructure that can also assist with creating the optimal conditions for new business / sector location within City Edge.

7.4.3 EMPLOYMENT WITHIN CITY EDGE

There are approximately 25,000 jobs in City Edge. By sector, the 'Wholesale / Retail Trade' industry accounted for the highest number of employees representing ca.40% of total employees in City Edge. This was followed by the 'Information and Communication / Financial' industry group that represented a total of 5,426 workers (c.22%) – please refer to the associated graphic. These key sectors illustrate how City Edge has transformed over time. Long term employers in the area include Diageo, Irish Distillers and Britvic for example. Iarnród Éireann is another long term employer however this site has experienced a historic winding down of industrial activity.

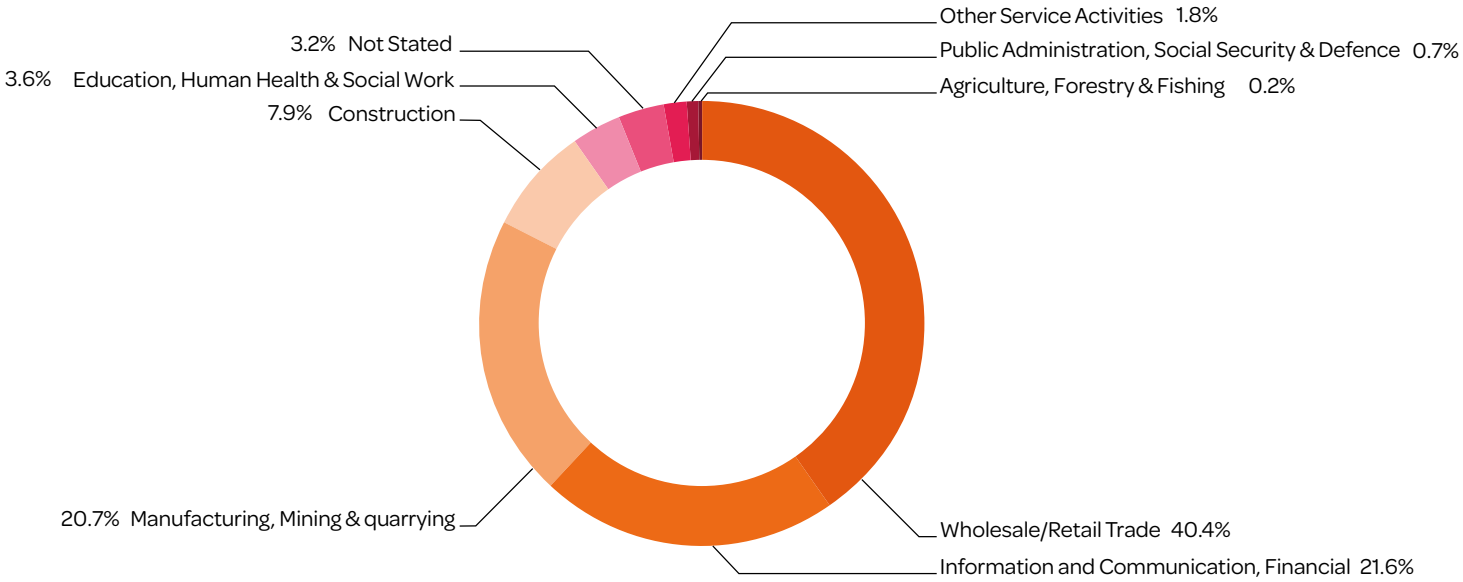


Figure 109. Workers Per Industry Group (Workplace Zones) in City Edge (2016). Source: CSO Ireland

7.4.4 CITY EDGE VALUE TO DUBLIN CITY

The Naas Road area makes a valuable and significant economic contribution to Dublin City and the Greater Dublin Area. The area is estimated to generate just over €1billion in salaries annually, while representing ca.2% of Dublin's Gross Value Added (GVA) total figure.

'Salary generation in City Edge accounts for just over €1.05 billion annually... with a GVA figure of nearly €2 billion...'

This Strategic Framework recognises the economic importance and value of City Edge at present and will seek to ensure that it continues to play an important economic role both for Dublin City and the Greater Dublin Area well in the future.

As part of the City Edge Project, it will be important to monitor its economic progress at periodic intervals in order to allow for defined aims and objectives to be assessed particularly where there is significant change, both positive and negative, to national, regional and city economies – please refer to

12 (Delivery) for additional details.

7.4.5 CITY EDGE PUBLIC CONSULTATION

The non-statutory public consultation was held over a four week period from September to October 2021 regarding an Emerging Preferred Scenario which has subsequently been progressed under this Strategic Framework. The theme of 'economy and employment' attracted the second highest number of submissions. Important issues that were raised included, inter alia:

- Number of derelict / rundown sites close to the city centre that are under-utilised.
- Regeneration process could impact the viability of existing operations, particularly those of established employers.
- Support for enhanced commercial activity within City Edge.
- Consideration to be given to the relationship between existing uses (for e.g. industry and commercial) and new sensitive land uses (for e.g. residential, community, education).
- Support facilities required for workers.

7.4.6 ASSETS & STRENGTHS

As set out, City Edge continues to play a significant economic role for Dublin City. The area has a number of assets and strengths that it can use as a platform to further strengthen its economic performance and resilience over the long term regeneration process.

City Edge has significant economic comparative advantages that it needs to optimise, particularly in terms of its location, its established reputation as an industrial area, its transport and connectivity links (for e.g. M50 Motorway, N7 and Luas) and the critical mass of people already living and employed within the area, for example.

Critical Employment Mass
City Edge has just over 25,000 people already working within the area on a daily basis and primarily within Wholesale / Retail Trade, Manufacturing and ICT / Financial sectors which comprise over 80% of all employees.

Resident Population
City Edge has an established resident population of just under 5,000 inhabitants and is considered to have a 'young population'. Having a young population is economically advantageous as it can sustain future employment, services and housing over the long term and provide a basis for establishing sustainable communities.

Strategic Location
City Edge is situated within the Dublin Functional Urban Region and Economic Core Area and occupies a strategic location relative to the M50 motorway (west) and N7 economic corridor (south west) and is a gateway into the City from the west / south west.

Educated Workforce
The resident population of City Edge has an educated workforce with 9% of its residents having obtained a Third Level Bachelor's Degree (Honours) which is broadly similar to the figure for the State. Nearly one quarter of all City Edge residents are employed within Professional Services with the same figure holding Managerial / Technical positions. As mentioned, City Edge has relative proximity to number of third level institutions, such as those in Dublin city centre, providing a graduate workforce to support new and emerging sectors, in particular.

Transport and Connectivity
City Edge is well served in terms of the road transport network by its location in proximity to the M50 Motorway and N7 National Route which supports its logistics / distribution operators. The area avails of sustainable transport options through the provision of the Luas red line which runs through the heart of the area along with Dublin bus services.

As set out within the new draft GDA Transport Strategy 2022-2042, there is a new railway station planned for Kylemore along with a proposal to reconfigure the Luas Red Line route from Tallaght-Kimmage-City Centre. BusConnects also proposes new routes that will traverse City Edge and there are opportunities for additional orbital bus routes and Luas stops. These new heavy and light rail and bus projects will further enhance City Edge's sustainable connectivity.

Opportunity for Regeneration
City Edge is a significant location for Dublin City both in terms of its economic value and physical size. Recent planning approvals for large scale developments has the potential to bring forward new residential schemes on brownfield lands, substantially increasing resident population and worker figures. City Edge is also positioned to accommodate a portion of the projected increase in Dublin City's population which is expected to rise by +30% by 2036.

Established Reputation
City Edge has transitioned over the last number of decades from being solely a traditionally industrial area on the periphery of Dublin, to providing additional retail

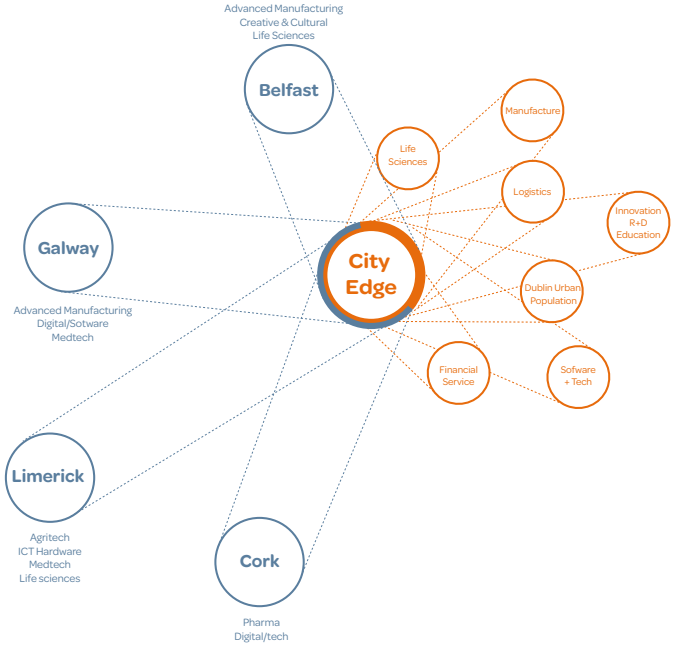


Figure 110. Strategic relationships at a national & international scale

trade, commercial and business services for example, with over 1,600 individual companies / operators now located within the area. This has somewhat enhanced its economic resilience. Despite its transition to other contemporary sectors, retaining a level of industrial land / uses will be important, particularly at a city level.

Neighbourhood Linkages
City Edge is strategically located close to the residential neighbourhoods of Clondalkin and Kingswood (to the west), Ballyfermot and Cherry Orchard (to the north) and Walkinstown (to the east) and Greenhills (to the south). Creating linkages and synergies can bring forward economic opportunities whereby City Edge is integrated into a cluster of neighbourhoods, performing key residential and employment functions and forming an integral part of the wider City.

Economic Challenges		
	Infrastructure Funding	City Edge faces a key challenge in relation to funding its regeneration, particularly regarding the funding of infrastructure delivery. Appropriate mechanisms for funding must be identified, be it from public or private sectors or a combination of both, in order to unlock development. Infrastructure delivery is a key part of creating the optimal conditions to attract new sectors and workers to City Edge. Key infrastructural requirements are identified with this Strategic Framework.
	Land Ownership	City Edge encompasses a large physical area of +700 ha with a large number of landowners present. This presents challenges such as bringing lands forward in a co-ordinated manner and seeking to avoid piecemeal development patterns.
	Development Viability	Issues exist regarding current viability of development due to increasing land / property values and costs of construction – these issues are being experienced at national, regional and city-wide levels. Increasing values and costs may impact economic growth, particularly in the early phases. There are also challenges around the design and viability of mixed use schemes that can deliver attractive and meaningful workspace alongside residential use and the co-location of such uses. Creation of place and the delivery of sustainable transport infrastructure for example can assist viability and will help to attract new commercial and office space over the next 10-15 year period.
	Demand for Industrial Land	Demand for industrial land has increased substantially across Dublin in recent years. This situation has economic challenges for City Edge (and wider city economy) such as landowners wanting to retain industrial land due to its increasing value and for the relocation of existing operations. Working around / with Seveso sites also presents challenges.
	Development Catalyst	Catalysts such as a major anchor (e.g. large scale employer) or an institutional use can act as a development 'spark'. A primary challenge for City Edge is attracting a catalyst in the early regeneration phases in order promote the area as a 'business-friendly' location that can kick-start further development and make the area more commercially attractive.
Economic Opportunities		
	Sector Diversification	City Edge must look to other sectors for new opportunities and it must embrace sector diversification to do so. Promoting and attracting a range of sectors can lead to economic opportunities to make its economy more resilient and competitive over the long term and provide high value employment.
	Land Use Intensification	City Edge has the opportunity to ensure that new development will promote compact urban forms and deliver a more efficient use of brownfield lands – an important aspect of this is creating the opportunity to deliver more intensified mixed residential / employment locations within City Edge that will be supported by sustainable transport provision.
	Governance Model	The opportunity exists for a bespoke governance model to be created for City Edge and this is particularly relevant given its lands are situated within two local authority jurisdictions. There may also be an opportunity for City Edge to become an 'Urban Development Zone' as proposed within the Land Value Sharing and Urban Development Zones Bill 2021, for example.
	City Demographics	Dublin's population is now estimated to be in the region of 1.43 million people and is projected to reach a figure of ca.1.86 million by 2036. City Edge offers the opportunity to accommodate a percentage of Dublin's projected rise in population over the long term through its re-imagination as a new mixed-use quarter.
	Sustainable Communities	Delivering a critical mass of population to augment the existing population of City Edge will be a long term challenge. Through the delivery of high value jobs, the aspiration is that workers will reside within the area on a long term basis, being located close to their place of employment. The opportunity for creating long term resident communities needs to be ably supported by the delivery of housing, physical and social infrastructure and local services that will be required by the future local population.
	Retaining Industrial Lands	As referred to, there is a tangible demand for industrial land in Dublin. Retaining such lands can offer economic growth opportunities for City Edge by ensuring that it maintains its economic base and employment driver, while assisting with Dublin's city-wide industrial offer, particularly over the short / medium terms.

7.5 CITY EDGE FUTURE ECONOMY

7.5.1 ACHIEVING THE VISION

The vision seeks to:

'To create a resilient and diverse employment offer that is underpinned by high value employment opportunities...'

The overarching economic vision for City Edge is to promote and bring forward high quality employment opportunities for future residents and those employed in the area. The future City Edge economy will be shaped by a host of influencing factors, forces and trends and it will evolve and transition over the long term.

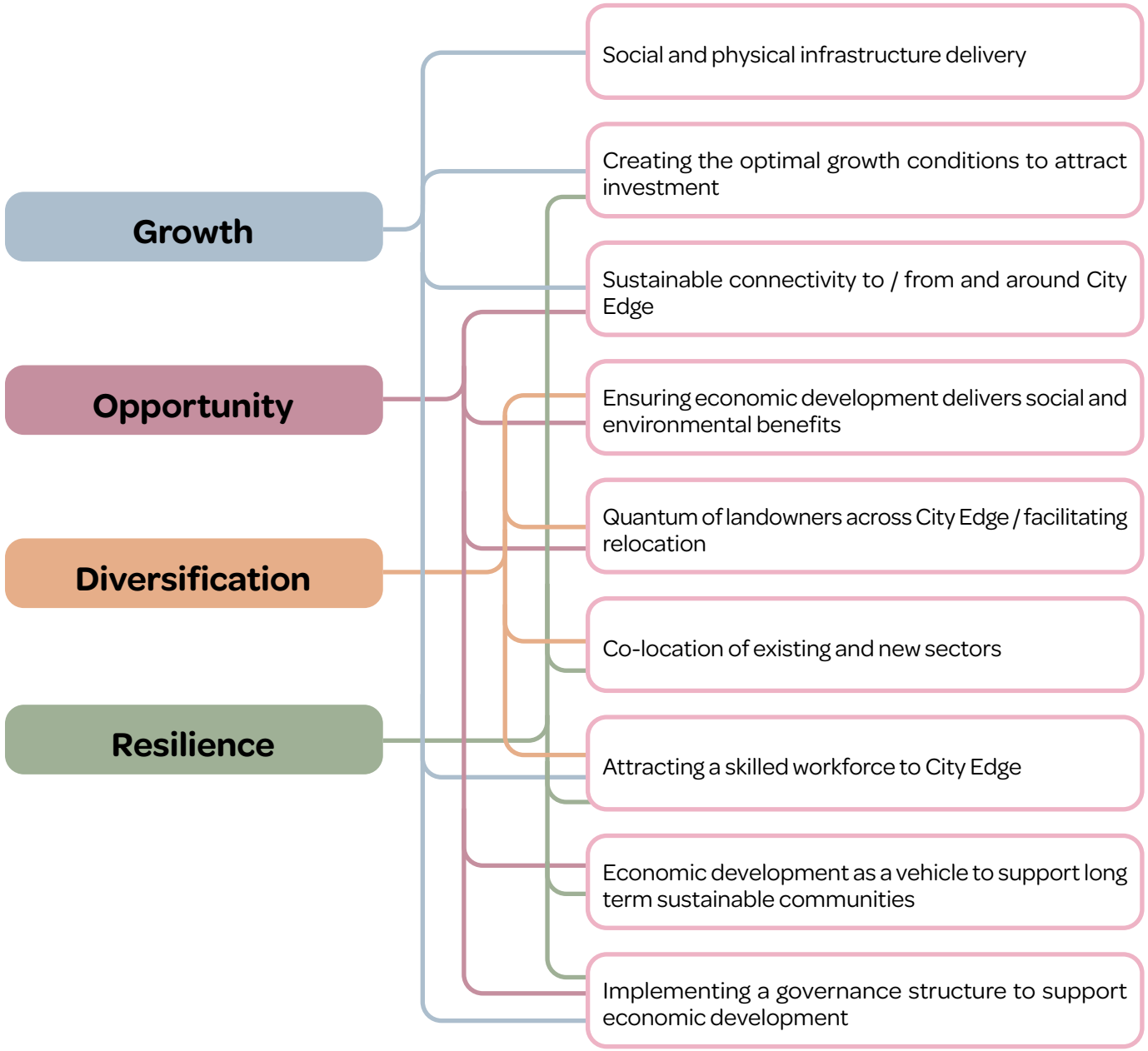
To achieve the vision, it is important to take account of, inter alia, economic development themes for the area; the economic challenges and opportunities that exist; the optimal conditions that need to be created in order to attract and retain investment; what sectors offer potential employment growth; what sectors / uses will be located where; and how monitoring of the City Edge economy will be required to assess its progress through time.

7.5.2 ECONOMIC DEVELOPMENT PRINCIPLES

Four principle economic development principles have been identified for City Edge and these are:

Growth; Opportunity; Diversification and Resilience. The diagram adjacent illustrates how selected development growth factors are linked to and support the various development principles, thus demonstrating their importance for the City Edge economic vision.

7.5.3 DEVELOPMENT CHALLENGES



7.5.4 OPTIMAL CONDITIONS FOR ECONOMIC GROWTH

'What conditions need to be delivered to promote economic growth in City Edge?'

To drive success for City Edge in terms of delivering 'world-class' places for businesses and for new sectors to thrive, the economic conditions need to be right. As a starting point, this is influenced and shaped by several key elements including infrastructure, locations, flexibility and placeshaping.

In relation to 'infrastructure' and 'locations', please refer to Chapter 12 (Delivery) that provides further details on the sequencing of infrastructure and identifies locations under different phases for development. Regarding 'flexibility' and 'placeshaping', please refer to Chapters 9 (Natural Infrastructure) and 11 (Districts & Character Areas) which identifies locations for a flexible mix of uses while bringing together placeshaping elements such as urban spaces, parks, blueways, greenways and high streets for example.

Infrastructure: Identifying and delivering the right infrastructure (connectivity, natural, utilities and social) to support economic growth across City Edge. For example, delivering key transportation infrastructure upfront such as Kylemore Rail Interchange, Naas Road Luas stop and the Orbital Public Transport Routes, City Edge will be further connected to existing economic clusters in Dublin and from a business perspective, good connectivity is attractive for employees.

Locations: Identifying and bringing forward locations that enable businesses to operate unimpeded, with sufficient levels of amenities nearby to retain their services over the long term ('stickiness' factor). Different locations will be attractive and conducive to certain business activities. Certain industrial activity for example, would be best suited to locations which are well connected to the strategic road network (M50 & N7) and are distanced from residential or community / leisure uses to avoid limitations from vehicle or noise pollution, for example. Locational identity is also an important (e.g. Dublin Docklands / Tech).

Flexibility: Planning and delivering suitable employment uses that are flexible enough to align with growing and changing sector activity and economic conditions. Delivering a mix of typologies that can accommodate a diverse range of sectors and activities should be a primary aim. Spaces should be flexible to compensate for changes in wider market dynamics and businesses' spatial requirements over time.

Placeshaping: Aligned to 'locations', placeshaping is a key determinant for economic development and the creation of attractive places to work is becoming increasingly important for employees. Employees now expect modern employment locations to be supported by modern ancillary amenities (e.g. leisure / retail) along with an ease of transport and connectivity. For City Edge, opportunities may exist in bringing forward new office space that will be attractive to the finance, tech and biopharma sectors initially, as these sectors have a tangible demand for new employees and accommodation at the present time. Creating quality places within City Edge will require public input, partnerships and creative design.

7.5.5 GROWTH SECTORS

This chapter section has been informed by an Economic Strategy prepared by Avison Young, which is summarised below. The Economic Strategy was carried out to investigate, analyse and provide additional commentary, recommendations and advice in respect of a number of strategic areas including, but not limited to:

- Identifying the current economic position of City Edge;
- Establishing the City Edge economic profile;
- Setting out the economic proposition for the area;
- Identifying strategic growth sectors and future uses and locations;
- Creating the optimum economic conditions; and
- Estimating the future economic value of City Edge.

What types of sectors could be potentially accommodated within City Edge? A selection of growth sectors are described below and have been assessed for their potential economic value and suitability for City Edge. Case study examples are provided at the end of this section.

Logistics, Distribution & Storage
Sector Descriptor: Logistics, distribution and storage is principally concerned with the transportation, warehousing and packaging of products. The global freight transport and distribution and logistics services sector accounts for ca.108,000 jobs in Ireland.

City Edge Consideration: The location of City Edge on the periphery of Dublin but in relative proximity to the City centre is extremely advantageous from an operational point of view. The locational characteristics of City Edge provides a firm basis and opportunity for this sector to continue to grow within the area and to capture an increased share of employment. City Edge already has a sector advantage in that the logistics and distribution sector already has an established presence and workforce operating in the area.

Urban Industry
Sector Descriptor: This sector is concerned with industrial processes that comprise such uses as light and heavy industry, manufacturing (including advanced manufacturing) and production.

City Edge Consideration: City Edge is an important industrial location for Dublin City and the aforementioned uses can continue to be key employment sectors in the area. In order for City Edge to retain its industrial value, it must take cognisance of 'Industry 4.0' which is modernising the way companies manufacture, improve and distribute their products. Industry 4.0 is an evolution of industrial process and implements modern technology such as cloud computing, data analytics and artificial intelligence into their operations.

Urban Workspace
Sector Descriptor: Urban workspace covers a wide variety of uses such as shared / private office space for business start-ups, lab space, maker space, incubator space, creative space / facilities, maker space for shared technical or workspace facilities for physical making or production of goods. The pandemic has resulted in a re-thinking of the traditional 'office' which has given rise to new types of flexible workspace models.

City Edge Consideration: In terms of urban workspace, there is potential for City Edge to be promoted as a new location in Dublin that can offer small companies and start-ups, for instance, the workspace they need to establish and grow their business. Existing buildings, and their redevelopment, offer potential premises for such companies to relocate to City Edge. Aligned with this, the wider sector opportunity for City Edge would also come forward to promote incubator clustering in the area. Benefits to City Edge would include diversified high streets, local job creation and increased footfall to enhance vibrancy and vitality.

Medical Technology (MedTech)
Sector Descriptor: The World Health Organisation describes this sector as being the "application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures, and systems developed to solve a health problem and improve quality of lives."

Ireland is the largest employer of MedTech professionals in Europe per capita with annual exports valued at €12.6 billion. Ireland is home to the development, manufacturing and service operations for 18 of the top 25 global medical device companies.

City Edge Consideration: For City Edge, this growing sector may offer growth potential and high floorspace demand requirements, however it faces competition from a highly established operational cluster. City Edge will be actively competing with other parts of Ireland to attract employment in this sector. Therefore, this growth sector should be seen as a longer term opportunity for City Edge.

Financial Technology (FinTech)
Sector Descriptor: The FinTech sector mainly comprises activities such as payment and digital banking, investment platforms and management as well as credit and lending.

City Edge Consideration: In order for City Edge to become a major actor in the sector, the optimal economic conditions, including a wide range of supporting ancillary amenities and infrastructure, will need to be delivered within the area. Some gain could be realised in the short-term by attracting smaller SMEs and start-ups, while the delivery of the majority of employment would be considered to be realised over the medium term. Similar to MedTech, this use could bring forward high floorspace demand requirements.

Biopharmaceuticals
Sector Descriptor: A biopharmaceutical, also known as a biologic medical product, relates to a pharmaceutical drug product manufactured in, extracted from, or semi-synthesized from biological sources.

City Edge Consideration: Similar to the MedTech sector, City Edge will be competing with other parts of Ireland to attract employment within Biopharma (such as Grange Castle). It is considered that it may be difficult for City Edge to become a major player in this field without major investments, and at the disbenefit of other clusters in Ireland. Therefore, this growth sector should be viewed as a longer term opportunity for City Edge.

Green Energy & Technology
Sector Descriptor: Green Energy is concerned with the collection of energy from renewable resources such as sunlight, wind, tidal and geo-thermal for example. Green Technology is the use of technology and science to reduce human impacts on the natural environment.

City Edge Consideration: The Green Energy and Green Tech sectors are situated under the 'Green Economy' umbrella and offer a significant potential economic opportunity for City Edge. Given their associations with the natural environment and energy production, it is reasonable to think that this sector could become a key source of employment in City Edge given the importance of achieving net-zero carbon targets at a national level for instance.

Business & Professional Services
Sector Descriptor: The Business Services sector is quite diverse and includes employment groups with a number of broad categories such facilities management, business process outsourcing, IT and digital services and outsourced public services for example. Professional services can include the following employment groups: architects, accountants, engineers, solicitors, property, construction for example.

City Edge Consideration: As mentioned, it is considered that uses such as MedTech and FinTech represent long to medium term growth sectors respectively and potentially these sectors could bring with them significant floorspace demand requirements. However, as these uses are determined as being within medium to long term phases, there exists an opportunity for City Edge in the short-term to promote itself as a location for increased business and professional services. While such uses are already in operation in some locations, delivering place-shaping and public realm improvements and enhancing the area's sustainable transport connectivity for instance could further generate growth and value in this sector.

E-Gaming
Sector Descriptor: Electronic gaming (E-Gaming) is found within the wider E-Sports sector which is a rapidly growing industry, with over 700,000 gamers in Ireland. In terms of economic value, and taking the United Kingdom as a comparator location, the E-sports sector supported £111.5 million in GVA in 2019. These figures demonstrate the significant economic value of this emerging sector.

City Edge Consideration: With limited competition, City Edge could become the main cluster for E-Gaming in Ireland, however the infrastructure required to support this sector (encompassing venues, brands, events, stakeholders for example) is relatively limited. The proximity to Dublin, access to university and young and qualified workforce is an advantage for City Edge. Boost of employment in the E-Gaming industry in the area could be achieved over short and medium terms. Advantages for City Edge include the potential re-purposing of existing industrial buildings for use. Sustainable transport linkages are also a key factor for this emerging sector. This sector could also function as a supporting ancillary use for employees of other sectors thereby providing both primary and secondary sector uses.

Meanwhile Uses
Sector Descriptor: 'Meanwhile uses' is relatively new phenomenon and is a term used to capture a diverse range of uses such as pop-up shops, food and beverage outlets, leisure, community facilities and workshops for instance.

City Edge Consideration: Meanwhile uses have a commonality in that they are usually characterised by their short-term and flexible nature. However, within regeneration schemes, meanwhile uses can play an important economic role. Their value lies in their different functions as referred to but principally they provide opportunities for 'early development wins' and can bring vacant or underutilised property and lands back to life. Meanwhile uses can bring with them a vibrancy and vitality to an area and can act as a valuable stepping stone from existing and older development towards new and future development. Meanwhile uses can play an important role for City Edge and could act as a development catalyst through bringing increased footfall to the area.

Retailing
The viability, scope and location for retail and retail service floorspace within City Edge will need to be explored. The Retail Strategy for the Greater Dublin Area 2008 was prepared by the Dublin and the Mid-East Regional Authorities (now dissolved) and the RSES for the Eastern and Midlands Region supports the preparation of a new Retail Strategy.

In addition to an Employment Study, a Retail Study should to commissioned at Statutory Plan Stage in order to (inter alia) review retail policy including any updated Retail Strategy, consider the health of existing retail centres and assess retail need.

Growth Sector Case Studies

Figure 111. Segro V-Park Grand Union, London | Source: SEGRO

Figure 112. Millennium Mills London

Sector / Typology	Urban Industry
Location	Segro V-Park Grand Union, Alperton, London, England
Spatial Configuration & Suitability	• Multi-storey light industrial space over 6 storeys • Ground and first floors will be utilised to provide over 100 parking spaces • Flexible industrial space arranged over four upper levels - can be configured as up to 20 individual units with a range of sizes, supported by shared meeting rooms, breakout areas, wellness spaces etc • Designed to maximise employment space and accessibility • Allows residential to be developed on former industrial land without the loss of jobs in the area
Floorspace Area	12,495 sq.m.

Sector / Typology	Mixed-Use Scheme (inc. Residential)
Location	Millennium Mills Docklands, London
Spatial Configuration & Suitability	• Mixed-use development comprising residential, creative / tech, e-gaming uses • Redevelopment of derelict former flour mill • 3,000 residential units • E-Gaming arena with capacity for 2,500 persons (c.300,000 sq.ft.) • Arena to act as a catalyst for growth in the Newham area • Development has benefitted from recent improvements in sustainable transport connectivity
Site Area	25 hectares

Figure 113. SOAR Works Sheffield

Figure 114. Olympic Park London

Sector / Typology	Urban Workspace
Location	SOAR Works, Sheffield, England
Spatial Configuration & Suitability	• Enterprise Centre comprising offices, creative studios, artist studios and light industrial workshops along with meeting / event space • The multi-nature of the space allows for events and networking between businesses which drives activity and animation • Provides affordable workspace • Operated by community regeneration charity – meeting spaces etc used by local residential communities outside of business hours • Located within a residential neighbourhood
Floorspace Area	3,600 sq.m.

Sector / Typology	Urban Workspace
Location	Olympic Park, London
Spatial Configuration & Suitability	• Cultural destination close to Hackney Wick providing workspace, public facilities, events, markets, and ancillary F&B • Focus on delivering spaces for Artist and creative activity • Multi-functional nature of the space helps to drive activity and creates a destination • Curated events programme helps to brand the area whilst delivering a place for cultural activities • Example of short-term project to provide incubator and meanwhile uses and will eventually be developed for residential use
Floorspace Area	6,110 sq.m.

7.5.6 MAJOR CENTRE – NAAS ROAD DISTRICT

The Naas Road District occupies a strategic and location within City Edge with a developable area of ca.59 ha. The district encompasses the central area around the Naas Road, Walkinstown Avenue / Kylemore Road locality which has attracted development interest, with a number of prominent sites presently having the benefit of planning permission for large scale developments. As such, the Naas Road District holds key locational advantages and its existing development profile makes it the optimal location for a new major centre within City Edge.

As illustrated on the associated map image, the majority of this District area will be apportioned to mixed-use employment and residential uses with natural infrastructure assisting with positive placeshaping and sustainability outcomes. The major centre will have a focus on a high intensity of uses, particularly commercial and office space, accommodating high density employment and the opportunity to create ca.18,000 – ca.19,000 jobs. This will be supported by existing and planned sustainable transport modes such as the Luas red line that will enhance the area's overall accessibility and connectivity, making the area attractive to employers and employees.

While it is considered that residential uses may come forward initially, improved public transport and placeshaping will ensure that high density employment will follow over time.

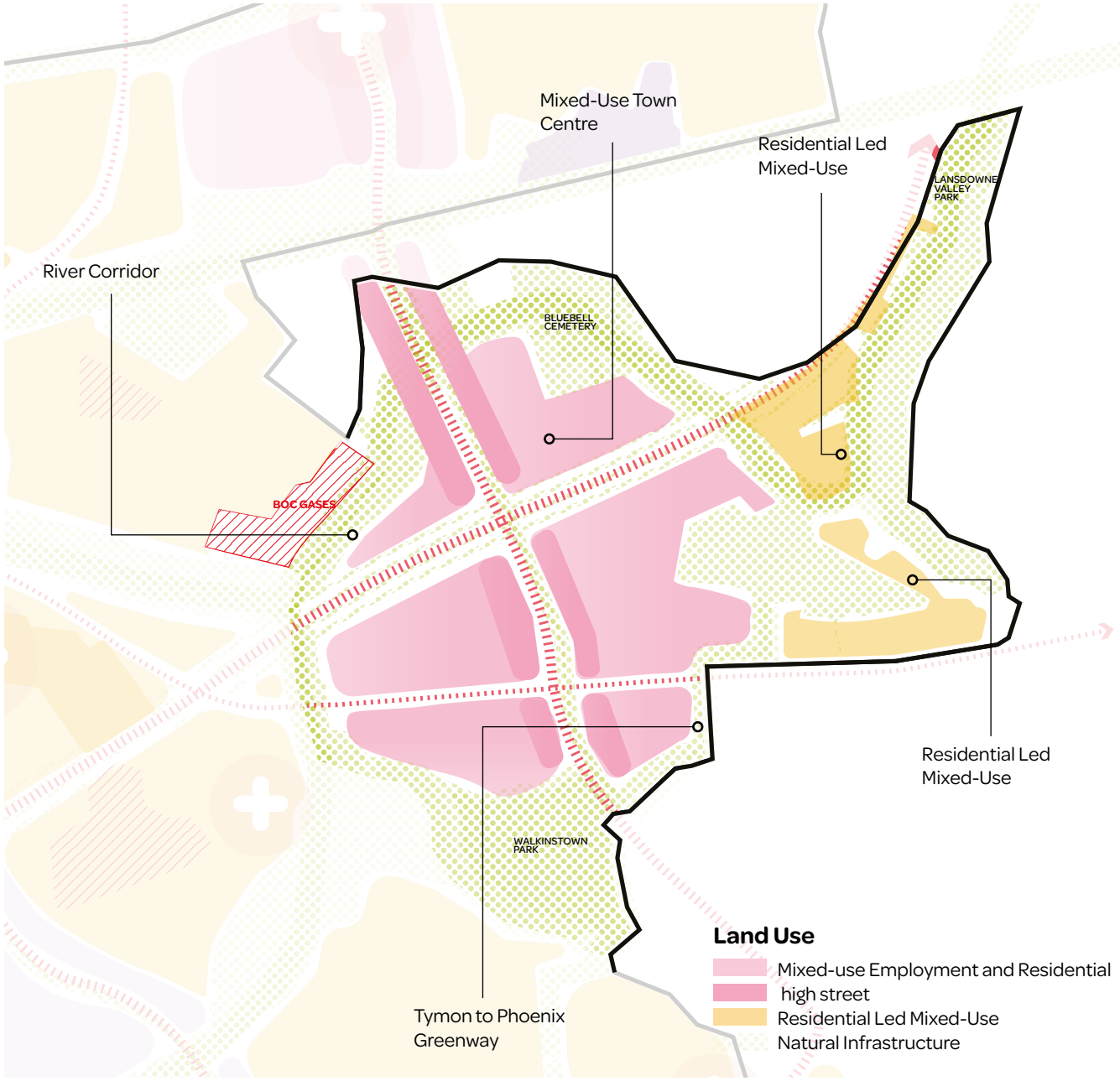


Figure 115. Land Use within the Naas Road District

7.5.7 ANCHOR USES

Attracting a major anchor to City Edge, particularly in the early phases of regeneration, is a key economic objective. Traditionally, anchor institutions have a played an integral role in the economies of towns and cities and bring with them economic advantage. Direct benefits include employment creation while they also create indirect benefits through demand for services and wage spend. Common sectors for anchor uses include health, education, cultural and government departments.

'Attracting a major anchor to City Edge is a key economic objective...'

An example of such an anchor is a university institution. A university institution, for instance, can create employment for academic and administrative staff, it provides an educational function for students who are attracted to the institution, it generates demand growth for local suppliers, and together staff and students generate demand for additional local support services such as retail, leisure and entertainment through the creation of a critical mass of people. This creates sustainable economic growth, bringing benefits for the local economy.

A key advantage of an anchor use, particularly those that are public sector-based, is that they generally remain within an area over the long term and are unlikely to relocate once established and operational. A further advantage is that growth delivered by an anchor use can be retained within the local economy for the benefit of the local community.

Exemplar cultural anchor uses such as the Wexford Opera House, Rua Red Tallaght or Grand Canal Dock Theatre also have the benefit of acting as a major attractor and contributor to the local economy.

7.5.8 ANCHOR USE LOCATION

At this stage, it is not possible to state definitively what type of anchor use may be attracted to City Edge and what requirements it may have. However, such uses are attracted to areas that have good public transport provision and quality built environments. As such, the preferred location for an anchor use(s) should be focused around the Naas Road District or potentially Kylemore, should the heavy rail station be delivered. In supporting this, it will be important that any plan for these areas retains the flexibility to attract such a use.

As referred to. it is anticipated that a large anchor use could be potentially accommodated within the major centre located within the Naas Road District as illustrated in the associated image. Amongst other development aims, this centre is earmarked for high density employment and already benefits from the presence of the Luas red line that provides sustainable connectivity which is beneficial for attracting employees.

Securing a major anchor could potentially deliver a number of distinct socio-economic benefits for City Edge. These include:

- Acting as a development catalyst
- High employment creation
- Delivering a critical mass of people
- Demand generated for local services
- Long term operation / existence of anchor
- Assisting sustainable community creation

Anchor Use – Central St. Martins Art College, King's Cross, London

Central St. Martins Art College forms part of the University of Arts London and is located with the King's Cross area of the city. The college campus relocated to a restored former granary building in 2011 as part of the wider regeneration of King's Cross. The college accommodates around 5,000 staff and students.

The art college is a contemporary example of bringing forward the optimal conditions to attract an institutional anchor use within a large regeneration project. The former granary building which principally accommodates the art college was originally built in 1852 and is situated within the attractive Granary Square that provides a visually high quality and active urban space. Additional campus space is provided within studios, workshops and lecture theatres that are built around a broad, covered street that encourages interaction between staff and students.

The location of the Art College in King's Cross has added new vibrancy and vitality to this location and has assisted the regeneration of the area through the large daily critical mass of people visiting the college with economic benefits accruing for local suppliers, for example, to service the requirements of the college.

7.5.9 VALUE OF EXISTING SECTORS WITHIN CITY EDGE

City Edge makes a significant contribution to the economy of Dublin in terms of employment provision and GVA contribution. It is important to recognise this current economic value when considering how new and emerging sectors will contribute to the growth and development of the future City Edge economy. There will be a continued support for industry within City Edge and from a land use perspective, this will be encouraged and accommodated on lands identified for urban industry.

Within City Edge there an existing ecosystem of businesses, comprising a range of wholesale, automotive and logistics activities their respective supply chains. Presently within Dublin, it is acknowledged that there is a qualified demand for industrial and logistics / distribution premises and City Edge is a primary location in the City for same. At this moment in time, these sectors, amongst others, are providing significant employment opportunities within City Edge and therefore their retention will continue to support the area's current high economic value to Dublin.

It is anticipated that there will be a continued demand for industrial land / property within City Edge and such demand will be accommodated on lands zoned for this use. Within mixed use locations in City Edge, development proposals that will come forward over time will be encouraged to provide modern and well designed urban workspace that can accommodate the requirements of light industry and smaller business operators, for example.

In order to remain competitive and resilient, it will be important for existing sectors to ensure they embrace advancements and modernisation in their respective fields in order to remain productive – for example, manufacturing and process industries must be cognisant of the growth potential being brought forward by 'Industry 4.0' through such things as production automation, digitisation and data simulation / modelling that can deliver increased productivity, optimised supply chains and more focused 'customer and user' experiences.

Sector Relocation

At a high level, sector relocation can occur for a number of reasons such as consolidating overall business operations; impact of co-location with other uses; relocation to areas with sector clusters; access to labour; reducing operational costs; accessibility for staff and customers; and operational growth forcing companies to find larger premises. Changes to planning policy and development plans over time can also play a role.

In respect of City Edge, a number of landowners have intimated their potential willingness to release land holdings within the area for redevelopment for alternative uses. This is a positive step, allowing lands to be potentially earmarked for redevelopment within the early phases of the regeneration process, creating development momentum.

Relocation Costs

One of the key challenges that exists for City Edge is the potential costs associated with the relocation of existing industrial operations, and particularly the Seveso sites located within the area. A high-level examination of costs for the potential relocation of industrial, office and warehouse uses is provided in the table below (Source: Linesight).

Cost Category	Estimated Cost*
Site / Land Value	c. €4 million per hectare (current approx. industrial land value)
Commercial Office (Suburban)	c.€2,000 – ca.€2,600 per sq.m. construction cost (Developer Standard)
High-Tech Industrial	c.€1,500 – ca.€2,000 per sq.m. construction cost
Warehouse	c.€1,000 – ca.€1,500 per sq.m. construction cost
Site Development (Roads & Primary Services)	c. €232,000 – ca.€756,000 per hectare construction cost

*Outline, indicative costs subject to change

Additional costs regarding relocation would potentially include, inter alia: development cost and contributions; professional fees; replacement costs (e.g. build and fit-out, planning application costs, DAC & Fire certification costs, BCAR costs); land reinstatement / remediation costs (particularly relevant for Seveso sites); additional rates cost, rent cost; dilapidations cost of existing building(s); operational costs (e.g. traffic, running costs, some units are more sensitive to location); loss of profit; additional operational costs; accelerated depreciation costs of equipment and asset write-offs due to moving earlier than anticipated; staff costs of move; additional staff costs ongoing; moving costs of equipment.

Sector Locations

Identifying the optimal locations for sectors is a key consideration in promoting economic growth within any large regeneration project. Placing the right sectors in the right locations can generate economic growth and development, and City Edge is no different.

By failing to locate sectors in the areas where they can prosper over time, economic objectives may not be achieved. Outcomes such as sub-optimal sector performance; clustering and hub development opportunities not activated; and failure to attract the right employees with the necessary skills base, for instance, may be generated. It is recognised that different sectors will have different space typology requirements in which to operate and a selected sample of sector spaces and their general locational considerations is summarised opposite. Additional district sector and typology locational information is provided in the next sections of this chapter.

Types of Space	Locational Considerations
R&D and Innovation Space	• Proximity to leisure / retail amenities to support and retain employees • Close to sustainable transport nodes / connectivity • Connected to knowledge / existing clusters • Access to a large, well educated workforce • Locations proximate to third level research institutions
Small Business Workspace	• Proximity to leisure / retail amenities to support and retain employees • Close to sustainable transport nodes / connectivity • Proximity to residential offer • Low operating costs
Back Office / Call Centres	• Low operating costs • Access to sufficient labour force • Availability of office space for start-ups • Low labour force competition
Industrious Space	• Optimum logistical positioning to suppliers and markets • Good connection / access to strategic road network • Can benefit from proximity to freight / port network • Edge / fringe locations
Curated Retail, Leisure and Event Space	• Proximity to transport nodes • Near to commercial cluster and residential areas • High street / central locations • Locations with good servicing routes • Access to target customer base • Ease of transport

7.5.10 CITY EDGE DISTRICTS – SECTOR LOCATIONS

The previous section set out what general locational considerations a selected group of sectors would have. The associated image provides an illustration of City Edge and the 5 no. Districts that are proposed within the Strategic Framework.

The tables opposite provide a summary of strategic employment information for each district including a comparison of existing and projected employment figures, potential future employment sectors that could be located within each district and key drivers for sector growth. This provides:

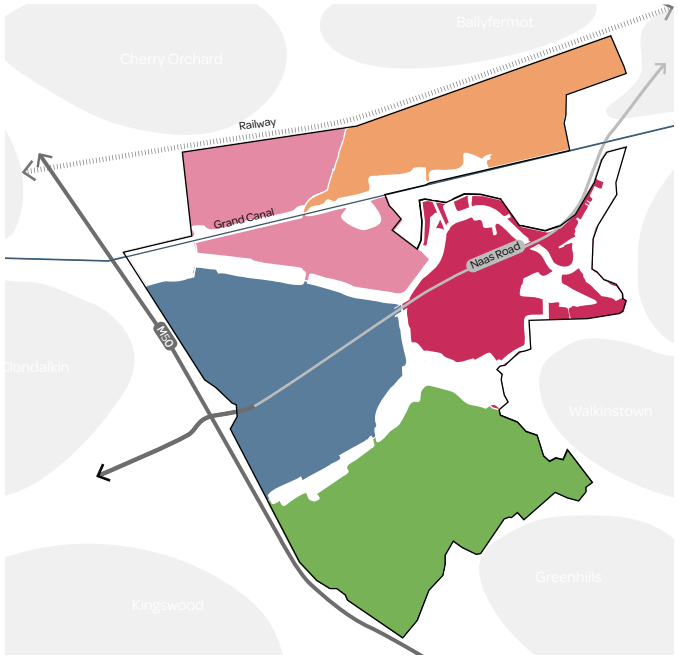


Figure 116. Districts within City Edge

Naas Road District

Existing Jobs: 4,353

Potential Jobs: 18,000 – 19,000

Future Sectors:
- Finance, Business and Professional Services
- Information & Communications / Tech
- Research & Development – MedTech, Life Sciences, Genomics etc
- Institutional use – Higher Education, Public Sector, Government etc
- Urban Workspace

Key Drivers for Growth:
- Sustainable Transport Infrastructure
- Placeshaping & Public Realm
- Blue and Green Infrastructure
- Proximity to Dublin City Centre

Kylemore District

Existing Jobs: 6,307

Potential Jobs: 15,500 – 16,500

Future Sectors:
- Finance, Business and Professional Services
- Tourist. Cultural and Leisure
- Creative and Digital Industry
- Urban Workspace

Key Drivers for Growth:
- Sustainable Transport Infrastructure
- Placeshaping & Public Realm
- Proximity to Dublin City Centre

Red Cow District

Existing Jobs: 2,434

Potential Jobs: 14,500 – 15,500

Future Sectors:
- Light Industry
- Advanced Manufacturing / Production (eg. Industry 4.0)
- Logistics / Distribution / Storage
- Urban Workspace

Key Drivers for Growth:
- Proximity to National & Regional Roads
- Energy Infrastructure
- Social I infrastructure
- Modern Industrial Practices / Technologies

Cherry Orchard District

Existing Jobs: 5,040

Potential Jobs: 10,000 – 11,000

Future Sectors:
- Finance, Business and Professional Services
- Research and Development
- Urban Workspace

Key Drivers for Growth:
- Sustainable Transport Infrastructure
- Placeshaping & Public Realm
- Blue and Green Infrastructure

Greenhills District

Existing Jobs: 6,935

Potential Jobs: 12,500 – 13,500

Future Sectors:
- Light Industry
- Advanced Manufacturing / Production (eg. Industry 4.0)
- Logistic s / Distribution / Storage
- Urban Workspace

Key Drivers for Growth:
- Proximity to Regional Road Network
- Energy Infrastructure
- Social Infrastructure
- Modern Industrial Practices / Technologies

7.5.11 CITY EDGE - EMPLOYMENT TYPOLOGY LOCATIONS

Following on from the previous section that sets out proposed sector locations within the five Districts, the map image and associated summary text provides an illustration and commentary in relation to the indicative employment typology locations that are proposed across the regeneration area.

Figure 117. Principal land uses and centres within City Edge

Urban Industry
Locations are proposed to accommodate lower density employment including industry, manufacturing (inc. advanced manufacturing), logistics, smaller urban work-space and office buildings.

Mixed-Use Urban Industry & Residential
Locations are proposed to accommodate lower density employment such as urban industry, industry, smaller urban workspace and associated office space in tandem with residential development.

Mixed-Use Employment & Residential & High Streets
Locations proposed to accommodate high density em-ployment such as offices; residential mixed-use buildings incorporating employment functions and commercial ground floors (retail / food and beverage); and residential mixed-use buildings with supporting community space and infrastructure in locations away from major routes and public transport.

Residential-led Mixed Use
Locations will be residential-led with employment and community space. Employment space will be focused on urban workspace targeting small businesses and light industry designed to be attractive to occupiers and integrated with residential.

Local High Streets
Situated within residential-led mixed use locations, these areas are proposed to accommodate local high streets with a ground floor focus on community uses and com-mercial activities such as retailing and food and beverage.

7.5.12 ECONOMIC MONITORING

Monitoring of the economic growth of City Edge will be a key factor in the successful regeneration of the area. Monitoring will play an important role in the process and it is considered there is significant value in establishing a monitoring system for City Edge.

The pandemic situation has illustrated how an unexpected phenomenon can detrimentally affect city economies in a short period of time. Such shocks have forced city economies to re-evaluate their economic structures, targets, priorities etc in order to remain resilient and competitive.

Through the next stages of the City Edge regeneration project, more detailed and specific objectives, actions, outcomes, plans and projects etc will be formulated at statutory plan stage. By undertaking a periodical review of the development progress of City Edge (for example as part of the Development Plan process) and its district areas against such objectives and actions etc, evidence-based assessments of the economic performance of each district area can be undertaken. Advantages for City Edge include, inter alia:

Strategically, monitoring will provide an understanding of the evolving **composition and structure** of the City Edge economy through time.

Objectives can be reviewed and revised to take account of **changing economic circumstances** (e.g. sector evolution / demise).

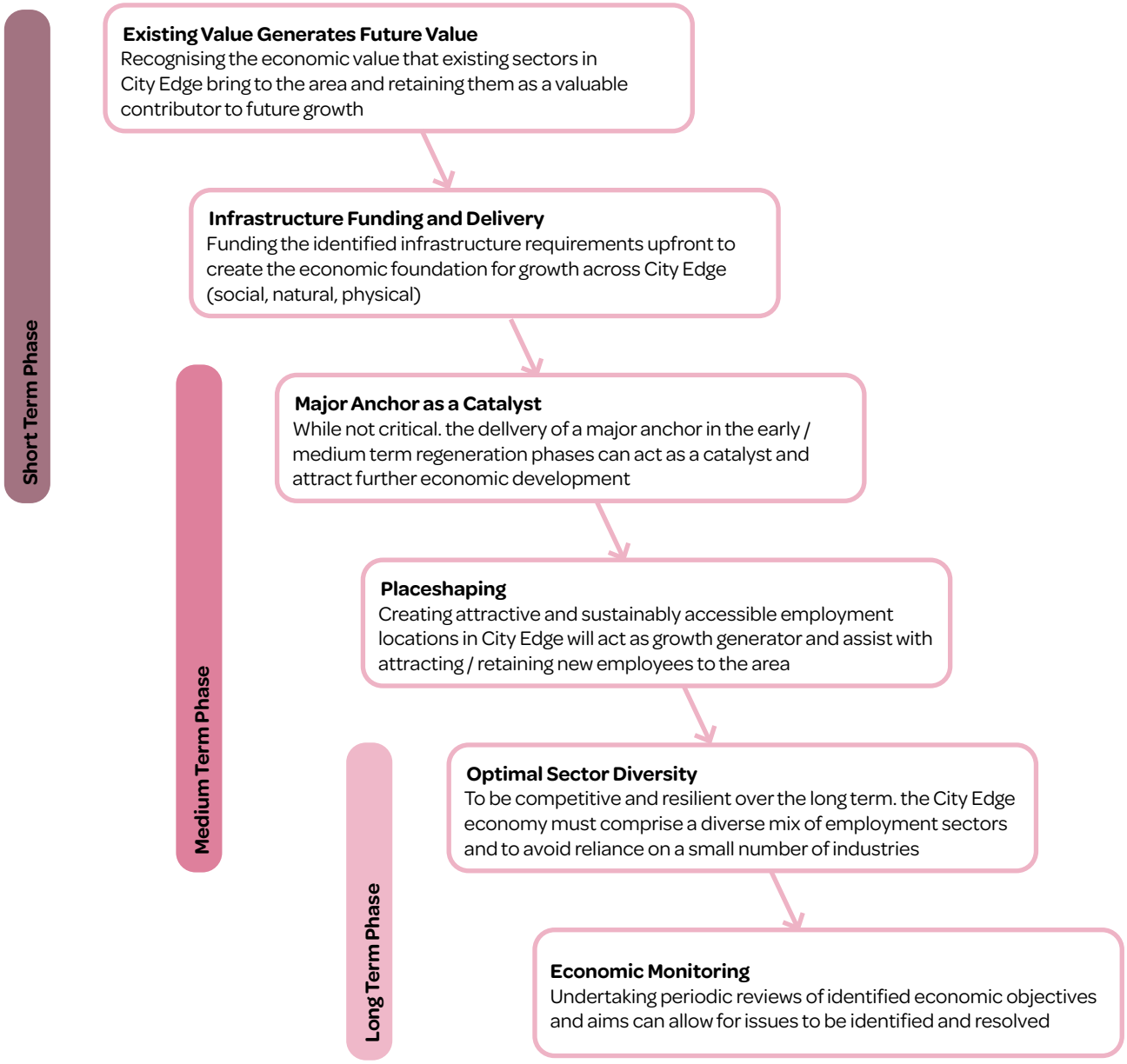
Potential **challenges and risks** to the City Edge economy can be identified early and actions formulated to resolve.

Data can be collated and analysed at periodic intervals to **determine economic trends and patterns** (e.g. comparative analysis of District area economic performance).

Taking the above points cumulatively. monitoring can assist with **promoting City Edge** as being 'open for business' and as a potential location in Dublin for new business / commerce / industry.

7.5.13 STRATEGIC ECONOMIC ROAD MAP

The image opposite provides a strategic road map for future economic growth with City Edge. The road map sets out a number of key steps in the economic regeneration process and their relevance over short, medium and long terms.



7.6 ECONOMY SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Economy Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

- Promote compact urban growth and 15-minute city principle by locating infrastructure in mixed-use buildings or urban blocks that incorporate other uses such as residential.
- Promote building efficiency through delivering a mix of uses at different floor levels to encourage active ground floor use, activating streets and spaces throughout the day and early evening.
- Identify, fund and deliver the required infrastructure (connectivity, natural, utilities and social) to support economic growth across City Edge.
- Plan and deliver suitable employment uses that are flexible enough to align with growing and changing sector activity and economic conditions. Delivering a mix of typologies that can accommodate a diverse range of sectors and activities should be a primary aim.
- Encourage a resilient and competitive economy through diversifying the sector base; retaining existing sectors whilst attracting new and emerging ones. An optimal sector mix will offer high value employment opportunities which in turn will provide additional social and environmental benefits.
- Identify and bring forward locations that enable businesses to operate unimpeded, with sufficient levels of amenities nearby good connectivity to retain their services over the long term.
- Promote a major centre to assist with delivering growth through attracting major anchors to City Edge as a catalyst and spark for growth
- Encourage utilising meanwhile uses to secure early development wins
- Monitor the economic growth of City Edge to gain an understanding of the evolving composition and structure of the economy through time, which can maintain the economy's resilience and competitiveness and identify issues for action / resolution at periodic intervals.
- Ensure resilience in our infrastructure capable of withstanding the impacts of climate change and extreme weather
- Ensure sufficient flood protection is provided to residential properties and vulnerable areas
- Promote the use of connected communities
- Promote repurposing the economy of City Edge in order that the economic structure of the area is sustainable over the long term and continues to add value to the wider Dublin City economy.
- Promote equality, diversity and inclusion, and equal opportunities

8 MOVEMENT

8.1 MOVEMENT VISION

8.1.1 VISION

Situated at the western edge of Dublin City, City Edge presents a unique opportunity to transform a vital part of Dublin into a compact and liveable city. Our Movements Framework supports the creation of a new urban quarter through the integration of land-use and transport planning. It capitalises on City Edge's location and transport infrastructure, whilst recognising the need for investment to improve public transport, green infrastructure and enhance permeability.

8.1.2 PRINCIPLES

City Edge Movement Framework is guided by four key principles. These are aligned with European, national, regional and local plans that guide development, whilst responding to lessons learnt from international best practise studies. They recognise transport is intertwined with the quality of the local environment, economic vitality and the health and wellbeing of our population, and are described below.

Connectivity
To develop City Edge in a way that maximises the benefit of existing and future public transport investment, supported by an integrated network of streets and routes that promote walking and cycling.

Transit Orientated Development
To focus land-use and densities across City Edge in a manner that creates sustainable urban districts through integrated land-use and transport planning.

Placeshaping
To create an attractive place for people to live, work and meet through a 'people first' design approach, promoting opportunities for safe and attractive ways of travelling by active modes.

Sustainable mobility
To create an environment where sustainable travel becomes the preferred method of movement for people and goods.

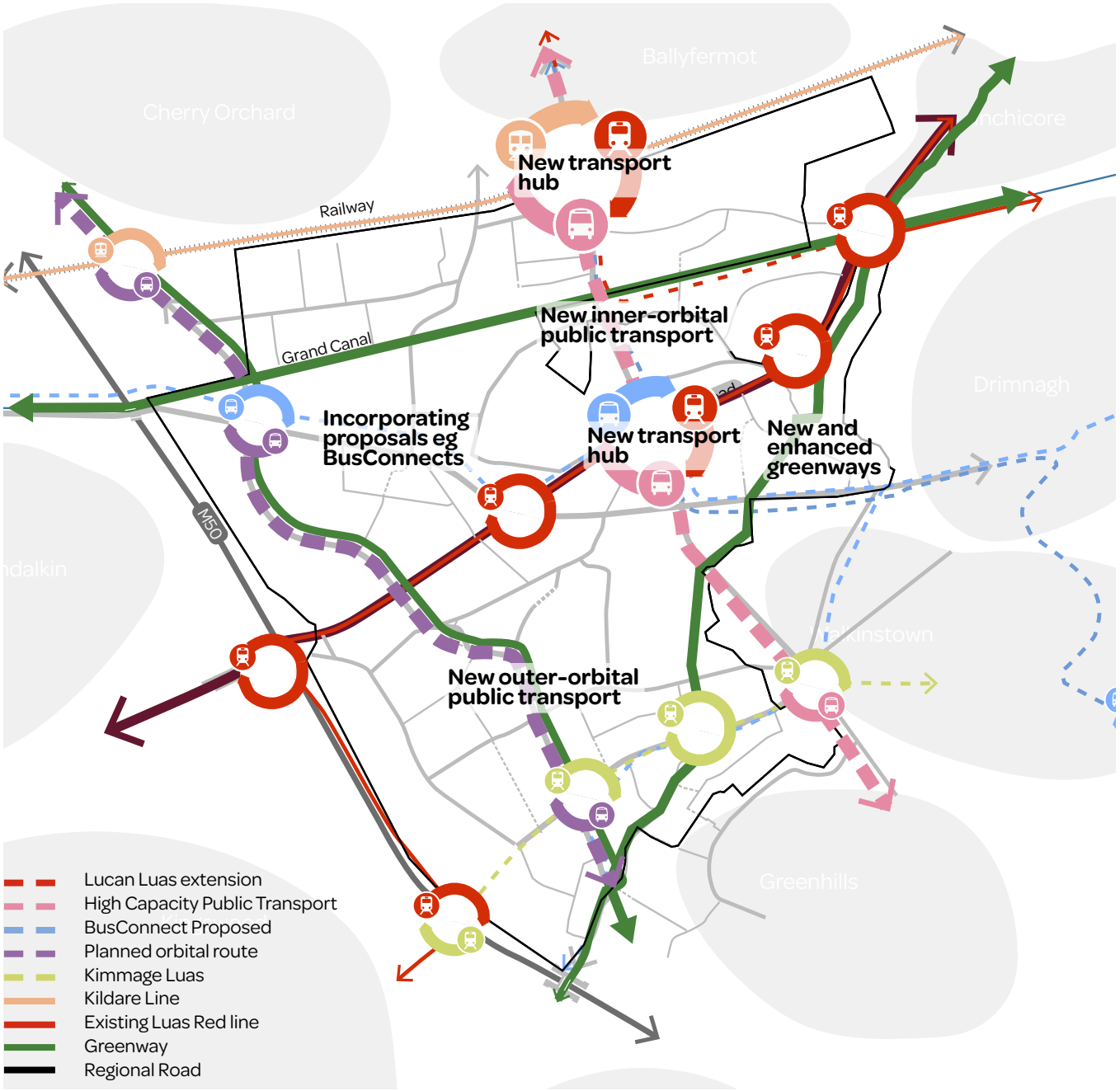


Figure 118. Movement framework

8.2 BASELINE ASSESSMENT

The Movements Framework is built on a solid evidence base. The Baseline Assessment exercise appraised existing transport infrastructure and travel patterns to identify the strengths and weaknesses of the current network to cater for existing and future demand, as well as the transition to a greener future.

8.2.1 EXISTING TRANSPORT INFRASTRUCTURE

Public Transport
Large parts of City Edge are within a 10 to 15-minute walk of a Luas, rail or bus station / stop supporting future Transit Orientated Development and 15-minute city principle.

The Luas Red Line provides connections with the city centre with a journey time of approximately 15 minutes to O'Connell Street. Kylemore, Bluebell and Blackhorse are in City Edge, with Red Cow and Kingswood accessible within a 10 to 15-minute walk from western areas.

The Kildare Line rail corridor sits at City Edge's northern boundary. Park West & Cherry Orchard railway station is served by several Cork and Waterford InterCity services plus commuter services to Heuston and Grand Canal Dock.

A number of bus routes stop on Naas Road, Long Mile Road, Walkinstown Avenue, New Nangor Road, Kylemore Road, Greenhills Road, Ballymount Road Lower and Park Road West connecting City Edge to the city centre and wider Dublin area.

Pre-pandemic the high use of public transport resulted in many services, particularly the Red Luas Line and suburban rail services on the Kildare line, operating at or near to capacity during peak times. Many people have since altered their travel behaviour as a result of remote working and other lifestyle changes. The full picture of the impact on public transport capacity is still to emerge.

Walking & Cycling
The street network within City Edge is presently disjointed, with a lack of permeability and cycling measures providing a barrier to active travel.

Walking infrastructure is present on all roads on at least one side of the carriageway. Regional roads (Naas Road, Nangor Road, Long Mile Road and Greenhills Road) typically have footpaths on both sides of the carriageway and pedestrian crossing facilities.

Cyclists are required to share traffic lanes on most roads, although infrastructure is present on some regional and local primary roads. Cycle facilities are generally not continuous, making end-to-end trips less attractive for cyclists. Existing carriageways provide a sense of car dominance.

Naas Road, M50, Grand Canal and Kildare Rail Line are major linear corridors which restrict walking and cycling permeability and are considerable barriers to movement.

The existing street network is vehicular dominated with limited infrastructure and priority available to pedestrians and cyclists to make them attractive modes of travel under current conditions.

Road
Located on City Edge's western boundary, The M50 orbits the city connecting City Edge to the wider national road network. The N7 Naas Road bisects the M50 and aligns through the centre of City Edge, providing a strategic link between the city centre, Greater Dublin area and the south of Ireland.

Four regional roads route through City Edge: R110 Naas Road / Long Mile Road; R134 Nangor Road, R112 Kylemore Road / Walkinstown Avenue and R819 Greenhills Road.

There is a strong demand for east-west radial vehicle movements, and key strategic road corridors operate at or approaching vehicular capacity.

Measure ROAD1 - Principles of Road Development in the NTA Draft Transport Strategy for the Greater Dublin Area 2022-2042 is "That there will be no significant increase in capacity for private car trips on radial roads within the Metropolitan Area, except where re-alignments or junction changes are necessary for safety reasons". This principle shall inform the movement framework for City Edge.

8.3 PROJECTS – PLANNED & PROPOSED

8.3.1 PLANNED TRANSPORT INFRASTRUCTURE (NDP 2030)

Major projects are underway that will underpin sustainable travel at City Edge. BusConnects, DART+, and Lucan Luas Line all feature in the National Development Plan 2030 and Draft GDA Transport Strategy 2042. They involve significant public transport investment that will provide capacity for existing communities and enable growth at City Edge, ensuring sustainable travel is an attractive option for longer distance journeys. Substantial investment in active mode infrastructure is also planned through the 2021 GDA Cycle Network Plan and Cycle South Dublin programmes.

BusConnects

BusConnects seeks to transform Dublin's bus network through a 10-year programme to provide an efficient, reliable and integrated bus system with enhanced capacity. Improved facilities for walking and cycling are integrated into BusConnects proposals. Two Core Bus Corridors running in an east-west direction and an Orbital Route running in a north-south direction will serve City Edge:

- CBC08: Clondalkin to Drimnagh (routes via Nangor Road and Long Mile Road);
- CBC09: Greenhills to City Centre (routes via Greenhills Road and Calmount Road to meet CBC08 at Walkinstown Roundabout); and
- Orbital Route S4: Liffey Valley Bus Interchange to UCD Bus Interchange, routing in a north-south direction via Kylemore Road.

In addition, there is potential for improved bus priority and service capacity in advance of BusConnects should the need arise in the interim period before final completion of the 10-year plan. This is supported by NTA's Draft GDA Transport Strategy 2042 which recognises the need for additional orbital service bus measures to serve emerging development areas, making specific reference to City Edge with supporting indicative route mapping.

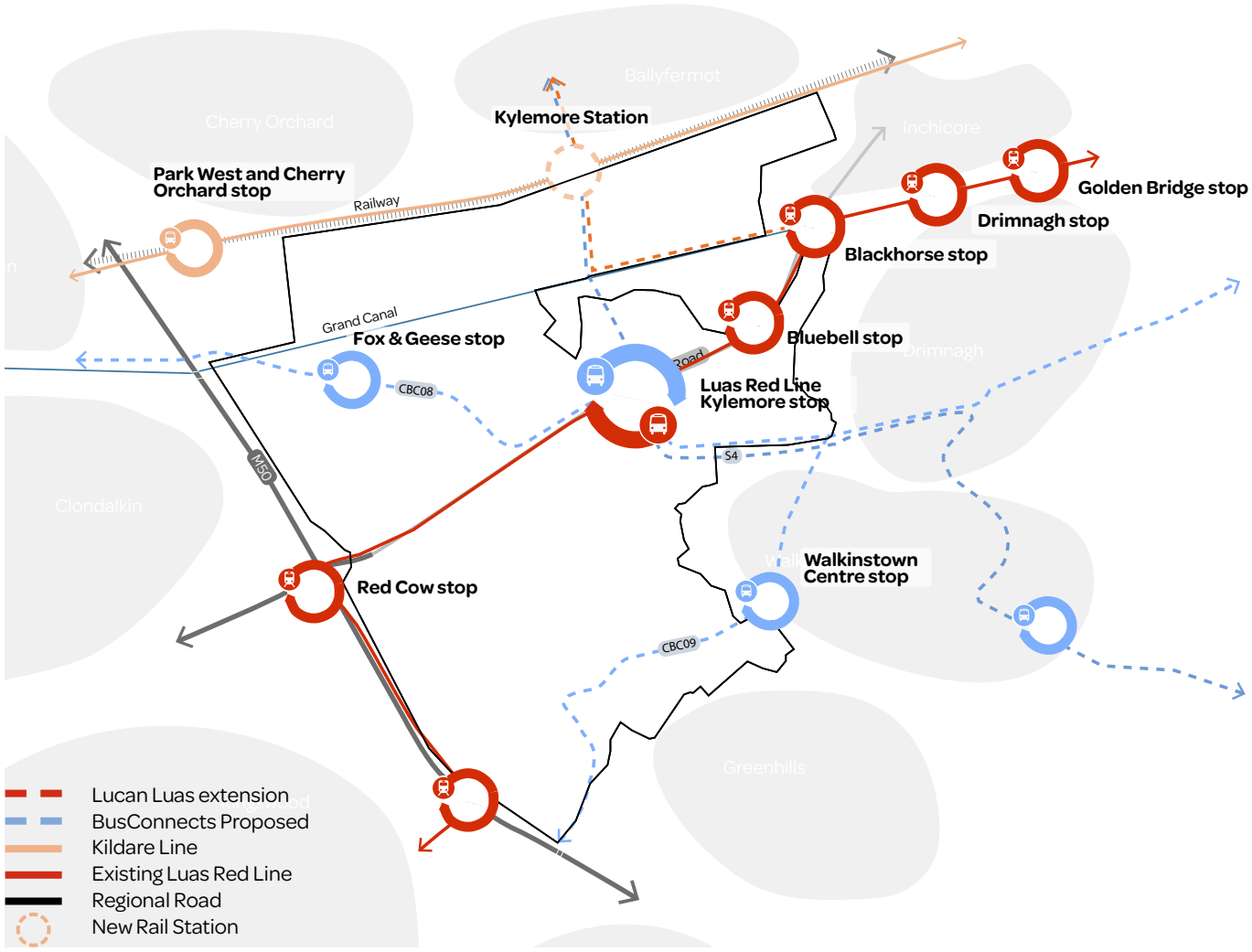


Figure 119. Existing and Planned (NDP2030) public transport corridors

DART+
The Kildare Line rail corridor provides access to Cork, Limerick and Waterford InterCity services plus commuter services to Heuston and Grand Canal Dock from Park West & Cherry Orchard station. DART+ has the potential to increase commuter capacity on the Kildare Line from 4,500 to 14,000 passengers in the peak hour and also creates capacity for increased InterCity service frequencies. Future integration of DART+ services with Metrolink will enhance accessibility to City Edge by rail.

Lucan Luas Line
Lucan Luas Line features in the NDP with a note that appraisal and planning is ongoing. The line also forms a key scheme within the NTA's Draft GDA Transport Study 2042, which aims to deliver the scheme by 2042. Provision for the future Luas corridor has been made as part of the DART+ programme where the schemes interact.

Cycling Infrastructure
GDA Cycle Network, Cycle South Dublin and BusConnects infrastructure proposals will combine to deliver enhanced permeability and accessibility for active mode travel across City Edge and the wider Greater Dublin Area.

8.3.2 PROPOSED TRANSPORT INFRASTRUCTURE – DRAFT NTA GDA STRATEGY 2042

Kylemore Station
A new rail station at Kylemore Road features in the Draft GDA Transport Strategy 2042. This new station will deliver a multi-modal interchange directly connecting services planned under DART+, BusConnects and Lucan Luas Line.

Additional Luas Lines and Stops
The Draft GDA Transport Strategy 2042 proposes delivery of Luas Red Line to Poolbeg and Lucan Luas within the lifetime of the Strategy. The potential for new stops on the Red Line are also envisaged in addition to journey time improvements. The Draft GDA Transport Strategy 2042 also includes a commitment (Measure LRT6) to undertake detailed appraisal, planning and design work for new Luas lines for delivery after 2042. They include the potential reconfiguration of the Red Line to provide a new route from Tallaght to Kimmage and the City Centre. City Edge recognises the benefits a new Kimmage Luas Line will bring in supporting sustainable growth across this future district and will make space provision for the potential alignment of the route through the proposed Greenhills District.

DART+ Tunnel
DART+ Tunnel alignment will be preserved and protected to allow its future delivery subsequent to the strategy period. The DART+ Tunnel project will increase accessibility of City Edge directly by rail and as part of a sustainable multi-modal trip.

8.4 OPPORTUNITIES & CHALLENGES

A number of key opportunities and challenges relating to movement have been identified through the baseline review and policy context.

	Opportunities	Challenges
Public Transport	Site is presently serviced by heavy rail, light rail and frequent bus services, with substantial public transport enhancements planned by the NTA.	Delivery of service enhancement through BusConnects will facilitate sustainable growth in the short term, but long term Masterplan vision is dependent on further public transport capacity improvements
	Deliver Transit Orientated development around high capacity public transport nodes	Need for better integration with existing stations (e.g. Park West Cherry Orchard) and promote fast tracking of Kylemore Station.
	Red Luas Line connects City Edge with the City Centre and South West Dublin with a Luas every three to five minutes.	Delivery of high density transit orientated development along its alignment needs to be balanced with available capacity of existing Luas services
	Developable lands are of sufficient scale to influence local and regional transport strategies	Scale of development is reliant upon improvements to both radial and orbital public transport within the city

	Opportunities	Challenges
Walking and Cycling	City centre is only 25-30min cycle ride and accessible by the Grand Canal Cycleway	Access to Grand Canal is currently constrained and perceived safety concerns would need to be overcome
	A series of green spaces exist which can be used to anchor delivery of an active travel mode network	Safety, engineer and environmental sensitivities to be addressed in design of new greenway corridors
	To connect closely spaced mixed use developments by a comprehensive network of active travel routes	Appropriate phasing of development required to create continuous active mode infrastructure and a sense of community
	Development provides opportunity to improve integration with neighbouring communities and overcome existing severances.	Overcoming severance in City Edge e.g. N7, M50, including funding and delivery of critical infrastructure, to create a permeable, connected network of streets

	Opportunities	Challenges
Network Management	Strong links exist to the National and Regional Road Network	Need to safeguard capacity of the strategic national road network
	Internal street network is conducive to implementation of improved facilities for sustainable modes whilst supporting access for private car and goods.	Substantial investment required in walking and cycling infrastructure for internal streets within City Edge
	Opportunity to deliver a transit orientated development for the city with a low dependency on car travel	Need to frontload sustainable travel infrastructure to engender sustainable travel behaviours from the outset
	Opportunity to overcome severance of the Naas Road, whilst preserving its capacity and multiple functions.	Funding and delivery of critical infrastructure required

8.5 MOVEMENT FRAMEWORK

8.5.1 PLANNING FOR SUSTAINABLE TRANSPORT

A key objective of Ireland's Climate Action Plan is to achieve net-zero emissions from transport by 2050. City Edge Movement Framework must reflect this level of ambition. As a result, sustainability is embodied in the movement principles that guide the Movement Framework.

8.5.2 CONNECTIVITY

City Edge is envisaged to be a well-connected place that prioritises public transport and active mode infrastructure to support sustainable travel choices. Connectivity objectives include:

- Promote public transport enhancements through City Edge that enhance accessibility and facilitate integration with east-west and north-south public transport corridors;
- Deliver a transport framework replicating the 15-minute city principle that maximises route choice and access to residential, employment, education, retail, service, community and leisure uses by means of walking, cycling and public transport while balancing the needs of the car and servicing; and
- Promote active travel as an attractive alternative to vehicular travel through targeted modal shift

Section 11 (Districts & Character Areas) of this Strategic Framework suggests a street hierarchy for City Edge and illustrates how street spaces could be shared by different modes of transport. Such street typologies should be examined in further detail at statutory plan stage from the perspective of appropriate carriageway, footpath and cycle lane widths and Taking in Charge Standards etc.

The 15-minute city principle provides a best practise example of connectivity. It proposes neighbourhood populations should be able to access essential daily services (e.g. employment opportunities, shops, education, healthcare, leisure and recreation facilities) within a 15-minute walk or cycle, including access to public transport. It is centred on the idea of liveable communities that prioritise the needs of pedestrians and cyclists.

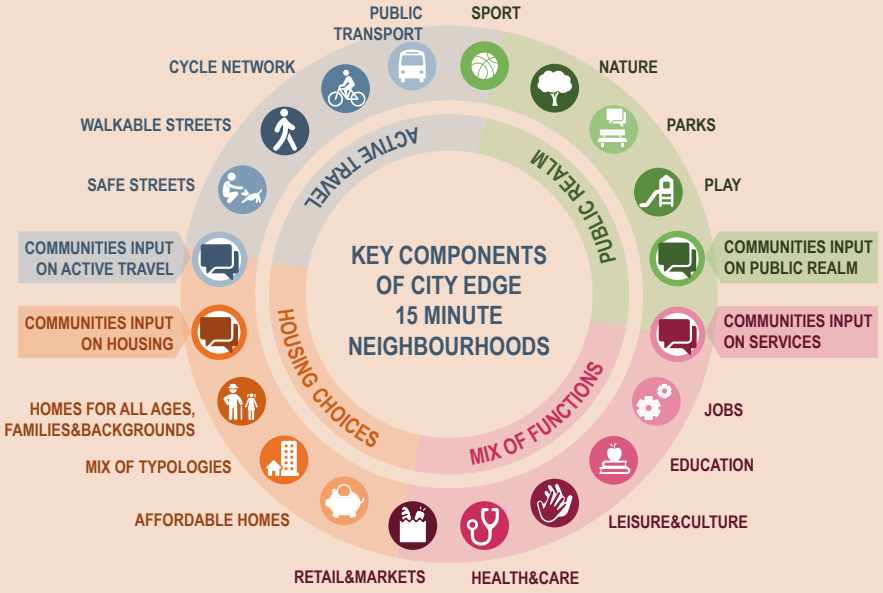


Figure 120. City Edge 15-minute city principle | Source: Maccreanor Lavington

8.5.3 TRANSIT ORIENTATED DEVELOPMENT

Transit Orientated Development concentrates higher density development around public transport nodes so people can benefit from high quality public transport and sustainable development. Public transport becomes the preferred mode of travel when stations are convenient to access and door to door travel journey times are competitive when compared to private car. City Edge already benefits from existing and planned high-quality public transport. Its Transit Orientated Development objectives include:

- Co-ordinate residential, employment, education, retail, service, community and leisure uses and integrate such with transportation infrastructure in a manner that maximises and makes efficient use of existing and planned public transport services and local facilities;
- Promote increased residential densities within walking distance of public transport nodes and urban centres; and
- Establish mixed use development areas / urban centres around public transport nodes that create viable and active urban centres.

8.5.4 PLACESHAPING

Placeshaping integrates Transport Planning with Urban Design. It recognises transport links, for example streets, perform two functions: facilitate the movement of people and goods and serve as a place (a destination in its own right). City Edge is taking a design-led approach that prioritises placeshaping so that attractive spaces are created. Placeshaping objectives include:

- Form development in a series of blocks and plots that are legible, permeable and human in scale with appropriate topography responses, building heights, street widths, urban grain and street frontages;
- Overcome existing severance corridors including Naas Road whilst preserving their function;
- Design streets using an integrated approach to pedestrian, cyclist and vehicular movement whilst ensuring the movement function of each street is reflected by an appropriate design response and design speed; and
- Creation of a mobility strategy that prioritises placeshaping and sustainable travel, whilst facilitating essential car travel at appropriate locations.

8.5.5 SUSTAINABLE MOBILITY

Sustainable mobility focuses on reducing single-vehicular use through the delivery of more attractive greener alternatives for travel. Its implementation is essential to achieve net-zero transport emissions transport by 2050 and help address city-wide issues of congestion and air quality. The shift to sustainable travel is supported through technological advancements in transport including Mobility as a Service, car sharing apps, carpooling, e-bikes etc. City Edge objectives include:

- Embed sustainable mobility through the design process, including delivery of multi-modal inter-changes at key public transport nodes
- Incorporate freight and servicing initiatives to promote the sustainable movement of goods;
- Incorporate Travel Demand Management (TDM) initiatives to influence and change travel demand patterns, and encourage more efficient and sustainable use of transport resources.
- Embrace smart mobility technologies in the design of new developments

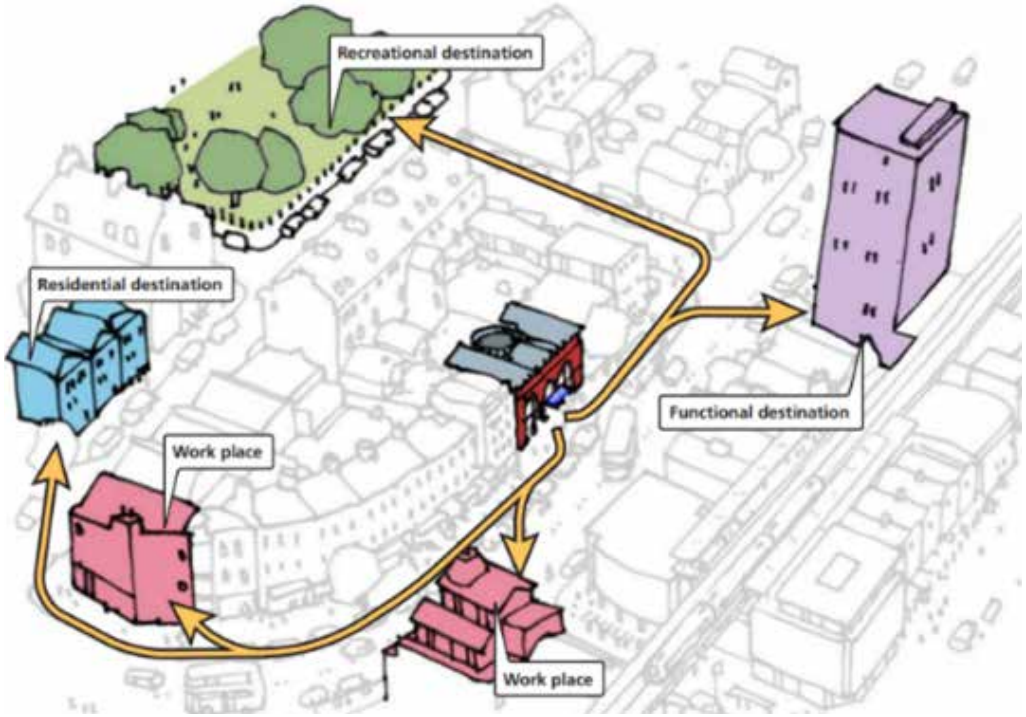
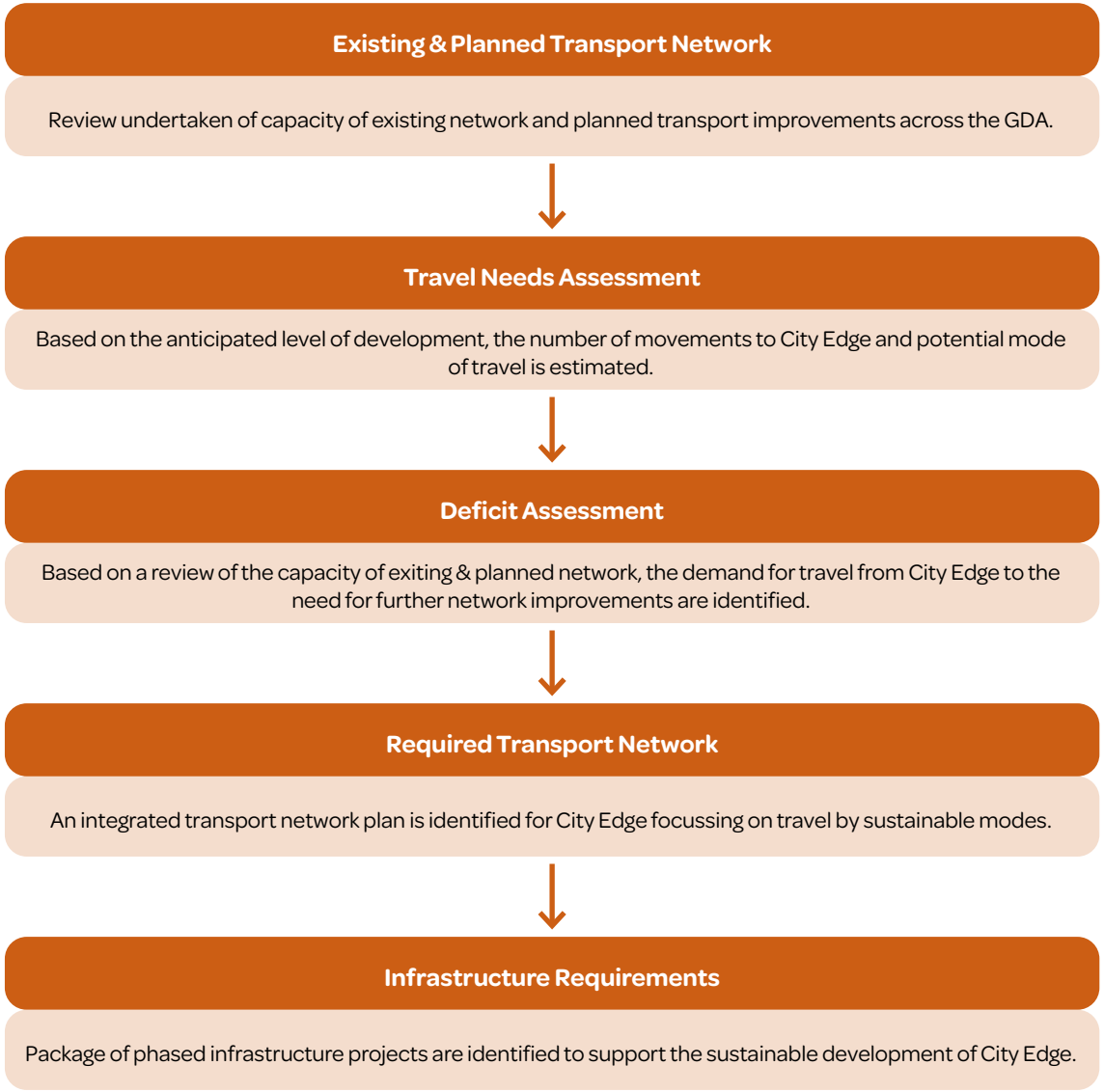


Figure 121. Transport node diagram

Figure 122. Rouen Rive Droite station, France

8.6 MEETING PEOPLE'S TRAVEL NEEDS

City Edge will generate a high-demand for movement across all modes, both locally and across the wider Dublin area. A sufficient level of transport provision is required to support this demand. An evidence-based approach has been used to gain an understanding of the likely demand for travel from City Edge and the necessary transport infrastructure required to meet the demand, with a focus on sustainable travel. In summary, this has involved the following key steps:



8.7 CITY EDGE TRAVEL PATTERNS

Utilising a combination of census data, information from the TRICs Database and the NTA's Regional Modelling System, the demand for travel to, from and within City Edge has been estimated.

8.7.1 LOCAL TRIPS

Based on the anticipated quantum and mix of development, the estimated demand for movement within City Edge has been estimated and is graphically shown by desire lines on the diagram. Thicker lines represent greater demand for movement. The diagram helps understand the complexity of travel patterns that are catered for between the planned districts. The diagram is useful in under-standing the network of walking and cycling infrastructure that must be delivered to encourage active mode travel.

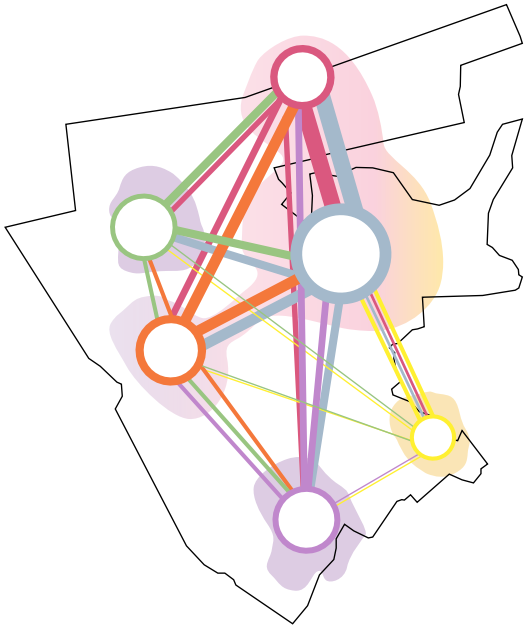


Figure 123. Internal Trips AM Peak diagram

8.7.2 EXTERNAL TRIPS

The estimated demand for travel to and from City Edge has been initially informed by CSO Census origin-destination data for commuting patterns from neighbouring areas. The diagram shows the potential origin of movements and mode of travel.

A review of the length of trips to City Edge is then undertaken to determine the likely mode of travel for that journey. Short distance trips are more likely to be undertaken by walking or cycling, whilst longer distance trips will use public transport.

To understand the maximum-potential demand for public transport use, the initial assessment assumed that all medium / long distance trips will be met by public transport (i.e. no car trips). This results in a public transport network that is more resilient at meeting future growth. It is recognised that, in reality, a proportion of trips will be vehicular-based. A further examination of the emerging preferred transport network for City Edge has been undertaken using the NTA's Eastern Regional Model. Details of this test is provided in the 'Transport Outcomes' Section 8.13.1 of this report.

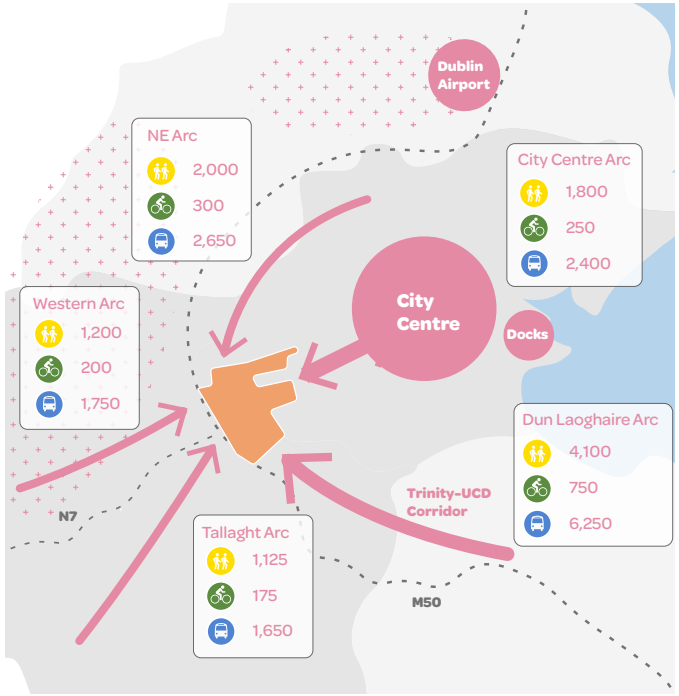


Figure 124. External Trips AM Peak diagram

8.7.3 RADIAL CONNECTIVITY

The travel patterns assessment indicates a strong demand for travel radially into the city centre, as well as westwards towards Kildare and south westwards towards Tallaght. Trips originating from the city centre will be able to avail of travel by bus, Luas or heavy rail, with substantial upgrades planned to the bus network under BusConnects and rail network under Dart+. Travel westwards from City Edge will be served by Dart + as well as the planned delivery of the Luas Lucan as set out in the NTA's GDA Transport Strategy 2042.

Trips originating from Tallaght in the South West will utilise the Luas Red Line as well as substantial bus service enhancements as set out under BusConnects. In the longer term (post 2042) the NTA's GDA Transport Strategy 2042 plans for further additions to the Light rail network with a potential Light rail line from the city centre via Kimmage and City Edge.

8.7.4 ORBITAL CONNECTIVITY

The travel patterns assessment indicates a substantial demand for travel to City Edge will be in a south and eastern direction through the city extending toward Dun Laoghaire. It is envisaged that travel along this corridor will be met by a combination of walking and cycling trips at a local level and public transport for longer distance trips.

Given the spatial distribution of development within City Edge, and the substantial demand for orbital movements across the city, two multi-modal orbital corridors have been identified through City Edge. These orbital routes are critical for the successful integration of City Edge into the wider city region community and economy.

The **Inner Orbital Route** will extend southwards through City Edge along the Kylemore Road connecting to existing urban centres to the south east of City Edge. The Inner orbital will support demand for multi-modal movement, linking existing communities with new homes, jobs and amenities along this corridor. The route will integrate with radial bus and rail services, with the opportunity to provide Transit Orientated Development at key nodes; most notably the planned Kylemore Rail Station and existing Kylemore Luas Station. In the short term public transport demand along this corridor will be met through enhancements to the bus service via the S4 Orbital bus route planned under BusConnects. Given the envisioned scale of development and estimated demand for travel along this corridor, provision will be made to support the implementation of higher capacity public transport along this corridor to support the sustainable expansion of City Edge and the wider Greater Dublin Area.

In addition to the Inner Orbital Route, an **Outer Orbital Route** has been identified adjacent to the M50 through City Edge along Park West Avenue, Oak Road, Turnpike Road and Ballymount Road Upper. Similarly to the Inner Orbital Route, the Outer Orbital Route will connect planned districts within City Edge to existing communities to the north such as Park West and Cherry Orchard, with existing settlements to the south at Ballymount and on towards Rathfarnham. The route will be multi-modal, connecting existing and planned development to high capacity radial public transport corridors, again providing opportunity to deliver Transit Orientated Development.

Whilst it is estimated that less demand for travel will occur along this corridor when compared to the Inner Orbital, provision for a high- quality bus corridor will be necessary to support sustainable growth along this corridor. Further information on the design of the public transport network is detailed in the next section.

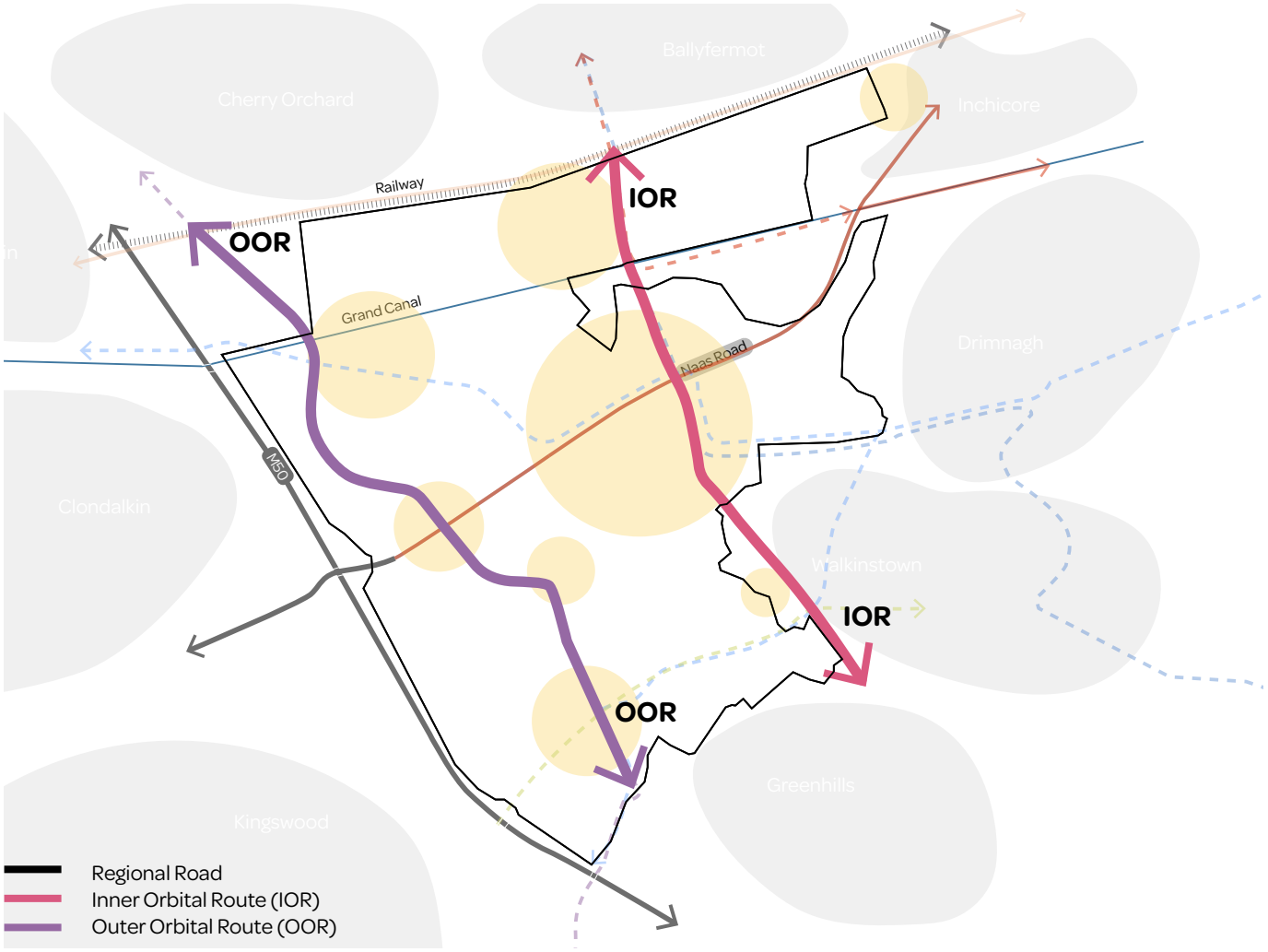


Figure 125. Orbital connectivity diagram

8.8 PUBLIC TRANSPORT

Public transport is the core component of Transit Orientated Development and underpins the viability of 15-minute city principle delivery. A major benefit of public transport is its ability to move high numbers of people. For Public Transport to reach its full potential at City Edge it will need to have sufficient capacity to meet expected passenger demand for services. This relies on the right amount of public transport investment being delivered. Guidance on the ability of various public transport modes to meet passenger demand are shown in Figure 126. Measured in passenger numbers per direction / per hour, Heavy Rail / Metro provide the highest capacity, followed by light rail, bus rapid transit and then conventional bus services.

To encourage mode shift away from private car, public transport must be attractive in terms of frequency, reliability, comfort and cost. Public transport stations and stops need to feel safe and be accessible and inclusive for all potential users. To deliver on these important aspects, the Movement Framework makes specific provision to **safeguard corridors** and plan for an **integrated multi-modal station approach** so the full benefits of public transport investment can be realised into the future.

An overview of the emerging public transport network is illustrated in Figure 127. The network integrates land-use development proposals with public transport corridors through a series of stations and stops that will make public

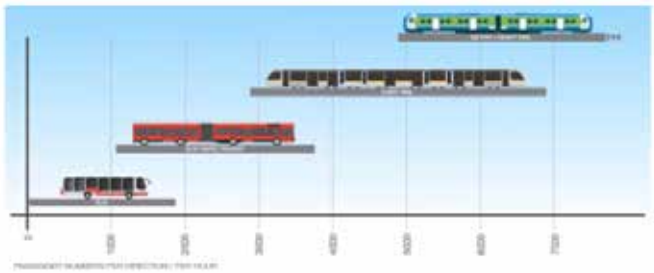


Figure 126. Passenger number per direction / per hour

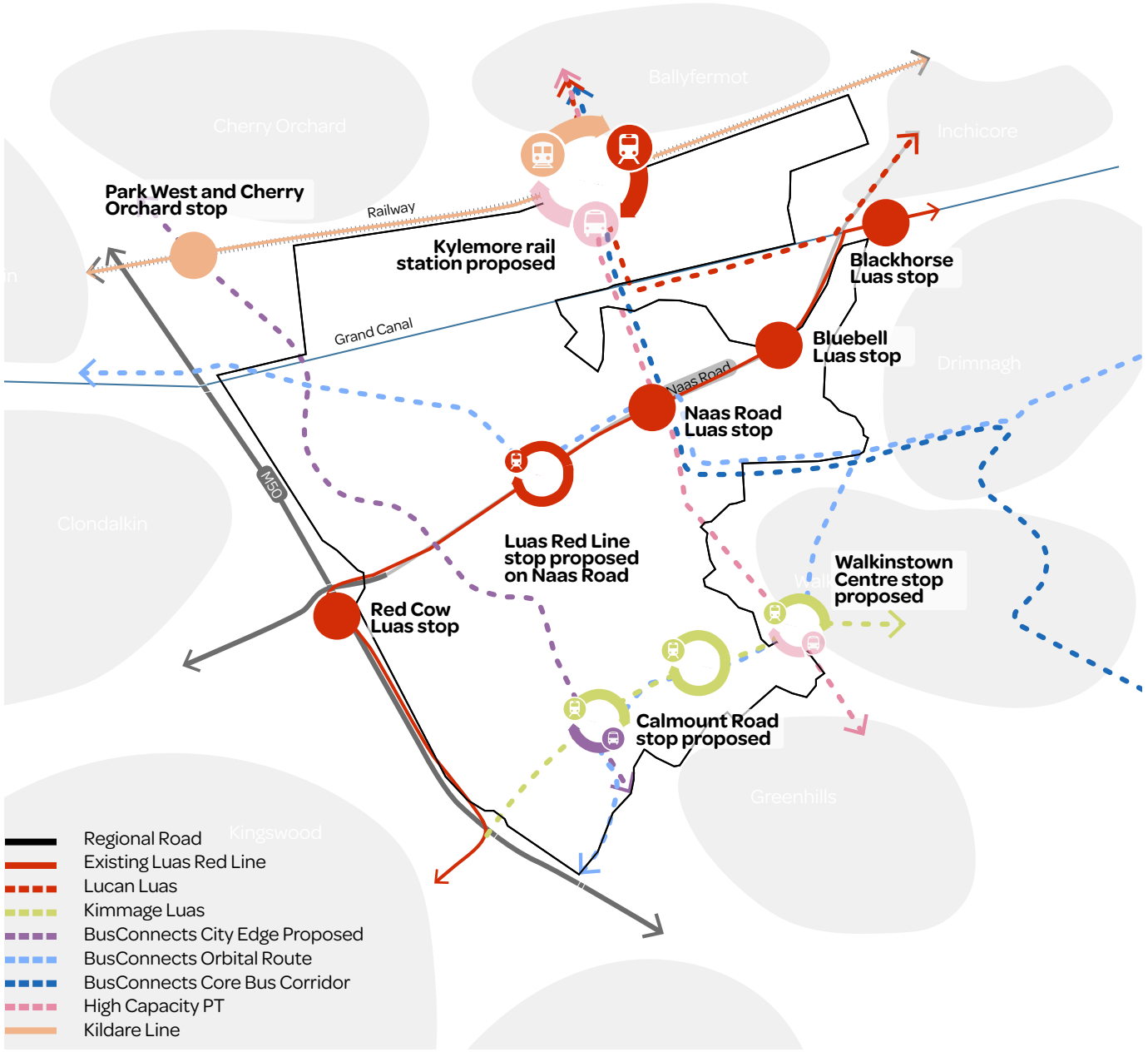


Figure 127. Public transport proposal diagram

transport easily accessible. This includes interchange between public transport modes which support connectivity and sustainable mobility initiatives.

The individual components of the network are described in further detail below. Land is to be safeguarded along each of the corridors to facilitate delivery of potential public transport solutions into the medium and longer terms.

Safeguarding of Corridors
City Edge will safeguard future public transport corridors to ensure high quality and attractive services are delivered. The safeguarding will accommodate best practice PT design and respond to emerging development plans. Route alignments will consider integration with adjoining land uses to maximise development potential along the corridor.

Integrated multi-modal station approach
City Edge will deliver a multi-modal approach at stations to maximise the benefits of public transport investment. The integration of public transport services, shared services and active modes infrastructure will promote door to door connectivity by sustainable mode.

8.8.1 BUS

City Edge is currently served by a number of high-quality bus routes but the need for continuous improvement to meet growing demand and cater for modal shift is reflected in NTA's Draft GDA Transport Strategy 2042, which outlines the importance of enhanced bus capacity, reliability and performance.

At City Edge, an enhanced bus network will support sustainable development by ensuring connectivity both internally and externally. Planned improvements are already underway through BusConnects Core Bus Corridor Infrastructure, Network Redesign and Next Generation Ticketing as part of National Development Plan 2030. Early localised interventions will be made to address specific capacity issues and unlock development potential should the need be identified.

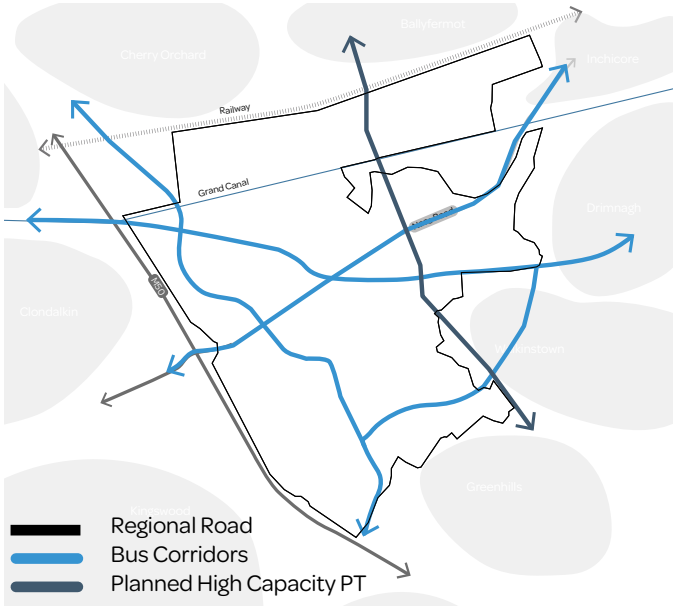


Figure 128. Furute bus corridors and High capacity PT diagram

City Edge has identified the need for an Outer Orbital Route and strengthened Inner Orbital Route to serve future development proposals along this corridors and create an integrated public transport network that supports sustainable multi-modal choice. Demand for public transport on the Inner Orbital Route may require a higher capacity solution into the future. The service frequency provided along each public transport route will respond to growth in demand over time.

Bus network infrastructure
City Edge supports the delivery of planned infrastructure enhancements through BusConnects. Bus priority measures will be incorporated onto all new bus routes where the need is identified to en-sure bus service performance, improve journey times and reduce delay. Specific measures may involve a range of possible interventions including:

- provision of segregated lanes for exclusive use by buses, or bus only links;
- bus gates, or bus priority signalling at junctions;
- Use of vehicle detection to ensure a clear route for buses; and
- Spacing and design of bus stops to provide an effective service.

Design considerations and requirements for the provision of bus infrastructure will take account of best practice and design guidance documentation, including that set out below.

Design Manual for Urban Roads and Streets	Building for Everyone: A Universal Design Approach	National Cycle Manual	NTA Bus Design Guidance

8.8.2 LIGHT RAIL

The City Edge Project Partners will continue to liaise with TII / NTA with regards to the delivery of stations and will seek to ensure new stations are appropriately designed and integrated with new urban realm.

Light rail will play an important role in the success of City Edge. The existing Luas Red Line service provides high capacity and frequent services between west Dublin and the city centre, with existing stops at Kylemore, Bluebell

and Blackhorse. The Draft GDA Strategy 2042 proposes enhanced accessibility to stops, improved service performance and potential for new stops.

There is currently a 2km distance between Kylemore and Red Cow stations which results in the City Edge development falling outside a comfortable walking distance / catchment area of existing Luas stops. To improve accessibility to public transport, City Edge envisages a new Luas Red Line stop on the Naas Road, west of the Hamburger Junction. Design considerations supporting the emerging preferred stop location include:

- **Demand for services** – Proposed Luas stop serves a gap between existing station catchments and supports existing and new development proposals
- **Accessibility** – Safe walking and cycling routes to and from the proposed station are feasible but will need to be carefully considered as part of wider Naas Road enhancements. There is an existing at-grade pedestrian crossing upgrade planned under BusConnects at Hamburger Junction. Walking and cycling infrastructure along Naas Road to be upgraded to provide safe connections with adjoining developments.
- **Integration with Other Modes** – BusConnects CBC08 and longer distance regional bus routes operate along the Naas Road. Active mode connectivity between the outer orbital route, proposed Luas Stop and bus services operating along the Naas Road will be provided to improve interaction between modes.
- **Naas Road Strategic Capacity** – Proposed Luas to be located away from the M50 / N7 junction and next to an existing pedestrian crossing facility and signalised junction to minimise impact on the capacity of the Naas Road.

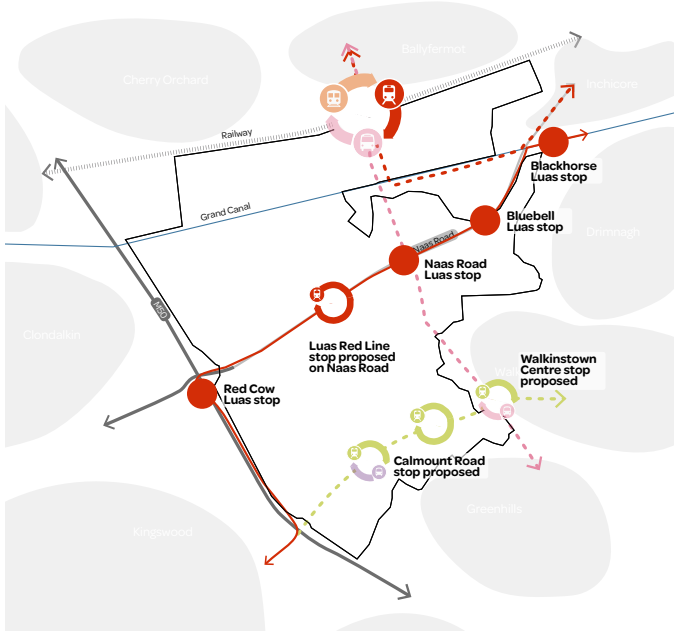


Figure 129. Light Rail

The new stop will encourage sustainable travel for existing and future development, supporting movement principles of connectivity, sustainable mobility, transit orientated development and placeshaping.

City to Lucan Luas Line - Draft GDA Transport Strategy 2042 identifies sufficient demand exists for the provision of a new Luas line that connects the City Centre with Lucan. City Edge significantly strengthens the case for this light rail investment and supports its fast-track delivery.

Kimmage Luas Line and Red Line Reconfiguration – The Draft GDA Transport Strategy 2042 includes a commitment (Measure LRT6) to undertake detailed appraisal, planning and design work for new Luas lines for delivery after 2042. They include the potential reconfiguration of the Red Line to provide a new route from Tallaght to Kimmage and the City Centre.

City Edge recognises the benefits a new Kimmage Luas Line will bring in supporting sustainable growth across this future district, creating the opportunity to deliver transit orientated development on strategic brownfield lands. City Edge will make space provision for the potential alignment and new stations of the route through the proposed Greenhills District. A more considered route, including new station locations, can be examined as part of the statutory planning process and it is noted that precise alignments for light rail within City Edge will be the result of a full assessment process and will follow necessary due process in terms of planning and the securing of funding

It is envisaged that the inner orbital corridor will be served by high-quality bus services. However, there may be need for even higher capacity services along this route as demand increases into the longer term. This corridor will be safeguarded with this in mind.

8.8.3 RAIL

Figure 130. Kildare Line proposal

Rail will provide high-capacity public transport connectivity to destinations outside City Edge through DART, Regional and InterCity rail services.

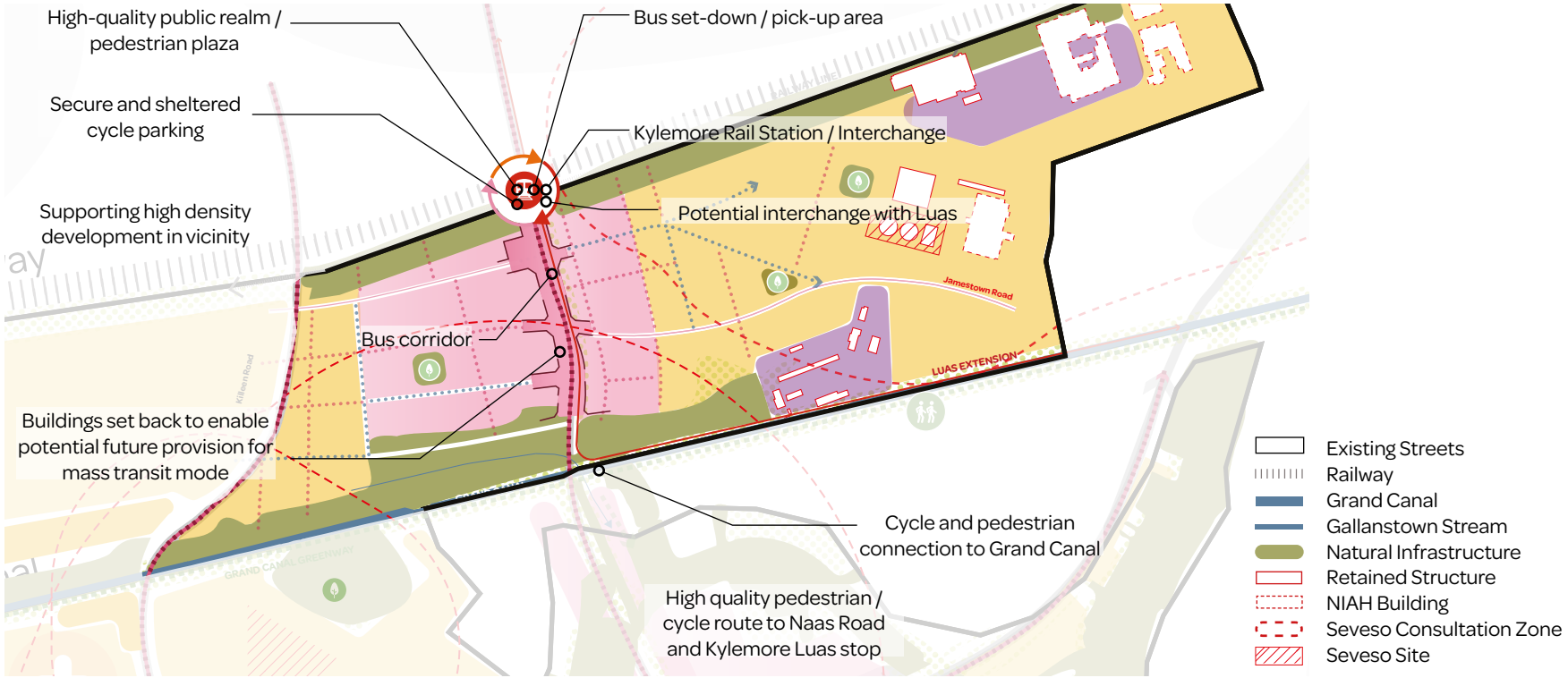


Figure 131. Public transport high-quality intervention

DART+ Programme will improve attractiveness of rail services through quicker journey times and increased frequencies, making City Edge more accessible by rail and supporting Transit Orientated Development.

DART+ integrates with future Metrolink services, making City Edge accessible to Dublin Airport using a single transfer between high capacity rail services. DART+ Tunnel alignment will be preserved and protected to allow its future delivery subsequent to the strategy period. The DART+ Tunnel project will further increase accessibility of City Edge to destinations across Ireland served by rail.

Key to unlocking the benefits of rail will be improved connectivity to Park West Cherry Orchard Station and more critically the provision of a new station at Kylemore Rail Interchange. Connectivity to Park West Cherry Orchard Station will be delivered through CBC08 BusConnects, Outer Orbital route services and the integration of improved walking and cycling facilities.

Kylemore Rail Interchange is a new station that was considered under initial DART+ proposals and is also detailed in the Draft GDA Transport Strategy 2042 (Measure RAIL6). The station will allow City Edge to deliver a best practice multi-modal interchange that promotes Sustainable Mobility, Placeshaping, Connectivity and Transit Orientated Development, enabling up to 15 trains to directly serve City Edge per hour with journey times of five minutes to Heuston Station and about 10 to 12 minutes to and Connolly and the city centre.

The station will be designed to enable easy, accessible and convenient integration between PT modes, including DART+, Luas Line F (City to Lucan), bus services and other orbital routes. This will allow residents, workers and visitors to benefit from the high quality public transport available in City Edge.

Kylemore Rail Interchange will be supported by high quality public realm in its vicinity to promote active travel for the first and last-mile elements of trips. This will include secured and sheltered cycle parking, pedestrian routes and gathering spaces. Attractive and well-signed walking and cycle route will provide connectivity between the station and Red Luas Red Line (Kylemore).

8.9 WALKING & CYCLING

8.9.1 OVERVIEW

Based on the 15-minute city principle, the central aim of City Edge is to deliver a compact liveable city, whereby residents can access essential daily needs locally, without the use of a car. The delivery of walkable networks help create vibrant and inclusive communities, improves the health and wellbeing of its residents and contributes to the reduction of carbon emissions from transport.

A range of measures will be implemented to increase the attractiveness of active travel and promote the 15-minute city principle in City Edge. These include:

- A permeable pedestrian and cycling network;
- A safe pedestrian and cycling environment with high quality facilities suitable for use by all;
- Easily accessible public transport; and
- Connectivity between key destinations.

This section details the measures that will be implemented to promote walking and cycling as first modes of choice within City Edge.

8.9.2 DESIGNING STREETS FOR PEOPLE

Liveable cities make people the highest priority in street design. They understand that streets are not only places for walking, but destinations in themselves allowing for resting, meeting and play. Following the best practice principles set out in the Design Manual for Urban Roads and Streets (DMURS), City Edge street network will address the following needs of pedestrians:

Connected and Permeable Streets
People are more likely to choose to walk if the experience is attractive, safe and convenient. Building upon the existing street network, A series of continuous and connected pedestrian routes will be provided in City Edge linking residential areas to schools, shops, parks, neighbourhood centres, employment opportunities and public transport nodes. The delivery of a fine grained network which provide pedestrians with a choice of routes to their destination will help increase the over-all attractiveness of walking. To reduce the distance between destinations, cul-de-sacs and unnecessary barriers will be removed.

Comfortable Spaces
All streets within City Edge will be universally accessible. Sufficient space will be provided to allow people to comfortably pass, with additional width provided in areas of high footfall (for example around Kylemore Interchange) or places inviting commercial activity or social gatherings. Pedestrian spaces must be comfortable throughout the day. The use of trees and resting spaces will provide shelter during the day, whilst the provision of lighting and unobstructed views will improve safety at night.

The needs of people with disabilities, including those with visual impairments, limited mobility or wheelchair users, will be catered for within the pedestrian environment. This will include through the use of tactile paving, dropped kerbs and ramps at pedestrian crossings, bus stops, rail platforms and taxi ranks to ensure accessibility for all.

Junctions and Crossing
Historically, junctions and crossings have been designed to prioritise vehicle throughput in favour of people throughput. Such junctions are not conducive to active travel. Junctions that provide safety for all road users and promote walking and cycling will be provided, whilst recognising the strategic nature of some corridors within City Edge (such as Naas Road).

Crossings will, as far as possible, be located on pedestrian desire lines to promote sustainable mobility, enhance road user safety and provide a street network that encourages and prioritises pedestrian movement. This will be done whilst recognising the need to maintain traffic and public transport flow on strategic corridors.

Sufficient time will be provided at signalised crossings to enable all to cross safely, including wheelchair users, people with limited mobility, and those with pushchairs / buggies. Those waiting at junctions and crossings can lead to crowding on footpaths, particularly in locations subject to high pedestrian footfall. Safeguarded capacity to enable high pedestrian volumes will be provided for, such as around Kylemore Interchange.

Wayfinding
The legibility of urban areas is critical to creating a positive walking environment. Providing a comprehensive and consistent pedestrian signage for City Edge, in tandem with other technical sup-ports, will help visitors navigate local streets and will improve multi-modal journeys.

Low Car and Car Free Urban Centres
As set out in the Demand Management section of this report, it is proposed to locate collective parking units adjacent to arterial and distributor routes to reduce the need for through running of traffic on local streets within the 5 planned districts.

Within the centres of each district, where pedestrian activity is at its highest, it is proposed to dis-courage car access through reconfiguring streets and public realm, or removing car access in its entirety. Parking will be located remote from public transport hubs to discourage the establishment of unplanned Park and Rides and encourage the use of walking / cycling as a first choice mode for trips to public transport interchanges.

Radial Road Capacity for Car Trips
In line with Measure ROAD1 of the Draft NTA 2042 Strategy for the GDA, there will be no significant increase in capacity for private car trips on radial roads, except where re-alignments or junction changes are necessary for safety reasons.

Car Free Case Study: Merwede, Utrecht (Netherlands)
Located in the south west of Utrecht, Merwede is a Canal-side industrial estate which is being transformed into a high density mixed-use urban district supporting live, work and recreational uses. Prioritising the needs of pedestrians and cyclists, the development will be largely car free. In support of this strategy, a low parking ratio has been adopted for the entire district including 300 car club spaces, all private car parking underground and removed from residential blocks. Shops, school and workplaces are all situated within easy walking distance, with an emphasis on cycling for longer trips (1km from central Utrecht). Smart mobility options include shared bicycles and cars, as well as easily accessible public transportation points. Car free district centres, low parking ratios as part of transit orientated development and smart mobility initiatives are all promoted by City Edge.

8.9.3 CYCLING AND PERSONAL MOBILITY

Network Planning

The early delivery of a comprehensive and coherent cycle network, providing appropriate levels of segregation, is crucial to the sustainable development of City Edge. In developing the cycle net work, consideration will also be given to use of personal mobility devices such as e-scooters. The planned network will provide connectivity between origins and destinations within City Edge as well as provide active travel connections with adjoining communities.

City Edge will utilise existing transport corridors to make early implementation of a coherent and accessible cycle network feasible, as well as capitalising on active mode infrastructure being developed and delivered as part of ongoing schemes, particularly BusConnects and Cycle South Dublin. Focus will be placed on the most deliverable routes upfront to ensure cycle infrastructure provision from the outset.

The Tymon to Phoenix Greenway and Grand Canal will link planned development and also integrate with wider neighbourhoods, encouraging active travel through high-quality routes and green amenity corridors. City Edge will fully integrate with existing plans and strategies that promote enhanced accessibility for active modes, including:

- Bluebell Framework Plan
- Park West Cherry Orchard Local Area Plan
- Naas Road Local Area Plan
- Cycle South Dublin
- BusConnects
- Draft GDA Transport Strategy 2042 and Draft GDA Cycle Network

Addressing severance

There are a number of existing fixed physical constraints across City Edge that create a severance effect for active mode, affecting permeability and the availability of direct and desirable routes. They include:

- Kildare Rail Line bounds City Edge to the north;
- M50 bounds City Edge to the west;
- Grand Canal runs through the northern part of City Edge;
- Naas Road and Red Line Luas runs through the middle of City Edge; and
- Other regional road corridors running through City Edge with limited crossing opportunities

City Edge combines proposals under existing plans and strategies with further initiatives to over-come the issue of severance. They include new and improved crossing opportunities enhance permeability and create better connected communities. Key indicative routes are shown on Figure 133 which will be further developed at the masterplanning stage of the project in collaboration with relevant stakeholders. This will include detailed consideration of Red Line Luas crossings to avoid adverse impacts, especially with regard to the Red Line throughput and also safety of tram users, drivers and active mode participants.

Cycle Infrastructure Design

Cycle routes and infrastructure will provide a suitable quality of service to all users, regardless of age or ability. All cycle infrastructure will be developed to align with the NTA's National Cycle Manual requirements alongside all other relevant adopted and emerging policy / guidance.

Physical segregation on key cycle corridors within City Edge will ensure that cyclists are protected from vehicular traffic and congestion, improving cyclist safety and cycle journey time reliability. The following Indicative active mode routes map Figure 133 illustrates the potential network of primary and secondary cycle routes in City Edge, overlayed on the existing road network. The hierarchy of cycle routes will be further developed at the masterplanning stage of the project.

Cycle and Personal Mobility Parking

The availability of convenient, easily accessible and secure cycle parking at the beginning and end of an individual's journey is one of the greatest factors to influence an uptake in cycling. As such, City Edge will provide a range of cycle parking opportunities that cater for the wide variety of trips and the full spectrum of cycles.

This will include long-stay provision at residential and workplace lands, in line with appropriate minimum cycle parking standards, as well as short-stay provision for other uses.

Consideration will be given to the provision of strategic high-quality cycle parks, particularly in proximity to key destinations and public transport interchanges. Parking facilities will include pro-vision for personal mobility devices such as e-scooters.

Figure 132. Utrecht Central train station bicycle parking

Shared Mobility

Supporting a planned population of over 75,000 people and 70,000 jobs, City Edge will be of a sufficient scale and density to sustain comprehensive cycle and personal mobility share schemes. The strategic positioning of cycle and other docking areas at public transport nodes, commercial centres and other places of attraction, will encourage switching to active mode and will substantially reduce the reliance on private car use. The success of any shared mobility scheme will be under-pinned by the Demand Management Strategy, which will prioritise the needs of sustainable travel.

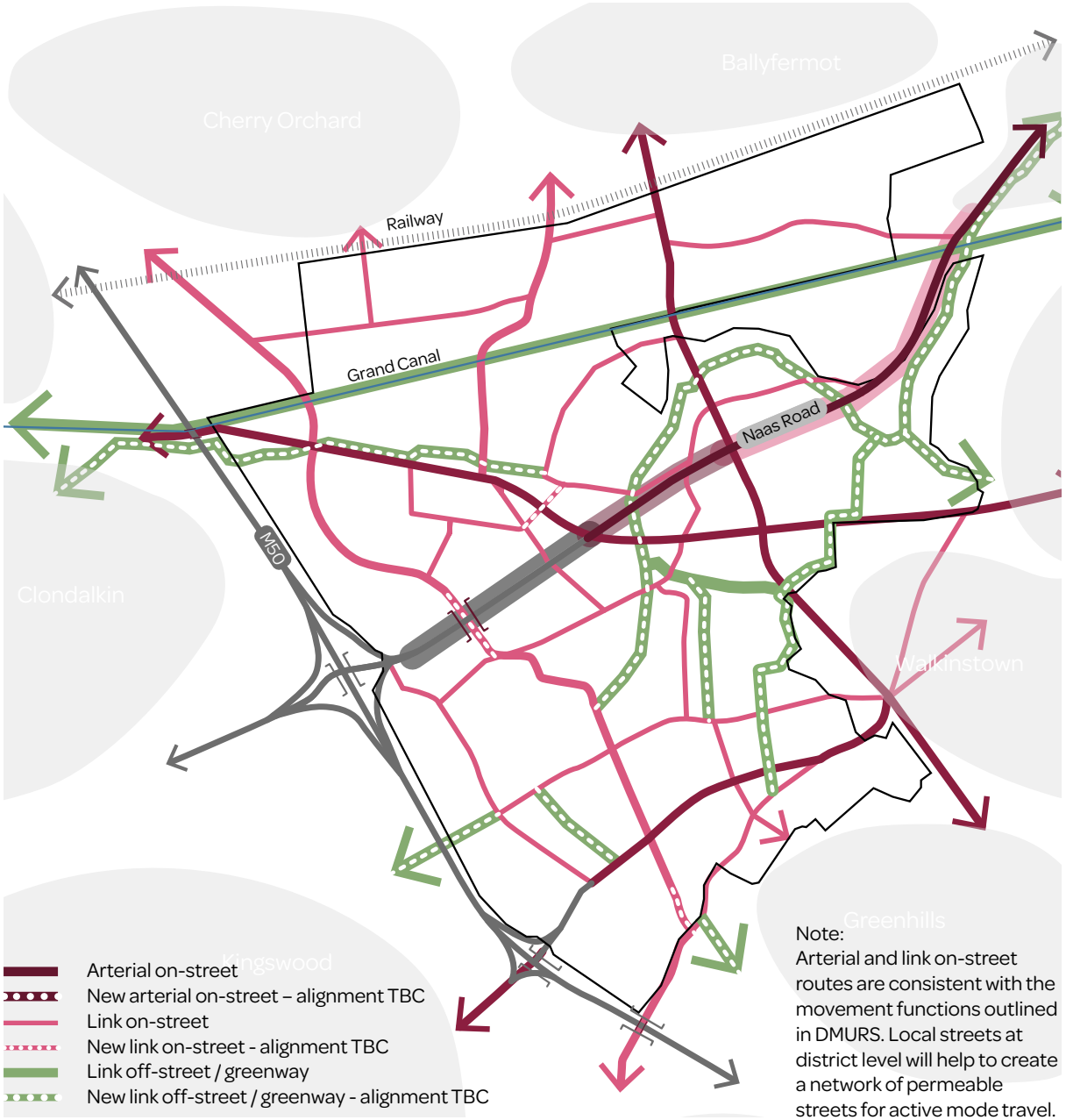


Figure 133. Indicative active mode routes

8.10 NAAS ROAD

Naas Road runs for 3km through the heart of City Edge in an east-west direction between M50-N7 junction and Grand Canal crossing. The type of development along Naas Road is generally mixed but there is an overall change in characteristic along its length from industrial to the west, commercial in the middle, and residential to the east. Large set backs on properties, limited cycle infrastructure, lack of priority and high volumes of traffic make the corridor unattractive for active modes. Travelling across Naas Road in a north-south direction is difficult across its full length.

8.10.1 NAAS ROAD OBJECTIVES

The treatment of Naas Road needs to address demand for movement in both east-west and north-south directions. A focus on active modes is particularly important if City Edge is to deliver on connectivity, placeshaping and sustainable mobility. This needs to be balanced with maintaining the strategic function of the Naas Road in carrying and distributing traffic to support the city and wider region. This is a delicate balance that needs careful design consideration.

Avinguda Diagonal, Barcelona is an example of this balance being achieved with relative success. Whilst not directly comparable to Naas Road, it demonstrates how a high capacity corridor can combine with at-grade permeability to provide an attractive urban streetscape with good accessibility for all modes.

Delivery Note: City Edge must follow the principles of Department of Transport's National Investment Framework for Transport in Ireland (NIIFTI). NIIFTI contains an Intervention Hierarchy which aims to maximise the potential, and benefits, of existing infrastructure and services already in place. NIFTI also sets out a hierarchy of travel modes to be accommodated and encouraged when investments and other interventions are made. The sustainable modal hierarchy is: Active travel, Public Transport, the private car

Avinguda Diagonal, Barcelona
The Avinguda Diagonal is one of the city's largest and most important avenues. The road cuts the grided city in two and performs a strategic traffic and public transport function whilst enabling active mode more locally. It runs for 11km and is consistently 50-55m wide. It consists of several key urban design features including:

- A promenade runs through the centre of the avenue. This promenade is supplemented with a tram network in parts of the avenue.
- Perpendicular streets connecting to it are often one-directional, allowing for more public space where car lanes have recently been replaced by public seating.
- The Avenue is heavily planted to add visual interest as well as interrupting the skyline which helps to manage the scale of the nearby buildings.
- Local access roads run parallel to the main thoroughfare serving adjacent properties
- Dedicated off-road walking and cycling facilities.

Where practicable, these urban design features will be incorporated into the design of Naas Road corridor.

8.10.2 NAAS ROAD DESIGN CONSIDERATIONS

The varied nature of Naas Road means there is no 'one size fits all' solution to deliver connectivity, placeshaping and sustainable mobility objectives as part of wider City Edge proposals. North-south movements are particularly challenging to overcome due to the severing nature of Naas Road and its important role as a corridor for movement in an east-west direction. Key junctions help delineate the varying role of Naas Road along its length:

- **M50-N7 to Hamburger Junction** – high-capacity strategic corridor for vehicular traffic and public transport. Traffic is a mix of strategic, regional and local traffic with Hamburger Junction performing an important role in the distribution of traffic to and from the M50-N7 Junction. Adjoining land uses are industrial / commercial in nature
- **Hamburger Junction to Kylemore Road** – performs a strategic function but with less overall demand due to N7 / M50 traffic distributing between New Nangor Road, Naas Road and Long Mile Road at Hamburger Junction. This section of Naas Road forms part of the BusConnects CBC08 Clondalkin to Drimnagh corridor. Adjoining land uses are industrial / commercial in nature
- **Kylemore Road to Grand Canal** – performs more of regional and local function with some residual strategic traffic and long-distance commuting. Traffic volumes are greatly reduced compared to the other sections of Naas Road. Adjoining land uses are residential in nature

The existing street environment of Naas Road makes travelling along the corridor hostile for pedestrians and cyclists. City Edge will deliver active mode enhancements that include dedicated and segregated pedestrian and cyclist facilities to make travel by active mode safer and more attractive, in accordance with Design Manual of Urban Roads and Streets.

This will include rationalisation of existing access arrangements to address lane-changing and weaving issues associated with access to / from side roads and private

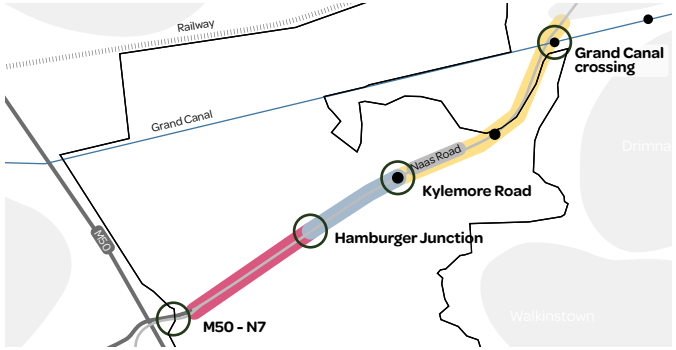


Figure 134. M50-N7 to Grand Canal Character Areas diagram

lands. The use of service roads will be promoted to reduce vehicular weaving, maintain capacity for strategic traffic and public transport, and improve safety for all users. This approach will facilitate appropriate levels of accessibility to existing and future developments along Naas Road for all modes.

City Edge has identified active mode crossings of Naas Road to address north-south permeability and provide connectivity along key pedestrian and cyclist desire lines. Where practicable, crossings are grade separated or existing at-grade signalised crossing points are utilised to minimise the impact on Red Luas Line operations and the strategic function of Naas Road. To address capacity and safety issues at the Red Cow Interchange, the introduction of grade-separated multi-modal crossings between the M50 and Hamburger Junction will be subject to further detailed discussions as the City Edge Project progresses.

Further design considerations specific to each section of Naas Road are also provided. Where practicable, crossings are grade separated or existing at-grade signalised crossings are utilised to minimise the impact on Red Luas Line operations and the strategic function of Naas Road. It is recognised that the Red Luas Line is fixed, and its services of high frequency sustainable travel need to be maintained.

Active Mode crossings

M50-N7 to Hamburger Junction

1. Retain existing footbridge and improve accessibility
2. Introduce grade-separated multi-modal crossing
3. Retain and enhance existing at-grade crossing. The crossing will be integrated with the proposed new Luas Red Line stop

Hamburger junction to Kylemore Road

4. BusConnects CBC grade separated crossing at Hamburger Junction
5. Proposed at-grade mid-block crossing to integrate with green / blue corridor, subject to detailed consideration of Red Line crossings to avoid adverse impacts as noted in section 8.9.3.
6. Retain and enhance existing at-grade crossing

Kylemore Road to Grand Canal

7. BusConnects CBC Crossing at Kylemore Junction
8. Incorporate at-grade crossing as part of existing signalised junction upgrade at Carriglea Industrial Estate
9. Retain existing at-grade crossing at Bluebell Luas and integrate with green / blue corridor
10. Retain existing at-grade crossing
11. Retain existing at-grade crossing at Grand Canal

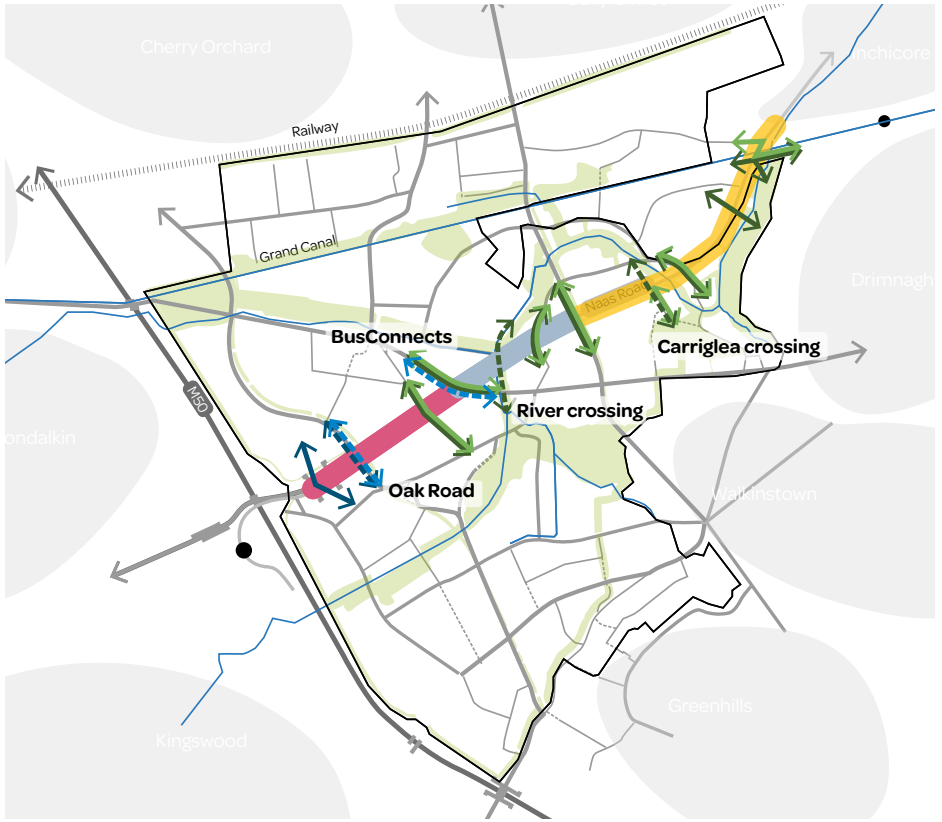


Figure 135. Naas Road Active Mode crossings

Section 1 - M50-N7 to Hamburger Junction

This section of Naas Road will retain a largely industrial commercial characteristic along most of its length. A key objective is to segregate pedestrian and cyclist movements from mainline traffic through the use of service roads, improved urban design and dedicated crossing points that pro-mote attractive desire lines for vulnerable road users that integrate with adjoining land uses.

Given the proximity of this section to Red Cow Interchange, the introduction of a grade-separated multi-modal will require detailed consideration of junction and network operations to ensure road capacity and safety issues are addressed to the satisfaction of relevant stakeholders.

M50-N7 To Hamburger Junction	
Design Consideration	**Design Response**
1. Proximity to free-flow M50 / N7 Junction with high volumes of strategic traffic. East-bound traffic from M50 / N7 operates under 'free flow' conditions until they reach pedestrian crossing west of Hamburger Junction. Removing free flow conditions likely to create tailbacks at M50 / N7 junction.	1. Maintain existing free flow nature for east-bound traffic.
2. Westbound traffic from Hamburger junction to M50 / / N7 is not 'free flow'. This movement is signal controlled at Turn Pike Road junction.	2. Potential to segregate strategic traffic from local access traffic through provision of a parallel service road with high-quality urban de-sign and segregated cycleway. Alternative access also available to N7 / M50 via Turnpike Road junction.
3. There is a 700m gap between the existing pedestrian / cyclist footbridge adjacent the Red Cow Hotel and at-grade crossing next to Hamburger junction which leads to permeability issues. The Luas line situated in the central reserve has been designed to deter mid-block crossing. An additional at-grade crossing closer to the M50 / N7 free-flow junction will result in significant capacity issues for vehicular traffic (N7 Newlands Cross Junction PPP Scheme completed in 2014) to ad-dress this issue.	3. Grade-separated crossing mid-block to improve permeability. North-south access to be multi-modal and integrated with lands to the north and south of Naas Road. Land-use development proposals to respond accordingly and provide appropriate level of access for active mode. This outer orbital crossing will most likely take the form of a bridge following high level options assessment considering land-use integration, accessibility by mode, cost, deliverability, sustainability and safety. The design approach will maintain a satisfactory level of Red Line Luas operations.

Section 2 - Hamburger Junction to Kylemore Road

This section of Naas Road will be mixed use employment and residential. Walking and cycling infrastructure along this section of Naas Road will initially be delivered through BusConnects proposals. Specific design considerations for this section of Naas Road are outlined below.

Hamburger Junction To Kylemore Road	
Design Consideration	**Design Response**
1. Hamburger junction is strategic traffic junction which currently poses a barrier to movement for pedestrians and cyclists	1. BusConnects CBC infrastructure include measures to enhance walking and cyclist accessibility and connectivity at Hamburger Junction. Further enhancements will be required in response to future sustainable land-use development whilst the strategic traffic function of the junction will need to be retained. The design approach will maintain a satisfactory level of Red Line Luas operations.

Section 3 - Kylemore Road to Grand Canal
This section of Naas Road will mostly retain a residential characteristic with mixed use development near to Kylemore Road. Specific design considerations for this section of Naas Road are out-lined below.

Kylemore Road To Grand Canal	
Design Consideration	**Design Response**
1. Kylemore Road currently acts as a barrier to movement for walking and cycling and will need to accommodate enhanced north-south public transport provision into the future.	1. BusConnects CBC infrastructure include measures to enhance walking and cyclist accessibility at Kylemore Junction. Further enhancements will be required in response to future sustainable land-use development with junction upgrades to accommodate growth in north-south public transport provision. The design approach will maintain a satisfactory level of Red Line Luas operations.

NAAS ROAD DESIRED OUTCOME

The desired outcome for Naas Road is to make the corridor attractive for use by all modes, integrating land-use development with sustainable travel to provide high quality accessibility for local residents and businesses, whilst facilitating the important role it plays in the strategic road network for the region .

It is acknowledged that Naas Road objectives need to align with future demand for vehicular travel along the corridor, whilst facilitating the important role it plays in serving the Red Line Luas corridor and the strategic road network for the region. City Edge will promote local and wider city travel demand management measures to reduce non-essential vehicular traffic and create space for sustainable movement.

8.11 TRAVEL DEMAND MANAGEMENT

8.11.1 OVERVIEW- THE TRANSPORT CHALLENGE

Ireland 2040 Our Plan: National Planning Framework identifies the need to significantly reduce our demand for travel to help meet carbon emission targets, improve our air quality, reduce city centre congestion and improve the overall quality of life for our citizens. The Transport sector is currently responsible for over 20% of Irelands Greenhouse gas emissions, with road transport accounting for the majority of these emissions. The Government's Climate Action Plan 2019 sets ambitious targets of a 50% reduction in carbon emissions from transport by 2030 and net-zero from the sec-tor by 2050. Achieving these targets will require a step change in the way we live our lives and how we chose to travel; with a focus on shifting from the private car to walking, cycling and public transport.

The previous sections of the movement framework have identified the existing and proposed infrastructure measures which will help encourage sustainable travel at City Edge, however these infrastructure measures alone will not be sufficient to meet the carbon emission goals set out in national policy. These will need to be augmented by 'Travel Demand Measures' which seek to directly influence peoples travel behaviours by reducing or eliminating the need to travel and providing alternatives to private car travel.

As a development area of national importance, City Edge is of a sufficient scale to influence sustainable travel behaviours at both a local and regional level over the coming decades. The coordination of development with sustainable transport infrastructure, underpinned by a comprehensive demand management strategy will help achieve the goal of delivering a zero carbon development for City Edge.

The following section details both external (national level) measures which may shape travel patterns to City Edge as well as the internal measures recommended as part of this Strategic Framework.

8.11.2 NATIONAL & CITY WIDE STRATEGY

In March 2021, the Government published its Five Cities Demand Management Study: Recommendations Report. Following an evidence-based approach, the report sets out the necessary demand management measures at a local national, regional and city wide level to address the carbon, congestion and air quality challenges facing our cities. Aligned to national policy, the four key aims of the strategy are to:

- Manage vehicular traffic congestion;
- Reduce greenhouse gas (GHG) emissions from road traffic;
- Improve the quality of the urban environment; and
- Address air quality issues due to vehicular traffic emissions.

The Demand Management Measures contained in the report are themed as follows:

- **Fiscal Measures:** seek to increase the attractiveness of sustainable modes by primarily increasing the cost of travel for car modes.
- **Air Quality Measures:** Seek to locally tackle air pollution in built up urban areas.
- **Parking & Traffic Management:** seek to increase the relative attractiveness of non-car modes by reducing parking availability at targeted locations.
- **Planning Policy:** Seek to provide for development patterns, density and layout that reduces car use and prioritises the use of sustainable modes.
- **Behavioural Change:** Soft measures or programmes aimed at encouraging people to choose more sustainable transport options.
- **Technology & Communications:** Seek to reduce the need to travel, the choice of travel mode or optimise the network capacity through the use of new technologies and communications.

NTA's Draft GDA Transport Strategy 2042 also acknowledges the need for additional demand management measures to be put in place at the regional level to complement additional transport capacity in the GDA in order to work towards climate change goals. In this regard Measure Climate1 states that 'Additional demand management measures to achieve the GDA transport emissions target for 2030 will be implemented. The NTA will undertake a detailed assessment to establish the optimal framework of demand management measures, which is likely to include parking restraint, zonal charging, additional tolling / road pricing and / or further vehicle electrification'.

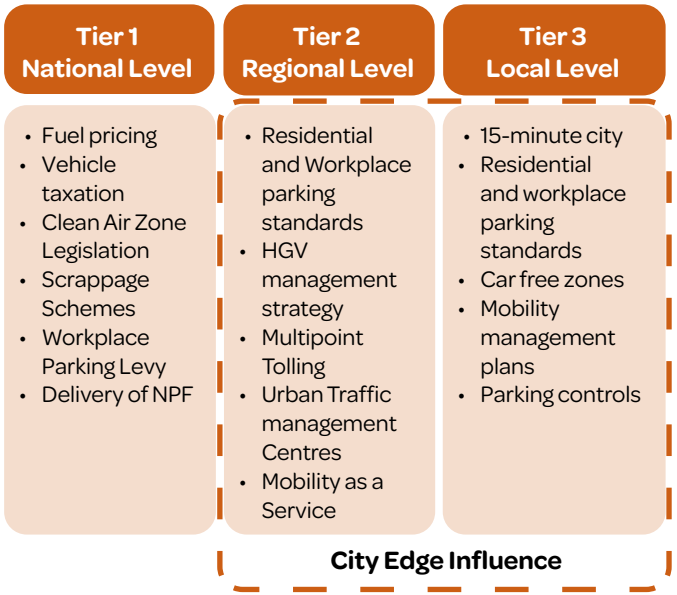


Figure 136. Key national, regional and local demand management measures

The diagram below illustrates some of the key national, regional and local demand management measures which will influence travel to and from City Edge and will be further informed by the NTA's future assessment.

8.11.3 CITY EDGE – TRAVEL DEMAND MEASURES

The following section sets out the key demand management measures proposed under the Strategic Framework to reduce overall demand for travel, in particular by private car, and promote walking, cycling and public transport as a first choice.

8.11.4 RESIDENTIAL CAR PARKING

Parking Strategy- Ultimate Build Out

Residential parking standards have traditionally followed a 'predict and provide' approach which seeks to forecast vehicular trip generation for a site and provide sufficient parking to accommodate the demand. This 'rear-view' approach based on an examination of previous travel behaviours often results in an over provision of highway capacity and lack of focus on walking, cycling and public transport infrastructure. This in turn can induce car traffic which undermines efforts to reduce carbon emissions from transport.

More recently best practice guidance has advocated a 'Decide and Provide' approach to parking which still examines past travel behaviours but is more closely aligned to sustainable policy which seeks to provide better integration between transport & land use planning and a greater investment in walking, cycling and public transport.

As set out in the previous sections of the Movement Framework, City Edge has adopted a transit orientated approach which will provide all future residents with efficient access to high capacity public transport as well as access to essential daily services within a 15 minute walk or cycle. This integrated approach to transport and land use planning affords the opportunity to adopt the policy led 'Decide and Provide' approach to parking provision to enable the developments to meet its net-zero carbon emission targets.

Whilst residents will still have access to use of private transport through shared car schemes, in the ultimate build out scenario it is therefore proposed that all of City Edge operate as a car-free residential development, except for persons with disabilities or identified mobility needs (for example emergency services). Many European cities have already successfully moved to zero or substantially reduced parking standards based on access to high quality public transport and essential daily services. In most best practice cases, the provision of zero or reduced levels of parking are linked to supporting mobility services including access to car clubs, quality bike parking, bike sharing schemes etc. Further information on supporting mobility services for City Edge is set out within this section.

Parking Strategy- Transition Period

It is acknowledged that the full realisation of the City Edge vision will take a number of years to achieve as land use and infrastructure will be delivered on a phased basis. In this transition period, there will still be a level of demand for private transport as key services may not be available, however parking provision should still follow best practice 'maximum' parking standards as established by SDCC and DCC. The approach taken for parking at City Edge during the transition period will consider:

- **Access to Public Transport:** Set the lowest levels of parking for the areas with the highest level of public transport connectivity, offering more flexibility for less accessible areas.
- **Access to Key Services:** Take into account access to essential daily services by walking and cycling.
- **Future Opportunities:** Acknowledge the planned delivery of future transport services to design in sustainable travel from the outset.

Figure 137 presents a high level framework for the delivery of parking during the transition period. Developments located in highly accessible areas in close proximity to public transport in combination with close proximity to essential daily services (e.g. retail, education, open space etc.) will be subject to zero or low parking standards. Developments located further away from both public transport and essential daily services will be subject to higher parking standards. As noted above, the principles established in this parking framework are intended to be applied in the short term / medium term with a long term transition to an overall car free development as both the public transport offering and supporting services mature.

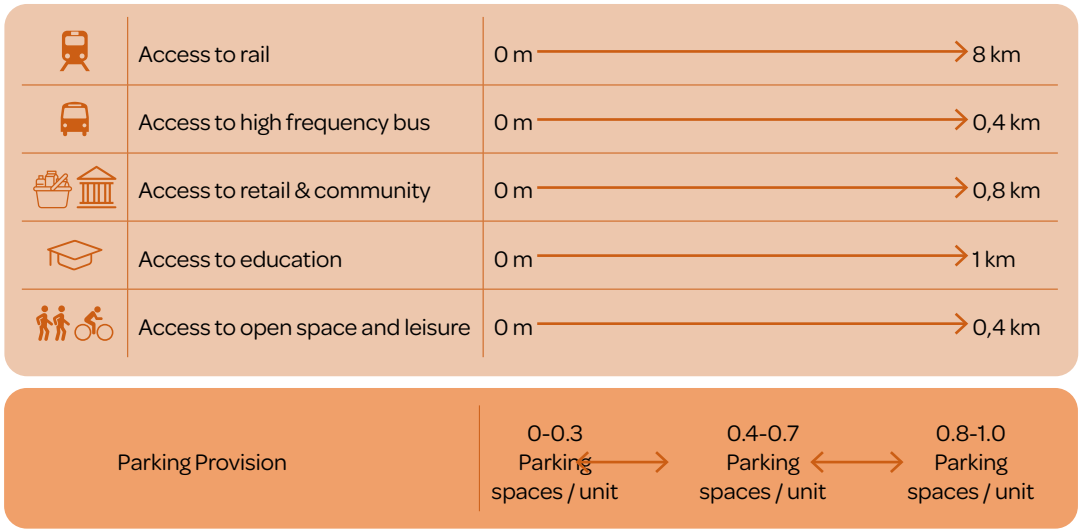


Figure 137. High-level framework of parking

PARKING STORAGE

The traditional method of storing vehicles in residential developments in the case of apartments has been to provide individual basements or podiums for residents parking, supplemented by a smaller proportion of parking at street level. Whilst this approach may serve the predicted parking needs of the development at its time of construction it fails to support the longer term vision of City Edge to create a car free residential development. The provision of costly parking spaces, often purchased with the residential unit or provided on a long term lease, is likely to encourage car use at the outset of the development which will be hard to shift later on as travel behaviours become embedded. The provision of individual parking basements under each apartment block also limits the ability to plan and provide for car-free streets in centres of high pedestrian activity.

To address these challenges, an alternative parking model is proposed for City Edge which facilitates the parking needs of residents (and other users) in collective parking areas (multi-storey units) rather than individual units situated under each apartment. Under this model the parking would be planned, constructed and managed by a public development agency under the ownership of SDCC and DCC. Private residential developments proposed within City Edge would contribute to the construction of the collective parking units through a special contribution mechanism as part of the planning process. The public development agency would lease parking spaces to residents and employees on a short term basis. The benefits of this parking model are as follows:

- **Development Costs:** The creation of collective parking areas reduces the requirement for inefficient parking basements to be provided for each apartment area. This reduces the cost of construction for developers and enables more affordable homes to be delivered.
- **Support Planned Development:** The provision of parking units on the periphery of residential blocks

Figure 138. Parking in Red Cow District and vehicular traffic for primary road network

remote from public spaces will support the provision of a clear hierarchy of routes, which prioritises the needs of pedestrians, cyclists and public transport users.
- **Travel Behaviours:** The leasing of parking spaces on a short term basis will reduce the long term financial commitment of parking for residents and employees, thereby reducing the likelihood of long term car dependencies.
- **Flexibility of Use:** The creation of collective parking blocks will enable the public development agency to adapt the uses of the parking areas over a period of time to reflect new land uses and changes in travel behaviour.
- **Sustainable Vision:** The creation of collective parking blocks can facilitate the eventual removal or re-purposing of the majority of parking structures in line with the vision to deliver a near zero parking development. A substantially reduced quantum of parking will be retained to facilitate persons with disabilities as well as identified mobility and user needs.

As noted above, the provision of collective parking units will support the sustainable planning of the development through the positioning of parking following the below principles:

- Adjacent to arterial and distributor routes to reduce the need for through running of traffic on local streets and through neighbourhoods
- Remote from neighbourhood centres to enable the provision of car free streets in areas of high pedestrian activity
- Remote from public transport hubs to discourage the establishment of unplanned Park and Rides and encourage the use of walking / cycling as a first choice mode for trips to public transport inter-changes.

Figure 138 above illustrates the potential location of collective parking units in the Red Cow District and the desired routes for vehicular traffic from the primary road network.

On-Street Parking

As set out above, the majority of parking within City Edge will be facilitated in collective parking units, however a portion of on-street parking will be desirable in locations to facilitate visitors and on-street activity. The design of on-street parking will follow best practice design principles established in the Design Manual for Urban Roads and Streets, with priority afforded to pedestrian, cycle and public transport measures, whilst catering for those with mobility needs as well as servicing / taxis.

To control the use of on-street parking, parking charges will be applied and set at a rate which deters long stay parking but supports short stay visitors and shoppers who will contribute to the vibrancy and commercial success of the urban centres.

8.11.5 WORKPLACE PARKING

The economic vision for City Edge envisages the regeneration of the area to transition to a mixed use neighbourhood where people will want to live, work and socialise. Under this vision, employment opportunities will be centred around investment in sustainable infrastructure and coordinated with other land use development, thereby contributing to the delivery of the 15-minute city principle.

Following the same principles established for the residential parking standards in City Edge, in the ultimate development scenario it is proposed that zero workplace parking be provided for new employment centres, with the exception for persons with identified mobility needs. In the interim period, employees will be able to avail of the planned community parking structures which will enable employees to rent parking spaces on a short term basis, with rates set at a level which encourages travel by public transport or active modes.

In keeping with current best practice, companies residing in City Edge will be required to establish a Mobility Management Plan which will set out a range of hard and soft measures to reduce car dependency and encourage travel by sustainable means.

Other Demand Management Measures

In addition to the travel demand measures outlined within this section, City Edge will promote the following measures:

Measure	Description	Opportunity in City Edge
Low Traffic Neighbour-hoods and Car Free Zones	Low traffic neighbourhoods comprise groups of residential streets, bordered by distributor roads, where "through" motor vehicle traffic is either discouraged or removed entirely. Car Free zones seek to entirely re-move private car traffic from streets, prioritising the needs of sustainable modes.	A number of mixed use developments are proposed in City Edge centred on existing and future public transport nodes. In keeping with transit orientated principles, opportunity exists to remove the private car from these centres to create vibrant liveable communities.
Home Zones	A single or group of residential streets where the street is a shared community space, with priority afforded to pedestrians and vehicular traffic reduced or entirely removed.	The placement of collective parking structures on the periphery of residential districts will substantially reduce the volumes of through traffic on residential streets, thereby creating opportunities for imaginative use of street space.
School Development and Transport Planning	There are several land use planning and transport planning considerations relevant to the provision of new schools and the pro-vision of walking and cycling infrastructure within their catchment.	City Edge provides a unique opportunity to site new schools into planned development to optimise walking, cycling and public transport. The co-location of schools would enable the sharing of transport facilities and creation of car free areas 'School Streets' around school sites.
Bike Sharing	A public bicycle sharing scheme is a highly effective urban transport system that can have the added benefit of widening the catchment of public transport.	City Edge will support a population of over 75,000 people and 70,000 jobs. All district centres within City Edge will be situated within 3km of each other and will be connected by a comprehensive network of cycle routes. The development will be of a sufficient scale and density to support a comprehensive bike sharing scheme.
Car Sharing	Public car sharing is a model of car rental where people rent cars for short periods of time, often by the hour. They are important in urban areas in facilitating car-free or low-car developments.	The provision of car sharing for future residents and employees of City Edge will help discourage car ownership and increase travel by sustainable means.
Mobility as a Service (MaaS)	A personalised digital travel planning service which enables users to plan, book and pay for a journey using multiple mobility services (e.g. walk, bike hire, public transport etc.)	The provision of MaaS for future residents and employees of City Edge will help discourage car ownership and in-crease travel by sustainable means.

Case Study: Shared Parking in Copenhagen (PARKinCPH)
By & Havn is a development and operating company that delivers and manages urban development and districts at Ørestad and Nordhavn in Copenhagen.

As part of their function, By & Havn is responsible for the development of parking facilities in the urban areas and are also are responsible for establishing roads and canals, urban spaces and green areas.

By & Havn is jointly owned by the City of Copenhagen (95%) and the State (5%) and is operated on a commercial basis. This business model enables By & Havn to take full ownership and management of the parking areas, ensure development is delivered in a coordinated manner on a planned district level and enables income from parking (and other commercial enterprises) to be ringfenced for infrastructure projects which benefit all residents of the city.

The digital parking portal managed through By & Havn is called PARKinCPH. Under this scheme, individual parking spaces are not owned by a resident or employee. Instead, residents or employees purchase a parking subscription which entitles them to park in a vacant space at any of the parking subscription locations. Parking subscriptions are provided on a monthly basis and short term duration with the cost varying depending on the user of the parking subscriptions (Resident, Company or Employee), the duration of stay (24 hours, evening only etc.) and type of vehicle.

Figure 139. Parking Hus in Ørestad, aerial view

Figure 140. Parking Hus in Ørestad, street view

8.12 FREIGHT & SERVICING MANAGEMENT

The safe and efficient movement of freight is a fundamental part of everyday life, supporting business and consumers who require access to goods. However, a dependency on road freight to move goods around Dublin has negative impacts on air quality, placeshaping and road safety. Freight movement, particularly via road and using Heavy Goods Vehicles (HGVs), is a significant greenhouse gas emission contributor. The decarbonisation of the freight sector through adoption of alternative fuel technologies, remoding consignments and integration with smart technologies is crucial to meeting the Climate Action Plan carbon reduction targets.

It is recognised that DCC, SDCC and the NTA are actively seeking to reduce the impacts of freight and servicing activity in Dublin. DCC's draft Dublin City Development Plan 2022-2028 and the NTA's Greater Dublin Area Transport Strategy both commit to development of servicing strategies, incorporating elements such as options for sustainable last-mile delivery, the provision of delivery hubs and use of technology to enhance the efficiency of kerbside activity. Additional measures detailed in the GDA Transport Strategy include consideration to identifying specific HGV routes and / or restricting timing of deliveries, examining the feasibility of consolidation centres, and increasing the volume of last-mile trips made by low emission vehicles.

Given its proximity to the National Road network, City Edge already plays a crucial logistics role in the movement of goods throughout Dublin and the whole of Ireland. As development within City Edge increases, it can be expected that delivery and servicing needs will increase, from both a commercial and residential / personal perspective. City Edge will harness these advantages to promote effective freight and servicing management through a number of means:

- Respond to trends that change how goods are moved and processed;
- Ensure freight and logistics are integrated in key decision making; and
- Enable a shift towards the sustainable movement of goods to address climate concerns, create enhanced places and stimulate economic activity.

8.12.1 LOCATION & LAND USE PLANNING

City Edge will embrace its attractive location and resultant important function for freight distribution (including for the movement of goods into the city centre) and will therefore seek to maintain this role.

Urban industrial land uses will be concentrated at western end of City Edge, providing and benefiting from convenient access to and from both the M50 and N7.

As far as possible, logistic industries and HGV movements will be concentrated within proximity of the M50 / N7 corridors, with the provision of consolidation hubs in this area enabling last mile movements serving both City Edge and wider area to be undertaken by other more sustainable modes.

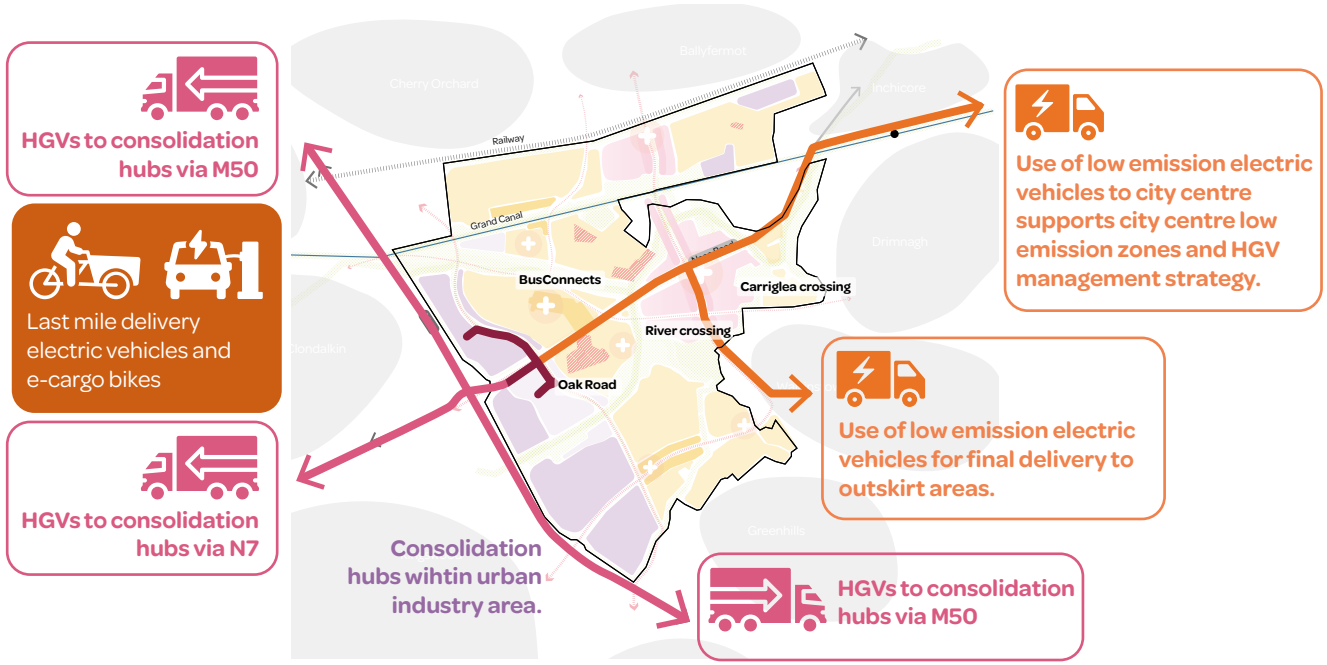


Figure 141. Indicative freight and servicing management map

8.12.2 SERVICING MANAGEMENT MEASURES

A number of measures will be implemented or considered during the development of City Edge to enable sustainable freight and servicing practices to be adopted, minimising the impact of such activity on the road and transport network, pedestrians, cyclists, residents, businesses and visitors.

These include:

- **Smart Lockers:** Use of centralised / smart lockers in key development areas (e.g. shopping centres, major office hubs, public transport interchanges) to reduce servicing vehicle demand within the project lands. This reduces the volume of individual / personal deliveries made to residences and workplaces, often when the delivery recipient is absent.
- **Alternative Vehicles:** Promotion of the use of environmentally friendly options for last-mile deliveries, including electric vehicles and cargo bikes.
- **Consolidation Centres:** Situated adjacent the M50 and N7, the western portion of City Edge are ideally positioned to support third party logistics operators in the development of shared access (haulers and businesses) consolidation centres. Consideration towards the provision of consolidation or micro-consolidation centres within City Edge to combine good shipments and reduce the number of last-mile trips being made by larger goods vehicles into the city, particularly during peak hours.
- **Out of Hours Deliveries:** Encouraging businesses to undertake servicing activity outside of peak hours or overnight.
- **Dynamic Kerbside Management:** Improve delivery certainty through the use of technology that al-lows servicing vehicle drivers to book slots for kerbside access for delivery activity. Dynamic kerbside management has been trialled in Dublin and brings numerous benefits; such as reduced congestion (as commercial vehicles do not need to circulate an area to find a loading space), improved efficiency for deliveries, more efficient use of valuable commercial space and improve air quality.
- **Innovation:** Embrace new technology that supports sustainable freight and servicing management.
- **Work with Developers:** Ensure a framework is in place to support developers in providing for effective service management, helping to minimise impacts on the surrounding transport network.

It is recognised that some HGV through movements from M50 towards the city centre will continue to be needed via Naas Road. Consideration will be given to appropriate travel demand and management measures that can be implemented to mitigate the impact of such activity, such as the introduction of HGV movement restrictions as seen in the city centre.

Figure 142. An Post net-zero emissions delivery service

Figure 143. Smart lockers to reduce servicing vehicle demand

Figure 144. Example of an autonomous delivery robot

Case Study: Bristol Freight Consolidation
Introduction of an urban freight consolidation centre serving Bristol and Bath retailers and offices to help tackle issues including poor air quality, congestion, noise pollution and road user safety concerns.

Background
When set up in 2004 to help alleviate issues associated with freight activity, Bristol Freight Consolidation Centre was the first of its kind in the UK. It has been seen as an example of best practice throughout Europe. The freight consolidation centre is located in Avonmouth on the outskirts of Bristol; it sits on an established industrial estate and close to the strategic road network (including M5, M4 and M49 motorways). Use of the scheme was voluntary, with approximately 150 businesses using the scheme at its peak.

Benefits
Through combining good shipments arriving on the national road network, the scheme was successful in reducing the number of HGVs on Bristol's roads, with a 70% to 80% reduction in the number of onward trips at its peak. This meant that for every 10 vehicles that made a delivery to the consolidation centre, only two or three onward journeys to the central Bristol area were made. Electric vehicles were used for some onward deliveries to the centre of Bristol, providing further emission-related benefits.

- Reduced Delivery Vehicle Movements
- Improvements to Congestion
- Emission Reductions
- Improved Environment for Road Users
- Reduced Noise Pollution
- Reduced Storage Requirements at Final Delivery Location

Figure 145. Bristol Consolidation Centre delivery vehicle

8.13 TRANSPORT OUTCOMES

8.13.1 OVERVIEW

The Movement Framework for City Edge has established an integrated series of transport and land use measures with the central aim of supporting ease of movement for residents / employees / visitors and encouraging travel by sustainable modes. The emerging transport and land use strategy for City Edge has been analysed using the NTA's Eastern Regional Model (ERM). The projected number and types of trips to and from City Edge has been considered with respect to future pubic transport capacity. The ERM is a strategic multi-modal transport model representing travel by the primary surface modes – including, walking and cycling (active modes), and travel by car, bus, rail, tram, light goods and heavy goods vehicles.

The following section sets out the high level impact of the strategy with respect to the overarching Movement Principles established for City Edge.

8.13.2 MOVEMENT PRINCIPLES

Connectivity

To develop City Edge in a way that maximises the benefit of existing and future public transport investment, supported by an integrated network of streets and routes that promote walking and cycling.

City Edge is currently served by strong East-West radial public transport services - including heavy rail and Luas, as well as a number of city & regional bus services. Through implementation of the NTA's GDA Transport Strategy 2042, the level of public transport service on offer will increase substantially within City Edge with DART+ South-west upgrades on the Kildare railway line, enhancements to the existing Luas lines, delivery of new Luas lines and strengthening of the bus service through BusConnects. To maximise the opportunities afforded by the investment in public transport City Edge will focus residential, employment and community services around public transport nodes. These mixed-use communities will be connected via a series of safe and attractive walking and cycling routes. As set out in the Movement Framework, City Edge will also contain a package of supporting Demand Management measures which will further enhance the attractiveness of sustainable transport options and discourage the use of private car trips.

The transport strategy, in combination with other city-wide and Government policies and programmes, will result in a significant increase in sustainable travel to and from City Edge when compared to present day. The results of the ERM analysis indicate that active travel trips (walking and cycling) to and from City Edge in the morning peak period (7-10am) will account for 56% of the overall trips. This compares to an AM peak mode share of approximately 29% for Metropolitan Dublin in the present day scenario.

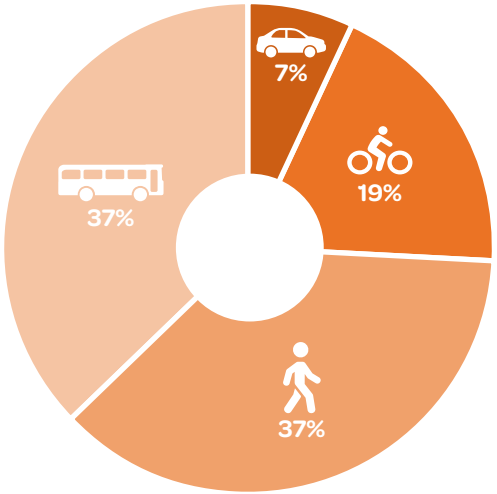


Figure 146. Sustainable travel to and from City Edge

The substantial investment in public transport will lead to a step change in public transport use with 37% of future residents / visitors to City Edge travelling by public transport in the AM peak period. This compares to an AM peak mode share of approximately 20% for public transport use for the Metropolitan Dublin in the present day scenario.

Transit Orientated Development

To focus land-use and densities across City Edge in a manner that creates sustainable urban districts through integrated land-use and transport planning.

The regeneration of City Edge will follow the 15-minute city principle, whereby a mix of uses and densities will be provided focussing on sustainable transport opportunities. Within City Edge, a number of compact urban centres have been identified at existing and future key transport nodes; including Kylemore, Cherry Orchard, Naas Road, Red Cow and Greenhills. These will be knitted together through a series of strong walking and cycling connections, which will be delivered early in the development of City Edge.

Approximately 60% of trips to and from City Edge will be less than 5km in length with 97% of these being undertaken by sustainable modes

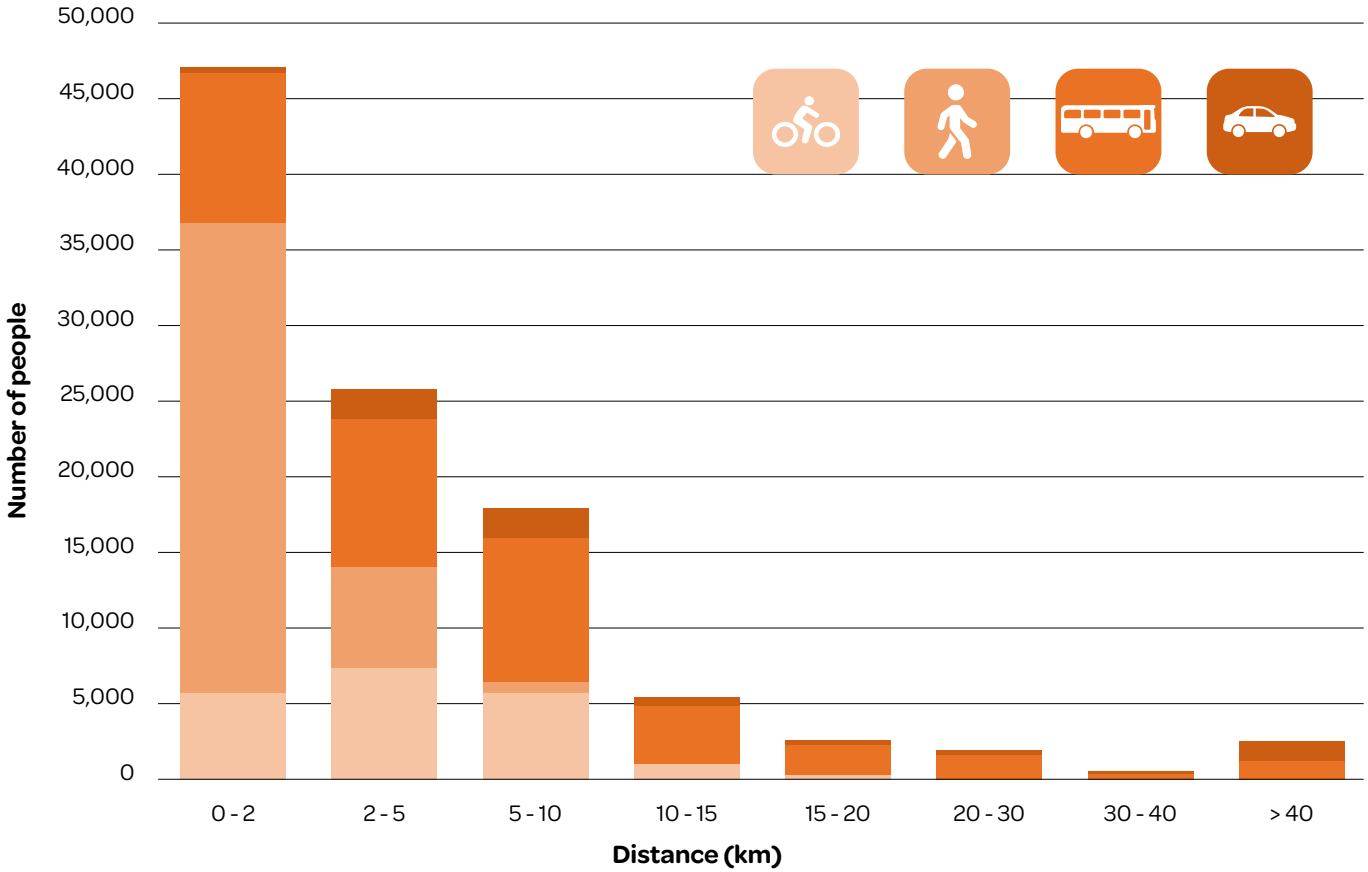


Figure 147. Distances (km) people will travel to, from and within City Edge, including likely mode

The graph illustrates the distances people will travel to, from and within City Edge expressed in km; as well as the likely mode of travel they will choose for that journey. The graph indicates that the majority of trips will be less than 5km in length and will be undertaken by walking, cycling or public transport.

The results of the modelling assessment demonstrates the benefits that can be achieved through the delivery of liveable communities that provide easy access to essential daily services and efficient public transport connections.

Placeshaping

To create an attractive place for people to live, work and meet through a 'people first' design approach, promoting opportunities for safe and attractive ways of travelling by active modes.

Approximately 45% of trips to and from City Edge will be less than 2km in length with two thirds of these being undertaken on foot

Over the past number of decades City Edge has evolved to provide an important industrial, commercial and logistics role for the city and wider region. Understandably this has resulted in the creation of a vehicle orientated network, with infrastructure investment focussing on the needs of private vehicles. Building upon the existing infrastructure, City Edge will reimagine and reshape the transport network placing the needs of people first. The Movement Framework identifies a number of interventions to create an environment whereby walking will be the first mode of choice. These include:

- Placing essential daily needs (e.g. schools, shops, parks etc.) within a short walking distance of homes
- Provision of a comprehensive network of segregated on-street cycle facilities, accompanied by greenways and new open spaces
- Creating attractive and vibrant centres that encourage social and commercial interaction
- Overcoming major severances such as the Naas Road, thorough investment in at-grade and grade separated active mode crossings
- Improving the permeability for walking and cycling through the removal of segregating barriers (e.g. cul-de sacs)

- Improving connectivity to neighbouring communities through investment in the wider active travel network
- Locating car parking on the periphery of district centres, adjacent to arterial and distributor routes.
- Creating car-free streets in areas of high pedestrian activity

The results of the modelling assessment indicate that the majority of trips within City Edge and to local neighbouring communities will be undertaken by walking or cycling. In the AM peak period alone, it is estimated that nearly 60,000 walking or cycling trips will be made to / from City Edge. This compares to nearly 40,000 public transport trips and less than 7,000 car trips.

The results of the modelling assessment demonstrate the importance of integrating land use and transport planning, supported by early investment in active travel infrastructure and appropriate vehicle demand management measures.

8.13.3 SUSTAINABLE MOBILITY

To create an environment where sustainable travel becomes the preferred method of movement for people and goods.

Movement of People

City Edge will play an important role in the long-term consolidation of the region – contributing to the future housing needs of the city, providing significant job creation, supporting investment in major infrastructure, helping to meet our climate change obligations and enabling greater energy resilience in our transport system. The successful growth of City Edge will be dependent upon the phased implementation of the public transport proposals set out in the NTA's GDA Transport Strategy 2042, as well as

Strong demand for Kimmage Luas with peak demand reaching 3,000 – 4,000 Passengers Per Hour in the AM peak

the timely delivery of sustainable transport interventions within City Edge. Building upon the NTA's GDA Transport Strategy 2042, the Movement Framework for City Edge sets out a comprehensive public transport network to meet the future demands for travel, providing residents with a reliable and efficient service. This is supported by active mode infrastructure to enable sustainable trips door to door. Key transport interventions include:

- Early delivery of high quality bus routes through the site as planned under BusConnects
- Providing a new station on the Red Luas Line between Red Cow and Kylemore and associated enhancements
- Safeguarding corridors for the future implementation of major public transport infrastructure such as the City to Lucan Luas Line and Kimmage Luas Line
- Establishing key orbital bus routes through City Edge with potential for upgrade to a mass transit system
- New heavy rail station at Kylemore facilitating interchange between future DART, Luas and bus services
- Delivery of high density mixed use development at stations with provision for multi-modal interchange
- Provision of a comprehensive network of walking and cycling routes connecting future populations to public transport opportunities which will also support use of personal mobility devices

The results of the modelling assessment indicate a strong demand for both existing and planned public transport measures from City Edge during the AM peak period, with public transport being the most popular form of transport for trips over 5km in length. In terms of future planned Luas through City Edge, there is a strong demand for Kimmage Luas with peak demand reaching 3,000 – 4,000 passengers per hour (pph) in the AM peak. Similarly strong demand exists for the Lucan Luas with peak demand reaching 4,000 – 5,000 pph in the AM peak. Demand for public transport is also strong along both identified orbital corridors, with the inner orbital route carrying ca.2,000 pph as a bus service, potentially supporting a higher-capacity segregated public transport service in the future.

Movement of Goods

Whilst City Edge will undergo a substantial urban regeneration, given its position on the transport network it will remain an important logistics centre supporting the wider freight industry. City Edge will support the creation of freight consolidation hubs in lands adjacent the M50 / N7, whilst promoting the use of more sustainable modes for 'last mile' deliveries to City Edge and onwards towards the city centre. The delivery of the freight strategy, coordinated with the proposed demand management measures and investment in sustainable infrastructure, will minimise car trips from City Edge; thereby safeguarding the capacity of the national road network for strategic traffic.

Only 7% of journeys from City Edge will be undertaken by private car

8.14 MOVEMENT SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Housing Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

Sustainable and integrated land use and transport planning

- Movement Framework
- Transit orientated development
- 15-minute city principle
- Sustainable Land Use and Transport Planning to ensure sustainable transport needs are supported as part of development patterns.
- Compact growth and Transit Orientated Development (TOD) delivered at key transport nodes including heavy rail, Luas and BusConnects stops to encourage sustainable mode choice, particularly for longer trips

Supported by delivery of sustainable transport infrastructure

- Public transport investment – rail, light rail and bus
- Promote and facilitate Public bike facilities
- Greenways - Tymon to phoenix park
- On-street active mode infrastructure
- Connections to neighbouring communities
- Shared bike and personal mobility facilities

Encouraged by Demand Management measures

- Low Traffic Neighbourhoods and Car free districts
- Support mobility as a service
- Car Sharing Schemes

Enabled by technological advancements

- Increase use of biofuels
- Electric vehicles
- Autonomous vehicles
- Electrification of public transport and fleets
- Support mobility as a service

Facilitating efficient movement of Freight

- Consolidation Centres
- Smart Lockers
- Low emission 'last mile' deliveries
- Dynamic kerbside management

9 NATURAL INFRASTRUCTURE

9.1 NATURAL INFRASTRUCTURE VISION

9.1.1 CITY EDGE IN A GLOBAL CONTEXT

In the midst of a global pandemic never has there been a more pertinent time to explore what is the future city, how we live and our place in the natural world. By 2040, more than 70% of the global population will be living in urban areas. This change sitting alongside global habitat biodiversity loss, the climate crisis, radical technological evolution and huge social migrations is creating a new context for city planning and design; but how much thought is actually being given to the role and value of landscape and nature in these future city environments? City Edge re-evaluates the qualities and performance we need from our future cities to provide happy, healthy places to live and work whilst reconnecting city populations with the natural world and sustaining and repairing the global environment. City Edge seeks to create and manage "ecologically healthy and environmentally inspiring cities". A city functioning with well-developed and self-balancing natural systems, distinctive natural experiences and spatially diverse landscapes whilst also respectful of, and responsive to, the wider impacts of how it uses resources from the rest of the world.

On first inspection City Edge is a very unnatural, harsh urban landscape. Since the 1960's onwards it has been developed out in a very utilitarian way providing space for industrial / manufacturing use mostly in the form of large sheds and warehouses, associated car parking with roads connecting them with little regard to providing green Infrastructure, urban design principles or environmental issues. This has provided the function of this area up until now. Reimagination and regeneration as a new Urban Quarter of Dublin creates an opportunity to examine the baseline of City Edge, to understand the area and identify existing environmental assets that could be utilised and enhanced.

The topic of environment is broad and therefore for this purpose this section focuses on Natural Infrastructure which is Blue Green Infrastructure*, biodiversity and open space.

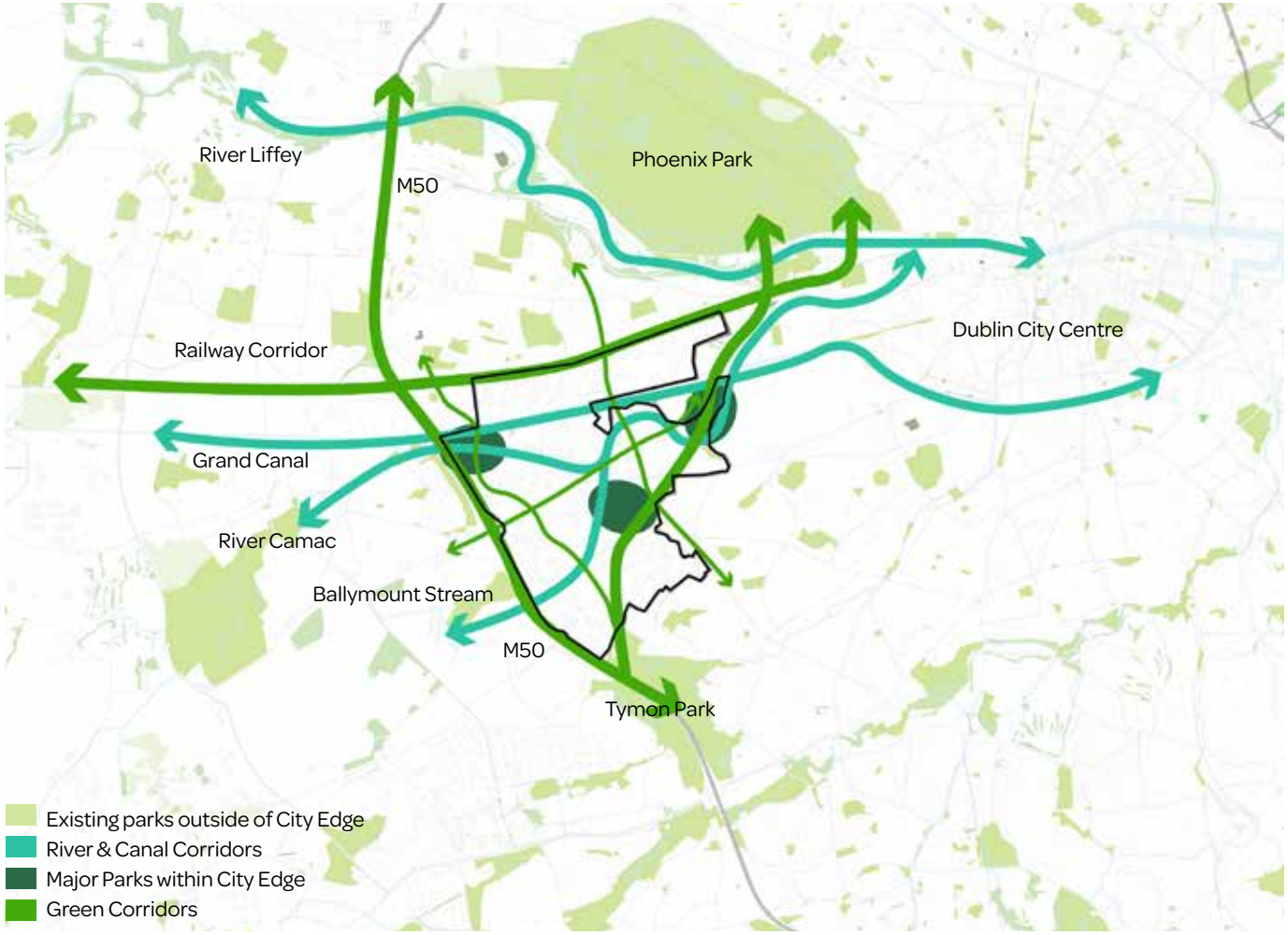


Figure 148. Strategic Green and Blue Infrastructure Diagram

* Blue Green Infrastructure: Blue Green Infrastructure (BGI) has the potential to address global challenges such as climate change, biodiversity loss, and water management. It refers to the use of blue elements both natural and engineered such as; rivers, canals, ponds, wetlands, floodplains, water treatment facilities, and green elements, such as trees, forests, fields and parks, in urban and land-use planning. These elements are planned primarily to aid stormwater control, but also offer social, economic and environmental benefits. Green infrastructure is also defined as a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation.(EU definition as per the SDCC Draft Development Plan 2022-2028)

9.1.2 VISION

This strategy proposes principal Green and Blue routes as part of a 50% greening concept, connecting to existing assets and providing easy access to the city centre.

The 50% green cover target includes enhancement of 2 existing parks; creation of 2 new parks; provision of smaller community parks; street tree canopies; greenways and blueways; greening on private plots; green roofs and walls.

The existing blue routes of the Grand Canal and River Camac, alongside the existing railway / Luas route, all offer links that have great potential for greening enhancements for biodiversity and in doing so provide wildlife corridors that connect to waterbodies.

Smaller existing sites of ecological importance which sit in between larger open green space assets, can be enhanced to provide a continuity of habitats for wildlife, creating 'green' corridors at smaller scales.

9.1.3 OBJECTIVES

Urbanised Population
70% of the world population is projected to live in urban areas by 2040. City Edge aims to:

- Target 50% Green Cover
- Provide local access to amenity and wild spaces

Climate Emergency
Increased frequency and magnitude of extreme weather events from heat waves, droughts, flooding, winter storms, hurricanes and wildfires.

- City Edge aims to deliver a three dimension landscape – a richer, more diverse, more sustainable resource – that sequesters carbon above and below ground

Health & Well-being
Disconnection from the natural world has contributed to mental health issues. Lack of activity and lack of access to open space has led to an obesity crisis

- City Edge aims to re-connect people to the natural environment, through local access to a mosaic of spaces

Biodiversity Emergency
Mass urbanisation and urban spread has had a profoundly negative impact on biodiversity. Cities can play a major role in increasing biodiversity.

- City Edge aims to deliver Biodiversity Net Gain in future development

Global Pandemics
Covid 19 has changed the way people live, use and value private and public open space. Habitat destruction and human exploration of nature has played a key in the rise of Pandemic / Zoonotic diseases

- City Edge aims to deliver increased biodiversity, and enriched native ecology

"Strategically planned and managed network of natural lands, such as forests and wetlands, working landscapes, and other open spaces that conserves or enhances ecosystem values and functions and provides associated benefits to human populations"

Benedict and McMahon 2006
Definition of Green Infrastructure

9.2 BASELINE SITUATION

9.2.1 CONTEXT - GREEN INFRASTRUCTURE

Within City Edge there is limited green cover – approximately 13% green with the rest sealed, impervious paved surfaces.

The predominant character is low density sprawl of industrial / manufacturing unit development and strongly lacking in natural capital and assets. The road network dominates and the pedestrian and cycle experience is very poor.

The Grand Canal is a strong green and blue artery through City Edge that provides a habitat corridor. It also acts as a movement corridor for cycling, jogging and walking to and from central Dublin and as a connector to the surrounding landscape.

Walkinstown Avenue Park to the east is the main park within City Edge and this is mostly made up of playing fields.

Lansdowne Valley Park is the more naturalistic park with more varied topography following the River Camac and more tree canopy cover. However, the Pitch and Putt course dominates and limits movement through the park.

The other green spaces within City Edge are piecemeal, vacant plots of open grassland not generally accessible to the public, one of which is currently being grazed by sheep. Others consist of verges and slivers of land adjacent to industrial plot boundaries.

There is a lack of tree canopy cover within City Edge both on the street and in the vacant plots which limits potential for ecological connectivity.

Surrounding City Edge there are a few larger parks including Tymon Park and Ballymount Park as well as Phoenix park to the north however connection to these from within City Edge is not in anyway intuitive.

Figure 149. Map of different Green infrastructure and landscape character typologies

9.2.2 CONTEXT - BLUE INFRASTRUCTURE

The Grand Canal is the most visible blue asset within City Edge. There is a tow path to the south but this is perceived as quite unsafe as it is cut off by dense vegetation in stretches and not overlooked. Currently it is an under utilised asset.

The River Camac, a tributary to the River Liffey, runs through City Edge; however approximately 50% of its length is culverted beneath the industrial development. Where it is open it is generally a very narrow corridor sandwiched between industrial sites.

The Camac is an important part of Dublin's history as paper mills were located along the river.

There are key pressures on the Camac including waste and high levels of urban run off. The flood plain has been built on so flooding occurs which is likely to increase with climate change. The River Camac Rehabilitation and Flood Alleviation Scheme prepared by the OPW in association with DCC seeks to naturalise the river and re - establish the flood plain.

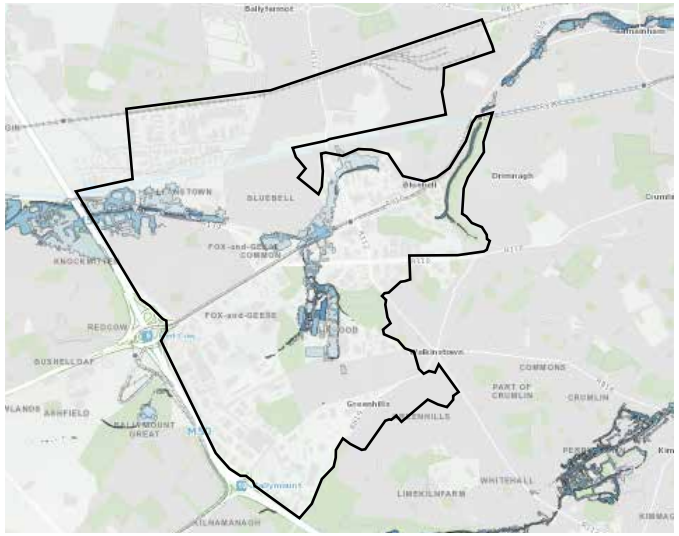


Figure 150. Map of Flood Risk Probability

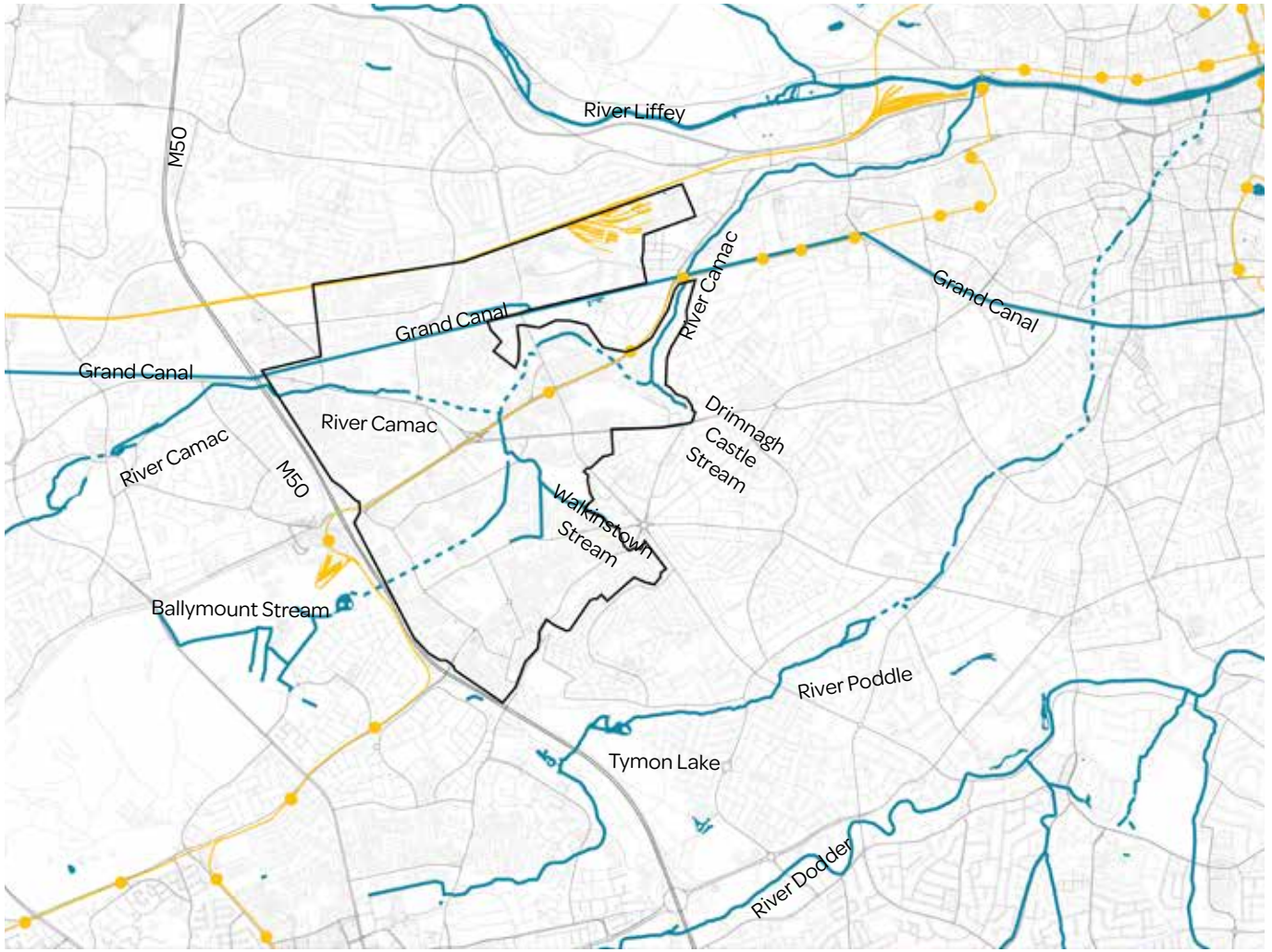


Figure 151. Map of Blue infrastructure

9.2.3 CONTEXT - PARK ACCESSIBILITY & COVERAGE

The adjacent map applies the Dublin City Park Strategy for accessibility / walking distance to public parks to City Edge.

The map clearly illustrates the lack of public parks and programmed green space within City Edge.

Currently City Edge is predominately industrial use with some residential areas on its edges. As City Edge changes to increased residential and mixed use the park provision needs to increase to meet the need.

The Naas Road, M50 and in some ways the Grand Canal create barriers to movement across City Edge; therefore, this needs to be considered in the development of a connected open space and circulation framework.

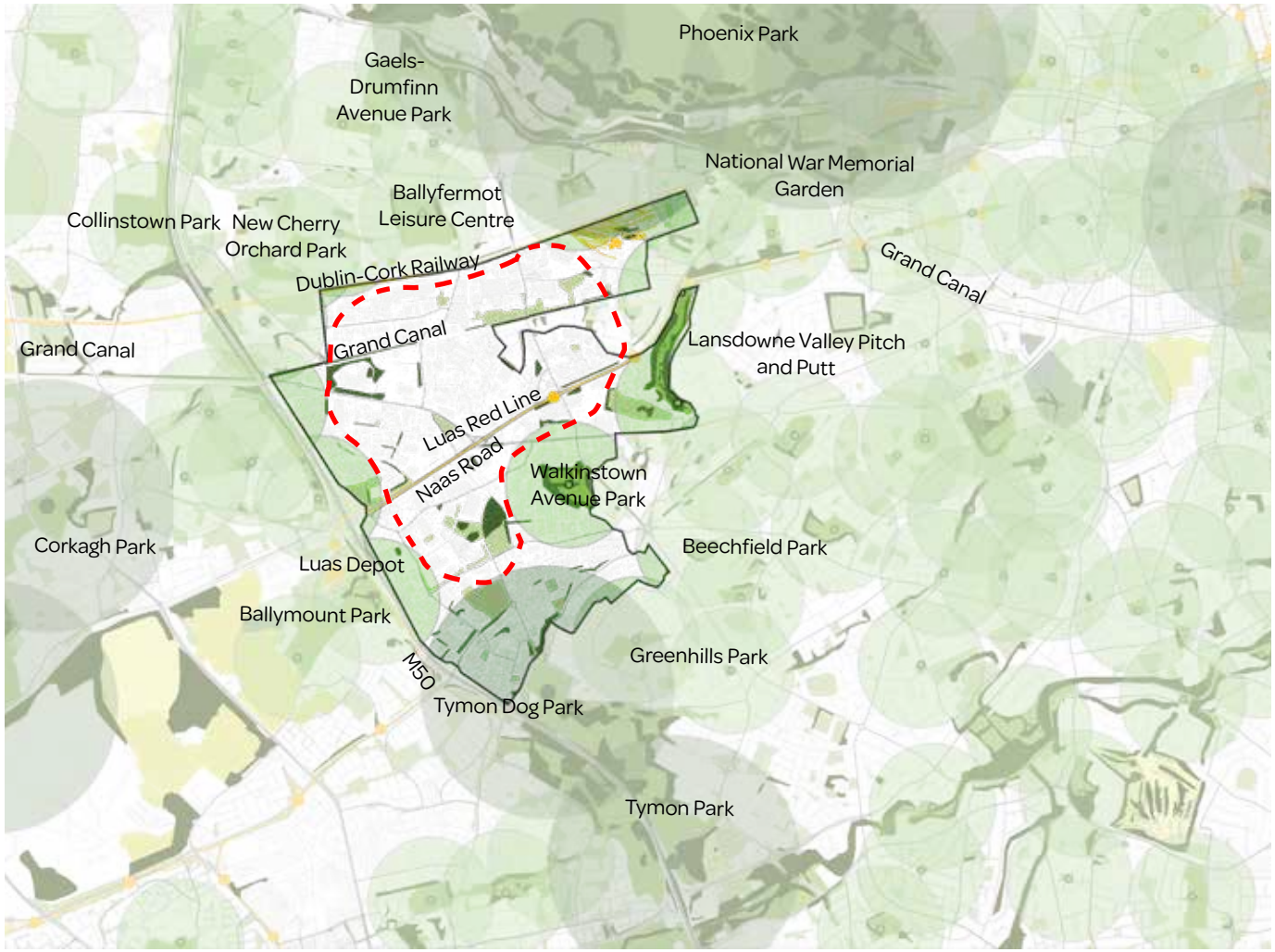
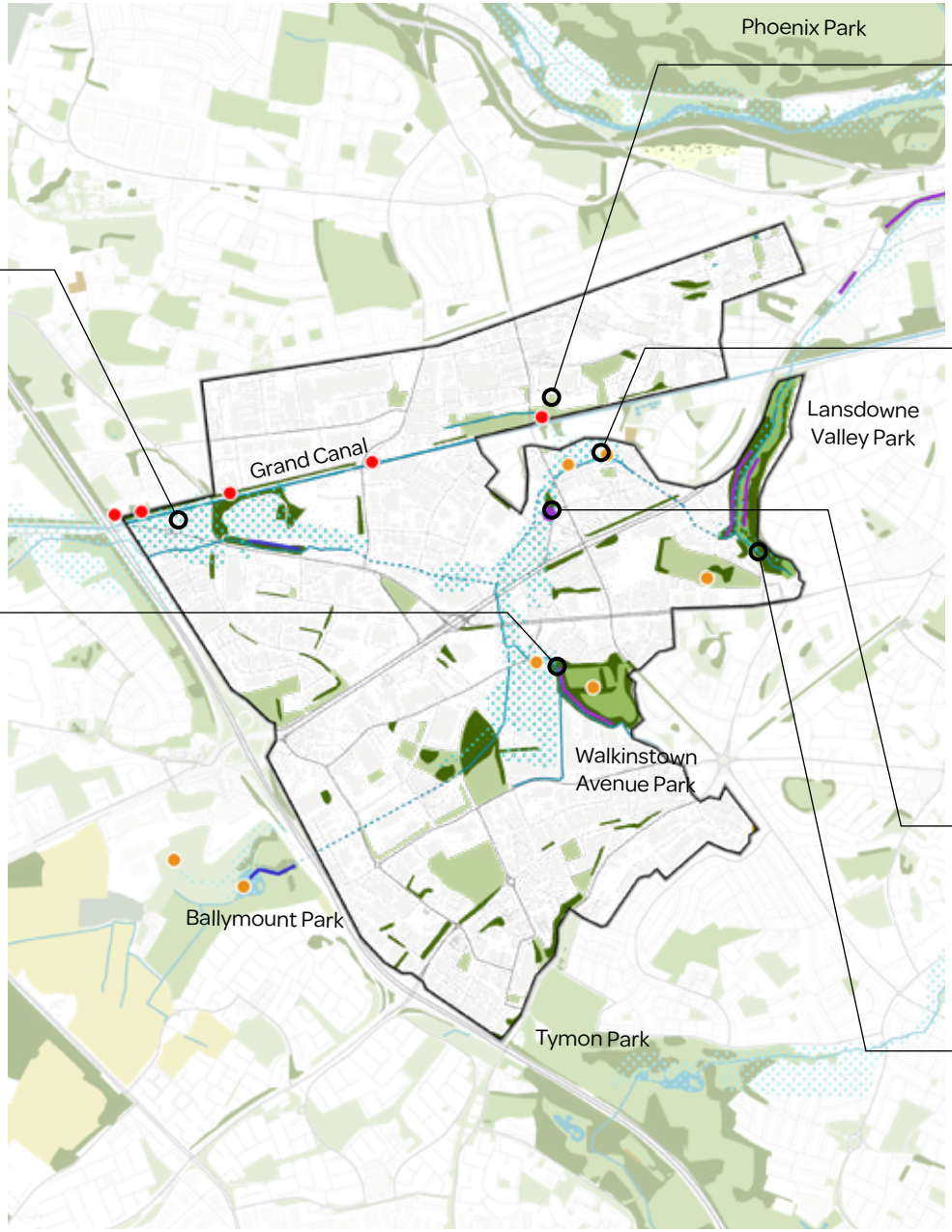


Figure 152. Diagram of park accessibility coverage

9.2.4 CONTEXT - EXISTING ECOLOGICAL ASSETS & OPPORTUNITIES

- Existing Habitat with Otter recorded on site
- Existing Trees and woodland
- High Flood Risk Area
- Potential site for habitat creation and conservation
- Potential flood alleviation park
- DCC Biodiversity Action Plan Objective 8.4
  - Implement pilot projects to retrofit and construct wetlands for biodiversity

- Existing Habitat with Herring Gull(BoCCI RED) and Mallard recorded on site
- Existing Woodland in Walkinstown Avenue Park
- Adjacent to High Flood Risk Area
- Potential Ecological and SuDS focused Park



- Existing Habitat with unidentified mammal recorded on site
- Existing grassland

- Existing Habitat with Grey Heron and Grey Wagtail (BoCCI RED) recorded on site
- Existing Open River Corridor
- High Flood Risk Area
- Potential site for ecological conservation and SuDS
- DCC Biodiversity Action Plan Objectives
- 8.2 Develop and implement river restoration measures for all rivers in Dublin City
- 9.2 Implement actions from the All-Ireland Pollinator Plan

- Existing Habitat with Moderate to High Suitability for Bat Roosting under Bridge
- Existing Woodland and Scrub-land
- High Flood Risk Area
- Potential Site for Ecological and water focused City Park or greenway

- Existing Habitat with Moorhen recorded on site
- Low to High suitability for Bat Roosting
- Existing Woodland in Lansdowne Valley Pitch and Putt and Drimnagh Castle
- Potential Ecological focused Park

Figure 153. Map of existing ecological assets & opportunities

9.2.5 POLICY CONTEXT

Current Public Parks Requirement and Provision

Dublin City Council
Dublin City Development Plan 2016-2022
GI1: To develop a green infrastructure network through the city, thereby interconnecting strategic natural and semi-natural areas with other environmental features including green spaces, rivers, canals and other physical features in terrestrial (including coastal) and marine areas.
Draft Dublin City Development Plan 2022-2028
GI2: To develop an interconnected green infrastructure network of strategic natural and semi-natural areas with other environmental features including green spaces, rivers, canals, the coastal and marine area and other physical features including streets and civic spaces that supports ecological, wildlife, and social connectivity.
GI25: Open Space Provision (sq. m.) 2.5-3.6ha per 1,000 Persons Benchmark
Dublin City Parks Strategy
Dublin City Council will maintain a provision of between 2.5ha and 3.6ha of parks per 1000 population in its administrative area. Access to Flagship Parks (1km) Access to Community Parks (500m)
South Dublin County Council
SDCC Development Plan 2016-2022
GI Policy 1 Overarching: It is the policy of the Council to protect, enhance and further develop a multifunctional Green Infrastructure network by building an interconnected network of parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, flood management and adaptation to climate change.
Draft SDCC Development Plan 2022-2028
G11: Protect, enhance and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing and further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, water quality, flood management and adaptation to climate change.
SDCC Public Open Space and Parks Requirement
2.4ha hectares per 1000 population

Note: There are many additional policies and objectives relevant to Parks and Green Infrastructure within both South Dublin County Council's and Dublin City Council's Development Plans, and within their new Draft Plans. The policies above are a sample and the original documents should be reviewed for a more comprehensive understanding.

9.3 FRAMEWORK RESPONSE

9.3.1 STRATEGIC APPROACH

50% Green Cover
Climate change, the growth of mega cities and the potential mass extinction of species means putting nature and landscape imagination at the heart of future cities is of paramount importance.

The overarching natural infrastructure vision is to transform City Edge from grey to green becoming an exemplar of a Landscape City- both ecologically healthy and environmentally inspiring. City Edge will be a part of the wider Dublin setting with a distinctive identity based on its abundance of sustainable Green and Blue Infrastructure. The area has the potential to become part of the city where everyone would be able to encounter distinctive landscape experiences, whether they be an urban wildwood, species-rich meadow, shaded woodland dell, an urban farm, rain gardens or a roof top forest.

50% Blue Green Infrastructure is an ambitious target but is a vital response to the worldwide Climate and Biodiversity Emergency. We need to re-evaluate the qualities and performance level we need from our future cities to provide happy, healthy places to live and work whilst reconnecting city populations with the natural world; sustaining and repairing the global environment. The Strategic Framework and the ambitious targets can provide a conceptual blueprint for our much-needed future "landscape cities". They must be a harmonious blend of technology, coordinated infrastructure, sustainable transport, energy and most importantly nature. In short, they should be a modern piece of science whilst still retaining the qualities of nature and reconnecting people with nature as a core aspect of city life.

Establishing the 50% Objective
City Edge targets 50% Green Cover, which has been informed by the baseline analysis, comparative benchmarking as well as international best practice sources. This target is considered crucial because a large area of Blue Green Infrastructure, whether they already exist or can be created from corridors connecting smaller plots, provide the necessary critical mass to support numerous ecosystems and the many species composing them at a sustainable level. As green spaces grow in size, the diversity of life surviving within them also grows. As green spaces are reduced in area, the diversity within them declines. This also reflects EO Wilson Half Earth philosophy and, the more recent Earth Project, which are working to conserve half the land and sea to safeguard the bulk of biodiversity, including ourselves. At one-half and above, life on Earth enters the safe zone. A 50% Blue Green Infrastructure target is to strive against odds on behalf of all of life and would be humanity at its most noble.

The following high-level strategies for the Strategic Landscape Framework, illustrate how a balance of retained existing green spaces, new public parks, river naturalization works, Blue and Green Infrastructure circulation routes and targets for developers on plot greenery (using Urban Green Factor calculations or similar environmental measurement methodologies) can work in harmony to target a combined critical mass of 50% Green and Blue Infrastructure.

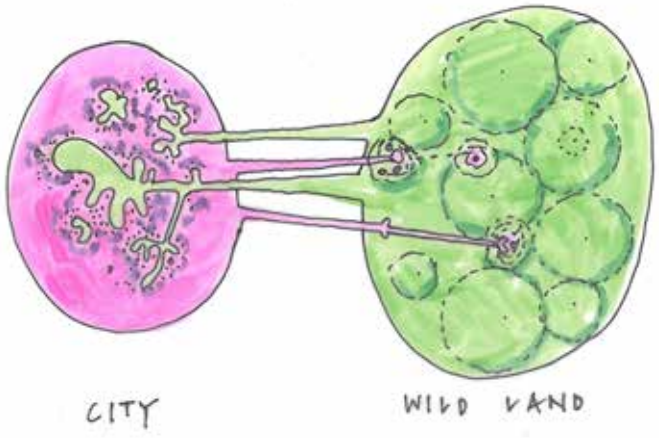


Figure 154. Concept diagram: The 50% Greening Concept

50% of site for people and 50% for nature

50% Green Cover Definition
Within any city walk everyone would be able to encounter distinctive landscape experiences, whether they be an urban wildwood, species-rich meadow, a waterfall, shaded woodland dell, an urban farm, a rain garden or a roof top forest. These would be Landscape Cities that bring benefits to humans, economy, health and happiness, ecological diversity and resilience.

Figure 155. The Global Climate: COP26 was the 2021 United Nations climate change conference. Held in Glasgow, working alongside with every nation to reach agreement on how to tackle climate change.

9.3.2 ACHIEVING 50% GREEN COVER

20% of greening provided by Natural Infrastructure

30% of greening provided by development

Detail Breakdown of 20% of greening provided by Natural Infrastructure

Total Site (715ha)	**100%**
Proposed Natural Infrastructures	**% of Site**
Linear Parks	10%
1. Grand Canal Linear Park	4%
2. River Camac Linear Park	6%
Major Parks	5%
3. Walkinstown Eco Park	2%
4. Lansdowne Drimnagh Castle Park	3%
Green Corridors	5%
5. Tymon to Phoenix Greenway (25m-40m)	1%
6. M50 Green Corridor (20m)	1%
7.Railway Green Corridor (15m)	1%
8. Secondary Green Corridors (20m)	2%
Natural Infrastructure Total Area	**20%**

9.4 HOLISTIC WATER MANAGEMENT

9.4.1 MAKING THE INVISIBLE, VISIBLE

An opportunity exists to truly celebrate the naturalisation of the River Camac and its wider systems. In part this is more than just uncovering the River Camac but thinking how to make it more visible, engaging and experiential. The wider framework strategies need to explore the opportunity to make the river and it tributary routes more three dimensional and so, more visible. This in part can be achieved via topography, dramatic scale riparian planting, highlighting of key features such as river junctions and crossing points via key building or parks and, the marking of entry and exit portals into City Edge.

1

Riparian Topography

Variation to the water course must consider the flow and weave, compression and relief, the articulate and relaxed typologies of the water course. Adjoining parks and public corridors can in part be informed by a topography inspired by The Camac.

2

Riparian Trees

Well-coordinated drifts of climax species riparian trees, semi formal avenues, strategically placed wet woodlands clusters and the like all have the potential to highlight and celebrate the water courses. They will not only make the river more visible but also provide habitats connection, carbon sequestration, and improved air and water quality.

3

Riparian Nodes, Portals & Crossings

The key threshold, crossing points and changes to the River Camac character within City Edge can be strengthened and celebrated by special interventions at such locations. These locations may be the ideal position for landmark buildings, anchor attractions, or simply a welcome garden statement or land artwork as a City Edge portal.

4

Landscape as Destination

To strengthen the connectivity across the blue network and promote the entire Sponge City Principles*. An anchor attraction such as an Eco Park based on wetland habitats would sit well towards the south. This strategy balances the site with the canal to the north, the River Camac central and the wetland park to the south, all are interconnected via tributaries or Sponge City Principles.

* Sponge City Principles: A sponge city is an urban area which has been designed to cope with excess rainfall. These harness a variety of techniques which allow the area the ability to naturally absorb and store water. There are many principles that can be implemented in order to achieve this effect including; reduction of hard surfaces, increased soft landscaping, greening of roofscapes, porous surfaces, hard-working planting palettes, increasing number of water bodies etc.

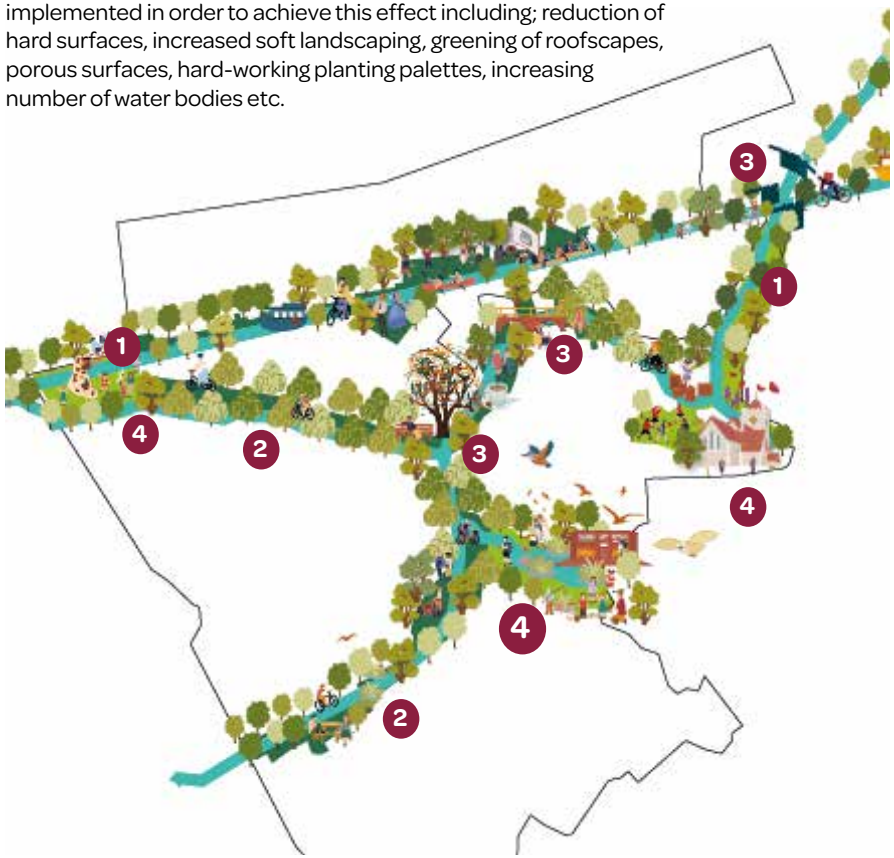


Figure 156. Concept Illustration of parks along watercourses

Figure 157. Olympic Park, London

Figure 158. Riparian Forest Buffer, Mississippi River, U.S.A.

Figure 159. Tanner Springs Park, Portland, U.S.A.

Figure 160. Tianjin Qiaoyuan Wetland Park, Tianjin, China

9.4.2 RIPARIAN AND CATCHMENT CHARACTER ZONES

Northern Boundary

SuDS interventions such as; formal rain gardens and swales, liner porous paving systems aligned with key infrastructure routes to attenuate and retain water from wider catchment area. The northern boundary character, habitats and uses should have a strong synergy with the Grand Canal character and railway landscape corridor.

Figure 161. Aerial view of railroad

M50 Green Corridor

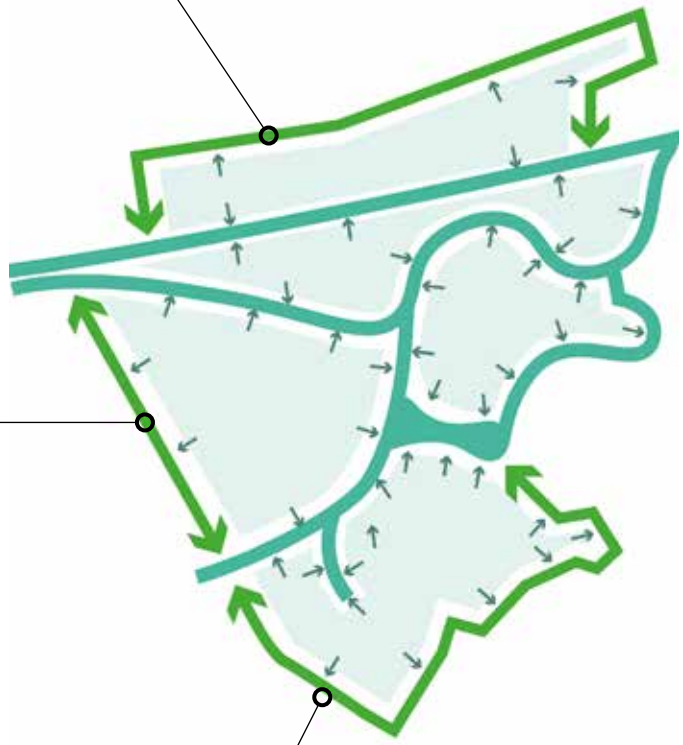
Zone of retention and cleaning surface water via simple large scale linear interventions such as Super Bio Swales* and Wet Dry Basins**, engineered and planted rain gardens or, large scale extensive green roofs, porous car parks and wet woodland buffer planting.

Figure 162. Highway in Houyet, Belgium

Southern Boundary

A natural informal and meandering retention and water distribution zone providing a character of a wet dry tributary which also form an important part of the wildlife and circulation network.

Figure 163. Passeig de Sant Joan Green Corridor, Barcelona



* Super Bio Swales: Bioswales are channels designed to concentrate and convey stormwater runoff, removing debris and pollution and are hugely beneficial to recharging groundwater. The term Super Bio Swale simply means designing this on a large-scale.
** Wet Dry Basins: A natural retention basin where a vegetated area has been designed to slow surface water and retain when necessary meaning the vegetation can withstand both dry or wet conditions responding to seasonal fluctuations

The Blue Artery

Celebrate the naturalisation of the Camac through a single legible riparian identity for the Camac and its tributaries. There will be a blue artery bringing life and environmental well-being into and across City Edge.

Figure 164. Riverside cycling along Medway Towpath, Kent

Perimeter Collectors

Boundaries support the wider blue infrastructure by either collecting and distributing or, retaining and cleaning water run-off. The perimeter collectors also form part of the wildlife and public access / circulating network.

Figure 165. Grey to Green scheme, Sheffield, England

The Catchment Zones

Key catchment areas adjacent the Camac and tributaries. 6 urban and landscape catchment zones sustained by Sponge City Principles. Each catchment area will in part be defined by its local context, proposed function and character uses but ultimately all will capture, retain, attenuate, clean and distribute water to the wider blue infrastructure network to insure the health and vitality of the Blue Artery Concept.

Figure 166. Green roofs adorn buildings in Stuttgart, Germany

Sustainable Urban Drainage (SuDS) and Sponge City Principles look to harness the power of nature by using natural processes to aid water management in a simple and cost effective manner. To achieve a sustainable and holistic approach to site wide water management and biodiversity using Sponge City Principles, SuDS and River Camac naturalisation must go hand in glove. Each catchment area and it associated urban character zones should look to be informed by Sponge City Principles where localized collectors (such as green roofs) retain, slow, clean or filtrate water to secondary natural cleaning systems (rain gardens) before charging and helping to sustain local landscape interventions such as urban wet woodland, civic gardens and parks, recreation grounds or urban ecology features.

1

Incidental outlier collectors such as green roofs, porous paving, local playing fields, and linear swales start to feed the site wide SuDS infrastructure.

Figure 167. PARKROYAL COLLECTION Pickering, Singapore

Figure 168. SuDS 'canal' in high density housing, Stamford, England

2

Linear SuDS distribution network feeds into urban retention zones.

Figure 169. Arkadien Asperg, Stuttgart, Germany

Figure 170. Residential by the water

3

Urban retention zones and landscape interventions sustained by site wide SuDS. Features may comprise urban woodlands within pocket parks, wooded car parks, tree groves within a civic plaza, urban ecology parks, community allotments or formal public water gardens.

Figure 171. Saint Jacques Ecological Park, Rennes, France

Figure 172. Martin Luther King Park, Paris, France

4

Overflow or final polishing of water from Sponge City Zones before discharge into natural site wide water courses. Opportunities for marginal filtration terraces, basins etc. within public gardens, parks and educational areas.

Figure 173. Parc du Lochy, Marne-la-Hongre, France

Figure 174. Tanner Springs Park, Portland, U.S.A.

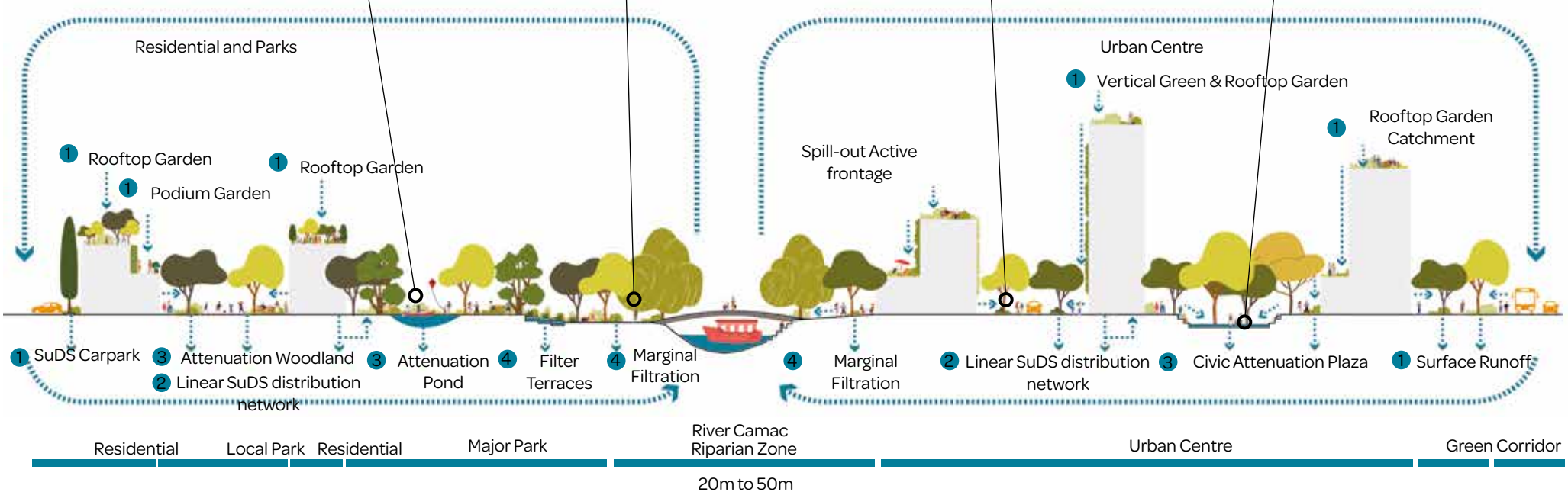
Illustrative Section: Water Management in Urban Area

Figure 175. Martin Luther King Park, Paris, France

Figure 176. Parc du Lochy, Marne-la-Hongre, France

Figure 177. SuDS 'canal' in high density housing, Stamford, England

Figure 178. Watersquare Bethemplein, Rotterdam, Netherlands



9.5 LINEAR PARKS AND MAJOR PARKS

9.5.1 LINEAR PARKS

- Grand Canal Linear Park
- River Camac Linear Park

9.5.2 MAJOR PARKS

- Walkinstown Eco Park
- Lansdowne Drimnagh Castle Park

Total Area of Parks = 115 ha (15% of Site Area)

The connected network of linear parks (particularly River Camac) and Major Parks has been shaped and informed by the Strategic Flood Risk Assessments (SFRA) and Surface Water Management Plan (SWMP) carried out for City Edge. The location of parks within flood zones provides the opportunity to introduce nature based surface water management solutions than can reduce the peak storm flows, promote water quality, enhance biodiversity benefits and reduce the consequences of flooding.

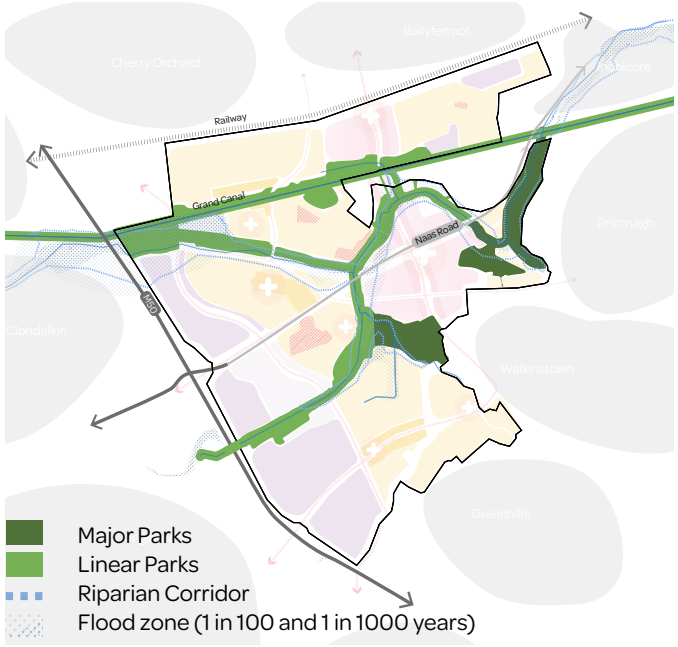


Figure 179. Indicative Location of Parks

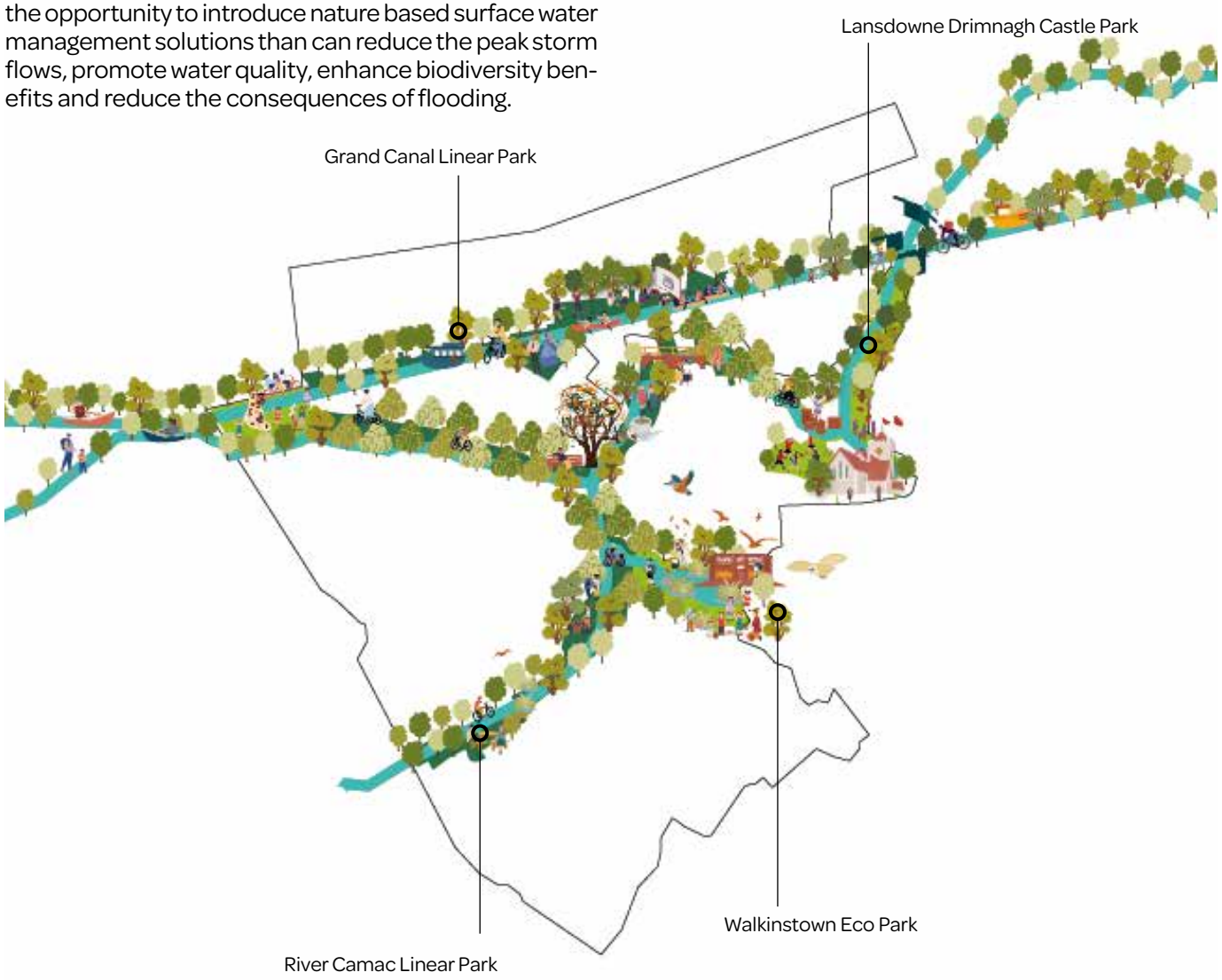


Figure 180. Concept Illustration of characters of proposed parks

9.5.3 GRAND CANAL LINEAR PARK

Area: 34 ha

Location Rationale
The location of Grand Canal Linear Park is to maximise the opportunity provided by the Grand Canal and to create a link from the M50 to the new urban centre. The site also considers the existing greenery area and high flood risk area.

Environmental Function
Enrich the canal side habitat by greening area along the canal not only to increase amenity and recreation opportunities, but also to strengthen ecological links and increase biodiversity along the canal, with particular focus on provision for protected species such as otters and bats.

Social / Amenity Function
Provide space for different uses along the canal, such as events space, markets, arts & craft workshops and exhibitions.

Character
Arts & Crafts Community Park, Urban Flexible Park Space, Canal Side Residential, Urban Marina

Potential Components
- Flexible Event Plaza and Park Space
- Canal-side Residential Park
- Marina near urban centre
- Play area
- Cycle Greenway

Typology 1: Canal-side Residential Community – Port Loop
Port Loop is nestled between Birmingham canals creating an island location. The tow paths that served it provide, direct routes to the city centre. Development delivered homes, green infrastructure, a new public park, communal gardens and canal-side public realm.

Typology 2:Marina / Water Activity Centre – New Islington
New Islington is a new neighbourhood in Manchester city centre boasting a family-friendly community. The regeneration project features a mix of use including retail, residential, an urban park, and a canal-side marina.

Typology 3: Urban Centre Community Event Space – Buffalo Bayou Park
Buffalo Bayou Park sets a high standard for Linear Parks, providing a wide variety of quality green space accessible to a large community, and creates a sense of ownership and identity for the locals, with its focus on ecology, social activities and future climate resilience.

Typology 4: Community Arts & Craft Park – Snape Maltings
Situated in an area of Outstanding Beauty near the Suffolk Coast, it is both a world renowned centre for music and a nature destination. The biodiverse open space and creative arts come together for concerts, farmer's markets, arts and crafts exhibitions / markets, and a river view café.

Figure 181. Residential community by the river, Port Loop, Birmingham

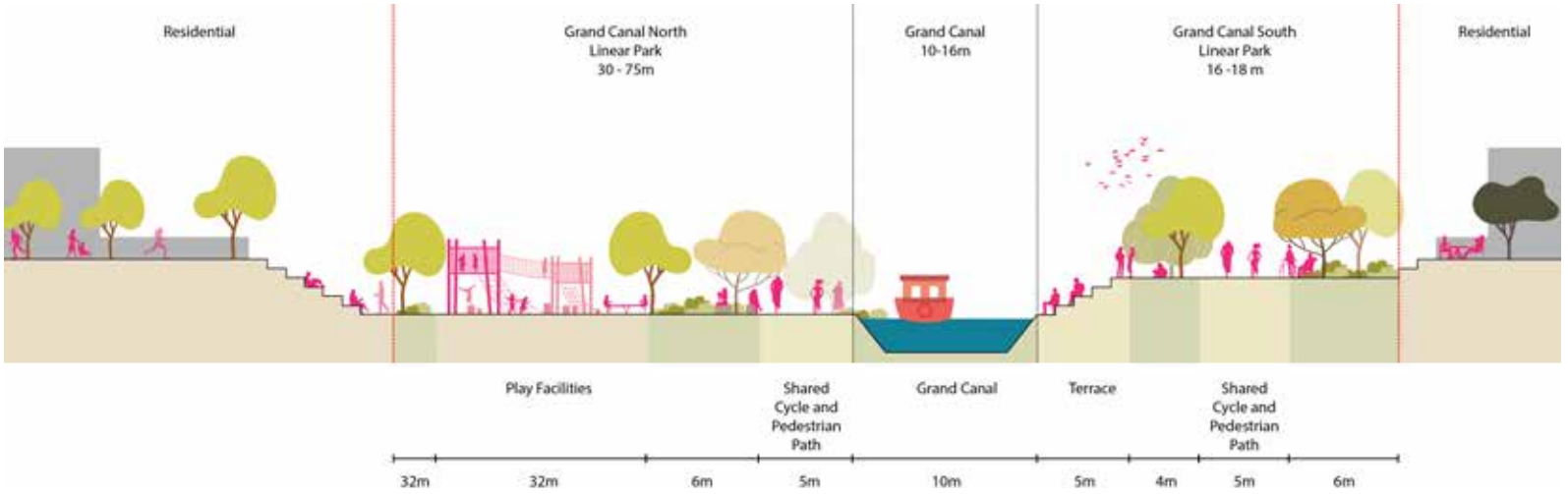
Figure 182. Marina, New Islington, Manchester

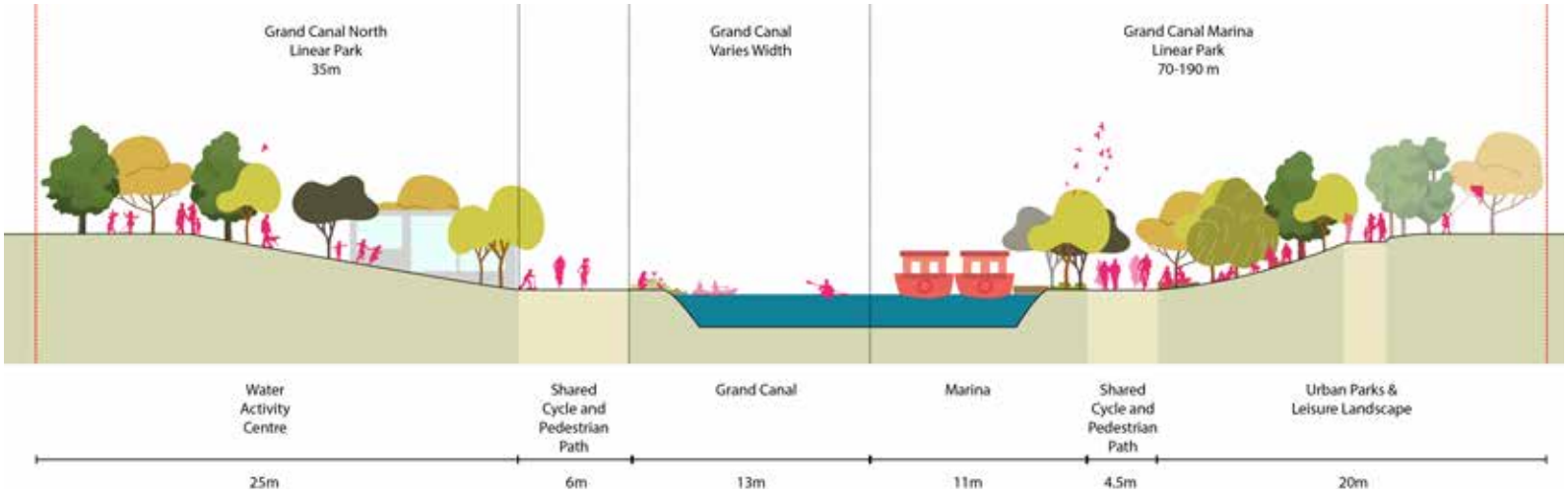
Figure 183. Buffalo Bayou Park, Houston, Texas

Figure 184. Snape Maltings, Suffolk

9.5.4 GRAND CANAL LINEAR PARK

Illustrative Sections





9.5.5 RIVER CAMAC LINEAR PARK

Area: 44 ha

Location Rationale
An opportunity exists to truly celebrate the naturalisation of the River Camac and its wider systems. The wider framework strategies need to explore the opportunity to make the river and it tributary routes more three dimensional and so, more visible.

Environmental Function
The River Camac should be seen as a key landscape destination. One which also acts as the main Blue-Green connector, offering both social and biodiversity enrichment.

Well-coordinated drifts of climax species riparian trees, semi formal avenues, and strategically placed wet woodlands clusters and the like all have the potential to highlight and celebrate the water courses. They will not only make the river more visible but also provide habitats connection, carbon sequestration, and improved air and water quality.

Social / Amenity Function:
The key threshold, crossing points and changes to the River Camac character within City Edge can be strengthened and celebrated by special interventions at such locations. Such locations may be the ideal position for landmark buildings, anchor attractions, a simple welcome garden or land artwork as a gateway to City Edge. At its heart it must again offer a balance for both social recreation and habitat enhancement, providing an exciting place for both people and wildlife.

Potential Components
- Ecology / habitat links
- Wildlife corridor
- Flood mitigation
- Riverside Park
- Water edge plaza
- Play area
- Shared pedestrian & cycle path

Figure 185. Zu Neuen Ufern, Siegen, Germany

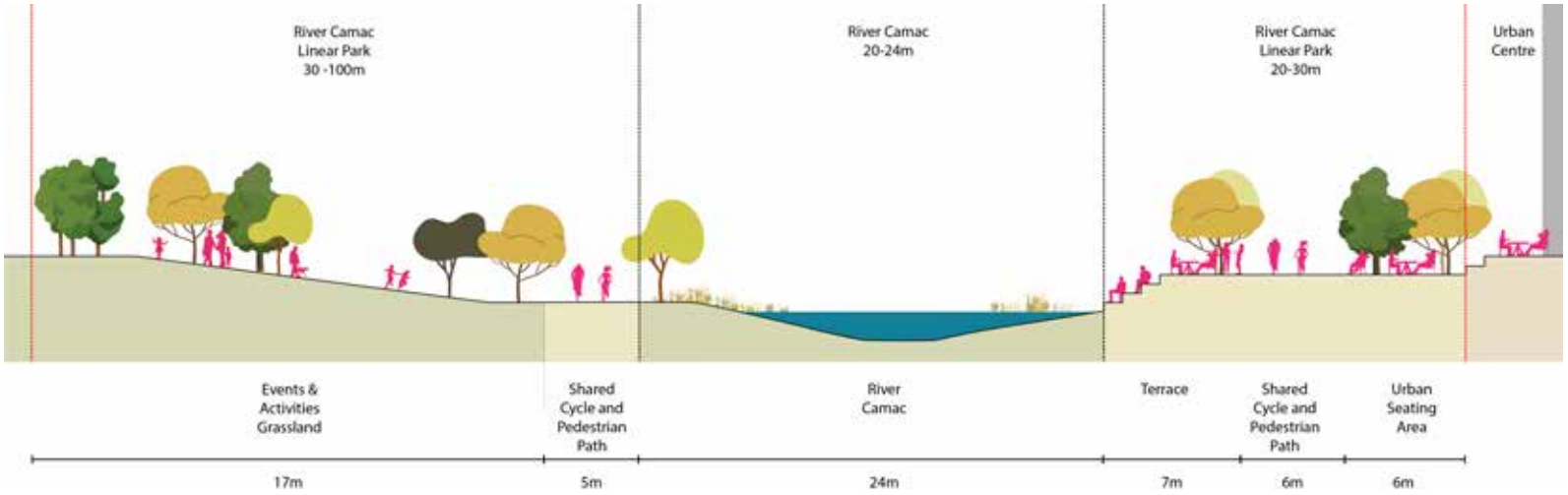
Figure 186. Bishan-Ang Mo Kio Park, Singapore

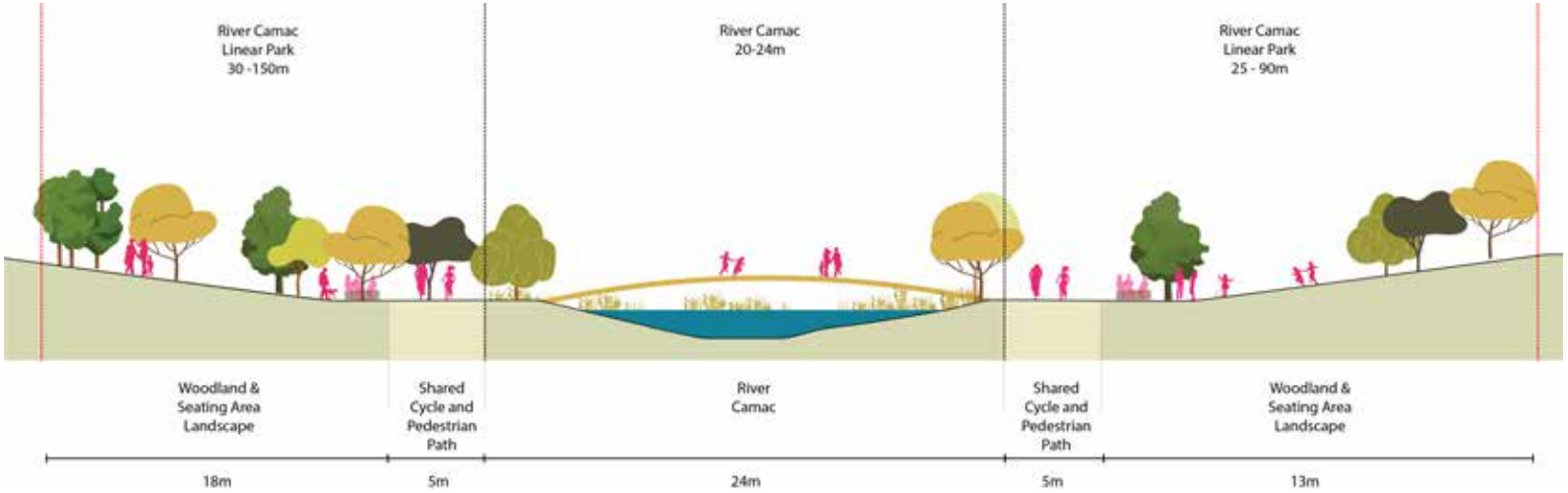
Figure 187. Buffalo Bayou Park, Houston, Texas

Figure 188. Liuchuan Riverside Park, Taichung, Taiwan

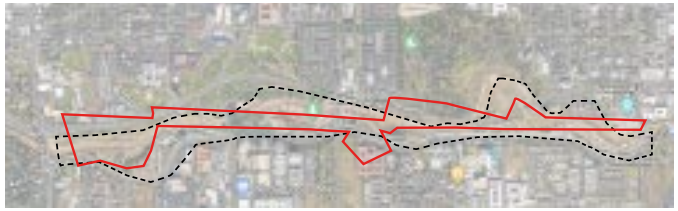
9.5.6 RIVER CAMAC LINEAR PARK

Illustrative Sections





Scale Comparison - Buffalo Bayou Park, Houston Texas



200m Precedent Proposed

Fact Sheet
- Location: Houston, Texas, United States
- Client: Buffalo Bayou Partnership; Harris County Flood Control District
- Completion of promenade, 2006
- 65 hectares
- Serves as both critical flood infrastructure and an important asset to health and culture in Houston

Successful Story
- Approximately 44,000 households can access the park within a 10-minute walk and half a million people within a 30-minute bike ride
- The park was designed to flood, and was even able to recover from Hurricane Harvey, the largest rainfall event recorded in US history.

Significance

The design utilizes channel stabilization techniques, enhancing the bayou's natural meanders and offering increased resiliency against floodwaters.

The planting strategy reduced mowed turf by half, replacing it with riparian woodlands and naturalised meadows featuring native species.

This further stabilises the landscape, provides habitat, and uses Texan species to return a sense of place to the city.

All lighting, plantings and walkways are designed to withstand the natural, periodic flooding of the bayou. Lighting changes colour with phases of the moon.

The project provides continuous pedestrian and bike trails, public art, and special maintenance and safety provisions. Buffalo Bayou Park provides access and recreation opportunities for a wide community to experience the unique ecological character of the site.

Similarities to the proposed park:
- Proximity to high density Urban area
- Linear, with different zones of land use and density
- Close to large, main roads
- Connection to river and providing river restoration
- Opportunities for unique public space for new commercial and residential development
- Opportunities for economic growth through quality green space
- Potential for creating a sense of place and ownership for the wider community

Figure 189. Activities / Sports on the Lawn

Figure 190. Events Lawn

Figure 191. Proximity to the city centre

Figure 192. Cycle way by the river

Figure 193. Walkways

9.5.7 WALKINSTOWN ECO PARK

Area: 14 ha

Location rationale
Strategically located to maximize use of existing green space and connectivity with future wildlife links. Position also informed opportunities to link with associated environmental services strategies. Generally central within City Edge and well located to provide accessibility via wider infrastructure network.

Environmental Function
Extensive Wetland Ecology Park providing a catalyst for improving the entire City Edge biodiversity networks by providing a critical mass of some of the most valuable habitat regimes. The park will help sustain the wider connectivity of existing habitats including the river corridors and proposed habitat corridors including the green corridors.

Key environment targets
Include establishing vegetated and aquatic habitat regimes that support key target species and improve and manage water, air and soil quality via bio re-mediation and phytoremediation methodologies and so help sustain the City Edge ecosystem.

Social / Amenity Function
Destination Ecology Park providing an educational / training and amenity facility. Alongside the general ecological targets, the major park may offer employment opportunities through green jobs including, on-site facilities such as café, workshops and country crafts arts studios, indoor events and a lecture / community hall such as a major Nature Discovery Building. Opportunity for corporate and private events hire.

Character
A native species wetland ecology park comprising of a range of waterside and aquatic habitats demonstrating the natural succession of open water habitats to wet woodland habitats. Undulating landforms and varying shape waterbodies to maximise surface areas and opportunities for nice habitats. Extensive circulation network sensitively integrated with areas of more control managed access. Character may vary from expansive open water, reedbed channels, regenerating alder birch carr, wet meadows and wet woodland with managed areas of pollarded trees or layered hedges. Building and events spaces which are vernacular and sustainable in details and materiality, well-integrated into the landscape. Generous board walk, wildlife hides and informal paths connect around the park.

Possible Components
- Wetland areas and associated vegetated habitats.
- Car and coach parking
- Nature Discovery Centre including, café, toilets, shop, lecture hall, information centre.
- Plant nursery and maintenance base and rangers' offices.
- Wildlife hospital / nursery
- Country Craft and Arts Centre

Figure 194. London Wetland Centre, Barnes

Figure 195. London Wetland Centre, Barnes

- Hierarchy of trails and family walks including cycling route, pushchair routes, board walks and informal wildlife walks.
- Sequence of wildlife hides and interpretation points
- Picnic areas
- Outdoor Events space / Amphitheatre
- Natural Play / Adventure Area.

9.5.8 WALKINSTOWN ECO PARK

Illustrative Section

Figure 198. Bird House

Figure 201. Wetland Adventure Trail

Figure 205. River Boat Deck

Figure 206. Family Wetland Trail

Figure 196. Potential Migratory Birds

Figure 199. Wild Wetland

Figure 202. Main Wetland

Figure 207. Educational Workshop

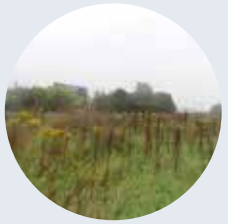


Figure 209. Existing Shrubland

Figure 197. Potential Otter Habitat

Figure 200. Bird Hide

Figure 203. Discovery Centre

Figure 204. Picnic Area

Figure 208. Camac Wetland

Figure 210. Existing Grassland

9.5.9 LANSDOWNE DRIMNAGH CASTLE PARK

Area: 22 ha

Location Rationale
Strategically located to enhance the heritage and existing green character on site. Drimnagh Castle as a central attraction with recreation and sports ground to service the adjacent schools and residential area.

Environmental Function
Complete the north-south habitat connection corridor as part of the proposed Tymon to Phoenix Greenway.

Key environmental targets
Woodland creation, demonstration of biodiverse golf lawns.

Social / Amenity Function
Drimnagh Castle located at south as an anchor attraction point which can extend toward the north by introducing woodland park and natural play with the potential to host national / international horticultural festival event.

Figure 211. Precedent Image of a Castle Park, The Domain of Chaumont-sur Loire

Character
Woodland, education, garden festival

Potential Components
- Large outdoor play facilities for older children
- Woodland Café with small children's play
- Woodland Festivals for the family
- Garden Festival
- Heritage Trail and tours
- School recreation field

Figure 212. Grounds of Chaumont-sur Loire

9.5.10 LANSDOWNE DRIMNAGH CASTLE PARK

Illustrative Section

Figure 213. Heritage Trail

Figure 214. Woodland Meadow

Figure 215. Woodland Park

Figure 216. Riverside Greenway

Figure 217. Riverside Woodland Cafe

Figure 218. Outdoor Forest school

Figure 221. Outdoor Family events

Figure 219. Woodland Play Area

Figure 220. Outdoor Team-building

Figure 223. Recreational Lawn

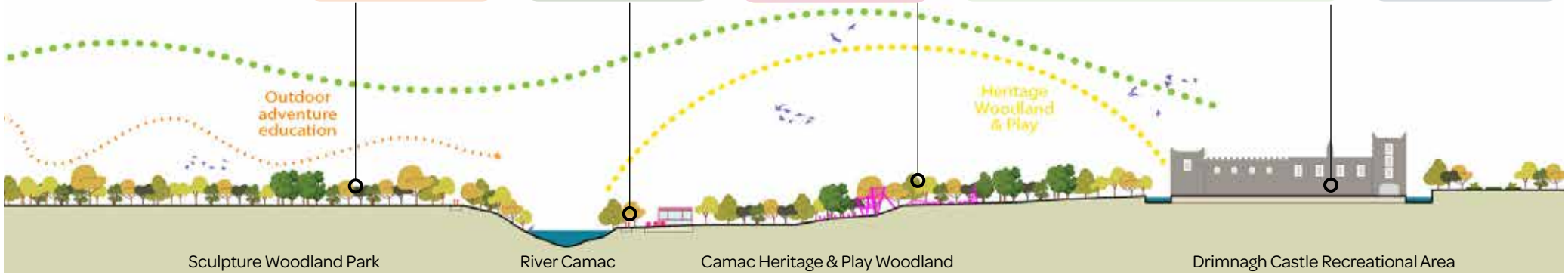
Figure 224. Garden Festival Event

Figure 222. Castle Attraction

Figure 225. Castle Formal Garden

Figure 226. Existing Lansdowne Valley Park

Figure 227. Drimnagh Castle



9.6 GREEN CORRIDORS

Green Corridors act as wildlife habitat connections, linking fragmented landscape pockets, which in turn not only enhance biodiversity, but offer new recreational areas for people to enjoy. As part of the Green Infrastructure strategies, four Green Corridors are proposed with the intention of creating both human physical and ecological links running parallel to existing roads and railways. The four Green Corridors have been identified as the following:

1. Tymon to Phoenix (North-South Link) Recreational Focused Greenway - 25m – 40m wide
2. M50 Ecological Focused Green Corridor – 20m wide
3. Railway Ecological Focused Green Corridor – 15m wide
4. Secondary Green Corridors
   - Orbital Green Corridor – 20m wide
   - Naas Road Green Corridor – 10m wide each side

Total Area of green corridors = 30 ha (4% of Site Area)

Figure 228. Concept Diagram of Green Corridors Network

Figure 229. The Queens Plaza Pedestrian and Bicycle Improvement Project in Long Island City, New York transformed a tangle of elevated infrastructure into a lively green corridor for both pedestrians and cyclists.

Figure 230. Riverside cycling along Medway Towpath, Kent, England

Figure 231. Buffalo Bayou Park, Houston, Texas

Figure 232. Tram network interwoven into nature

9.6.1 TYMON TO PHOENIX GREENWAY

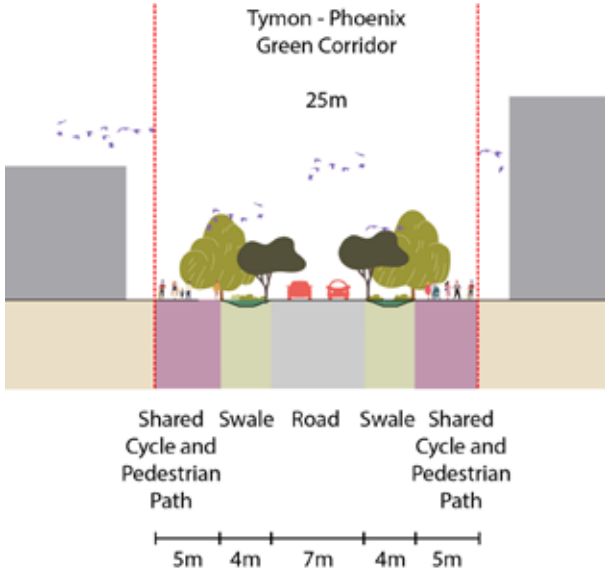
The North-South link aims to branch out into pockets of commerce and social spaces, providing space for neighbourhood activities leading into Dublin's centre.

Figure 233. Indicative location of Tymon to Phoenix Greenway

Figure 234. Street Landscape Garden

Figure 235. City Swale

Figure 236. Active Frontage Spill-out



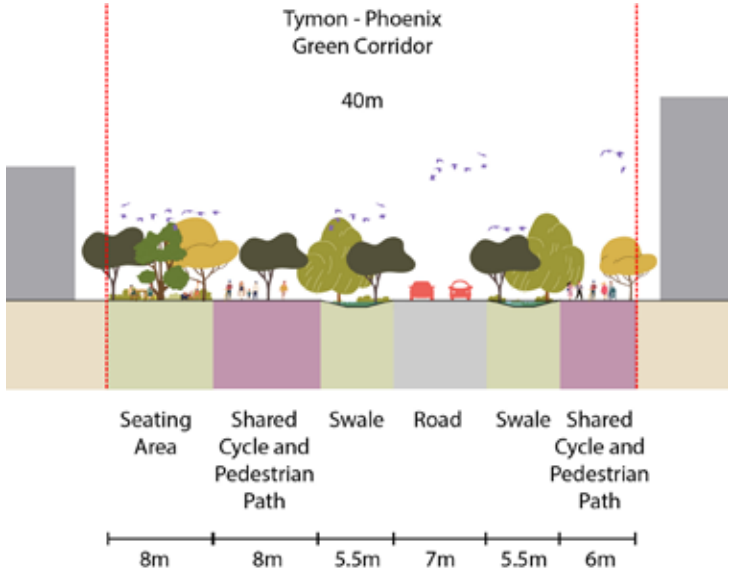


Figure 237. Shared Cycle and Pedestrian Path

Figure 238. Active Frontage Spill-out

Figure 239. Road

Figure 240. Street Landscape Garden

9.6.2 M50 GREEN CORRIDOR

The M50 route will aim to support a continuous green buffer to support wildlife, with dense woodland for pleasant stop overs, urban fringe walks and clean transportation.

The M50 Green Corridor and Eco-Link will be further developed at the next stage of the project, in collaboration with the relevant stakeholders.

Figure 242. Swale

Figure 243. Woodland

Figure 244. Industrial Area

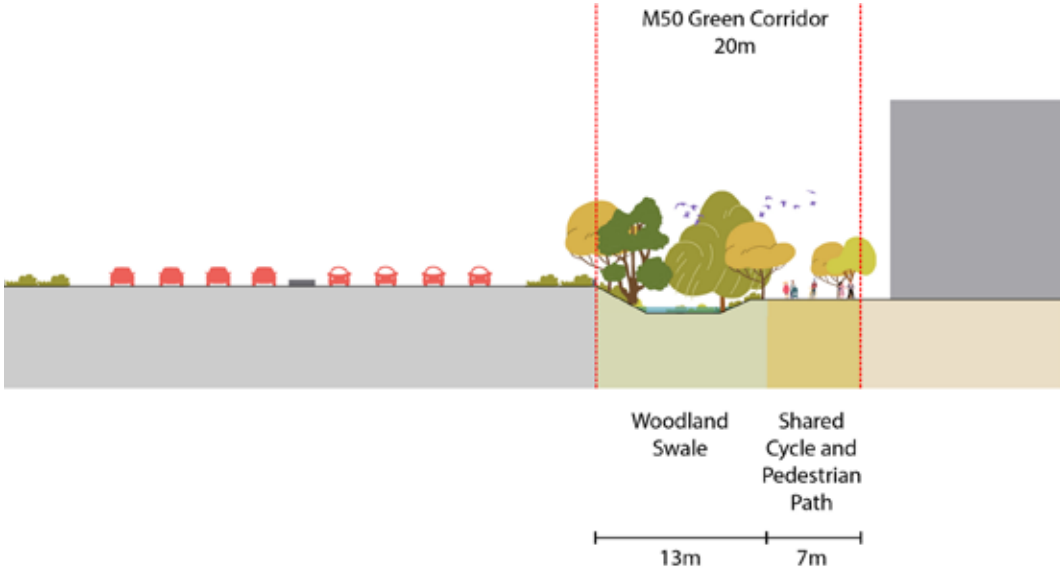


Figure 241. Indicative location of M50 Green Corridor

Figure 245. M50

9.6.3 RAILWAY GREEN CORRIDOR

The Railway Green Corridor route will support residents to have a pleasant cycle commute or walk off the main roads to and from the city centre.

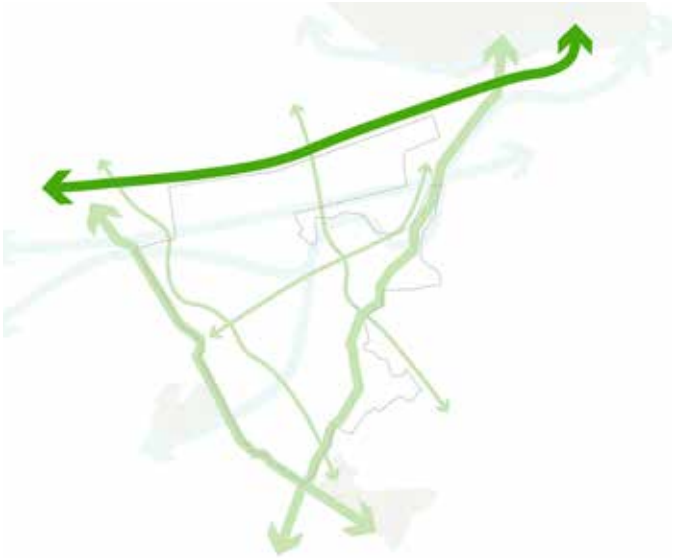


Figure 246. Indicative location of Railway Green Corridor

Figure 247. Natural Walking Path

Figure 248. Shared Pedestrian & Bike path

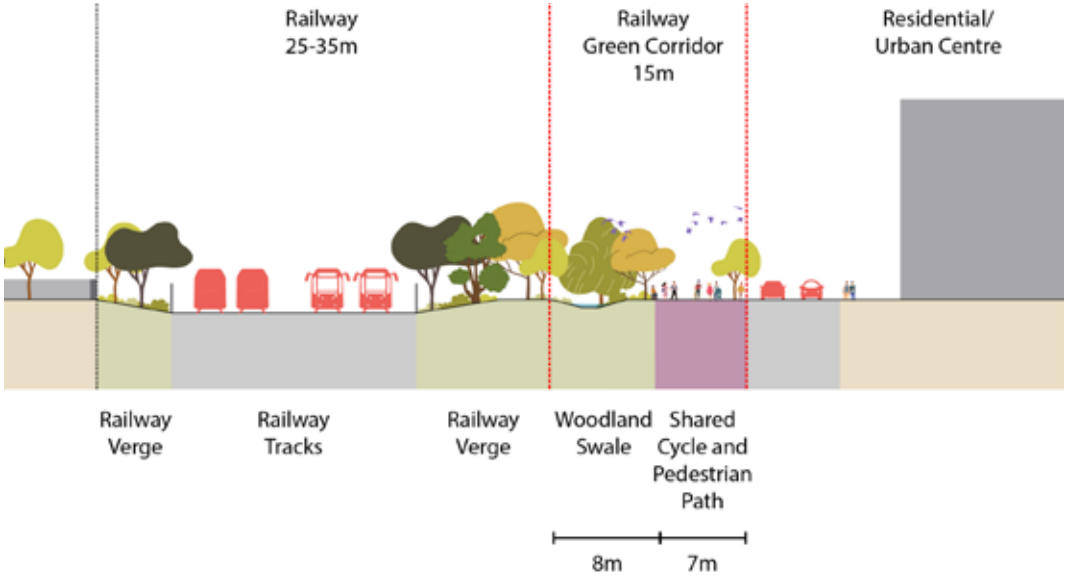


Figure 249. Railway

Figure 250. Road

9.6.4 WILDLIFE CORRIDOR - ECO-LINK

Two green Eco-Links proposed for enhanced movement and to provide connectivity between habitats separated by the M50 and Naas Road.

The crossing points will be further developed at the next stage of the project, in collaboration with the relevant stakeholders. As set out in Chapter 8 (Movement) there is a need to provide an improved crossing of the N7 in this general area. There is scope for this to be provided as a green bridge or at grade, and these options will need to be considered further at the options analysis stage.

Figure 251. Indicative location proposed 2no. Eco Links connecting habitats previously separated by the M50 and Naas Road

1

M50 Green Bridge

Wildlife corridor to Ballymount Park to provide the linkage to wider context

Figure 252. Aerial view of A556 Green Bridge, Cheshire

Figure 253. Aerial view of Vancouver Land Bridge, Washington, U.S.A.

2

Naas Road Ecoduct

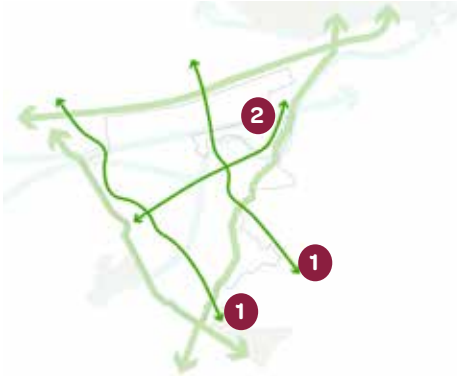
A key north- south ecological connection of proposed River Camac linear park

Figure 254. River eco-link, Queen Elizabeth Olympic Park, London

Figure 255. Wandle Park River Restoration, London, UK

9.6.5 SECONDARY GREEN CORRIDORS

Chapter 11 (Districts & Character Areas) of this Strategic Framework suggests a street hierarchy for City Edge and illustrates how street spaces could be shared by different modes of transport while incorporating landscaping and SuDS networks. Such street typologies should be examined in further detail at statutory plan stage from the perspective of Taking in Charge Standards etc.



1

Orbital Green Corridor

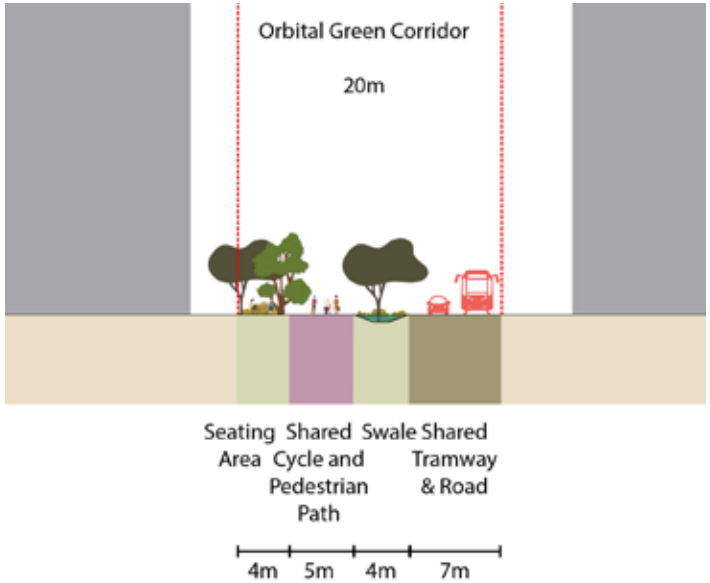


Figure 256. Active Frontage Spill-out

Figure 257. Shared Pedestrian & Bike path

2

Naas Road Green Corridor

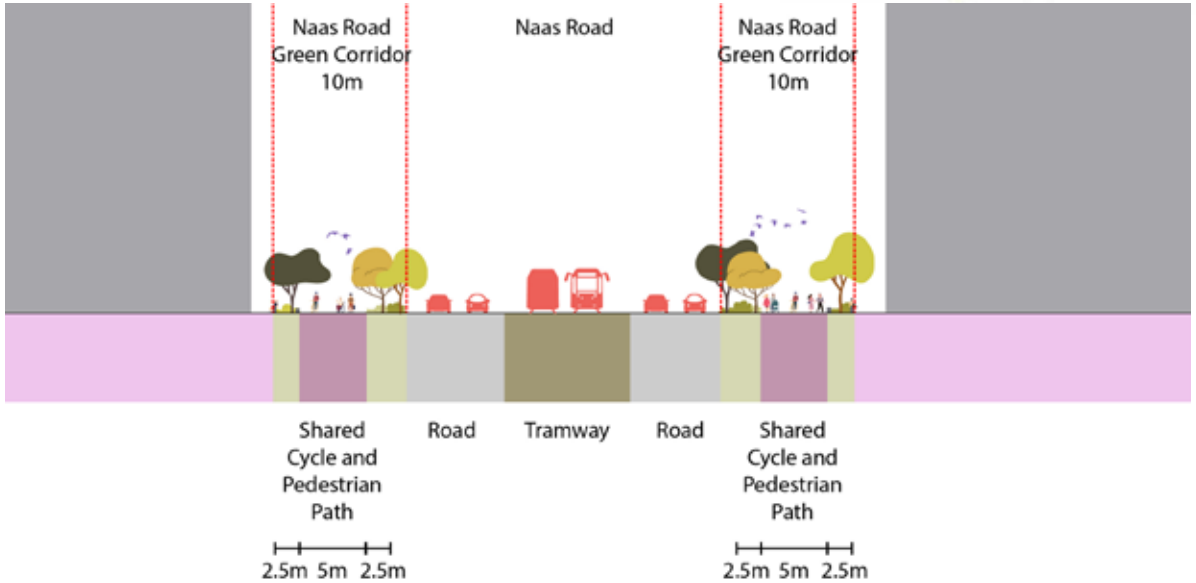


Figure 258. Active Frontage Spill-out

Figure 259. Tramway

Figure 260. Seating Area

9.6.6 PROVISION WITHIN DEVELOPMENTS

Community & Local Parks

Local open space and green fields are important to establish and maintain the quality of life in a community. As our cities continue to urbanise, many communities are looking for outdoor recreation space where they can connect with nature.

Key values:

- Health and Environmental benefits
- Social importance
- Economic value

Purpose and Function:

- Serves local communities and acts as a focal point
- Provides natural environment connections, specialised functions and features
- Can connect to other City Parks through natural features and trails
- Provides active and passive recreation

Characteristics:

- Can range in size and shape
- Can contain natural heritage or cultural features
- Have a good range of amenities
- High standard design or horticultural presentation
- Within walking distance of communities
- Near and have easy access to well-used pedestrian, cycling or bus routes, adjacent to well-used buildings

Policy Requirements

SDCC Park Requirement:

- Public Open Space and Parks - 2.4ha hectares per 1,000 population

DCC Dublin City Parks Strategy requirement:

- 500m Walking Distance guidance for community parks
- Open Space Provision 2.5-3.6ha per 1,000 Persons

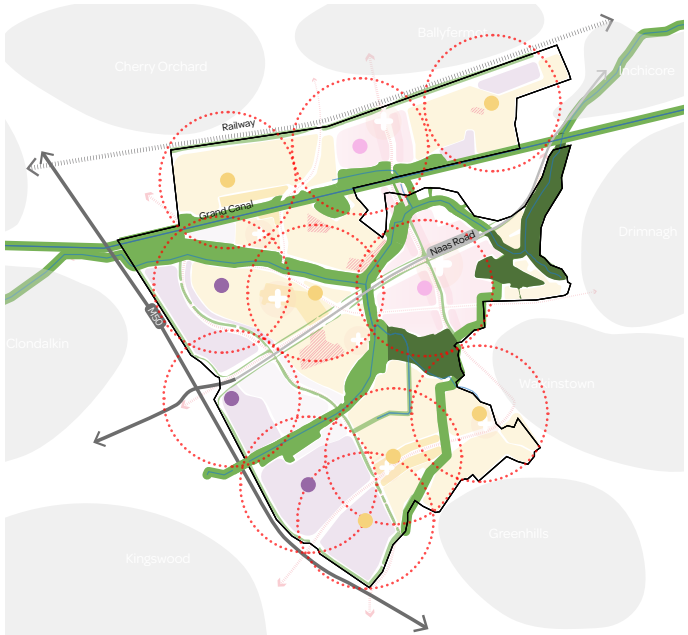


Figure 261. Indicative location of Local Community Parks required

Potential Components & Attractions

Urban:

- Outdoor event / flexible use space
- Provide a range of seating opportunities for people to congregate and for informal seating for workers and visitors
- Allow for 'spill-out' from buildings
- Informal recreation
- Integrated water feature
- Tree planting with biodiversity rich habitats

Figure 262. New Street Square, London

Figure 263. David H. Koch Plaza, New York

Figure 264. The Goods Line, Sydney, Australia

Industrial:

- Playground for different age groups
- Small urban square with sitting out areas
- Shady areas or lawn space for picnics
- Enhanced biodiversity habitats
- Outdoor sports facilities and playing fields
- Integrated Car Park with SuDS features

Residential:

- Children's play– younger age
- Sitting out areas
- Productive garden
- Rain garden
- Outdoor sports facilities and playing fields

Figure 265. Mary Elizabeth Branch Park, Austin, Texas

Figure 267. Sand Playground

Figure 268. Allotments

Figure 266. Beiqijia Technology Business District, Beijing, China

Figure 269. Mary Elizabeth Branch Park, Austin, Texas

In City Edge, by embracing nature at the core of future proofing how we approach the design, it is easy to see how harnessing natural infrastructure strategies can be used to enhance the existing Blue and Green assets already existing within City Edge.

Working with these existing assets with a holistic approach, to enhance their value by creating stronger connections and habitat provision, will result in a healthy, biodiverse and climate resilient place.

At its heart the concept of 50% site for people and 50% for wildlife will result in an exemplar piece of Blue and Green engineering. This will create a vibrant place where people live and work offering open space and access to landscape for recreation whilst providing biodiverse and ecologically rich habitats that are well connected and robust.

Coordinating Community Park Provision
As part of the provision of 50% green cover for City Edge, Community Parks play a key role. These sit within the context of the strategic layer of greenways, major parks and linear parks, and perform a local role within neighbourhoods. Their provision is related to population, and they are essential to support local amenity requirements.

Whilst policy exists for the quantum of community parks, City Edge goes further, ensuring these push to support the 50% green cover objective, and sets out how their delivery can be coordinated between landowners.

Two principal delivery approaches exist for their delivery:

- As part of holistic development
- Coordinated between adjacent landowners

The intention is to avoid a piecemeal approach to community parks whereby they result in being too small to be of practicable use.

The requirement for Community Parks is based on thresholds of population, with every 4,000 residents requiring a community park. This may therefore come as part of one holistic development, or require a coordination between sequential schemes. The community parks are additional to standard open space and semi-private open space requirements.

Coordinating between adjacent landowners
Oversight from SDCC and / or DCC is required to determine which groups of lands are capable or provide the opportunity to deliver community parks. An illustrative layout for the suitable location of a community park should then be determined through mutual agreement. Each landowner would then be required to support a collective fund, which can in turn be used to both provide the park and also reimburse the lost revenue from the landowner of the park's chosen location.

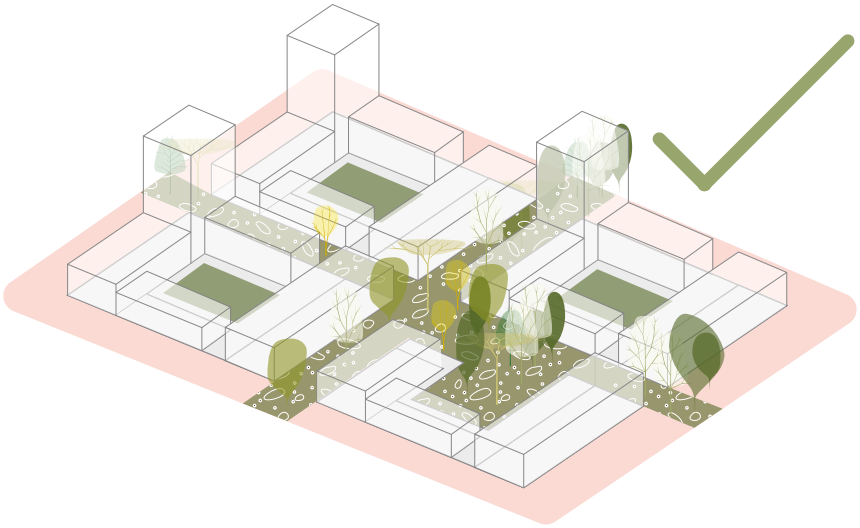


Figure 270. Coordinated approach to community park provision with a consolidated green space at the heart of the neighbourhood

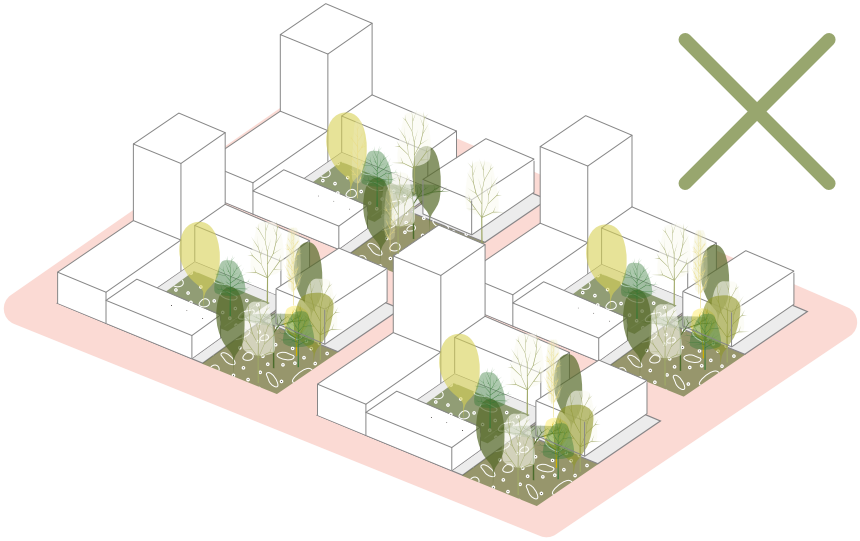


Figure 271. Piecemeal approach to community park provision is not appropriate

9.7 NATURAL INFRASTRUCTURE SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Natural Infrastructure Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

- Endeavour to achieve the concept of 50% greening to enhance biodiversity, mitigate flood risk and the urban heat island effect. It also provides local access to green amenity and wild spaces in accordance with 15-minute city principle, supporting health and wellbeing. 50% green coverage targets including 20% provided by natural infrastructure and 30% by development
- Utilise the existing and new green amenity spaces to create natural play spaces and nature-based play for younger children and teenagers.
- Deliver green routes as part of the 50% greening concept and 15-minute city principle. These routes will provide a continuity of habitats for wildlife through the creation of green corridors, enhance biodiversity, connect existing assets, and offer new recreational areas, in support of active lifestyle.
- Promote nature restoration and protection including nature based solutions, nutrient neutrality and water neutrality
- Implement the guidance of DCC's and SDCC's 'Sustainable Drainage Design & Evaluation Guide – 2021' and 'Drainage Explanatory Design & Evaluation Guide (2022)'.
- Promote diversification of native habitat types and enhanced biodiversity in blue and green infrastructure
- Implement the guidance of DCC's 'Green & Blue Roof Guide – 2021'
- Target public realm for SuDS improvements
- Promote the concept of lowering temperature by planting trees
- Implement the recommendations and guidance from river basin management plans
- Enrich the Grand Canal side habitat by greening the area along the canal, strengthening ecological links, increasing biodiversity along the canal, and increasing amenity and recreation opportunities.
- Renaturalise the River Camac to make it more visible, engaging and experiential. The renaturalised river will function as the main Blue-Green connector, offering both social and biodiversity enrichment. It will also mitigate flood risk.
- Promoting riparian and catchment character zones
- Promote the requirements of the National Biodiversity Plan and implement Net Biodiversity Gain
- Provide increased resilience in our natural infrastructure which protects flora and fauna and caters for ex-treme weather
- Strategic Flood Risk Assessment to set guidance for Flood Risk and developments within City Edge and considers 20% and 30% climate change uplifting factors to all applicable flooding sources.
- The creation of the Walkinstown Eco Park will provide a catalyst for improving the entire City Edge biodiversity networks as well as sustaining the wider connectivity of existing and proposed habitats. It will offer educational and amenity facilities as a Destination Ecology Park and may offer employment opportunities through green jobs.
- The creation of the Lansdowne Drimnagh Castle Park will support this existing asset as an anchor attraction, enhancing the heritage and existing green character for this site as well as completing the north-south habitat connection corridor as part of the proposed Tymon to Phoenix Greenway.
- Employ Sponge City Principles, SuDS and River Camac, including removing large scale impermeable areas and possible drainage connections to foul / combined sewer systems, to develop sustainable and holistic water management systems to mitigate flood risk and enhance biodiversity.

10 UTILITIES

10.1 UTILITIES VISION

10.1.1 VISION

The vision for City Edge is to create a major new Urban Quarter on the edge of Dublin City, and this can only be achieved through the provision of resilient and sustainable utilities, including foul sewers, potable water, surface water – refer further to Chapter 9 (Natural Infrastructure) – energy, and electricity. This vision considers a green society and circular economy adaptable to new technologies in order to reduce carbon footprints. The vision considers the staging of the utilities to service the regeneration of City Edge over time.

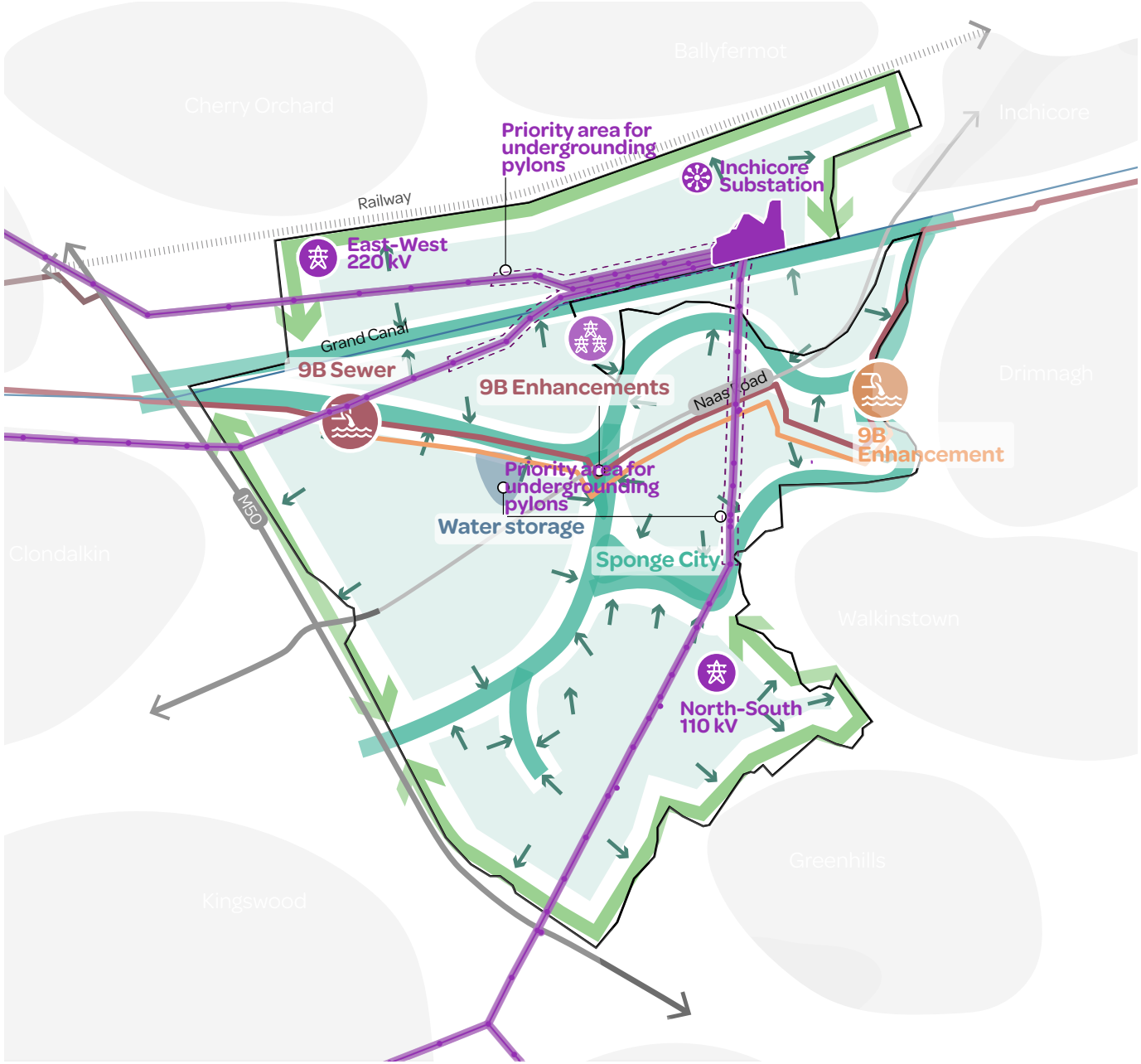
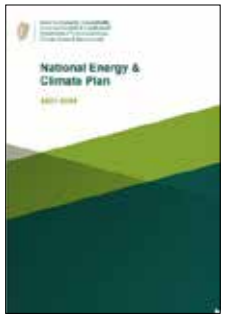


Figure 272. Overview of the potential utilities vision regarding energy, foul sewer and surface water drainage management strategies

10.2 CONTEXT

To consider the requirements for providing sustainable utility services, we must consider the strategic principles and objectives from government and of the utility providers.

The Government of Ireland, Water Services Policy Statement 2018 – 2025 purpose is to clarify, for Irish Water and for others, the government's expectations for the delivery and development of water and wastewater services in the years ahead. This is the first Policy Statement prepared under the Water Services Act 2017.



A new European Commission introduced the European Green Deal at the end of 2019, clearly setting out increased levels of ambition for the EU as a whole and aims to deliver net-zero greenhouse gas emissions at EU level by 2050 and to increase the EU-wide greenhouse gas emissions reduction target from 40% to up to 55% by 2030. Ireland is committed to achieving a 7% annual average reduction in greenhouse gas emissions between 2021 and 2030. The National Energy and Climate Plan (NECP) is under review in order to facilitate the ongoing analysis at EU level.

Shaping Our Electricity Future Roadmap (2021), prepared by EirGrid and SONI, provides an outline of the key developments from a networks, engagement, operations and market perspective needed to support a secure transition to at least 70% renewables on the electricity grid by 2030 and net-zero by 2050.

This chapter considers the existing potable water, foul sewer, surface water, energy and electrical infrastructure within City Edge and the potential to unlock further opportunities within the area and the utility requirements necessary for the potential full development of the lands.

10.2.1 STAKEHOLDER CONSULTATION

Consultation was carried out with the following stakeholders:

- Irish Water
- South Dublin County Council – Drainage Team
- Dublin City Council – Drainage Team
- Office of Public Works
- Environment Protection Agency
- Waterways Ireland
- River Camac Flood Alleviation Team
- EirGrid
- ESB and ESB Networks
- Codema

10.3 UTILITIES CONTEXT

10.3.1 EXISTING UTILITIES

Figure 273 outlines the extent of the existing utilities within City Edge. Each utility has existing strategic infrastructural presence within the area. The following sections provides a description of the baseline situation, the various policies and objectives from the utility providers and a brief framework response regarding what levels of capacity is required to service the extensive development of City Edge.

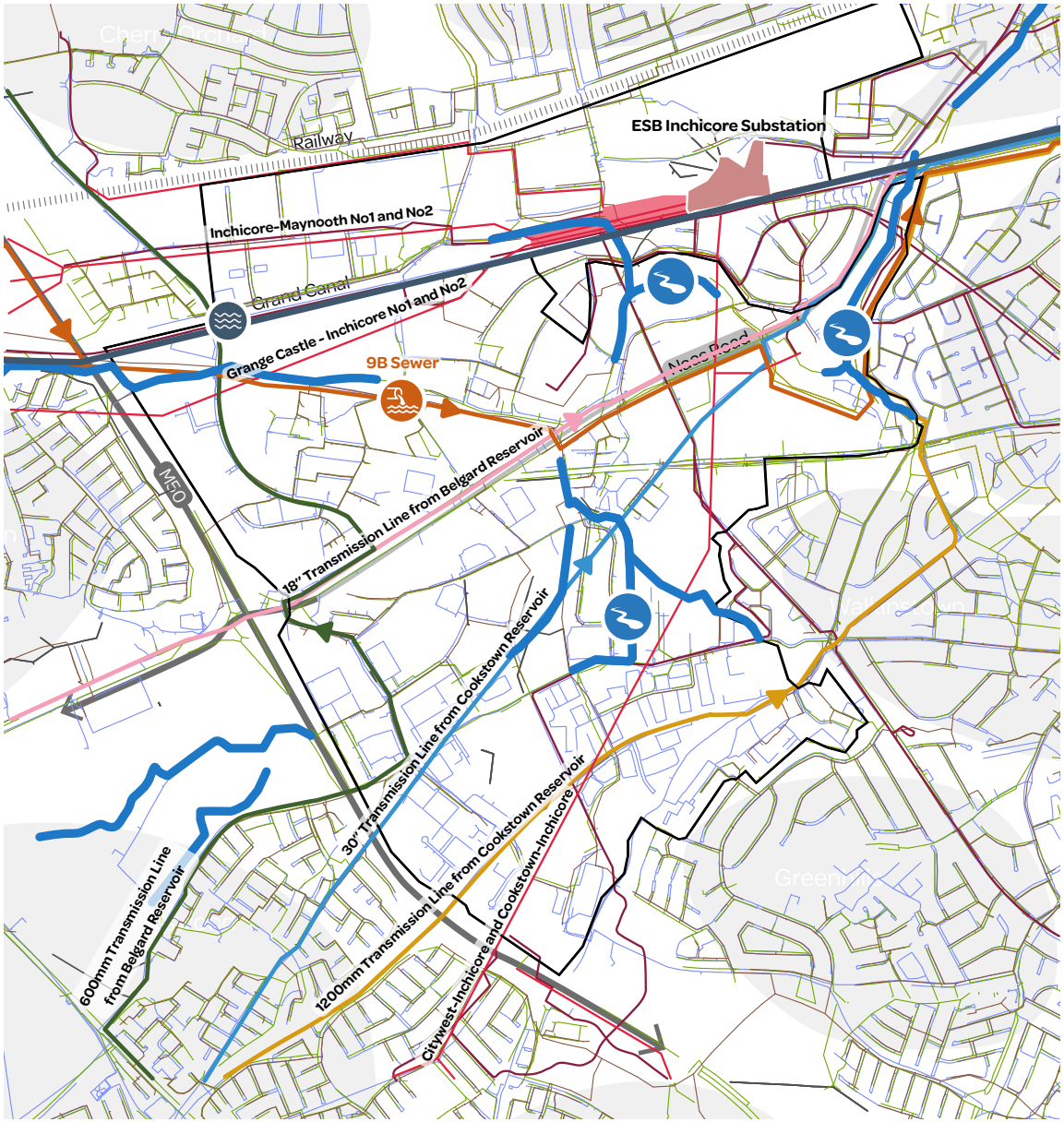


Figure 273. Existing Utilities in City Edge

10.4 POTABLE WATER

10.4.1 POTABLE WATER BASELINE SITUATION

City Edge is served by Belgard Reservoir and Cookstown Reservoir. Belgard Reservoir is located approximately 4km Southwest of City Edge. The capacity of Belgard reservoir is 10,000 m^3 and is fed by a 1200mm-diameter pipeline from Saggart Reservoir. Cookstown Reservoir has a capacity of 74,000 m^3 and is fed by a 27"-diameter dedicated pipeline from Saggart Reservoir and a 600mm-diameter branch off from 1200mm-diameter Belgard Reservoir feeder. Blackhorse Bridge Chlorination Station is also located on the border of City Edge. There are 4 main trunk mains passing through City Edge. Two of these mains also feed Dublin City Centre. These lines are:

- 1200mm-diameter Main Trunk
- 30"-diameter Main Trunk
- 600mm-diameter Trunk
- 18"-diameter Trunk

Capacity: To plan for future water demand, an understanding of the current demand for potable water is firstly required, and then forecast how this might change as City Edge is developed. Figure 274 represents the water demand based on District Meter Areas (DMA's) revenue figures provided by Irish Water. The total current average daily demand is approx. 6,900m3 / day or 6.9Ml / day. This demand is based on approx. 4,945 residential population and 25,068 current jobs in the area. This capacity requirement increases to approx. 35 Ml / day based on full City Edge development potential as outlined in Table 2 below.

10.4.2 POLICY

Irish Water – Water Services Strategic Plan – 2015 presents the Water Services Strategic Plan prepared by Irish Water which provides, for the first time, an opportunity to consider, at a national level, the way that water services are delivered in Ireland. The plan takes a 25-year view towards the vision. The Strategic Funding Plan 2019–2024 lays out the arrangements that Irish Water proposes to make and the measures that are proposed between 2019 and 2024 to implement the objectives of the Water Services Strategic Plan.

The National Water Resources Plan – 2021 (NWRP) is Ireland's first 25-year strategic plan enabling Ireland to move towards safe, secure, reliable, and sustainable public water supplies for all Irelands customers and communities, whilst safeguarding public health and the environment. Some key objectives include:

1. Develop a resilient, low carbon water and wastewater service
2. Limit impacts on climate change by reducing energy use by 33%

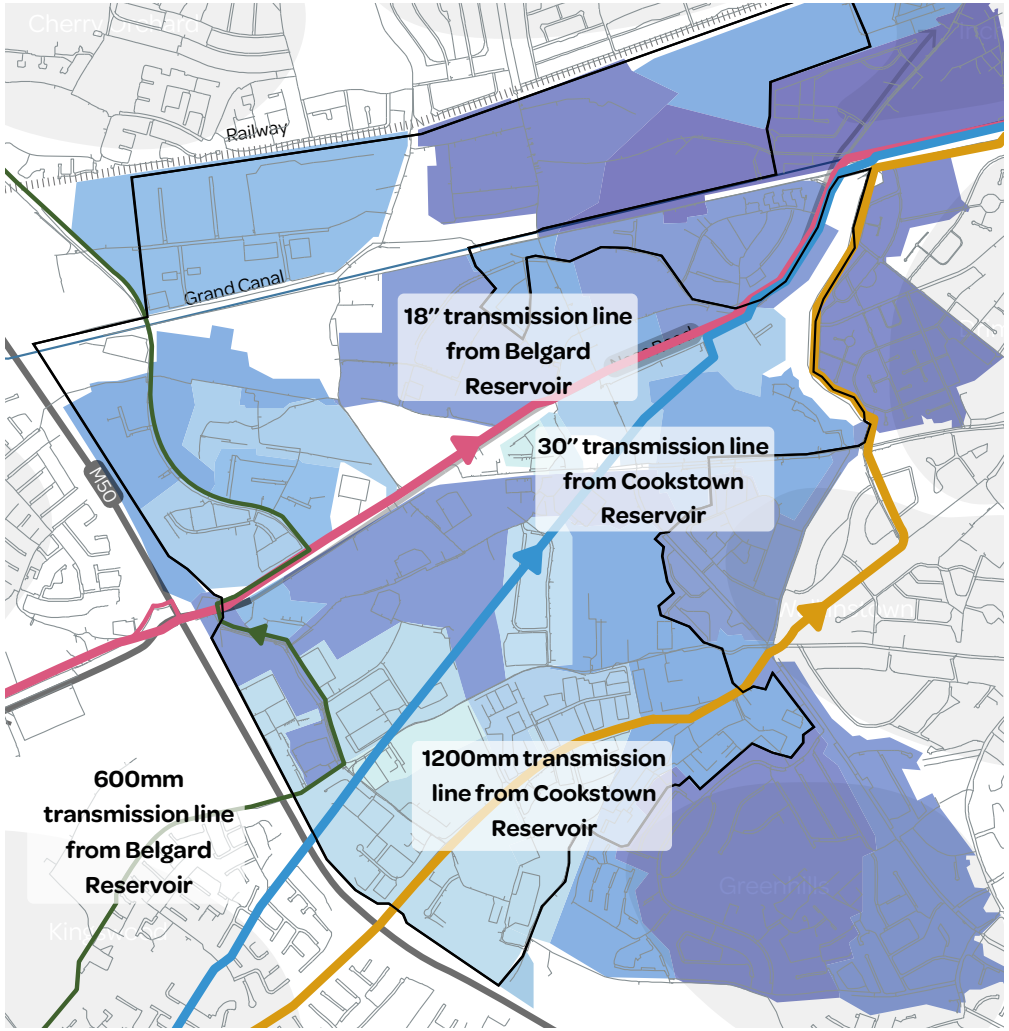


Figure 274. Current water demand in City Edge

10.4.3 PROJECTS – PLANNED OR PROPOSED

In 2014, Irish Water embarked on a four-stage process to identify a suitable new source of water supply for the Eastern and Midlands Region. The Parteen Basin scheme comprises the abstraction of water from the lower River Shannon at Parteen Basin in Co. Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped 170km to a new termination point reservoir at Peamount in South County Dublin, connecting into the Greater Dublin Area (GDA). This connection watermain from Peamount will likely pass through City Edge and could be potentially used to meet the increased demand as a result of the development. This will be subject to review and planning by Irish Water. Construction is anticipated to commence within 5-10 years.

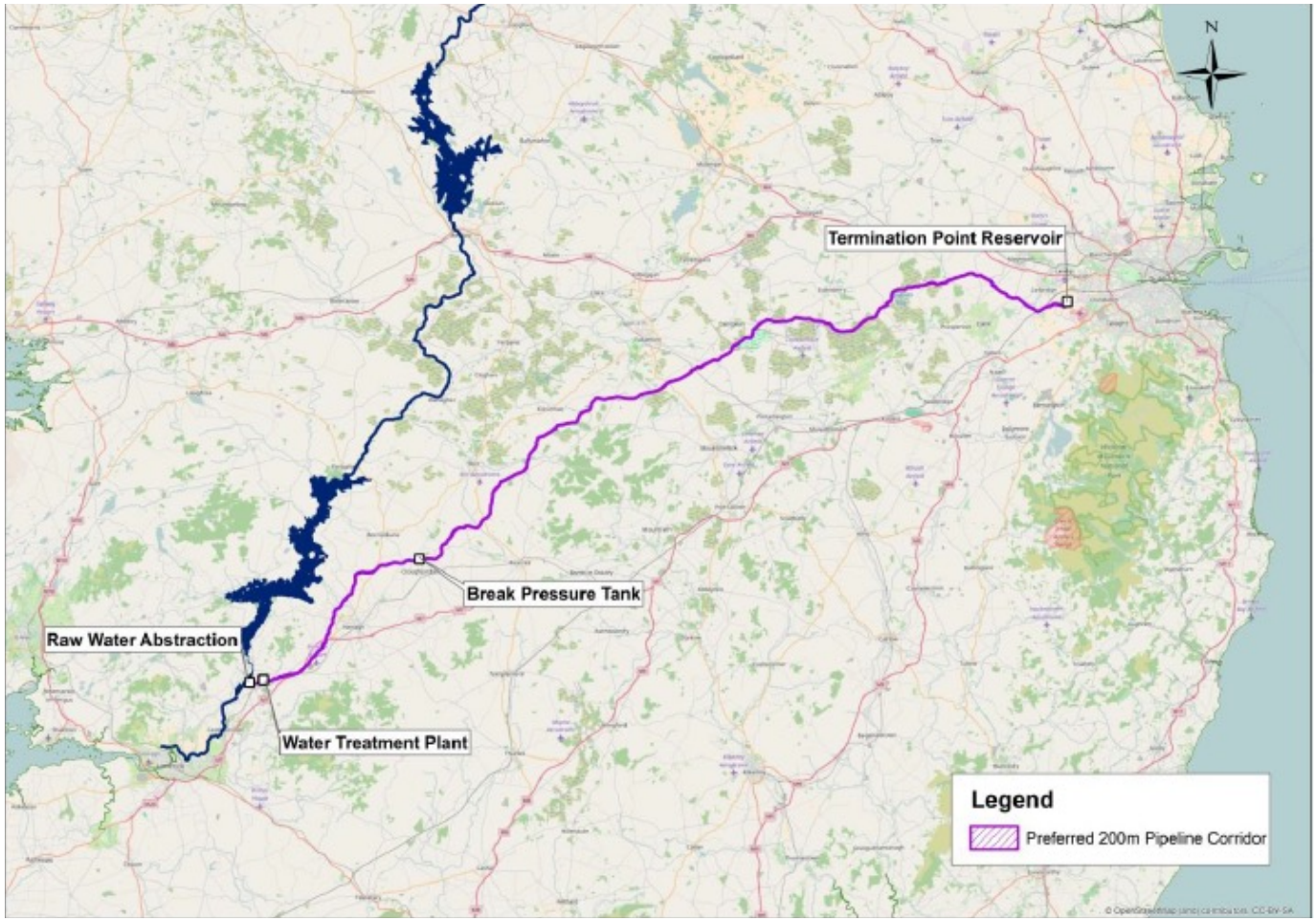


Figure 275. Water Supply Project, Eastern and Midlands Region – Illustration taken from Final Options Appraisal Report (2016), which has been subject to public consultation.

10.4.4 POTABLE WATER STRATEGY

Opportunities and Challenges

As the Water Supply Project (WSP) is been developed by Irish Water and considerations for how this project can reinforce the GDA potable water network, there is an opportunity to consider the spatial requirements for the trunk watermain from Peamount Reservoir to Dublin City Centre and any local reinforcements within City Edge. Where possible, City Edge can consider route selections ongoing by Irish Water and align with the programme implementation of City Edge's spatial and delivery strategy with consideration to key strategic utility corridors. Furthermore, should the trunk main from Peamount Reservoir to Dublin City Centre progress, this may facilitate the supply of water to the increased demands of City Edge.

One of the challenges will be to service City Edge development during the early stages of development prior to the WSP been developed. This will require water management and local interventions as discussed further in this section.

Future Capacity

The Strategic Framework considers the increase in population and jobs in the area based on the maximum developable potential of City Edge. Irish Water Code of Practise – July 2020, was used to consider the future potable water demand in the area including:

- Average daily domestic demand shall be based on a per-capita consumption of 150 l / person / day
- A demand estimate from trade flows considered a number of factors including 31m3 / ha / day as recommended by Irish Water for wet trades, and the density of jobs per Ha

Table 2 below outlines the staged projected average demand for City Edge. This demand will inform the design required for the extent of potable water infrastructure to service City Edge.

Year	Projected Demand (Ml / day)*
Current	6.9 Ml / day
2040	14.4 Ml / day
2070	35 Ml / day

*Assumes linear development from year 1 of City Edge

Table 2. Approximate Potable Water Demand for City Edge

Based on discussions with Irish Water, it is understood that there is ca.8ML / day of available capacity in the existing 600mm dia and 18" dia. watermains from Belgard Reservoir. Through water management measures, it is considered that this capacity can service City Edge in the short-term. Figure 276 illustrates the Average Water Demand for City Edge as it develops, but also shows the existing capacity within the water network. This capacity includes the existing water demand of 6.9Ml / day plus the spare capacity of 8 Ml / day. Additional source water from the WSP is required where the red line meets the preferred scenario i.e. ca.20 years after the continuous and sequential development of City Edge commences. A preferred option of abstraction of 330 Mld from the River Shannon at Parteen has been identified which is more than sufficient to cater for City Edge across its projected 50 year timeline. (source - Water Supply Project - Final Options Appraisal Report 2016).

Irish Water's current strategic plans include the use of additional supply from Peamount Reservoir to service the development. This increase in capacity would extend the timeframe out for demand to reach supply / capacity. However, to facilitate development in the interim, it's critical that additional localised reinforcements and water management strategies are implemented by Irish Water to service local areas from year 0 – 20.

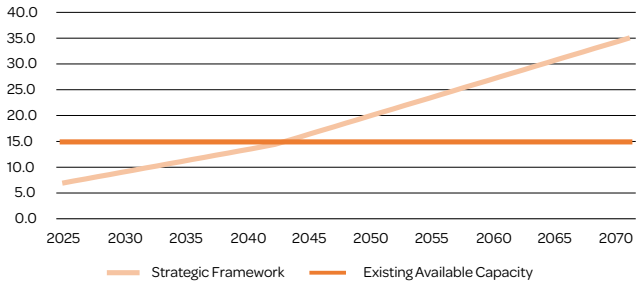


Figure 276. City Edge potable water demand and existing network capacity

Spatial Capacity

The exact location of the trunk main feeding potable water from Peamount Reservoir to Dublin City Centre via City Edge has not yet been determined, however, it is likely that this trunk main route selection may consider existing linear routes through City Edge including roads like Naas Road and New Nangor Road or parallel to the canal if feasible. This routeing will be considered further at Statutory Plan stage, in consultation with Irish Water and consider other utility corridors and transport infrastructure within City Edge.

Potable Water Infrastructure Delivery

Delivery commentary and potential benchmarked costs for increasing potable water capacity are set out in Chapter 12 (Delivery), of this report together with proposals around timing and sequencing.

10.5 FOUL WATER

10.5.1 FOUL WATER BASELINE SITUATION

City Edge is mainly served by the 9B Sewer which conveys flows to the Grand Canal Trunk Sewer at Davitt Road. The sewer services areas upstream of City Edge including Newcastle, Rathcoole and Saggart, City West and Clondalkin area. From the Grand Canal Trunk Sewer, flows are conveyed to Ringsend Wastewater Treatment Plant (WwTP). Approximately, 80% of City Edge is served by the 9B Sewer via either direct connection or through the collector networks. The 9B Sewer was designed as a separate (foul only) system and is currently operating at its design capacity. Due to misconnections of surface water, significant contributions of rainfall induced infiltration has been measured. High trade flows also negatively affect the spare capacity of the system. The sewer is now considered to be under-capacity for its purpose.

Based on a permanent Irish Water flow monitor located within Lansdowne Park, Average Dry Weather Flow (DWF) observed in the 9B Sewer is approx. 520 l / s with a maximum observed value of 2.28 m^3 / s (based on flows from April 2019 to January 2021).

Following discussions with Irish Water, there is limited capacity within the 9B sewer to take additional loadings however, this is assessed on a case by case basis, depending on the extent and location of the development. Based on the Irish Water GIS records, the capacity of the existing 9B sewer is as low as 1.7-2m3 / s in areas within City Edge. Notwithstanding this, there has been limited sewer flooding events recorded within City Edge.

10.5.2 POLICY

As set out in Potable Water section, the Strategic Funding Plan 2019–2024 sets out the wastewater infrastructure planned for 2019 – 2024. In addition, the Urban Waste Water Treatment Directive sets standards to be met in the collection and treatment of wastewater as well as the monitoring requirements for wastewater discharges from urban areas. The directive is about protecting the environment from the adverse effects of urban wastewater discharges.

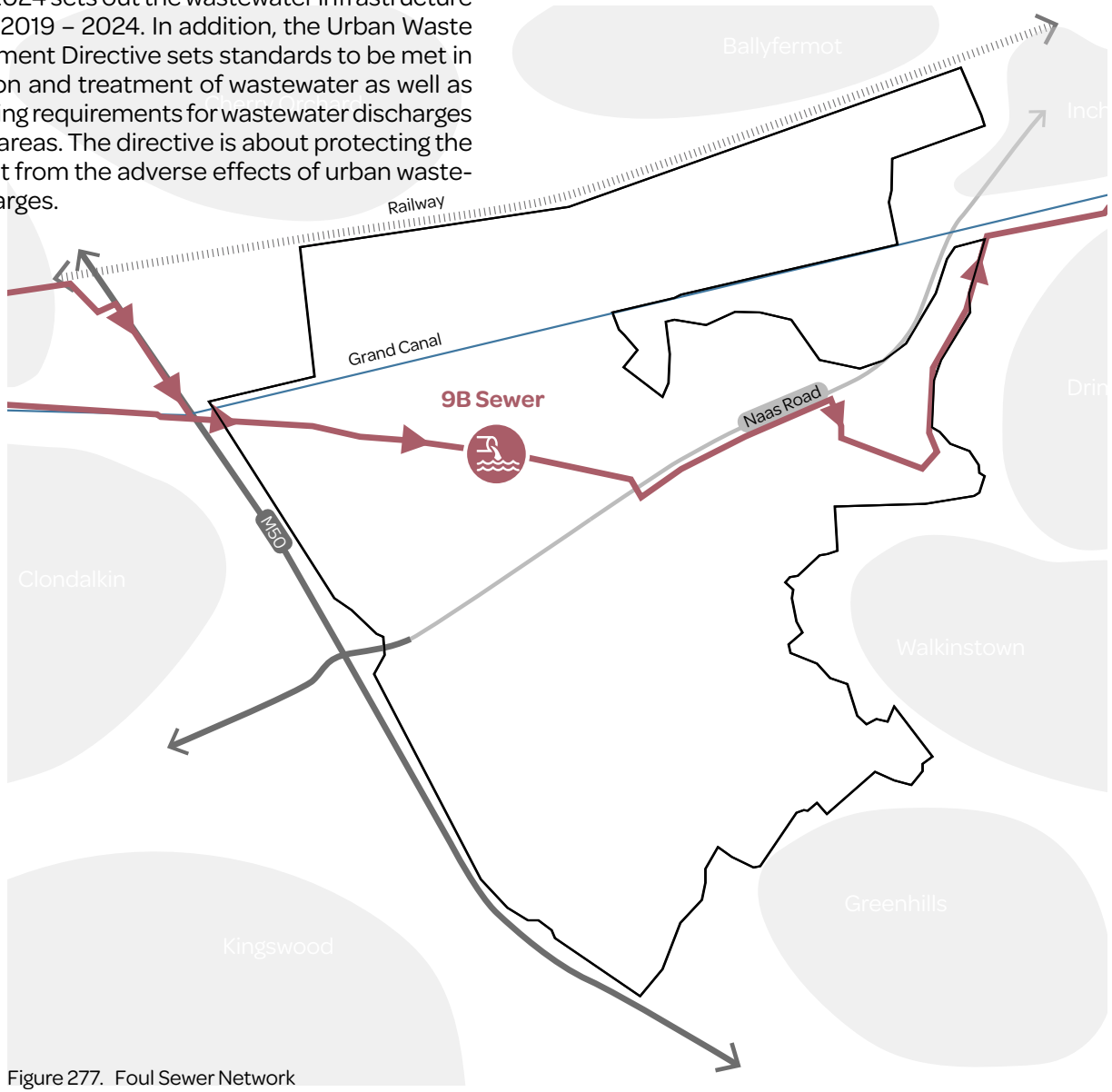


Figure 277. Foul Sewer Network

10.5.3 PROJECTS – PLANNED OR PROPOSED

The Greater Dublin Strategic Drainage Study (2005) identified a number of options for upgrades within the 9B sewer system. High level potential options included the following:

- New Combined Storm Overflow (CSO) to limit discharge of 2m3 / s to Grand Canal tunnel, spilling excess flows to Grand Canal stormcell and 11,000m3 storage
- Overflow pipeline from Ballymount CSO to Grand Canal stormcell.
- Upsize the connection of the 9B sewer and the 9C sewer (this is the main trunk sewer from north-west Dublin that is siphoned through the Phoenix Park and meets the 9B sewer at Davitt Road) connecting sewer at Dolphin Road (Davitt Road to Herberton Road). Both these sewers merge downstream of City Edge. The above potential interventions are shown in Figure 278.

The above proposals, although over 15 years old, considered the need to restrict the pass-forward flows to 2m3 / s in order to limit the pressure on the d / s network and Ringsend WwTP capacity. Flows in excess of 2m3 / s would be stored in the dedicated storage area.

Irish Water are currently considering high level strategic options for flows from the 9B sewer network. Irish Water have advised that high strategic optioneering and route selections may commence in 2022 / 2023.

The Greater Dublin Drainage Strategy – Overview & Future Strategic Needs (2018) concludes that the "Design of trunk sewers and outfalls should provide strategic flexibility to cater for development beyond the scope of the current planning horizon, having regard for the design life of these assets. This should include provision for potential future 9B transfer to the GDD Orbital Sewer".

In addition, Irish Water are currently delivering the **Main Lift Pumping Station Drainage Area Plan** (DAP) which investigates failure mechanisms within the existing sewer network and plans for future upgrades. This includes the ongoing progression of extensive asset surveys, flow monitoring and hydraulic model build. Provision for this DAP has been provided for in the Irish Water Investment Plan. This DAP covers City Edge and will inform future interventions and consider the development of City Edge and the required sewer network to service it. It will also be a key tool for Irish Water to assess the impacts of planning applications within City Edge, both pre and post capital upgrades. It is considered that this project will be complete by year 2024 / 2025 and will incorporate proposals to address the capacity of the 9b Sewer. In the interim, Irish Water will continue to assess the system upgrades required by any planning submission. It should be noted that localised upgrades are severely limited until the increased capacity is provided in the 9B system.

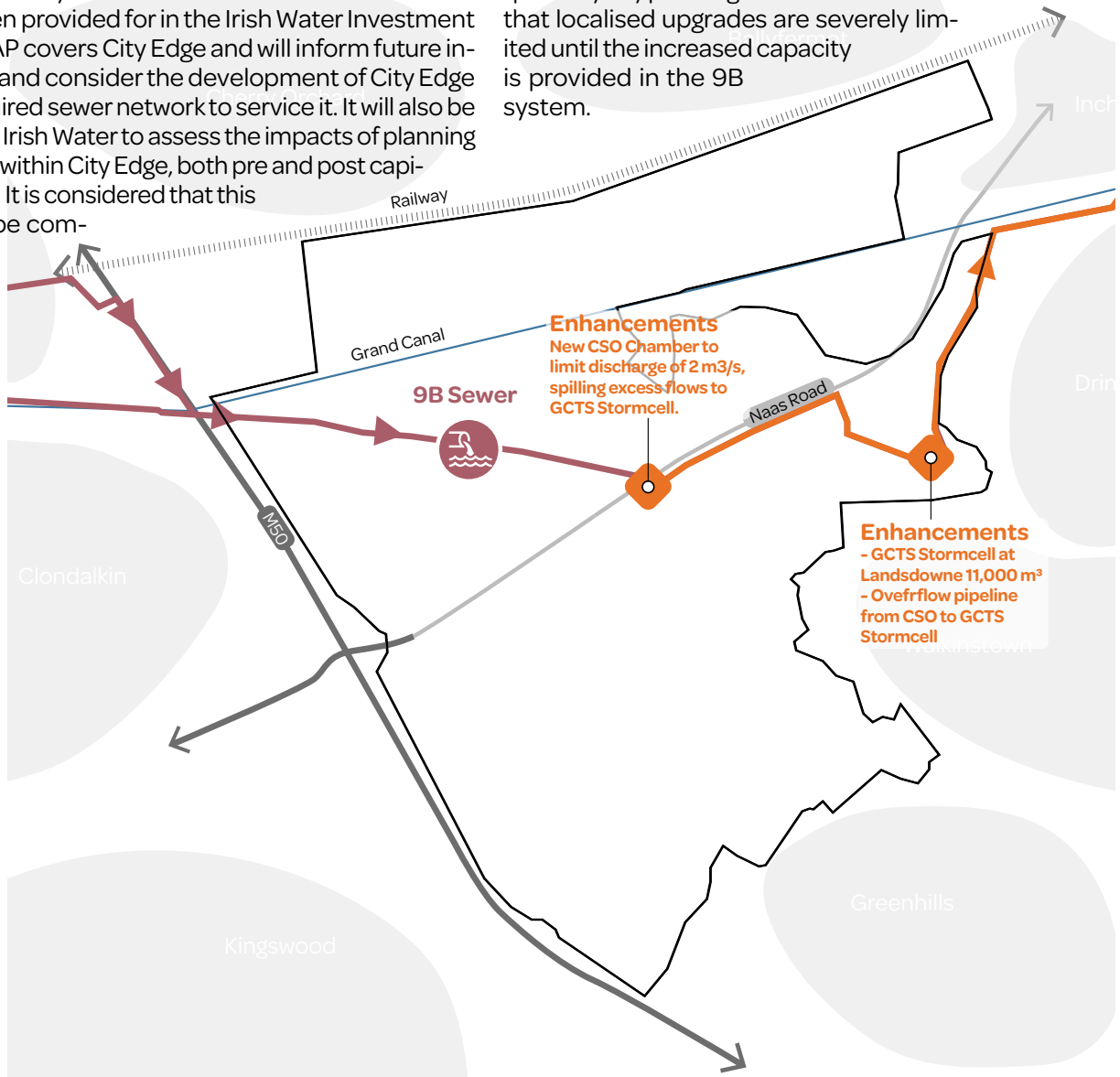


Figure 278. Potential 9B Upgrades from the Greater Dublin Strategic Drainage Study

10.5.4 FOUL SEWER STRATEGY

Opportunities and Challenges

Given the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and Irish Waters ongoing strategic reviews, there is an opportunity to consider the spatial requirements for future upgrades and storage works within City Edge. This can consider any route selections ongoing by Irish Water and where possible, align with the programme implementation of City Edge's spatial and delivery strategy.

Furthermore, City Edge is highly impermeable, from the perspective of surface water drainage and is dependent on a combined sewer network. This results in a high rainfall response, large stormwater volumes entering the combined system and resultant combined sewer overflows to the Camac and its tributaries. By adopting sponge city principals and eliminating storm connections there are significant opportunities to reduce combined sewer flows in response to rainfall events, reduce the frequency and volume of storm overflows and also introduce infiltration and nature based solutions to attenuate storm flows in the system. In addition, there are extensive opportunities to target surface water connections to the foul sewers at source via targeted pilot projects. This will assist in reducing the stormwater element entering the 9B sewer system thus reducing capacity pressures on the piped network and treatment capacity in the downstream Ringsend WwTP.

Outputs from the DAP study ongoing by Irish Water will inform such opportunities.

Regarding challenges, in the short-term prior to the upgrades to the 9B system, localised upgrades are limited until the increased capacity is provided in the 9B system.

Future Capacity

Irish Water Code of Practise, July 2020, was used to predict the return to sewer flows within City Edge through a staged development. InfoWorks ICM was used to build an unverified combined network model for City Edge as part of a Surface Water Management Plan. The aim of the model is to simulate the existing baseline scenario and to consider the impact of City Edge development on the existing sewer system and the level of upgrades required. The following were used for design assumptions:

- 50:50 distribution of residential and commercial / industrial use within City Edge was assumed for computation of residential and trade flows with Peaking Factor of 2.5 and hourly profiles for weekdays and weekends.
- Average daily residential discharge is based on a per-capita water consumption of 150 l / day
- Average occupancy ratio of 2.7 persons per dwelling.
- 3% misconnectionx allowance has not been added. It is assumed that existing scenario discharges already includes misconnection allowances.

It should be noted that the model cannot predict the flows upstream of City Edge as this will be a requirement

Figure 279. An aerial view of the 9C sewer upgrades in Blanchardstown (similar in scale to potential 9B upgrades) which included 3 no. shafts of a similar size. This provides an appreciation of the spatial requirements.

of the Main Lift Pumping Station Drainage Area Plan (DAP). The model projections for City Edge are outlined below.

Existing DWF in 9B Sewer (l / s)	Existing Max. DWF (l / s)	Projected Max. DWF (l / s)
520l / s*	65-70l / s**	400-450l / s**

*Based on flow monitor records from Irish Water
**This is the Dry Weather Flow (DWF) for City Edge only

Table 3. Max DWF entering 9B sewer from City Edge area

The 9B Sewer is operating at its design capacity (reference from GDSDS 2005 Report) and further inflows will be assessed by Irish Water on a case by case basis. In some cases, new developments within the catchment can be an opportunity to eliminate any surface water connections to the sewer network which may even reduce pressures on the 9B sewer system.

Spatial Capacity

Similar to the recommendations of the GDSDS the model simulations indicate that the following infrastructure could be considered to meet the City Edge development requirements:

- a new 5-6km-long trunk sewer with a minimum diameter of 1200mm parallel to existing 9B Sewer, starting from Nangor Road, and connecting to Grand Canal Trunk Sewer
- Additional stormwater storage capacity in the order of 20,000 m^3 (based on discussions with Irish Water). This would be the equivalent of approx. 2 no. 25m dia tanks, ca.20-25m deep.

This approach largely aligns with the general approach suggested by Irish Water, which is as follows and will be further reviewed at statutory plan stage:

- Reinforcement of the existing 9B Trunk Sewer
- Provision of Stormwater Storage
- Reduction in surface water run-off by introduction of sponge city principles

The above slightly differs from the GDSDS recommendations in that the 9B duplication sewer is required u / s of the potential CSO and storage area and that higher volume storage is required. This routeing will be considered further at Statutory Plan stage, in consultation with Irish Water and consider other utility corridors and transport infrastructure within City Edge.

It should be noted that addressing the wider capacity issues in relation to the 9B will also benefit sewer services in areas upstream of City Edge including Clonburris and Adamstown, where significant development is planned. There should therefore be a multi-agency approach to the funding and delivery of such infrastructure in City Edge.

Foul Sewer Infrastructure Delivery

Delivery commentary and potential benchmarked costs for increasing foul sewer capacity are set out in Chapter 12 (Delivery), of this report together with proposals around timing and sequencing.

10.6 SURFACE WATER

10.6.1 SURFACE WATER BASELINE SITUATION

City Edge is mostly served by an extensive separate surface water network with some areas serviced by combined sewers. The River Camac passes through City Edge in a east-west direction and forms the backbone of this network along with its tributaries. These tributaries and streams include:

- Gallanstown Stream,
- Walkinstown Stream,
- Ballymount Stream,
- Robinhood Stream, and
- Drimnagh Castle Stream.

The River Camac enters City Edge at the M50 / Nangor Road overpass and runs beneath the Grand Canal on the northern end of Lansdowne Park towards Heuston Station where it finally discharges to the River Liffey. Nearly all of City Edge is part of the River Camac catchment area. Considering the high level of imperviousness within City Edge due to industrialisation, surface water contributions to the River Camac is significantly higher than greenfield runoff rates.

10.6.2 POLICY

This section outlines a number of key policies and requirements to be considered including:

- CIRIA C753 The SuDS Manual 2015 – covers the planning, design, construction and maintenance of SuDS to assist with their effective implementation within both new and existing developments.
- The Arterial Drainage Acts of 1945 and 1995 provide the OPW with powers for drainage and improvement of agricultural land and the undertaking of localised flood defence schemes to reduce flood risk in urban areas.
- "The Planning System and Flood Risk Management Guidelines for Planning Authorities" published in 2009 – provides practical advice to planning authorities on how to prepare for potential flooding (revision issued in 2014)
- South Dublin County Council and Dublin City Council's flood risk management policies in associated Development Plan
- South Dublin County Councils Sustainable Drainage Explanatory Design & Evaluation Guide (2022)
- SuDS policies including Dublin City Council Sustainable Drainage Design and Evaluation Guide (2021)

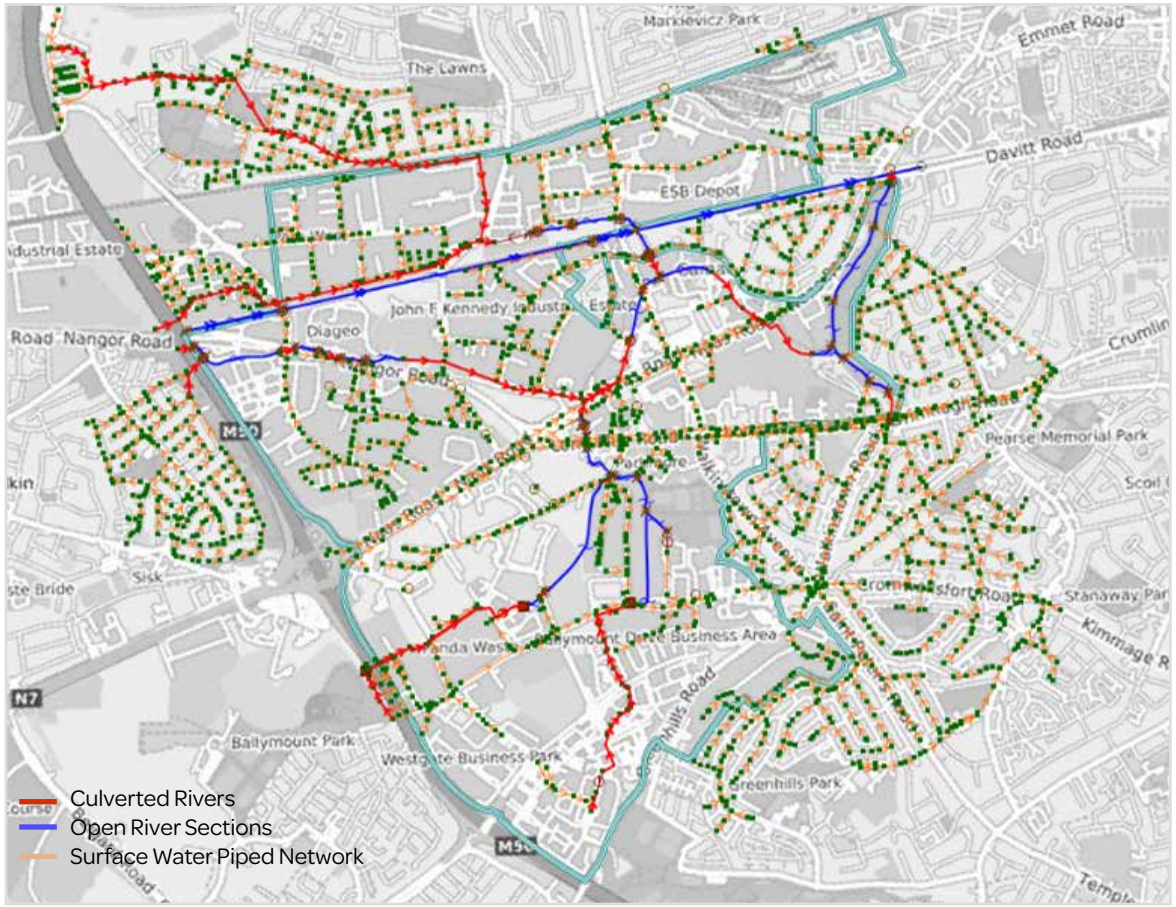


Figure 280. Surface Water Network Context Baseline Situation

10.6.3 PROJECTS – PLANNED OR PROPOSED

Dublin City Council and South Dublin County Council in partnership with The Office of Public Works (OPW) are progressing The River Camac Rehabilitation and Flood Alleviation Scheme (FAS). As many buildings within the Camac Catchment are at significant risk of flooding, this project has been given a high priority. This is a full catchment study which includes the River Camac itself, its tributaries and the pipes that convey flows to them. The objective of the project is to enhance the flood resilience of the River Camac to the standards of the EU Directive on the Assessment and Management of Flood Risk (Floods Directive 2007 / 60 / EC) transposed into Irish Law as SI 122 of 2010. Climate change implications are being considered as part of the project. Engagement is ongoing between the City Edge delivery team and the Camac FAS delivery team. It is considered that the Camac FAS will be delivered in the next 5 years.

The project is currently at STAGE 1 – In this Stage the project will look at establishing the flood risk within the catchment and develop a full understanding of the environment within the catchment. This will involve several surveys within the area and the construction of hydraulic computer models to identify the flooding. This will then allow the identification of possible flood alleviation options. For further details, visit https://www.camacfas.ie/.

10.6.4 SURFACE WATER STRATEGY

A Strategic Flood Risk Assessment (SFRA) and Surface Water Management Plan (SWMP) was conducted for City Edge and has informed the approach to sustainable surface water management that is detailed in this chapter and in Chapter 9 (Natural Infrastructure). The SWMP provides a number of opportunities to achieve key objectives of City Edge including sponge city principles incorporating 50% green cover. As part of the analysis, an unverified InfoWorks ICM model was generated to understand the baseline network but also to consider how the system will perform when City Edge is developed. The performance of surface water management practices was assessed at some key outfalls to the River Camac system where the majority of the drainage system passes through.

The study concluded that introducing key measures including:

- major parks;
- removing impermeable areas; and
- introducing nature based SuDS strategies.

The benefits of introducing these measures are multiple and interlined, they include reduce surface water run-off, attenuation and infiltration, improve the quality of run off and address flood risk, all contributing towards resilience.

The SuDS Manual 2015 defines sustainable drainage as follows "Sustainable Drainage of SuDS is a way of managing rainfall that minimises the negative impacts on the quantity and quality of runoff whilst maximising the benefits of amenity and biodiversity for people and the environment". SuDS components may include but not limited to soakaways, infiltration basins, filter drains, filter strips, detention ponds, swales, permeable pave-

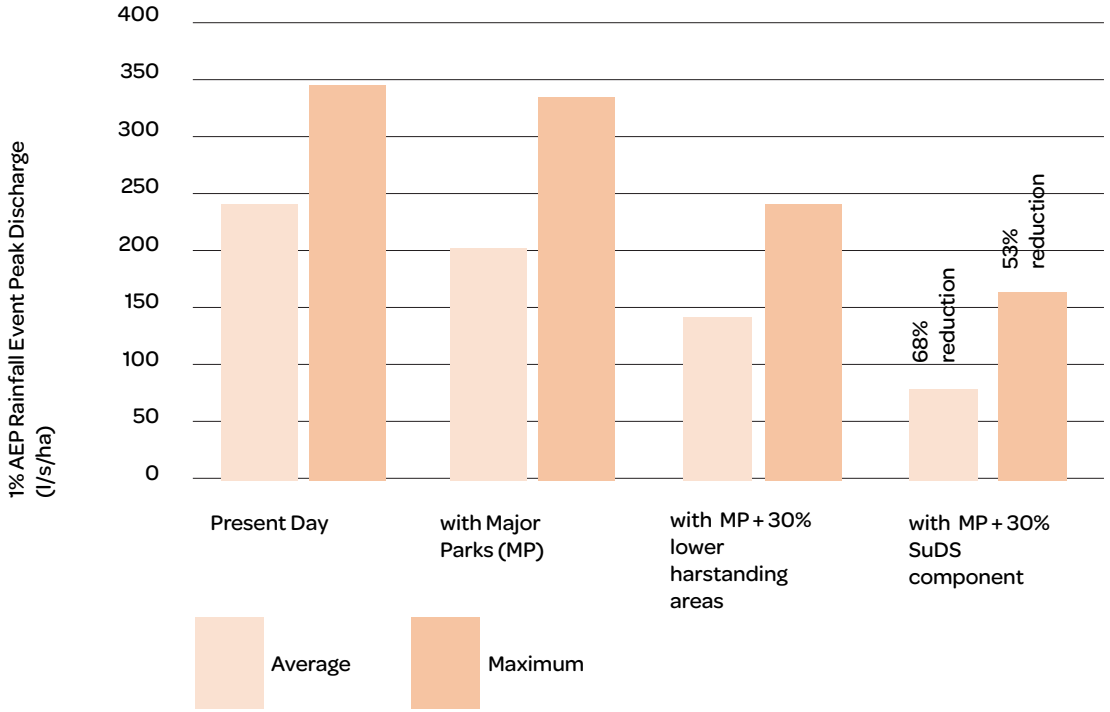


Figure 281. Performance of possible surface water management practices

ments, green roofs, bioretentions, wetlands etc. This will significantly decrease peak flows within the surface water system. Mean greenfield runoff rates, QBAR, of each subcatchment were also determined to indicate the significance of hardstanding areas. These are outlined in Figure 281. While moving from left to right in the chart, the surface water runoff per Ha is significantly reducing as a result of the surface water management proposals.

Typical SuDS components of a nature based sytem will include source control, site control and regional control measures such as:

- Source Control – green roofs, rainwater harvesting, permeable paving, and filter stripes
- Site Control – swales, detention basins, public realm SuDS components for attenuation and treatment
- Regional Control – retention ponds, wetlands.

The SWMP that informs this Strategic Framework explored examples of components that would form part of a SuDS train while Chapters 9 (Natural Infrastructure) and 11 (District & Character Areas) include cross sections that demonstrate how SuDS components could be integrated into streets and parks.

Opportunities and Challenges

There are significant opportunities to introduce nature based surface water management strategies throughout City Edge. Not only will such strategies significantly reduce the peak storm flows entering the surface water systems but can also promote the water quality within the open water courses, enhance biodiversity benefits and promote the amenity and liveability factor for the area. A key objective of the nature based surface water management strategies is to avoid artificial underground attenuation altogether within City Edge. Opportunities to remove surface water flows entering the 9B sewer system will also reduce the pressure on the downstream network as well as wastewater treatment capacity at Ringsend WwTP which is currently being upgraded. Such enhancements need to be considered in parallel with the Camac FAS which is ongoing.

There are significant challenges associated with realising the above including the re-naturalisation of the river Camac which navigates through public and private lands. The implementation of the surface water management strategies will need to be considered at planning level for individual developments in addition to interventions along the public realm.

10.7 ENERGY

10.7.1 ENERGY BASELINE SITUATION

The 'Climate Action Plan 2019 – To Tackle Climate Breakdown' represents the Government's all of society approach, aimed at enabling Ireland to meet its EU targets to reduce carbon emissions by 30% between 2021 and 2030, and lays the foundations for achieving net-zero carbon emissions by 2050. The use of carbon-based fossil fuels is responsible for over half of all greenhouse gas emissions globally. European and national energy policy prioritises measures to support climate change resilience through reduced energy consumption and increasing the proportion of energy consumed from alternative, non-polluting, low carbon and renewable energy sources across sectors (i.e. wind, solar, hydro, geothermal).

One of South Dublin County Councils Development Plan 2022 – 2028 (Draft) key objectives is to respond to the European, National and Regional Climate Action Programme and UN SDG 13 through the integration of climate action policies and objectives which promote renewable energy and energy conservation and an increase in energy efficiency. This is also consistent with Dublin City Council's Development Plan 2016-2022, and the Draft Development Plan 2022-2028.

In 2015 South Dublin County Council and Codema prepared a Spatial Energy Demand Analysis (SEDA). This analysis, is Phase 1 of a two phase study, currently funded through the SEAI. Information from this study was used to prepare a baseline energy profile broken into the proposed character areas.

Character Area	Current Demand (KVa)
Naas Road	12,350
Greenhills	18,733
Kylemore	9,352
Cherry Orchard	9,868
Red Cow	16,593
TOTAL	66,896

Table 4. Existing Energy Demand Summary | Source info from ESBN

This baseline energy analysis, informs the energy strategy set out further below and the approach of the Strategic Framework in relation to Climate Change Mitigation measures.

10.7.2 POLICY

The Renewable Energy Directive (RED) has been an important legislation (Statutory Instrument ((SI) 147 gives effect to the RED in Irish law) influencing the growth of renewable energy in the European Union (EU) and Ireland over the past decade. The RED set out two mandatory targets for renewable energy in Ireland to be met by 2020.

1. The first relates to overall renewable energy share (RES) is that 16% of gross final energy consumption to come from renewable sources in 2020.
2. The second mandatory target for transport RES-T for at least 10% of energy consumed in road and rail transport to come from renewable sources.

The Climate Action and Low Carbon Development (Amendment) Act 2021 provides for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050.

10.7.3 PROJECTS – PLANNED OR PROPOSED

There are a number of ongoing energy projects in the area including but not limited to:

1. Zero Together – a unique initiative that brings together leading stakeholders such as businesses, communities, transport groups, academia and local authorities to work towards the same goal of developing Dublin as a clean and healthy region and commit to actions that will move us away from fossil fuels from 2030 onwards
2. Sustainable Energy Community (SEC) network in the Dublin / Mid-East Region.
3. Dublin Region Energy Masterplan – create evidence-based, realistic, and costed pathways for the Dublin region to achieve its carbon emission reduction targets to 2030 and 2050. The analysis will give local authority and regional level planners, architects, engineers and other policy-makers the tools to create effective, low carbon policies and make strategic decisions to influence the use of energy in Dublin.
4. Dublin District Heating System (DDHS) – In addition to Dublin Docklands and Poolbeg, this study concluded that 75% of Dublin City has heat demand densities suitable for district heating

10.7.4 ENERGY STRATEGY

The baseline energy analysis considered the current energy capacity (Table 5) and the forecasted energy demand for the Framework Plan. This information was provided by ESBN and considered some key design / projection criteria. To better understand the key energy demand areas, the 5-character areas were considered. While it is difficult to accurately predict what commercial and industrial users could occupy the City Edge in the future, a rational approach has been taken and applied to the up-to-date and accurate Energy Demand figures supplied by CODEMA.

Sector	Residential Energy Demand (KVa)*	Industrial / Commercial Energy Demand (KVa)**	Total Energy (KVa)
Framework Plan	455,120	166,860	621,980

* Required MIC for residential properties is 12 or 16 kVA,
** New commercial developments consider 80-100 W / m2
Table 5. Framework Plan Energy Demand Summary (ESBN)

The residential demand is typically about 2kVA per dwelling for a current dwelling, but for new developments 3.5kVa for apartment and 5kVA can be assumed. These figures are diversified loads i.e. what's seen at a network level when you aggregate hundreds of units together. Considering one domestic unit the standard residential connection is 12kVA, and rises to 16kVA for new or enhanced connections (essentially assuming a heat pump and electric vehicle slow charger would be added on top of the original 12kVA), these kVA figures are available at ESB's **Statement of Charges** report.

Regarding the commercial developments, the electrical demand varies significantly from 10-30W / m2 for a school up to 2,000W / m2 for a data centre (source -https: / / assets.new.siemens.com) hence the Commercial Energy Demand for City Edge may vary substantially depending on the exact nature of the commercial / industrial development.

Opportunities and Challenges

Potential opportunities for district heating or waste heat were also considered based on information provided by Codema. Figure 282 outlines opportunities to harness waste heat from a number of existing and potential sources within City Edge, as per Codema's projections. Based on these calculations, it is estimated that a range of 75-100GWh of waste heat could be available (excludes heat / energy losses in the process). The greatest heat potential is that of the 2 no. data centres which has the capacity to generate between 10-30GWh in each case.

The viability of a heat network for City Edge is likely to depend on the heat demand density realised, and the identification of anchor heat customers at suitable points in the development phasing. The SEDA report considered sources of waste heat within SDCC. This analysis identified a minimum heat density >150TJ / km2 for waste heat sources and sites above 250TJ / km2 that are potential for District Heating. No potentially viable sites for such waste heat were identified by Codema within City Edge. For this reason, other means of renewable energy and heat opportunities are explored, including but not limited to block-level or individual building-level energy supply.

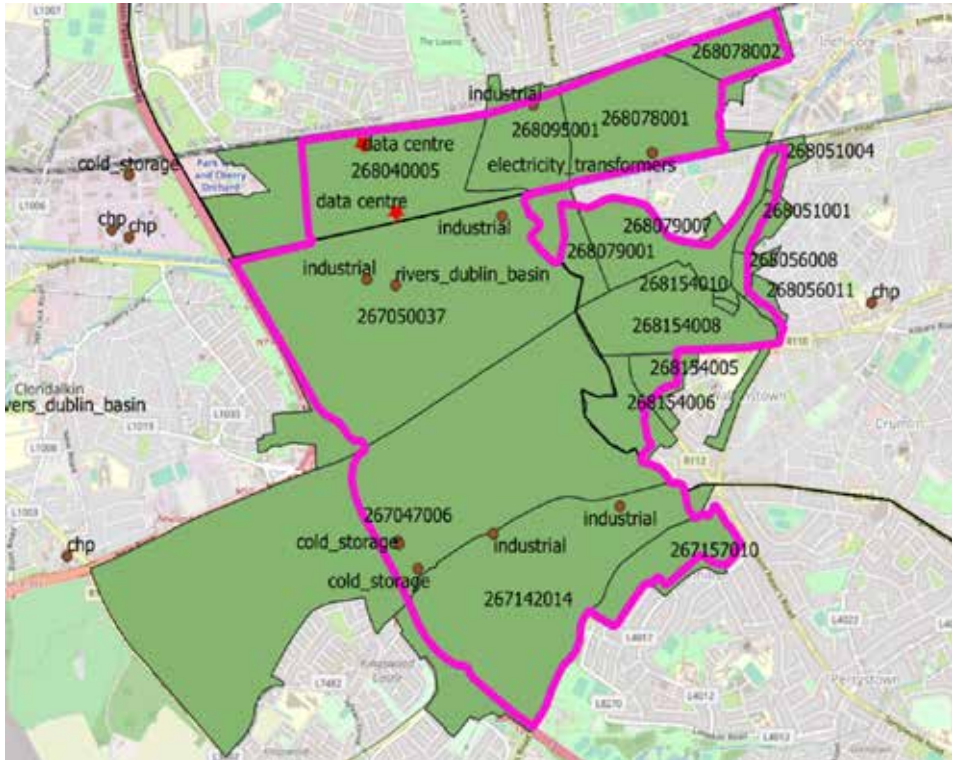


Figure 282. Waste Heat Sources within and Adjacent to City Edge – Source Codema 2021

Future Capacity
Technologies for further exploration could include solar PV, solar thermal, wind, biomass, combined heat and power (CHP), anaerobic digestion, hydrogen production, sewer heat recovery and various types of heat pumps. Again, owing to the extent of the Strategic Framework, a single-technology approach may be less preferable than a strategic network of various technologies. This should be considered further at Statutory Plan stage. The following are potential options:

- Solar PV and solar thermal: Given the location, it is unlikely that large scale solar PV areas will be available but roofscapes are the likely locations for solar PV generation capacity.
- Biomass and CHP – Biomass fed CHP units are alternative to producing renewable electricity, and are not dependent on locational characteristics, as biomass can be imported like any other fuel. Historically CHP have run on traditional fuels like natural gas, however, CHP units can be fuelled by renewable and lower-carbon fuels such as biogas, renewable natural gas (RNG) or biomethane, and hydrogen;
- Anaerobic digestion: relies on fuel availability, however, can also successfully be used for food waste, and also links to industry. In 2022 SDCC will be conducting a trial and feasibility study on the proposed treatment of grass cuttings by anaerobic digestion (AD). While this trial is being run by SDCC separate to the City Edge project, lessons can be learned and considered for future use within City Edge. As part of assessing the feasibility of AD any potential Air Quality impacts and potential fuel sources will need to be fully considered.
- Heat pumps: These have the greatest opportunity to be utilised in a modular fashion. They can be scaled upwards depending on the energy demand i.e. suitable for one off houses in addition to large residential and commercial blocks.

  – Wastewater heat recovery (WHR) is a renewable heat generation process whereby wastewater is used as a source of heat for electrically-powered, water-to-water heat pumps. Heat pumps upgrade this heat source (wastewater typically ranges from 10°C to 20°C) into hot water (45°C to 90°C) that can be used for various end uses such as process water, space heating and domestic hot water. As the 9B sewer passes through City Edge, based on approx. 450-500l / s DWF, approx. 70-110GWh of renewable heating could be generated with a potential Carbon saving of 11,000-17,000 tonnes per year.

Spatial Capacity
In order to inform the heat network opportunity analysis, assumptions on the spatial distribution of the development surrounding the hubs will be required, to define clusters of higher density development. Within the character area, a number of different building typologies were identified. The largest users of energy is considered to be Office high density and Office & Industrial high density. Additional analysis coupled with a focused Energy Management Plan will be required to understand the spatial requirements of such infrastructure at Statutory Plan stage.

10.8 ELECTRICITY

10.8.1 ELECTRICITY BASELINE SITUATION

The section examines the High Voltage (HV) and Medium Voltage (MV) infrastructure within City Edge. The remit for the operation and development of the high voltage transmission system in Ireland has been the responsibility of EirGrid, while ownership of the electricity transmission network assets lies with ESB Networks. The extent of high voltage transmission network within City Edge, can be summarised as follows:

- Inchicore Substation ≈ 5.0 ha
- Inchicore – Maynooth No. 1 & 2, 220KV
- Grange Castle – Inchicore No. 1 & 2, 110KV
- Citywest – Inchicore and Cookstown – Inchicore, 110KV

The Framework Plan was mapped against the high voltage transmission network as shown opposite. This section considers the high voltage transmission system in addition to the MV distribution system. The figure also shows a significant amount of underground cables in City Edge.

The current situation is that the overhead lines could be regarded as an undesirable urban obstacle with perceived negative health implications in addition to approximately 30-40 Ha of limitations imposed on possible developable land. Undergrounding these overhead HV lines was identified as a 'Core Spatial Component' which will be a cornerstone for how the area develops over time and represents the key infrastructure that support and catalyse growth.

The figure opposite identifies locations of the existing LV & MV substations within City Edge including capacity. These are split into the following:

- Black = 0-20KVa
- Amber = 20-200KVa
- Green = Greater than 200KVa

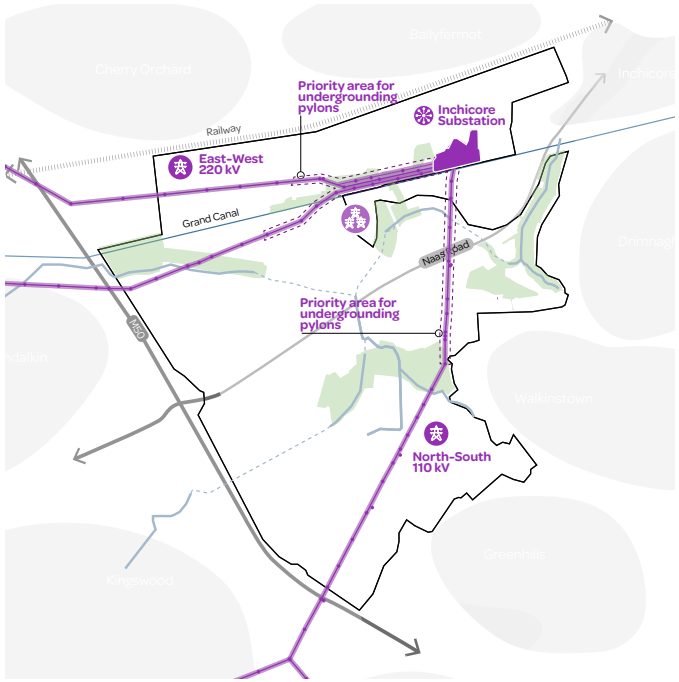


Figure 283. Existing HV infrastructure

There is an even spread of 38kV MV substations within City Edge with at least 1 no. 38 kV MV substation in each of the five character areas.

10.8.2 POLICY

In 2021, a new Government Policy Statement (Policy Statement on Security of Electricity Supply) to ensure security of electricity supply to 2.4 million homes and businesses throughout Ireland was published. As set out in the Policy Statement, the Government has decided that the development of new conventional generation (including gas-fired and gasoil / distillate-fired generation) is a national priority and should be permitted and supported. This will ensure security of electricity supply and facilitate the target of up to 80% renewable electricity generation by 2030. The Policy Statement notes that additional electricity transmission and distribution grid infrastructure, as well as additional electricity interconnection and electricity storage, should be permitted and developed.

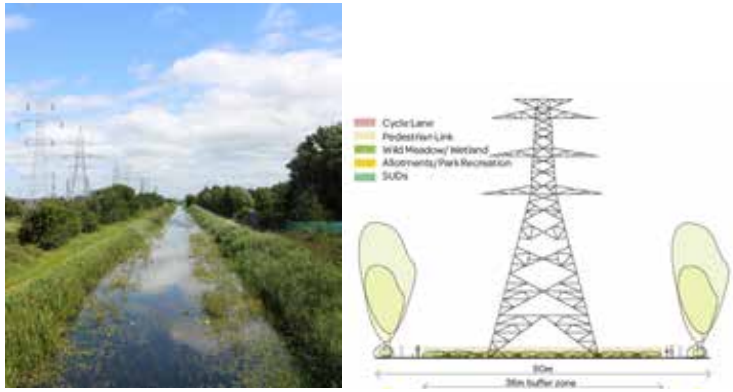


Figure 284. Existing pylons by Grand Canal

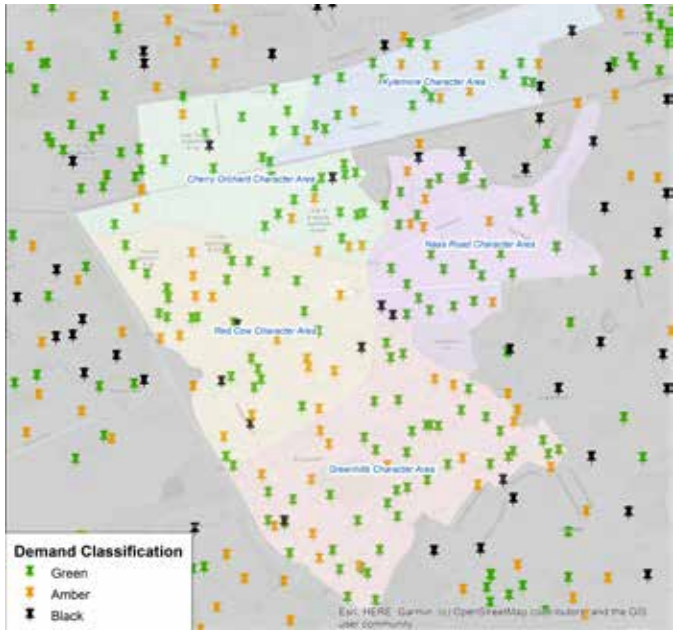


Figure 285. Electrical substation capacities and demand within City Edge (source Network Capacity Map (esbnetworks.ie)

10.8.3 ELECTRICAL STRATEGY

Opportunities and Challenges
There are a number of constraints and opportunities associated with undergrounding the overhead HV lines. The effective sterilisation of development land poses a significant impact to the development potential of City Edge. The provision of the undergrounding of these cables would significantly reduce the extent of development land that would be lost due to the constraints associated with overhead lines. The extent of the undergrounding (if any) will need to be determined further at Statutory Plan stage. Two options are considered:

- Option 1 – Full undergrounding from Inchicore substation outwards,
- Option 2 – Partial undergrounding (referred to as priority areas) from Inchicore substation to a predetermined location based on the character areas.

The options are presented in the figures below. Following consultations with EirGrid, they confirmed that it will not be possible to underground mid-span i.e. overhead-underground–overhead.

Option 1 for full undergrounding includes approx. 30-40Ha of limitations imposed on possible developable lands. This covers a corridor ranging from 36m to 50m in width. Option 2 for priority areas, includes approx. 15-19Ha of limitations imposed on possible developable lands based on the same corridor.

Undergrounding these assets requires extensive technical analysis and comes at a very high cost. When compared to overhead lines, the undergrounding cables requires a deed of grant (Wayleave) from the ESB for a minimum of 4m for high voltage cables of 110KV and greater.

A nearby example of similar undergrounding was carried out within the Grange Castle area as part of EirGrid's West Dublin 220 / 110 kV Substation and Associated Works project.

Figure 286. Option 1 & 2 – Spatial limitations (50m wide) associated with undergrounding overhead HV line

Deep Bore Tunnel Option – In addition to undergrounding, there is also the option associated with a deep bore tunnel. Specifically, we have considered this option to the north of the Grand Canal where there are 3 no. 110kv and 220KV lines in close proximity. This technique was successfully delivered for Olympic Park in London, which included fast-tracking the plan to relocate 52 electricity pylons that dominated the landscape in and around the Olympic Park site, to clear the area ready for construction. Two 6km long deep bored tunnels (typically 20-30m below ground) and an 850m long spur tunnel to carry the powerlines underneath the Olympic Park, together with associated substation works was required. Although, an expensive option and not yet carried out in Ireland, this option presents no major post construction restrictions associated with developing above the tunnel. The length of the tunnel would be approx. 1km.

Consultation Process – Development proposals are assessed by the ESB Conflicts Team where specific clearances can be assessed to examine the possibility of any proposed developments and the overhead transmission infrastructure co-existing. Their position is that the undergrounding of high voltage overheads would only be considered once the specific parameters of the proposed developments was established. This is unlikely to be determined until City Edge is further developed at Statutory Plan stage.

It needs to be determined whether the overhead HV lines can be undergrounded from a technical and operational perspective. Following stakeholder consultation with ESB Conflicts team and EirGrid, EirGrid have advised that that they could undertake a detailed power study to review technical aspects such as power flow, voltage, short circuit implications and harmonic analysis. The study would also give consideration to the impacts on protection systems,

future network plans, connected customers and the environment, and provide an overall recommendation with respect to the feasibility of the undergrounding of the high voltage cables. The time inputs for such a study is approx. 6-8 months from appointment.

It is recommended that such an engagement be completed without further delay.

Future Capacity

Regarding the electrical demand for City Edge, Table 6 indicated that the current existing electrical demand is approx. 67,000KVa. An assessment of the total available capacity was completed which considers if all of the existing pole mounted, kiosks and sub-stations were upgraded to achieve their maximum capacity without additional infrastructure been built. This figure was approx. 180,000KVa which demonstrates the current short-term capacity that could theoretically be achieved by upgrading the equipment within the existing meter cabinets / sub-stations without major new infrastructural investment. Table 6 shows how this figure is broken down in addition to the total estimated capacity required to meet City Edge energy demands.

In terms of staged delivery, the following graph outlines staged requirements for electrical upgrades to accommodate the development of City Edge. The green line represents the Total Available Capacity as outlined in table below if all existing electrical assets are maximised. The actual electrical demand will reach this threshold after approx. 10 years (assuming a linear development). After 10 years, new electrical infrastructure will be required via a number of substations and networks. This will need to be assessed in collaboration with ESBN and EirGrid.

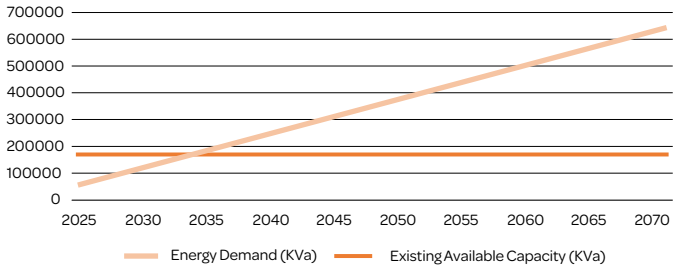


Figure 287. City Edge electrical demand

Sector	Current Demand (KVa)	Total Available Capacity (kVA)*	Spare Capacity Available (KVa)	Strategic Framework Energy Demand (KVa)	Strategic Framework Energy Deficit (KVa)
Naas Road	12,350	22,670	10,320	95,052	-84,732
Greenhills	18,733	33,820	15,087	151,296	-136,209
Kylemore	9,352	31,010	21,658	95,078	-73,420
Cherry Orchard	9,868	45,590	39,722	134,414	-94,692
Redcow	16,593	42,710	26,117	146,140	-120,023
TOTAL	66,896	179,800	112,904	621,980	-509,076

* Considers upgrades to existing assets without significant capital investment,

Table 6. Existing and Strategy Framework Energy Demand Summary (source info from ESBN)

Spatial Capacity
Regarding the HV infrastructure, route selection analysis will be required to determine the most feasible route for any undergrounding of existing overhead electrical infrastructure. Such spatial requirements will need to consider other utility corridors and transport infrastructure within City Edge. There are options associated with undergrounding all o / h HV lines within City Edge or partial undergrounding commencing at Inchicore substation and undergrounding outbound from there. Figure 288 below provides an indication of the extent of the developable limitations associated with the overhead HV lines.

As noted in the table on the previous page, there is space capacity available within the existing MV and LV electrical system to cater for the short-term development of City Edge, however, additional electrical infrastructure via new electrical substations and networks will be required to service the development post short-term i.e. after approx. 10 years. The exact nature of this infrastructure will need to be confirmed and co-ordinated with the ESBN and EirGrid to determine the transmission the distribution of this energy to City Edge.

Double MV substations are typically 8m x 3.5m (building only) and will need to be considered within City Edge. Typically, such substations are designed as part of individual developments.

Electrical Infrastructure Delivery
Delivery commentary and potential benchmarked costs for increasing electrical capacity are set out in Chapter 12 (Delivery), of this report together with proposals around timing and sequencing.


Figure 288. Possible sterilization area for the Citywest – Inchicore and Cookstown – Inchicore 110kv overhead line.


Figure 289. Typical Double MV substation

10.9 UTILITIES SUSTAINABILITY SUMMARY

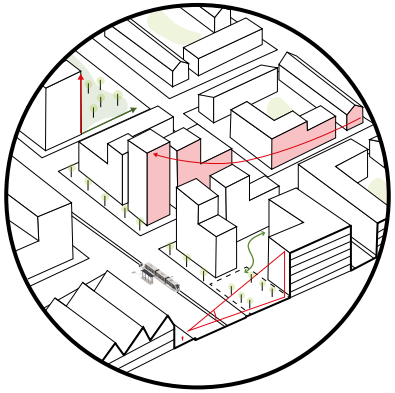
Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Utilities Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

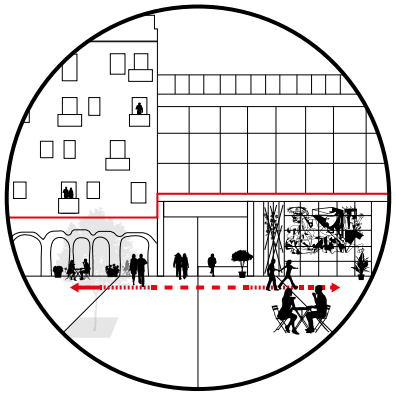
- Promote Spatial Energy Demand Analysis (SEDA) focused on decarbonising the energy supply and capitalising on areas with large waste heat
- Provide increased resilience in our utilities and infrastructure which adapts to extreme weather
- Increase renewable electricity – wind and solar up to 80% by 2030
- Support scheme for micro and small scale generation allowing homeowners and businesses / communities to generate their own electricity and sell what they don't use back to the national grid
- Reduce emissions from electricity by 62% – 81% from 2018 levels
- Consider opportunities to decarbonise public lighting
- Maximise spare capacity in electrical infrastructure
- Promote the use of Renewably fuelled CHP, Anaerobic digestion, District heating, micro generation, and sewer heat recovery at district and block level energy supply
- Implementation of South Dublin County Council's trial and feasibility study on the proposed treatment of grass cuttings by anaerobic digestion (AD).
- Support Dublin City Council and South Dublin County Council in the delivery of the Green Infrastructure provisions
- Surface water management to consider sponge-city principles including removing large scale impermeable areas and possible drainage connections to foul / combined sewer systems
- Promote nature restoration and protection including nature based solutions, SuDS components and Integrated Constructed Wetlands (ICW's)
- Foul and potable water to consider changes in water consumption trends as identified in Irish Waters National Water Resource Plan.
- Promote the upgrades to the 9B sewer system providing capacity to cater for future developments and prevent unregulated combined sewer overflows to receiving waters
- Promote the implementation of water neutrality thus reducing the pressure on the public water supply system supporting Irish Water in their role in the sustainable management of water supplies

11 DISTRICTS & CHARACTER AREAS

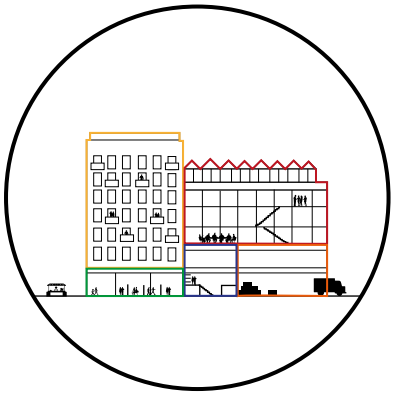
11.1 KEY URBAN DESIGN PRINCIPLES



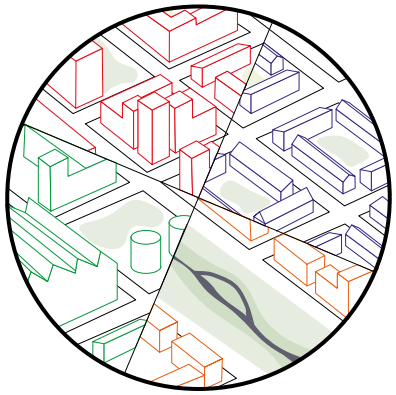
Townscape
- Coordinating Height at a wider scale
- Edge Conditions
- Clustering of Taller Buildings
- Transport Oriented Development



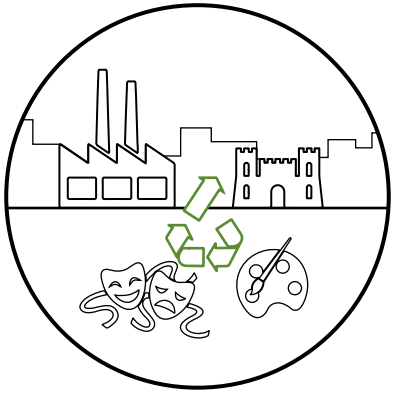
City at Eye-Level
- Positive Ground Floors
- Visual Interest along the Street



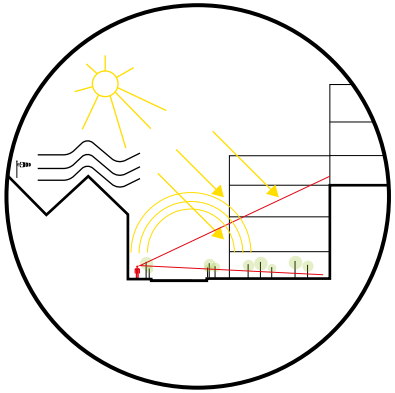
Mixed-Use Urbanism
- Multi-Functional Buildings
- Mixed Tenure



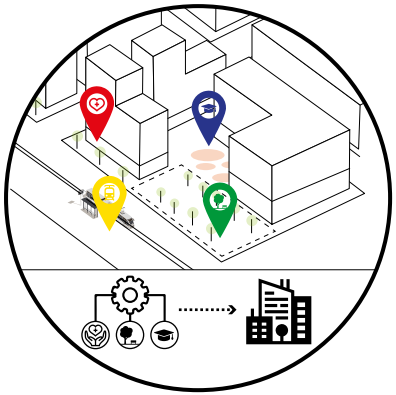
Defined Characters
- Distinctive Neighbourhoods



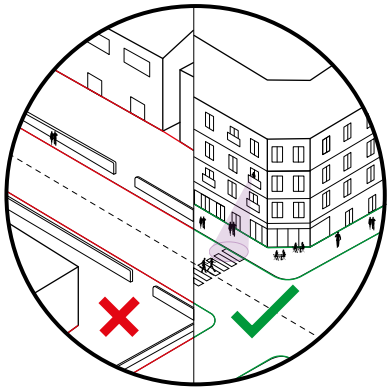
Integrate Heritage & Culture
- Re-purpose Heritage Assets
- Integrate a Mix of Cultural Institutions / Activities



Positive Microclimate
- Considering Daylight
- Avoid Overshadowing
- Not Exacerbating Wind



Infrastructure before Density
- Delivery of Community Infrastructure before delivery of higher Density Residential Areas



Street Based Urbansim
- Defining Street Edges with Buildings
- Minimum Set Back from Street unless to Provide Public Space
- Passive Surveillance

11.2 HEIGHT & DENSITY

11.2.1 HEIGHT AND DENSITY - A KEY TOOL IN CITY MAKING

Height is a key placeshaping ingredient in any part of a city or large urban realm project. Tall buildings allow a city dweller to have landmarks and gravity points that give them the ability to relate to their surroundings and locate where they are in a city. One of the key issues with City Edge in the present day is a lack of clear legibility of urban form, both in plan via streets that legibly connect but also in section where landmarks are rarely present and make it hard to navigate and orientate.

Buildings of height allow for this way finding function at a number of scales, from a city scale where landmarks help to identify areas or districts of a city from a long distance to a local scale where tall buildings can be used to help pedestrians or cyclists know where a point of interest is. As Dublin moves towards a compact city, the need for tall buildings and denser land banks needs to be carefully considered.

Buildings of Height must be based on performance based design standards. They should be located in the right places and at appropriate heights. They should also be of the highest architectural and planning standards. This balance must be weighed up against other placeshaping objectives such as high quality green spaces, provision of appropriate services, overlooking, overbearing and high quality light for surrounding buildings, public realm, social and public functions. Often many of these criteria are at odds with one another when a tall building is being designed and all of the various performance based criteria need to be weighed up in tandem to understand is a building of height appropriate for a given location.

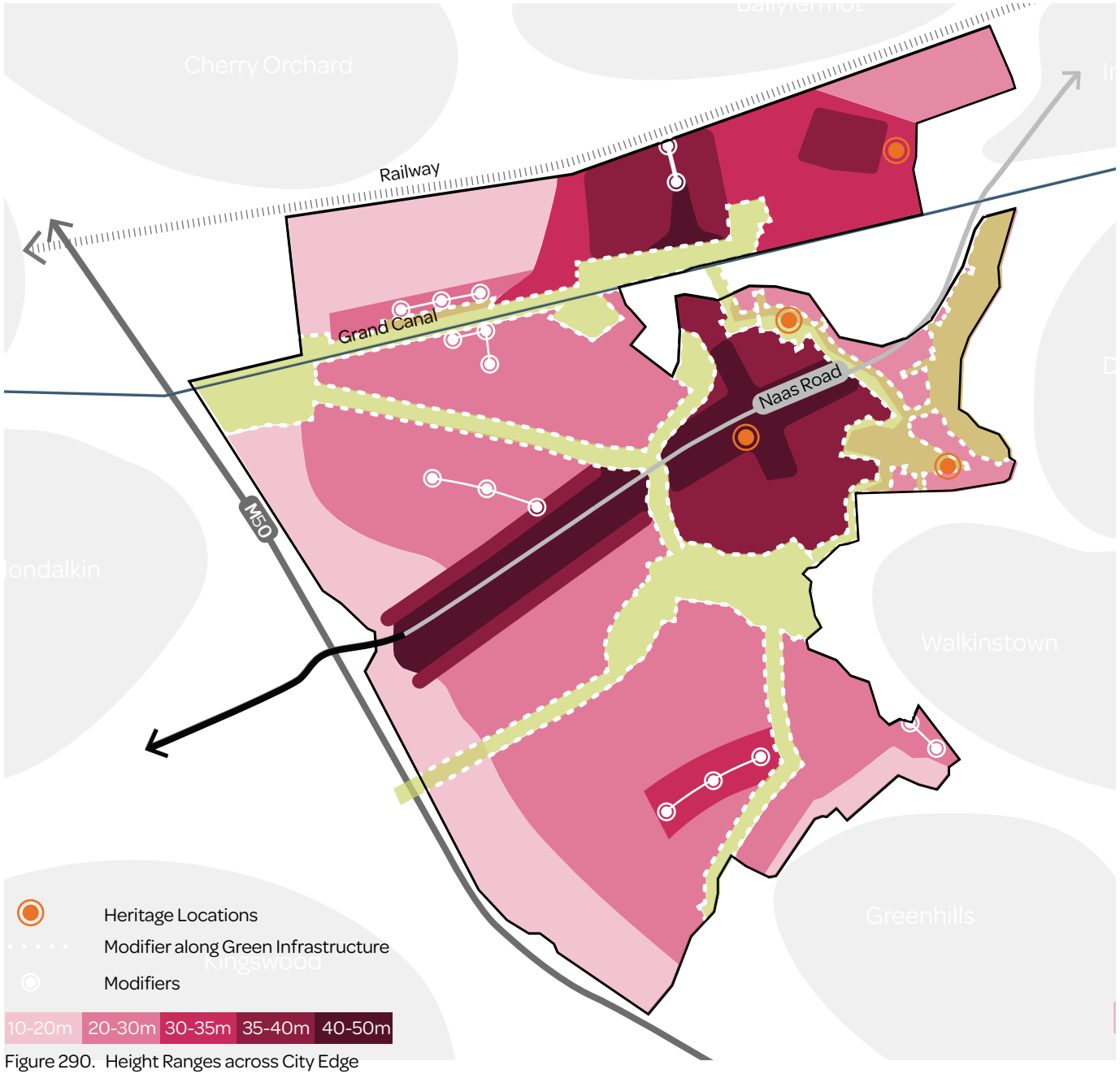


Figure 290. Height Ranges across City Edge

11.2.2 HEIGHT & DENSITY - PLANNING POLICY CONTEXT

Project 2040: The National Planning Framework (NPF)

Published in 2018, the National Planning Framework (NPF) sets out the Government's high-level strategic plan for shaping the future growth and development of Ireland to the year 2040. The purpose of the NPF is to enable both rural and urban Ireland to successfully accommodate growth and change.

The NPF has a number of National Strategic Outcomes (NSOs) one of which is Compact Growth which seeks to carefully manage the sustainable growth of compact cities, towns and villages and to add value and create more attractive places in which people can live and work. The NPF states that a streamlined and coordinated approach to development is required to activate key strategic development areas and to achieve effective density and consolidation in urban settlements.

The NPF targets a significant proportion of future urban development on infill / brownfield development sites within the built footprint of existing urban areas. The NPF recognises that to achieve this, it requires well-designed, high-quality development that can encourage more people, and generate more jobs and activity within existing cities, towns and villages.

Section 4.5 of the NPF states that in urban areas, general restrictions on building height and car parking will be replaced by performance criteria appropriate to general location (e.g. public transport corridors & inner suburban sites), that seek well-designed, high quality outcomes in order to achieve targeted growth.

Building Height and the Development Plan

The Building Heights Guidelines state that development plans must include appropriate assessment criteria that will enable the proper consideration of development proposals for increased building height linked to the achievement of a greater density of development in urban areas. In this regard, other key requirements for development plans in terms of building height include inter alia:

- Development plans must actively plan for and bring about increased density and height of development within the footprint of developing sustainable mobility corridors and networks;
- Development plans must be more proactive and more flexible in securing compact urban growth through a combination of both facilitating increased densities and building heights, while also being mindful of the quality of development and balancing amenity and environmental considerations;
- Development plans must ensure the appropriate identification and siting of areas suitable for increased densities and height and will need to consider the environmental sensitivities of the receiving environment as appropriate, throughout the planning hierarchy;
- Development plans must determine if increased height buildings are an appropriate typology or not in particular settings – with reference to historic environments;
- Development plans must undertake an examination of the existing character of a place, establish the sensitivities of a place and its capacity for development or change and; define opportunities for new development and inform its design;
- Development plans must ensure that an urban design statement addressing aspects of impact on the historic built environment should be submitted with planning applications along with a specific design statement on the individual insertion or proposal from an architectural perspective; and
- Development plans must identify and provide policy support for specific geographic locations or precincts where increased building height is not only desirable but a fundamental policy requirement.

The Building Heights Guidelines includes two Specific Planning Policy Requirements (SPPR) in relation to the listed key requirements:

SPPR 1: In accordance with Government policy to support increased building height and density in locations with good public transport accessibility, particularly town / city cores, Planning Authorities shall explicitly identify, through their statutory plans, areas where increased building height will be actively pursued for both redevelopment, regeneration and infill development to secure the objectives of the National Planning Framework and Regional Spatial and Economic Strategies and shall not provide for blanket numerical limitations on building height.

SPPR 2: In driving general increases in building heights, Planning Authorities shall also ensure appropriate mixtures of uses, such as housing and commercial or employment development, are provided for in statutory plan policy. Mechanisms such as block delivery sequencing in statutory plans could be utilised to link the provision of new office, commercial, appropriate retail provision and residential accommodation, thereby enabling urban redevelopment to proceed in a way that comprehensively meets contemporary economic and social needs, such as for housing, offices, social and community infrastructure, including leisure facilities.

Relevant Development Plans and Local Area Plans

This document should be read in conjunction with the requirements of:

- Dublin City Council Development Plan 2016 – 2022
- South Dublin County Council Development Plan 2016-2022

- Dublin City Draft Development plan 2022 – 2028
- South Dublin County Council Draft Development plan 2022 – 2028
- Naas Road Local Area Plan.

The Height and Density Strategies contained in the draft Dublin City Council and South Dublin County Council development plans have been taken into consideration under this Strategic Framework in the context of the requirements of SPPR 1 of the building height guidelines.

11.2.3 HEIGHT & DENSITY - URBAN DESIGN INTENT

The purpose of the criteria set out below is to inform the Statutory Plan that will follow this Strategic Framework.

City Edge is predominantly low rise at present and the scale of intervention of development proposed in the framework plan will change its scale, density and overall height profile, it is essential to set up a series of urban design directions in order to judge If a building or urban blocks height is appropriate.

In an existing urban situation where there are long standing and sustainably long standing uses a prevailing height would be established for these areas that new buildings could be judged against. The scale and density of City Edge will change holistically over time; therefore it is proposed to set a series of limits for the massing and urban form, in order to achieve coherent city making and good planning. In this regard, it is vital to determine zones or bands of height in order to make a coordinated response to the area in terms of a heights strategy.

The urban design intent for City Edge has established the following criteria:

1. Banding of height relative to centres, identity and uses will allow for a clear and legible piece of city considered in tandem with the uses and urban design parameters for those districts.
2. Orientation – Tall buildings should help to orientate users in a city on a series of scales. City Landmarks should orientate users on a city wide scale to zones of interest. Local landmarks should orientate people at a local level.
3. Sequential townscape –There should be a clear urban design pattern at street level as one moves through key spaces and streets.
4. Heritage – A considered townscape response to heritage and key views should be present in any scheme.
5. Skyline and light – Buildings in Naas road should contribute to a broken and dynamic skyline with ranges of height, this is for the block and immediate scale. Blanket building extrusions are not acceptable as they limit daylight and sunlight to the blocks themselves, neighbouring buildings and key public spaces and streets. They can also create a monotonous urban realm which is not appropriate in this context.

Categories of Height in City Edge
In considering height there are three categories of height in City Edge:

Emerging Height Limits – As City Edge is predominantly low rise at present, a series of banded height ranges has been identified, which form the maximum allowable heights in any given area. They are maximum heights, not targets, and are only allowable based on performance based criteria.

Locally Higher Buildings – These are buildings which are higher than the local context and allow for placeshaping and orientation at a local level. These buildings must score highly in the assessment against both the Performance based criteria and the upward modifiers which allow for cases to be made for buildings that are above the emerging height limits. These buildings are also allowable where a public good is served, e.g. a landbank must facilitate a public park being created in order to incentivise the successful delivery of City Edge. They must be of the absolute highest architectural quality in terms of form, elevation, slenderness ratio, materials, uses, public realm and mix.

Landmark / City Scale Tall Buildings- These are buildings which are typically a significant intervention on the city-scape and skyline and typically in excess of 50m and located in areas which have been identified as points of interest on a city scale to help to orientate and wayfind. They must be of the absolute highest architectural quality in terms of form, elevation, slenderness ratio, materials, uses, public realm and mix. They should be of the benchmarked when assessing any application by the planning authority against internationally recognised exemplars of high quality tall buildings that have lasted and endured the test on time. They will be Important city landmarks and landmarks internationally of Dublin and should be designed at that level of quality.

Density
Density is defined as the intensity of development on any given area of land. It is essential for the quality of any piece of city making to balance the density of an overall district with the density of a particular development plot. Units per hectare is a known standard for residential plots of land. The City Edge Districts and Character Areas are predominantly based on mixed-use urbanism; therefore, density is prescribed as Plot Ratio or FAR - floor area Ratio - in order to direct the urban morphology across a mix of uses and characters. This is based on taking the overall site developable area and dividing it by the plot size to give a ratio. The FAR acceptable ranges are detailed in each District under the character areas.

The critical minimum residential densities required across City Edge to support sustainable neighbourhoods are as follows:

Minimum: 70 dwellings per hectare (gross) is considered

to be a minimum requirement for Residential Led Mixed-Use areas outside of Transport Corridors and Centres. Reduced densities below this minimum may be required on sites proximate to existing low-density residential neighbourhoods.

Transport corridors and centres: Minimum densities of 100-120 dwellings per hectare (gross) on lands identified as:

- Residential Led Mixed-Use areas along the Naas Road, the two planned BusConnects routes, the Red Luas Line, the planned Luas Line F to Lucan and the two orbital transport corridors proposed under this Strategic Framework;
- Local High Street and High Street areas; and
- Mixed Use Employment and Residential areas.

As a performance measure, all development with densities above 150 dwellings per hectare (net) should be scrutinised very carefully in the context that such developments can pose challenges in relation to fostering connected and diverse residential communities. Such developments would need to provide a relatively high proportion of family units while incorporating significant elements of planning gain in the form of generous contributions to the public realm such as parks, greenways, blueways or community facilities in addition to the standard public, semi-private / communal and private open space requirements. Development proposals above this density on sites within close proximity to existing low density residential communities would also need to be considered in a manner that seeks to avoid abrupt transition in density.

11.2.4 HEIGHT & DENSITY - CRITERIA

Criteria – Performance based Standards

Performance based Criteria are essential in informing the total height of a building and what is appropriate in its context. The below table allows the Planning Authorities to assess if any particular proposal meets the performance based criteria to allow the maximum height of that banded zone as shown in Figure 290. Only if a site meets all or in exceptional cases where the merits of the overall scheme warrant it, some of the performance based criteria it would be deemed acceptable to grant applications at the limit of the maximum height at statutory plan stage.

	Objective	Performance Criteria in Assessing Proposals
1.	Promote development of quality and character	• respect and / or complement existing and established surrounding urban structure, character and local context, scale and built and natural heritage and have regard to any development constraints, have a positive impact on the local community and environment and contribute to 'healthy placeshaping' • create a distinctive design and add to and enhance the quality design of the area, be appropriately located in highly accessible places of greater activity and land use intensity • have sufficient variety in scale and form and have an appropriate transition in scale to the boundaries of a site / adjacent development in an established area • not be monolithic and should have a well considered design response that avoids long slab blocks • ensure that set back floors are appropriately scaled and designed • skylines should be varied including varying block heights, roof lines, roof embellishments in order to create a dynamic and interesting skyline
2.	Provide appropriate legibility	• make a positive contribution to legibility in an area in a cohesive manner • reflect and reinforce the role and function of streets and places and enhance permeability • legibility can come in many forms and does not only mean set street lines and set shoulder limits. Legibility can be formed by broken blocks, differing heights and setbacks but must be viewed on the scale of an entire street, space or square not in isolation
3.	Provide appropriate continuity and enclosure of streets and spaces	• enhance the urban design context for public spaces and key thoroughfares • provide appropriate level of enclosure to streets and spaces • not produce canyons of excessive scale and overbearing of streets and spaces • generally be within a human scale and provide an appropriate street width to building height ratio of 1:1.5 – 1:3 • provide adequate passive surveillance and sufficient doors, entrances and active uses to generate street-level activity, animation and visual interest
4.	Provide well connected, high quality and active public and communal spaces	• integrate into and enhance the public realm and prioritises pedestrians, cyclists and public transport • be appropriately scaled and distanced to provide appropriate enclosure / exposure to public and communal spaces, particularly to residential courtyards • ensure adequate sunlight and daylight penetration to public spaces and communal areas is received throughout the year to ensure that they are usable and can support outdoor recreation, amenity and other activities • ensure that potential negative microclimatic effects (particularly wind impacts) are avoided and or mitigated • provide for people friendly streets and spaces

	Objective	Performance Criteria in Assessing Proposals
5.	Provide high quality, attractive and usable private spaces	• not compromise the provision of high quality private outdoor space • ensure that private space is usable, safe, accessible and inviting • ensure windows of residential units receive reasonable levels of natural light, particularly to the windows of residential units within courtyards • assess the microclimatic effects to mitigate and avoid negative impacts • retain reasonable levels of overlooking and privacy in residential and mixed use development
6.	Promote mix of use and diversity of activities	• promote the delivery of mixed use development including housing, commercial and employment development as well as social and community infrastructure • contribute positively to the formation of a 'sustainable urban neighbourhood' • include a mix of building and dwelling typologies in the neighbourhood • provide for residential development, with a range of housing typologies suited to different stages of the life cycle
7.	High quality and environmentally sustainable buildings	• be carefully modulated and orientated so as to maximise access to natural daylight, ventilation, privacy, and views to minimise overshadowing and loss of light • not compromise the ability of existing or proposed buildings and nearby buildings to achieve passive solar gain • ensure a degree of physical building adaptability as well as internal flexibility in design and layout • ensure that the scale of plant at roof level is minimised and have suitable finish or screening in order that it is discreet and unobtrusive • maximise the number of homes enjoying dual aspect, to optimise passive solar gain, achieve cross ventilation and for reasons of good street frontage • be constructed of the highest quality materials and robust construction methodologies • incorporate appropriate sustainable technologies, be energy efficient and climate resilient • have appropriate and reasonable regard to quantitative approaches to assessing daylighting and sun lighting proposals. Where appropriate, satisfactory, alternative compensatory design solutions should be provided for a failure to meet reasonable daylighting provisions, in the context of a constrained site or securing wider objectives such as comprehensive urban regeneration or an effective urban design and streetscape solution • incorporate an Integrated Surface Water Management Strategy to ensure necessary public surface water infrastructure and naturebased SuDS solutions are in place • include a flood risk assessment
8.	Sustainable density, intensity at locations of high accessibility	• be at locations of higher accessibility well served by public transport with high capacity frequent service with good links to other modes of public transport • look to optimise their development footprint; accommodating access, servicing and parking in the most efficient ways possible integrated into the design
9.	Protect historic environments from insensitive development	• not have an adverse impact on the character and setting of existing historic environments including Architectural Conservation Areas, Protected Structures and their curtilage and National Monuments • be accompanied by a detailed assessment to establish the sensitives of the existing environment and its capacity to absorb the extent of development proposed • assess potential impacts on keys views and vistas related to the historic environment
10.	Appropriate management and maintenance	• Include an appropriate management plan to address matters of security, management of public / communal areas, waste management, servicing etc.

11.2.5 MODIFIERS

Modifiers are an important tool to provide for permitted deviations from the recommended height and ensure a degree of flexibility. Such flexibility is required to allow developments to respond to local circumstances, such as the potential to accommodate additional height to deliver better legibility or a sense of enclosure. Modifiers can act to decrease or increase height and are important to ensure that provision is made, and the appropriate guidance in place, to facilitate the delivery of 'taller buildings' where they are stated as permissible and / or required.

Figure 290 indicates where modifiers may be appropriate. The use of modifiers is, however, at the discretion of the Council and will be assessed on a case-by-case basis. In this case Modifiers are used to dictate where there may be a need to create a local skyline including points of interest of key urban high streets or areas of activity. These modifiers allow the creation of key points of interest, for instance on corners, major public spaces, transport hubs and green spaces that will add to the character of the area and create a visual interest in the skyline and shaping of the place.

Modifiers are also acceptable where the council believe there is a particular case to be made based on for instance a major infrastructural reason such as the provision of a major setback for a new park or greenway or the majority of a landbank is given over to facilitate a major SuDS requirement. In this case the landbank left should normal height bands apply may be deemed unviable to deliver a new project and this mechanism allows the council to be flexible, in limited cases, where it needs to deliver key moves to facilitate the wider City Edge success.

In assessing modifiers the following guidance is proposed:

- A masterplan of the wider area needs to been developed to look at a key space, high street or square in order that there is a relationship between multiple buildings and not an ad-hoc development approach. This may prove difficult in cases with multiple land owners but it is imperative that a coherent urban form around height is brought forward.
- A verified view assessment needs to be undertaken together with a townscape report in order to understand the overall legibility of the urban structure when proposing a modifier.
- A modifier should be no more than twice the emerging Height limit and in many cases will only be one or two stories above the limit to create visual interest.
- A sunlight daylight assessment should be taken of the surrounding area and buildings and the council should look at this in the round against placeshaping objectives. Any square, street or public space should be assessed. There may be conflicting objectives at play where a tall building creates a much-needed focal point but creates levels of light that are lower than desired on a public space or in room layouts of neighbouring buildings that needs to be carefully assessed by the Local Authority.
- A wind assessment must take place to look at public spaces, private open spaces and communal amenity spaces in order that a high quality environment is made. Taller buildings can create unpleasant wind conditions if not properly addressed. Mediating factors must be employed by designers such as landscape buffers, solid balconies and wind breakers to achieve this comfort level.
- Modifiers should be of the highest architectural quality. Buildings employing modifiers must have carefully considered forms, roof lines, programme, threshold spaces and good slenderness ratios.
- Modifiers will form local landmarks and as such poor quality materials such as render will not be acceptable and only the use of high quality durable materials will be acceptable.
- A modifier is pointed at a particular moment in a building to create a visual interest. It is not a blanket ability to extrude an entire urban block to a certain scale or height.
- Modifiers must only be employed where the required adequate mix of uses, services, retail presence, ground floor active treatment and associated public realm are of the highest quality.
- Buildings or urban blocks which propose a public use – such as a library, community centre, school or resource centre may employ modifiers where deemed acceptable by the Local Authority. This use class must be handed back to the relevant council or a management structure acceptable to the council put in place.

11.3 STREETS

11.3.1 STREET HIERARCHY

The diagram opposite sets out the movement hierarchy for City Edge. It establishes a clear network of urban streets for City Edge in the context of the wider movement network which is looked at in greater detail within Chapter 8 (Movement).

In regards to active travel, cycleways have been introduced throughout the framework area. Greenways have also been introduced such as along the Grand Canal and River Camac, that will prioritises the needs of pedestrians, cyclists and public transport users.

The following section illustrates indicative street typology in terms of cross section and how street space could be shared by different modes of movement while incorporating landscaping and SuDS networks. Such street typologies should be examined in further detail at statutory plan stage from the perspective of appropriate carriageway, footpath and cycle lane widths and Taking in Charge Standards etc.

Figure 291. Cycle network

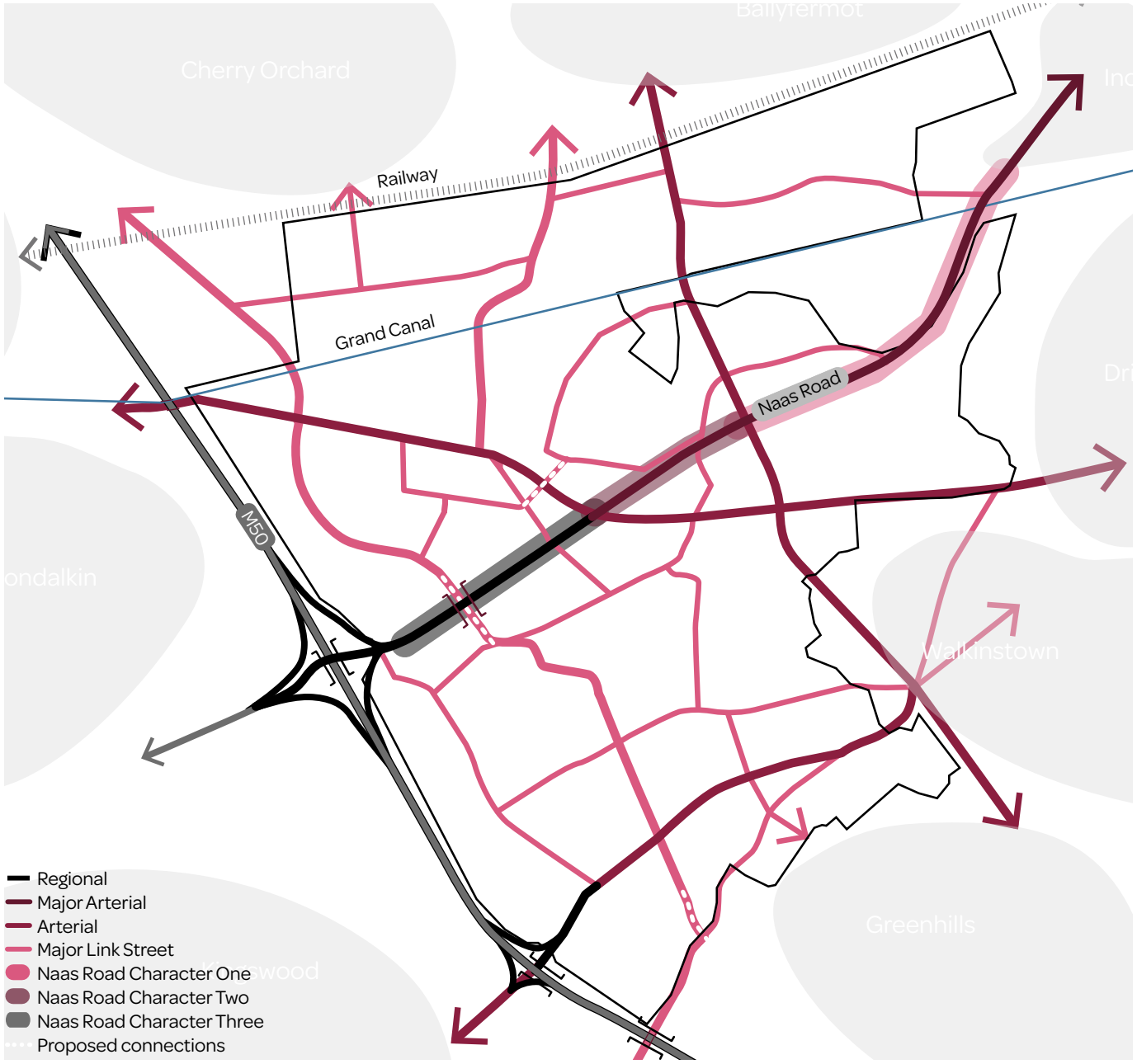
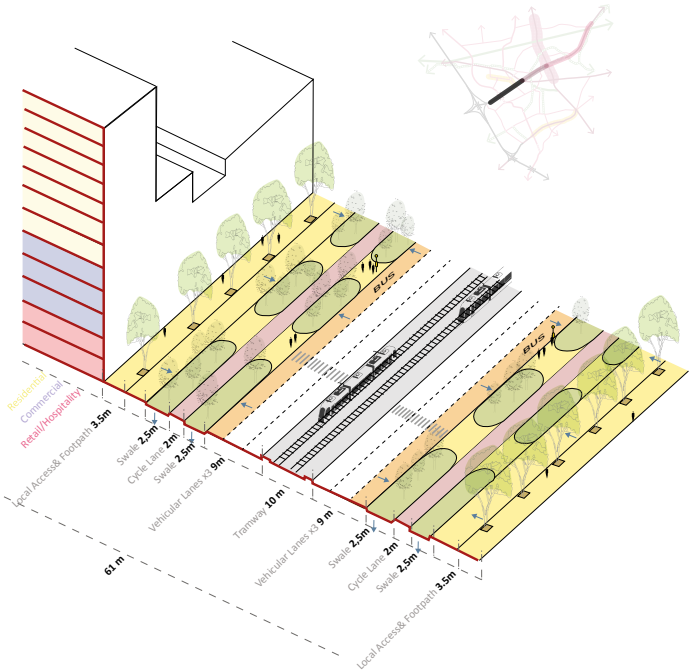


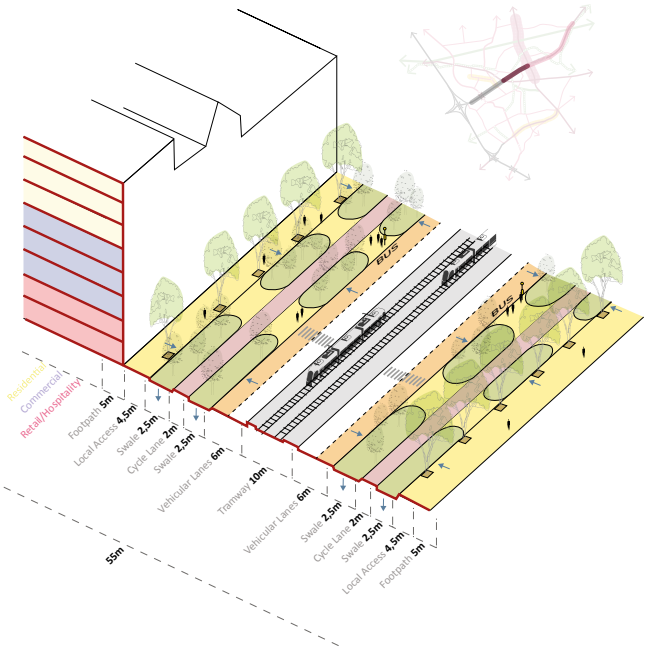
Figure 292. Primary movement network

11.3.2 STREET TYPOLOGIES



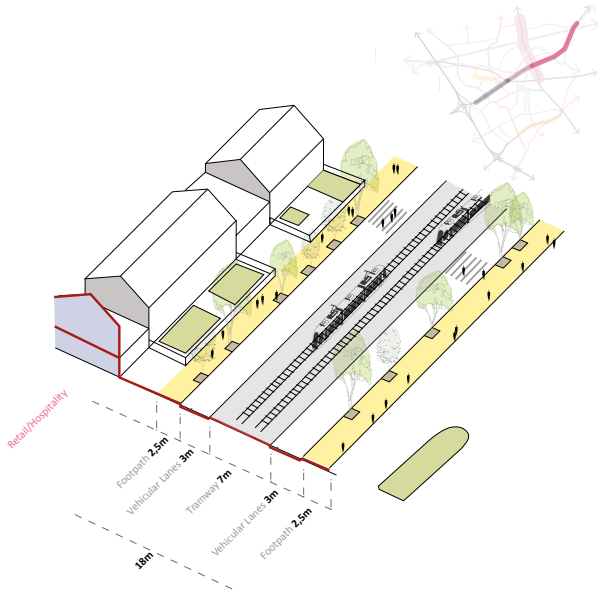
Naas Road Arterial Character One

This high-capacity strategic corridor for vehicular traffic and public transport is a major severance through the framework area. Incorporated into this portion of the Naas Road are segregated cycle lanes, SuDS infrastructure and tree lined local access streets.



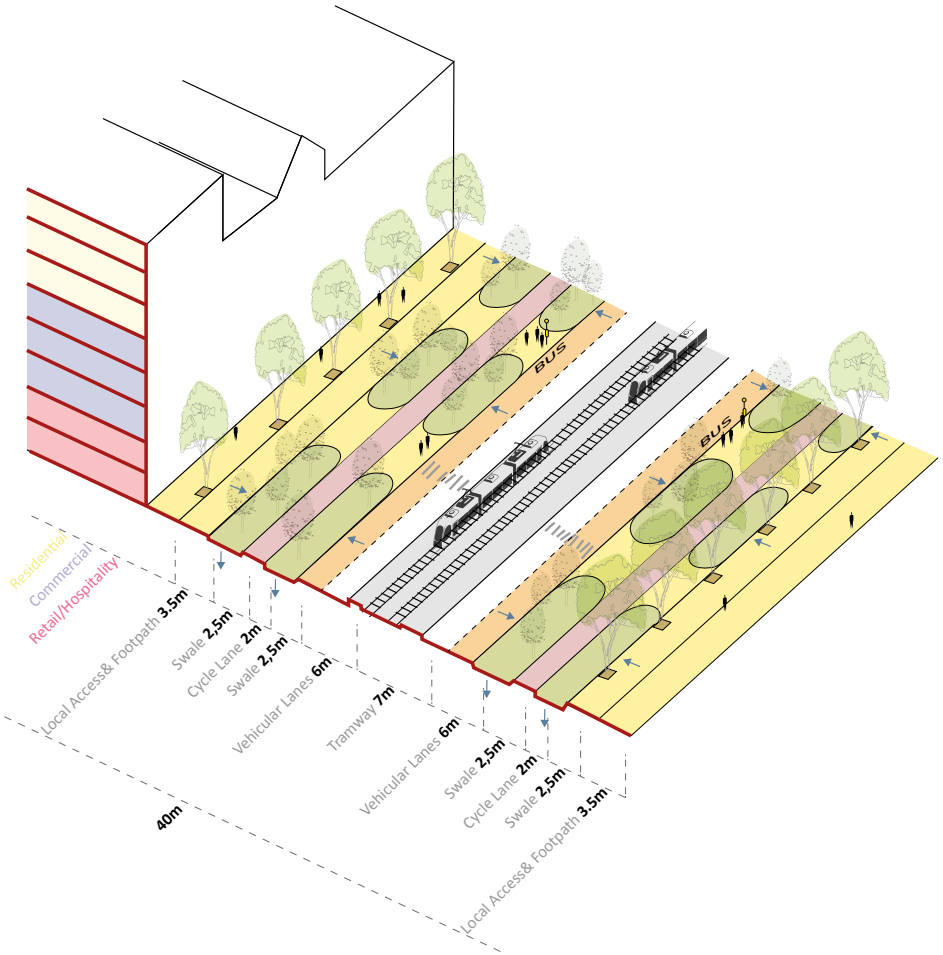
Naas Road Arterial Character Two

The Naas Road remains a high-capacity strategic corridor for vehicular traffic and public transport along this portion of it's length. There is less vehicular demand on this portion of the Naas Road and as a result it has two less traffic lanes. Segregated cycle lanes, SuDS infrastructure and tree lined local access streets are incorporated into the street section.



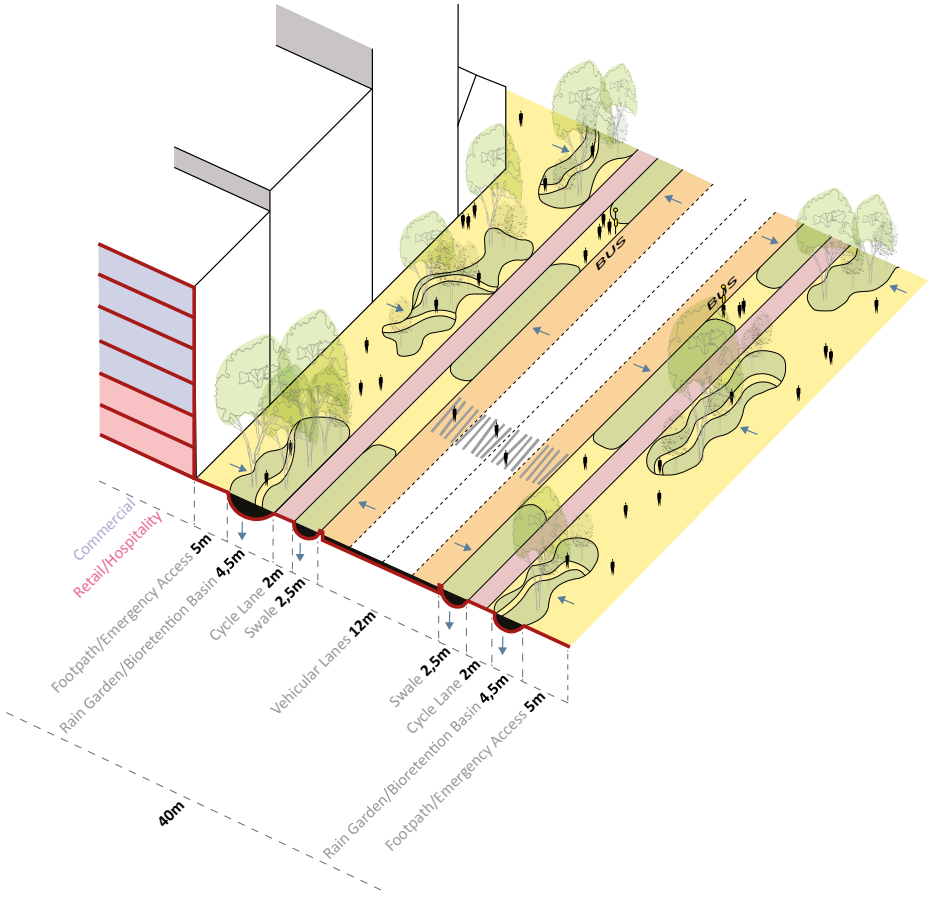
Naas Road Arterial Character Three

This portion of the Naas Road has more of regional and local function with some residual strategic traffic and long-distance commuting. This change in vehicular demand as well as a restricted street section results in a change in character. The street is reduced to two traffic lanes and Luas. The adjacent semi-detached housing help to establish a residential character.



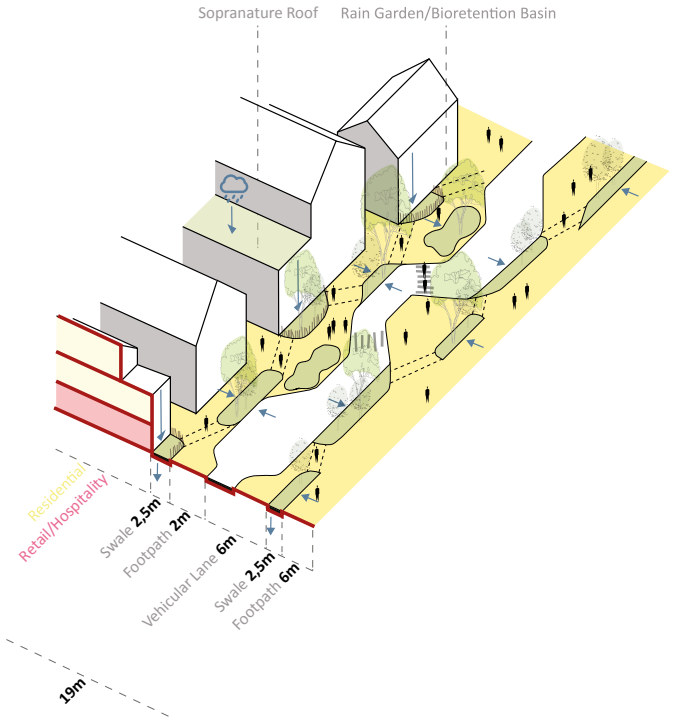
Arterial Street – Kylemore Road

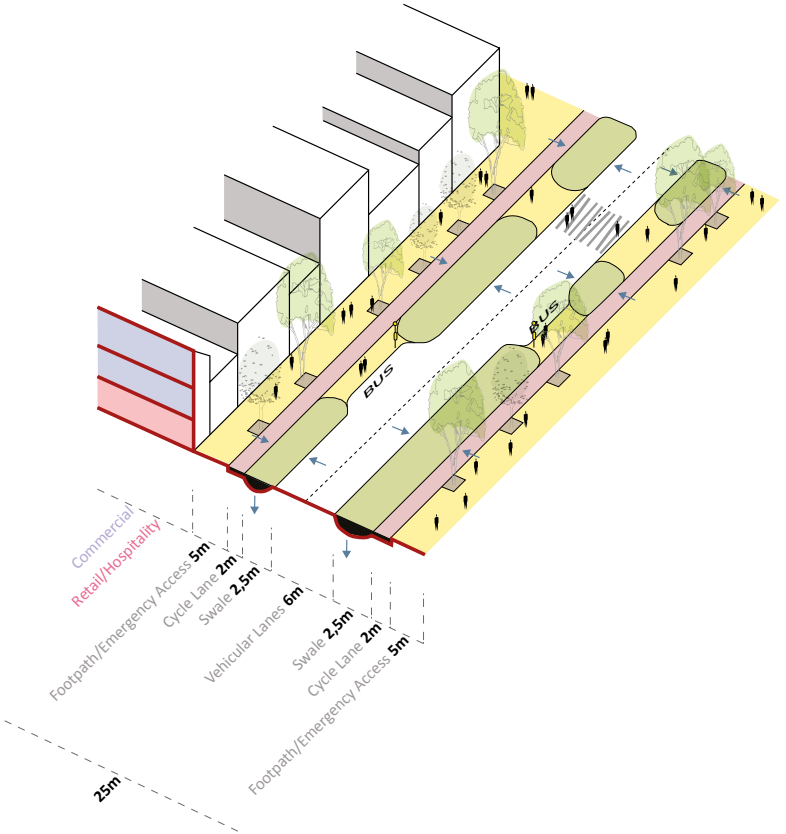
The Arterial streets, as defined in the DMURS are 'the major routes via which major centres / nodes are connected. They may also include orbital or cross metropolitan routes within larger cities and larger towns. Within City Edge these arterial routes will be the highest in the street hierarchy. These movement corridors will be a minimum of 55m in width, incorporating a light rail corridor, bus corridor (ie. BusConnects), cycle lanes, local access streets and pedestrian footpaths. Potential SuDS features; swales, and permeable pavements.



Major Link Street

Link Streets as defined in the DMURS are 'links to Arterial streets, or between Centres, Neighbourhoods,and / or Suburbs.' This has been further sub-divided this street typology into 'Major Link Streets' and Minor Link Streets'. The major link streets would be a minimum of 40m in width having the potential to incorporate two-way traffic movement, bus or light rail corridor, cycle lanes and a pedestrian footpath which can double as an emergency access to the adjacent buildings. Potential SuDS features include; swales, permeable pavements and bio-retention basins. Bio-retention basins doubling as usable public space.



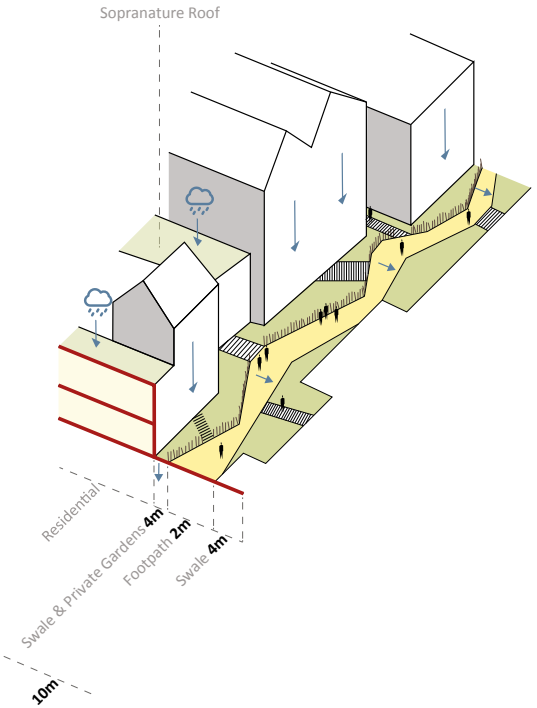


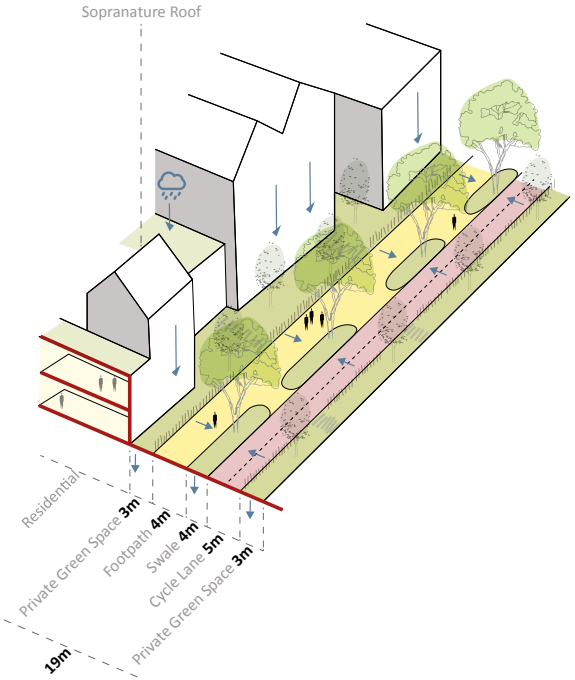
Local Street

The Local Streets, as defined in the DMURS are 'the streets that provide access within communities and to Arterial and Link streets. These typologies would be a minimum of 15m in width, incorporating traffic calming vehicular movement and pedestrian footpaths. The traffic calming vehicular movement will be achieved using chicanes which double as spaces for potential public use or SuDS infrastructure. Bicycle movement will be facilitated on these reduced speed streets. Potential SuDS features include swales, bioretention basins / rain gardens and sopranature roofs.

Minor Link Street

The minor link street typology would be a minimum of 25m in width, incorporating two-way traffic movement, cycle lanes and pedestrian footpaths / emergency access. Any potential bus routes would share the vehicular corridor, however, dedicated 'pull-in' spaces will be included at bus stops. Potential SuDS features include swales, permeable pavements, tree planting.





Pedestrian street

Pedestrian streets, as defined in the DMURS are fully segregated 'from motor vehicular movement (although emergency access is possible and limited access may also be provided for service vehicles). They are generally only appropriate in areas where higher levels of activity can be sustained throughout the day and into the evening. These pedestrian streets would be a minimum of 15m in width. Potential SuDS features on these pedestrian streets could be swales, sopranature roofs and permeable paving.

Greenway

The typology shown here is indicative; please see Chapter 9 (Natural Infrastructure) for specific green corridor sections

The greenway typology would be for pedestrian and cycle movement along designated corridors across City Edge. SuDS features which could be incorporated include swales, permeable pavements and sporanature roofs.

11.4 LAND USE

11.4.1 PRINCIPAL LAND USES

Principal land uses have been determined, which permeate across City Edge and help define character areas within each District that are described further below. The spatial distribution of land uses is indicative only and reflects the potential of each area.

Residential-Led Mixed-Use
Commercial ground floors focused around high streets and nodes, with residential or employment above. Employment buildings of a type suitable to sit within residential-led neighbourhoods. Predominantly residential buildings, with supporting community infrastructure.

Local High Street
Situated within residential-led mixed use locations, these areas are proposed to accommodate local high streets with a ground floor focus on commercial activities such as retailing and food and beverage

Mixed-Use Employment and Residential
High density employment such as offices. Residential mixed-use buildings, incorporating employment functions, and commercial ground floors. Residential mixed-use buildings, with supporting community infrastructure in parcels away from major routes and public transport.

High Street
Focus area for ground floor commercial activity such as retail and food and beverage.

Urban Industry
These areas can accommodate; lower density employment such as urban industry, industry, smaller workspace / office buildings.

Mixed-Use Urban Industry and Residential
These areas can accommodate; lower density employment such as urban industry, industry, smaller workspace / office buildings, in tandem with residential.

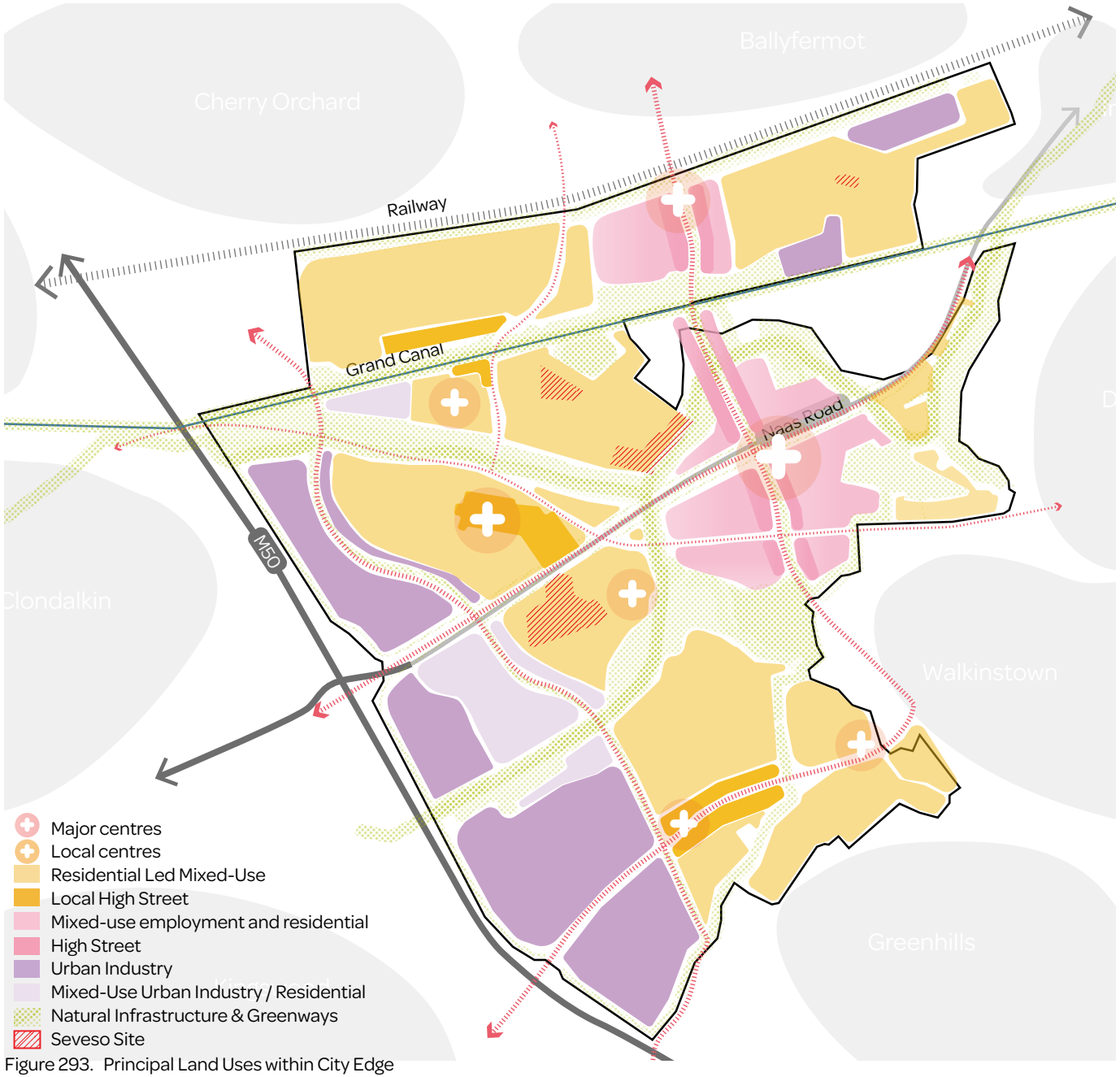


Figure 293. Principal Land Uses within City Edge

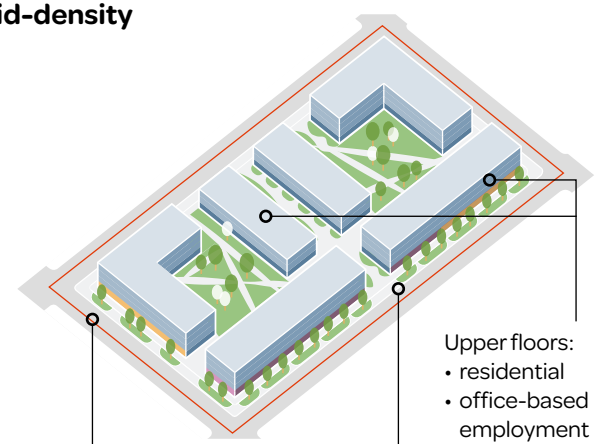
11.5 BLOCK TYPOLOGIES

11.5.1 COMPACT URBAN FORM

In order to inform the capacity testing of the framework, and to set out the appropriate characters across City Edge, a series of typologies to explain the variety and mix of uses has been created.

These reflect a compact urban form and a mix of uses in all cases. There is flexibility in use mix for each block, but also within each building, such as with mixed-use ground floors and plinths, with residential or employment uses above. The potential for varying degrees of density and intensity is outlined as well.

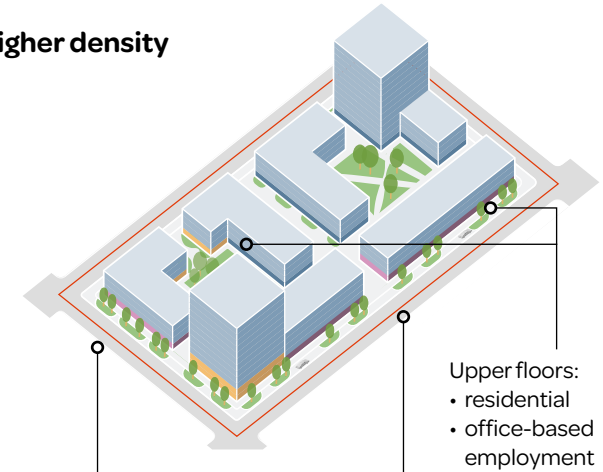
Mid-density



Mixed apartments and houses with integrated community infrastructure
Figure 294. Stadstuinen, Rotterdam

Residential above commercial and employment uses
Figure 295. The Scene, Walthamstow, London

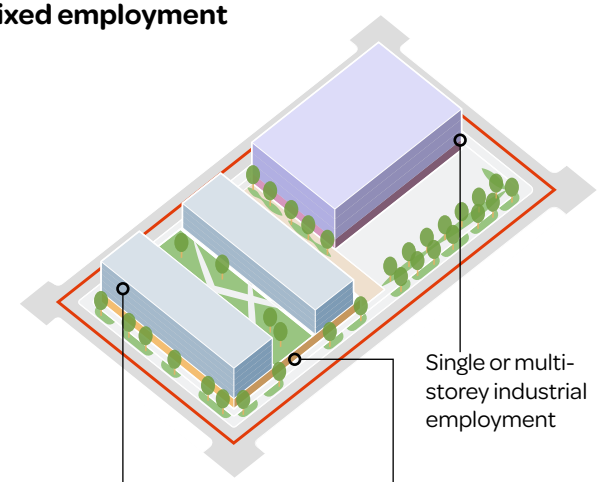
Higher density



Ground floor industrial, with residential above
Figure 296. Violet Road, Tower Hamlets, London

Office-based employment with supporting commercial uses
Figure 297. Potsdamer Platz, Berlin

Mixed employment



Office-based employment and larger scale industrial uses stacked around a courtyard
Figure 298. Repsol Campus, Madrid

Urban industry and stacked larger floorplate employment uses
Figure 299. Rozenburg, Rotterdam

11.6 DISTRICTS

City Edge has been divided into five districts. The scale of these districts presents the ability to deliver a self contained development outcome. Defining elements of the districts include; land use, centres & high streets, the movement network & natural infrastructure.

The Green Infrastructure throughout the framework area forms a character in its own right and is outlined in detail within Chapter 9 (Natural Infrastructure). This green infrastructure often becomes a defining element the edge to these districts.

Land Use

Centres & High Streets

Movement Network

Natural Infrastructure

Figure 300. Districts within City Edge

11.7 NAAS ROAD DISTRICT

11.7.1 INTRODUCTION

Due to its key locational advantages and existing development profile it will be the Primary Town Centre in City Edge. Within this district will be the proposed inner orbital transport corridor along the Kylemore high street. The re-naturalised River Camac will run through this district perpendicular to the Kylemore high street, breaking up the high street and giving it a unique character. This re-naturalised river park will follow the flood zone that exists within this district. The existing Naas Road LAP has been taken into consideration and influenced the Naas Road District. The extant planning permissions within the district have also been taken into consideration.

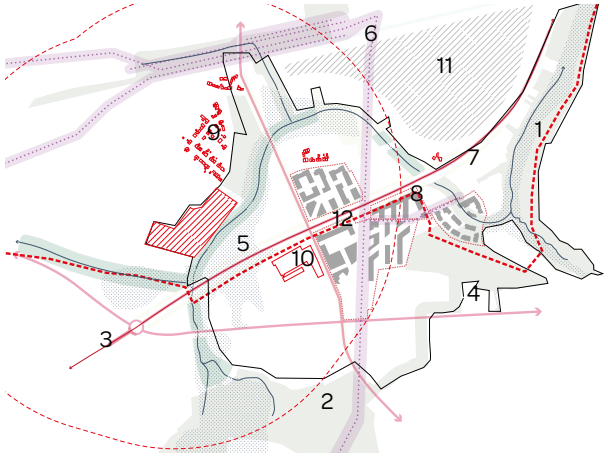


Figure 302. Naas Road District Challenges & Opportunities

Opportunities

1. Existing Landsdowne Valley Park
2. Existing Walkinstown Park
3. Luas Red Line & Stops along the Naas Road
4. Drimnagh Castle

Challenges

5. Camac Floodzone
6. HV Pylons
7. Naas Road (severance)
8. 9B Sewer
9. Integration of urban form with existing low-rise
10. Protected Structures
11. Interface with Bluebell Framework for Renewal
12. Extant Planning Permissions

Figure 301. Existing Naas Road District view south west

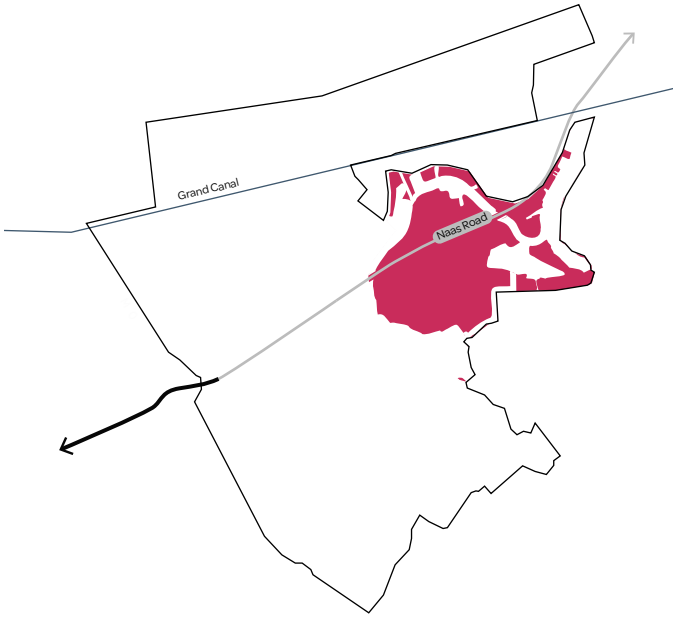


Figure 303. Naas Road District Location

Zone Z6: Employment / Enterprise
Zone Z9: Amenity / Open Space
Zone Z15: Community and Social Infrastructure

Figure 304. Naas Road District with Existing Development Zoning

11.7.2 NAAS ROAD DISTRICT - CHARACTER AREAS

Mixed-Use Major Centre

Within the Naas Road District there will be a mixed-use urban centre which will be the area within the Strategic Framework with the highest intensity in relation to retail, commercial activity and employment. The Character area will be defined by the Kylemore high street, running from the Naas Road to the Grand Canal in the North. Other Important elements with this character area include the inner orbital transport corridor as well as the re-purposing of the existing protected Mercedes building structure.

Residential Led Mixed-Use

There is a residential led mixed-use character area along the Naas Road. This character area is defined by an existing residential area. This residential area will be retained and any development should give careful consideration to this in relation to scale, physical linkages and mix of use.

Major & Community Parks

The existing Lansdowne Valley Park has been envisaged to include the lands to the south, creating a larger Major Park. This would be a long term objective in the context of existing sports grounds. The Bluebell Cemetery & Church Ruins have the potential to be part of the green network, connected to the River Camac Corridor.

Greenway & River Corridor

The River Camac Corridor will be opened / re-naturalised in various locations through this district. The river corridor will provide an opportunity for connectivity throughout City Edge as well as providing an important biodiversity corridor. The Tymon to Phoenix greenway will run through this District, connecting to the Walkinstown Eco Park.

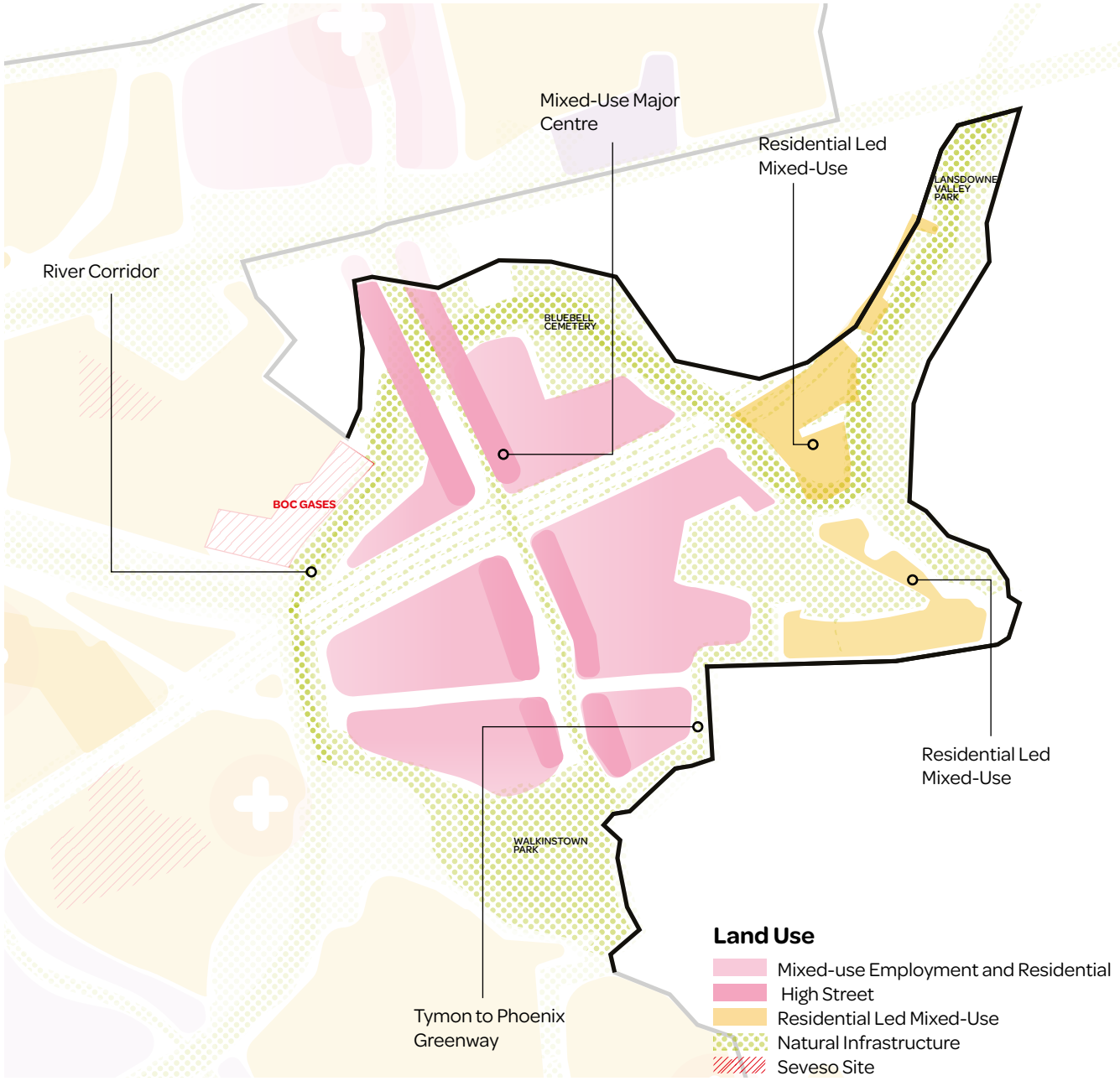


Figure 305. Character Areas within the Naas Road District

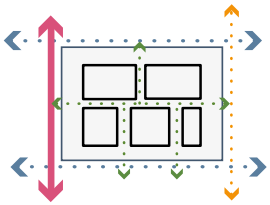
11.7.3 NAAS ROAD DISTRICT - SPATIAL LAYOUT

Principal Proposed Spatial Elements

1. Kylemore Road High Street
2. Renaturalizing / Opening of the River Camac
3. Inner Orbital Transport Corridor
4. Pedestrian Focused Re-purposing of Mercedes Building
5. Green Link along Gallanstown Stream
6. Tymon to Phoenix Greenway
7. Landsdowne Valley Flagshig Park
8. Green / Blue Corridor Crossing

Figure 306. Movement in the Naas Road District

Super Block Structure:
Within a proposed mixed-used 'super block', the structure would keep arterial and higher order roads on the periphery, leaving the inner roads to be car free with the exception of emergency access & servicing.



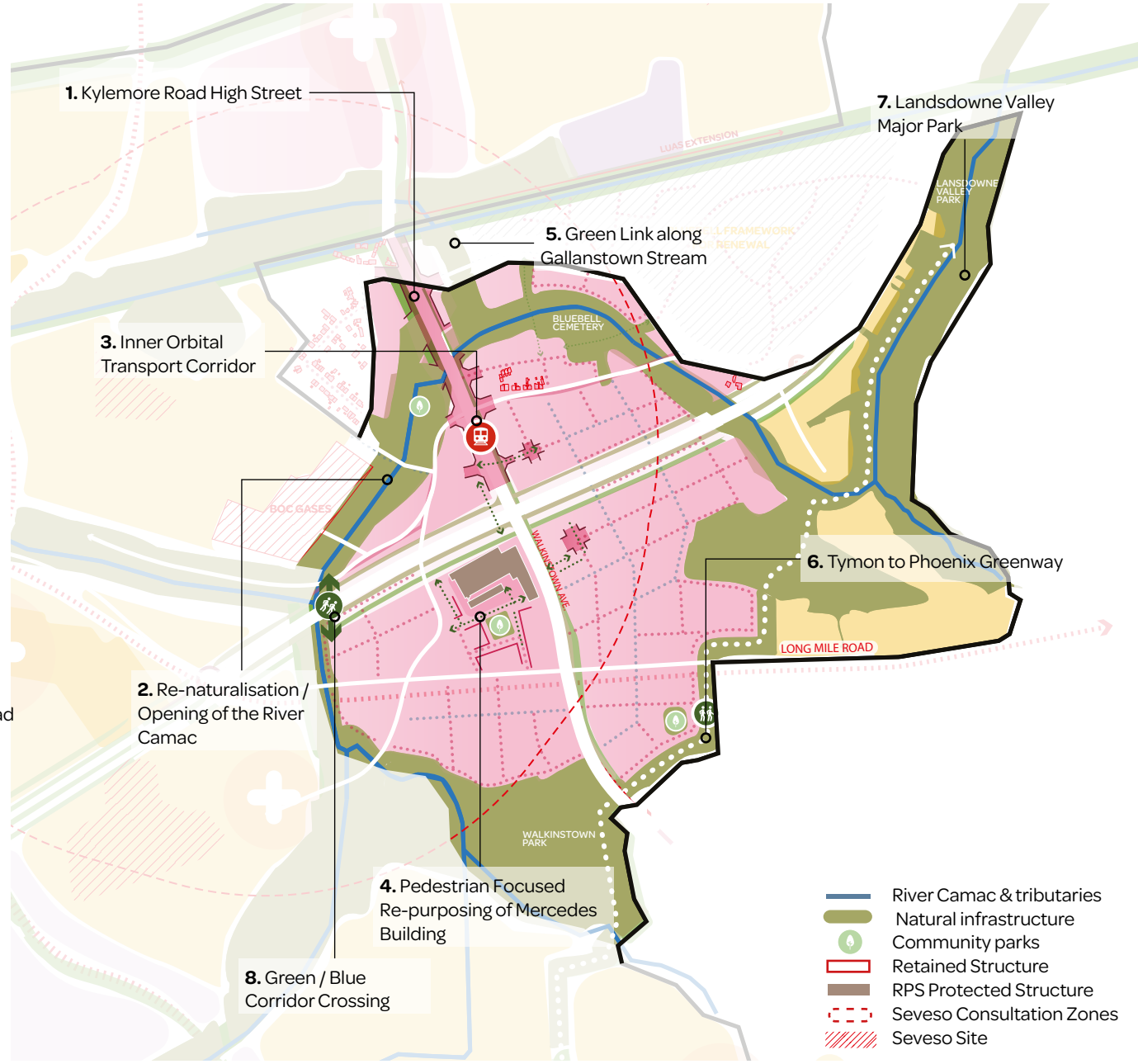


Figure 307. Indicative Spatial Diagram of the Naas Road District

Figure 308. Visualisation of new development at the junction of Naas Road and Walkinstown Avenue.

NAAS ROAD Potential Capacity	
Potential Population	**12,000-13,000 ca.**
Potential Jobs	**18,000-19,000ca.**

Area	
Gross Area (Ha)*	**83**
Developable Area (Ha)	**59.3**

Plot Ratio (FAR)	
Plot Ratio	**1.5 - 3**

Community infrastructure across the district	
Primary Schools**	**1429 ca.**
Post Primary Schools**	**932 ca.**
Primary Care Centre	**min 2**
Childcare Facility***	**min 76**
Community Centre	**2**
Community Parks	**3**

*Not Including major green infrastructure
**number of school places needed
*** 20 place facility

11.7.4 OBJECTIVES

1. To create a cohesive green infrastructure network based on the opening of the River Camac and its tributaries.
2. To encourage connections with the proposed river corridors and the Grand Canal, improving accessibility.
3. Minimum of three community level parks which are placed at suitable distances from each other.
4. Play and urban play should be integrated into any future masterplan
5. Creating a finer urban grain, making better connections north-south and east-west.
6. The block structure should reflect that of a 'super block' concept; with clusters of inner-minor streets which are partially closed to traffic.
7. To create a major high street along Kylemore Road with pedestrian and bicycle focused street hierarchy.
8. To re-purpose the protected Mercedes structure to fit and reflect the high density employment & workspace focused land use.
9. A mix of tenure types throughout the various districts.

11.7.5 FUTURE FORM / TOWNSCAPE

Mixed-Use Emplyment & Residential / High Street
The Kylemore Road will become an urban high street of a mixed use character with a strong and active ground floor presence. It will be a key placeshaping piece for the overall district as well as the wider city. It needs to be carefully designed in order that it works in the short and medium term while older uses exist on the site coupled with newer uses and its phasing in regards to building height, uses, transport needs and building lines need to be carefully considered and a balanced approach found. A strong active building frontage line is envisioned for this street and it should be landscaped with mature vegetation to break down its scale. The street design should move the visual hierarchy away from the car via planted strips and separations between bicycles, pedestrians and cars noting its necessity as a major street. This is to encourage vibrant pedestrian activity along the upgraded high street while accommodating wider city movements for private users and public transport. The River Camac offers a natural green break in the high street as it moves into the neighbouring Kylemore District.

The undergrounding of the overhead high voltage lines along this area has the opportunity to create better overall urban structures. Many of the extant permissions in this area have qualities to them but equally they were developed on the premise of the existing infrastructure. Many of these proposals could be phased to allow for developments now, for instance, the Royal Liver site and the south eastern junction of the Naas Road / Kylemore Road. The undergrounding of the overhead high voltage lines will prove advantageous to both developers and the community in terms of allowing for a better urban structure to the balance of the lands.

A pedestrian connection is proposed around the intersection of the Naas Road, Kylemore Road & Walkinstown Avenue. The re-purposing of the Mercedes structure and associated site forms part of this pedestrian connection.

The inner orbital transport corridor is a key piece of public realm infrastructure which is proposed to run through this character area, along Kylemore Road. This orbital transport corridor will have a stop inside this character area, north of the intersection with the Naas Road. The transport corridor and relevant stop should be designed in collaboration with the future Kylemore Road high street.

This pedestrian connection will link key urban spaces, squares and boulevards. Careful consideration must be given to the link through the protected Mercedes structure and this link must be maintained for public access 24 / 7.

Residential Led Mixed-Use Area
Currently this area is primarily low density residential housing. This housing along the Naas Road is to be retained in any future master plan. There is also an area of commercial land use to the south of this character area. This commercial land will be renovated over time in accordance with any future master plan.

Major & Community Parks
The Landsdowne Valley Park will be expanded and integrated into the River Camac Corridor network, creating one of the Major Parks. This park forms the eastern edge of this character area. All future master plans should be cognisant of the location of this park and provide relevant connections.

At least 3 community parks should exist in this area. Their size, location and phasing need to be carefully assessed in any future masterplan bearing in mind the fragmented nature of this overall area as it exists today. Smaller Play spaces should be located throughout the development and within development plots that are publicly accessible. For this Particular character area the Bluebell cemetery / Bluebell Church Ruins will have the opportunity to be integrated into the green network.

Greenway & River Corridor
A green pedestrian connection will be made along the Gallanstown stream, connecting the River Camac Corridor with the Grand Canal Linear Park to the north.

The opening of the River Camac Corridor is a key piece of natural infrastructure in this character area. This green corridor moves through the northern end of this character area, breaking the scale of the Kylemore high street.

The Tymon to Phoenix Greenway will form the eastern edge of this District, allowing active travel link through this character. All future master plans should be cognisant of the location of this greenway and provide relevant connections. Route selection to be determined by a future master plan team.

11.8 KYLEMORE DISTRICT

11.8.1 INTRODUCTION

Located north of the Grand Canal and incorporating the CIE lands. This district will link with and share an economic synergy with the Naas Road Centre adjoining to the south, presenting the future opportunity to create a large scale commercially-focused mixed-use location.

The connectivity and sustainable movement of people who will live, visit and work in this district can be maximised by the proposed Kylemore rail interchange (north) and the proposed Luas Line F. The proposed Western Inner Orbital public transport corridor is also envisaged along the main high street / commercial intensity, running north-south through the district along Kylemore Road.

Significant lands will be transferred from CIE, the OPW and ESB to the LDA for the purposes of affordable and social housing regeneration. This represents a significant opportunity for the Kylemore District.

The LDA, in collaboration with the City Edge partners, will be progressing a masterplanning exercise in accordance with the principles of the Strategic Framework and guided by national, regional and local planning policy. This area represents a potential pilot project for the Kylemore District and the wider City Edge.

Figure 309. Kylemore District Existing Photograph

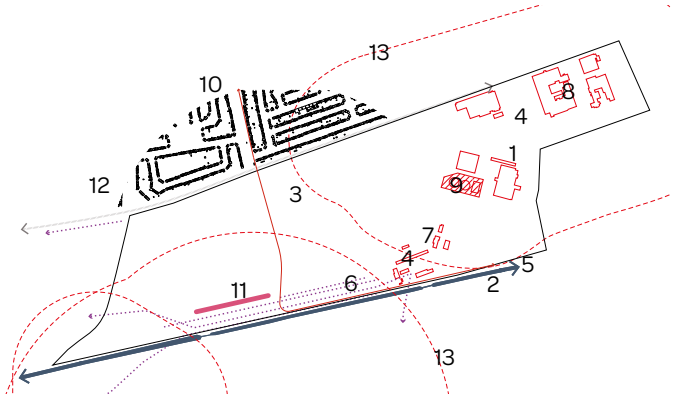


Figure 310. Kylemore District Challenges & Opportunities

Opportunities

1. Existing CIE Infrastructure
2. Grand Canal (amenity)
3. Luas Line F
4. State Owned Land

Challenges

5. Grand Canal (severance)
6. HV Pylons
7. ESB Inchicore Substation
8. Existing CIE Infrastructure (NIAH listed structures)
9. Iarnroad Eireann Seveso Site
10. Integration of urban form with existing low-rise Ballyfermot built environment
11. Existing Low Density Housing (Labre Park)
12. Railway Line (severance)
13. HSA Consultation Zones

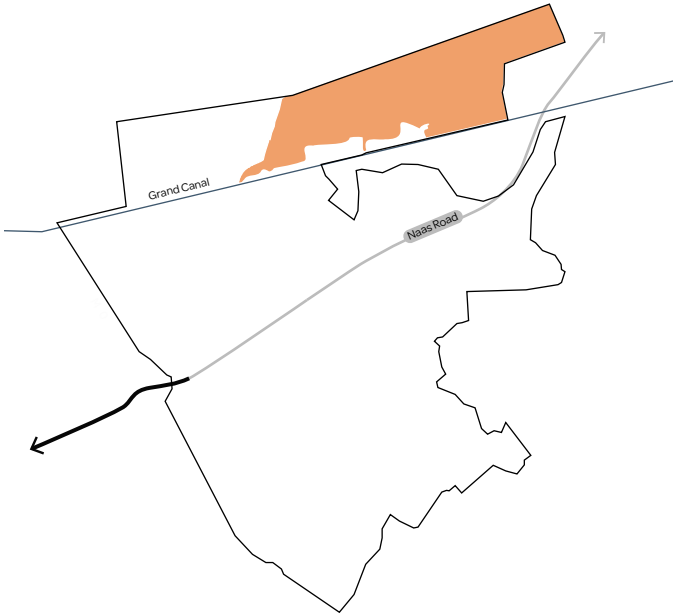
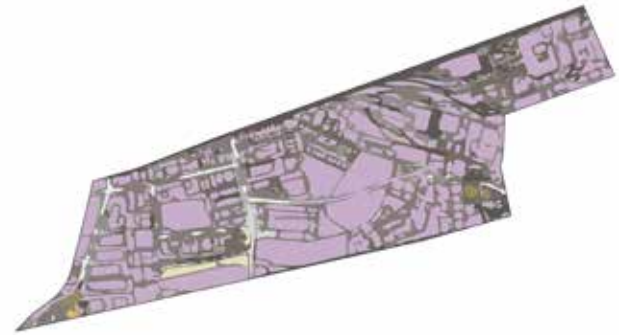


Figure 311. Kylemore District Location



Zone z6: Employment / Enterprise

Figure 312. Kylemore District with current Development Zoning

11.8.2 KYLEMORE DISTRICT CHARACTER AREAS

Mixed-Use Employment & Residential
A mixed-use employment and residential area. Running through the middle of this character area will be the Kylemore High Street. Defined by the Railway line to the north and the Grand Canal Linear Park to the south, with the rail interchange and the inner orbital transport corridor defining the intensity of development within this district.

Residential Led Mixed-Use
The outer areas of the Kylemore District will be residential led mixed use areas. These residential led character areas will be defined by the Grand Canal to the south and the railway line to the north. These residential mixed-use areas will be within walking distance to the Kylemore Rail Interchange as well as the Kylemore high street.

CIE Railworks
Delivering residential led mixed-uses will be subject to further refinement / discussion with LDA and Irish Rail. Many existing communities border this area and careful consideration must be given to adjacent growth, scale and physical linkages of this area in consideration of those communities.

Residential Led Mixed-Use Area on CIE / OPW Lands
The CIE Railworks lands, have a greater level of flexibility in terms of incremental evolution from its current function. Buildings of architectural heritage value exist and have the potential for repurposing. Uses within this area will be subject to further refinement / discussion with LDA.

Grand Canal Linear Park
A linear park is proposed along the northern edge of the Grand Canal. It will act as a Major Park for this district as well as City Edge as a whole.

ESB Site
The ESB Site at Inchicore will be subject to ongoing review in terms of its long term potential.

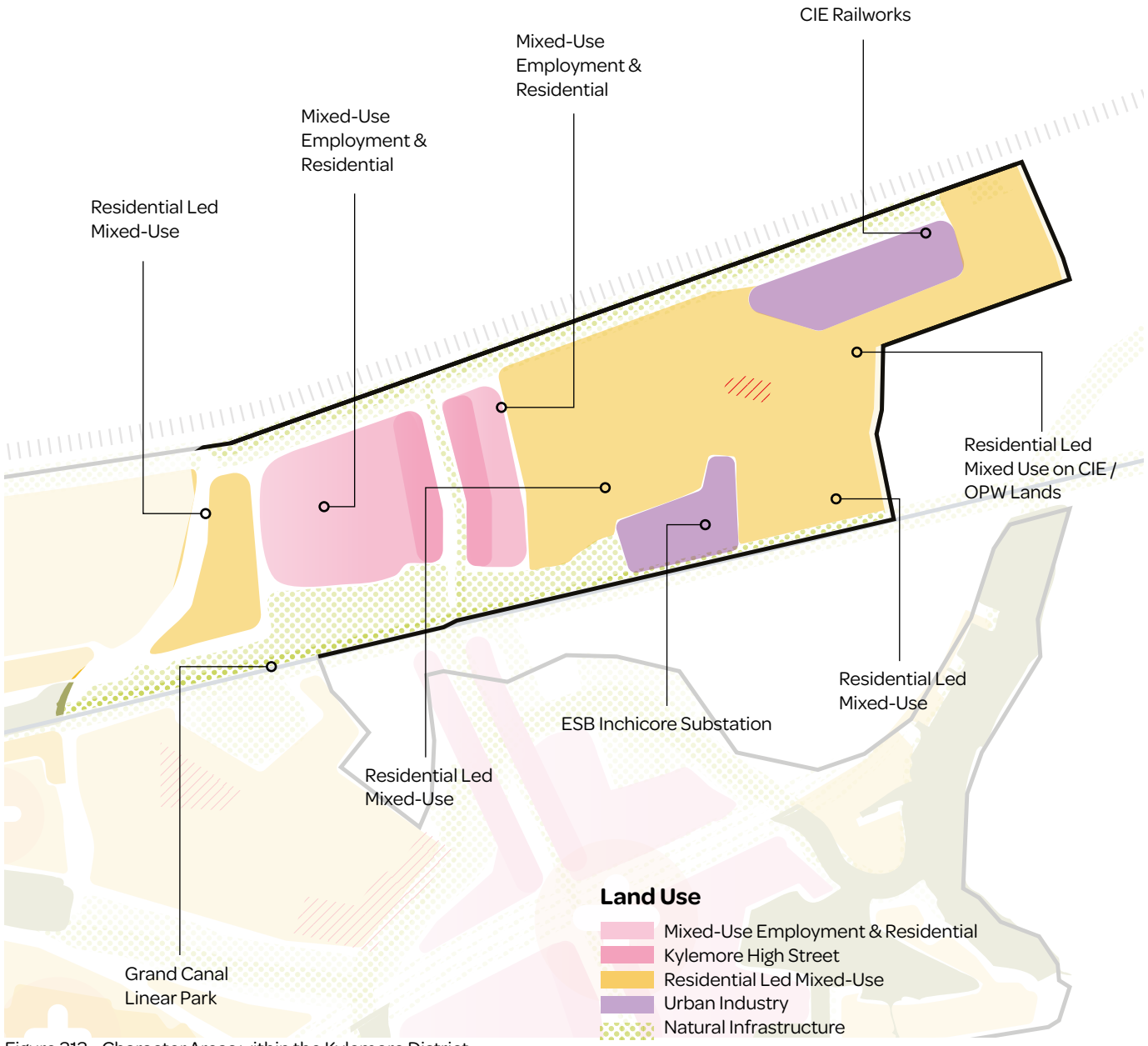


Figure 313. Character Areas within the Kylemore District

11.8.3 KYLEMORE DISTRICT - SPATIAL LAYOUT

Principal Proposed Spatial Elements

1. Kylemore Rail Interchange with Public Plaza
2. Linear Park along the Grand Canal
3. High street along Kylemore Road & Inner Orbital Transport Corridor
4. Residential Led Mixed-Use Area on CIE / OPW Lands
5. Luas Lucan Extension
6. ESB Inchicore Substation

Figure 314. Movement in the Kylemore District

Super Block Structure:
Within a proposed mixed-used 'super block', the structure would keep arterial and higher order roads on the periphery, leaving the inner roads to be car free with the exception of emergency access & servicing.

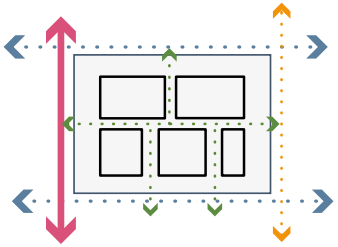


Figure 315. Indicative Spatial Diagram of the Kylemore District

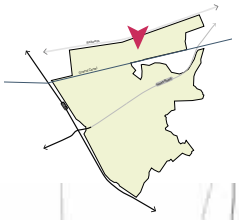


Figure 316. Visualisation of Kylemore District high street along Kylemore Road

KYLEMORE Potential Capacity	
Potential Population	**12500-13500 ca.**
Potential Jobs	**15500-16500 ca.**

Area	
Gross Area (Ha)*	**90**
Developable Area (Ha)	**63.5**

Plot Ratio (FAR)	
Plot Ratio	**1.5 - 3**

Community infrastructure across the district	
Primary Schools**	**1512 ca.**
Post Primary Schools**	**986 ca.**
Primary Care Centre	**min 2**
Childcare Facility ***	**min 80**
Community Centre	**2**
Community Parks	**3**

*Not Including major green infrastructure
**number of school places needed
*** 20 place facility

11.8.4 OBJECTIVES

1. Careful consideration shall be given to respecting the architectural and industrial heritage of the area and how future development can integrate with and utilise heritage buildings and features.
2. Creating a finer urban grain, creating better connections north-south and east-west.
3. To encourage connections with the proposed river corridors and the Grand Canal, improving accessibility.
4. Where appropriate, the block structure should reflect that of a 'super block' concept; with clusters of inner-minor streets which are partially closed to traffic.
5. Minimum of three community level parks which are placed at suitable distances from each other.
6. A mix of tenure and dwelling types throughout the district.
7. Create a strong high street character along the Kylemore Road.
8. Facilitate future delivery of the luas F line and the new heavy rail station with associated urban square and transport interchange
9. A major urban square of ca.0.2 Hectares in or around the high street / transport interchange location - subject to a future masterplan.
10. Encourage the intensification of the state owned land at inchicore.
11. Promote the development of the canal park which forms the eastern portion of the wider Grand Canal Linear Park.
12. Play spaces and urban play should be integrated into any future masterplan
13. The LDA, in collaboration with the City Edge partners, will be progressing a masterplanning exercise in accordance with the principles of the Strategic Framework and guided by national, regional and local planning policy. This area represents a potential pilot project for the Kylemore District and wider City Edge project.

11.8.5 FUTURE FORM / TOWNSCAPE

Mixed-Use Employment & Residential / High Street
Kylemore Road is to be upgraded to an urban high street of a mixed use character with a strong and active ground floor presence. It will be a key placeshaping piece for the overall district as well as the wider city. It needs to be carefully designed in order that it works in the short and medium term while current uses exist on the site coupled with newer uses and its phasing in regards to building height, uses, transport needs and building lines need to be carefully considered and a balanced approach found. A strong active building frontage line is envisioned for this street and it should be landscaped with mature vegetation to break down its scale along with an intensity of height and uses along it. The street design should move the visual hierarchy away from the car via planted strips and separations between bicycles, pedestrians and cars noting its necessity as a major street. This is to encourage vibrant pedestrian activity along the upgraded high street while accommodating wider city movements for private users and public transport.

The Kylemore transport interchange is a key piece of public realm within this area and needs to be carefully designed. Its design needs to be cognisant of the limitations of the active CIE rail lines. It should act as a key placeshaping piece in the overall area and be surrounded by high quality buildings. The Rail station should ensure integration with the existing community to the north while being integrated into a high density development in order to have a coherent piece of urban grain with a strong and vibrant on street presence. It should be connected, but not necessarily directly adjacent to the 0.2ha public space. This will be one of the key urban markers for people in the area and should have a high-quality architectural response to reflect that.

A Major Urban Square of at least 0.2 Ha is size should be located adjacent to the Kylemore Road High Street and the Transport Interchange. The Square should enable

a series of uses (Markets, events, daily interactions). It should be an active and vibrant square surrounded at ground floor by active ground floor uses. The buildings that surround the square should be designed in their height in order that they do not unduly overshadow the square.

Nightlife and cultural uses are essential at ground floor and should be integrated into any proposed design of the public plaza. The nightlife and cultural uses should function at all times of the day and include amenities such as public toilets and play facilities.

Residential Led Mixed-Use Area

Within the proposed character area many different uses exist currently and while multiple buildings and land plots will be renovated over the lifetime of this plan, some will need to be retained such as the existing residential communities to the west of the district along Killeen Road. Labre Park also needs a coordinated response from the Local Authority in order to regenerate the area while looking after its residents long term needs.

For a high quality neighbourhood it is important that it has a mixed-use character and tenure of uses and dwelling types. It is important any large scale developments that come forward are not of a mono use to be able to achieve the overall quantums of commercial and employment needed and as such developments within the district need to possess a mixed use character.

Within these areas at least 4 community parks should exist. Their size, location and phasing need to be carefully assessed in any future masterplan bearing in mind the fragmented nature of this overall area as it exists today. Smaller Play spaces should be located throughout the development and within development plots that are publicly accessible. Other uses such as community buildings, schools, creches, public spaces, should be incorporated and their locations concentrated around public spaces such as the major urban square, community parks and the Grand Canal Linear Park.

CIE Railworks

Delivering residential Led Mixed-Uses on CIE Railworks lands will be subject to further refinement / discussion with LDA and Irish Rail as to the best overall land to retain and the best land to redevelop over a medium to long term in order that a coherent urban structure and grain will remain at all times. The use of state owned lands could be a pathfinder site, demonstrating how regeneration across City Edge could come forward.

Residential Led Mixed-Use Are on CIE / OPW Lands

Many buildings exist which are of a high architectural quality in terms of their industrial heritage - e.g. Michael Scott's CIE Buildings. One of the key objectives of the area is to maintain and repurpose buildings and structures of an industrial character. It is also important that neighbouring buildings balance the need for contemporary Architectural solutions but also respect for the buildings that exist there. A Conservation Assessment should form part of any future masterplan for this area or any building forming part of a planning application.

Strong Linkage to Inchicore village is needed here to take advantage of this site's proximity to existing communities and services but also to better integrate those communities with the services, employment and functions this new area will offer. Pending more detailed analysis, there are potentially two major opportunities for linkages, one along Jamestown road which could act as the primary connection and the second along Inchicore parade.

Careful consideration must be given to the existing community along Inchicore Parade and it's current use as a residential led area of a quiet character, coupled with it's architectural heritage. It's lack of direct linkages would lend Inchicore Parade to becoming a pedestrian & cycle focused link to Inchicore.

Grand Canal Linear Park

The Linear Park activating the Grand Canal has the potential to be a vibrant public space as well as an important biodiversity corridor. These two objectives need to be carefully intertwined in the design of the park. The connections and activity along the northern edge of the park is critical to give it activity and vitality. While not imagined as an active high street it should have uses which complement the park such as recreational uses, public uses (e.g. Schools) and food and beverage uses. Upper floors should be of a sufficient scale to passively overview the park both at day and night.

The interface of this development zone and the canal edge needs to be carefully considered in order that it becomes an active and safe piece of public space. Buildings fronting the canal should have some public uses but may also be residential and commercial uses.

ESB Site

This site is adjacent to the canal and will likely be retained in the medium term but is currently being reviewed by the LDA in consultation with stakeholders having been identified for transfer to the LDA for affordable housing led regeneration in 'Housing for All' (2021). Its edges and the built form which surround it must be carefully considered in order to make an integrated master plan approach to it as a critical piece of infrastructure.

Figure 317. Kylemore District - Rail Interchange & Public Plaza

11.9 RED COW DISTRICT

11.9.1 INTRODUCTION

The Red Cow District is located in the western part of the City Edge, including the northern part of the existing Ballymount Industrial Estate as well as the industrial estate around Oak Road. The M50 forms it's western edge while the Naas Road runs through it in an east-west direction.

This District will be a mixed use area within the City Edge.

Figure 319. Red Cow District Challenges & Opportunities

Opportunities

1. Existing Street Layout
2. Existing Luas
3. Grand Canal Greenway
4. BusConnects Route 8

Challenges

5. Camac Flood Zone
6. Irish Distillers (seveso site)
7. M50 Motorway (severance)
8. Naas Road crossing (severance)
9. Integration of urban form with existing low-rise environment of Clondalkin.
10. HV Pylons
11. Hamburger Junction - over-scaled severance
12. EE Zoning Objective
13. HSA Consultation Zones

Figure 318. Red Cow District Existing Photograph

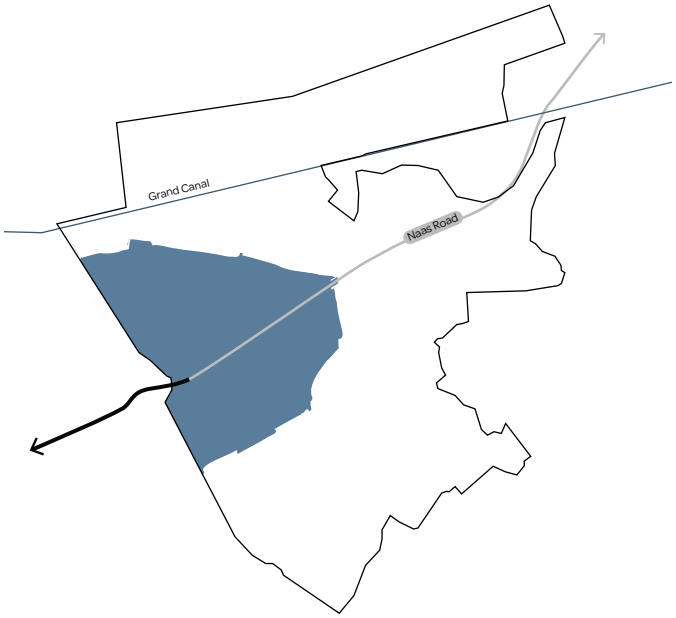
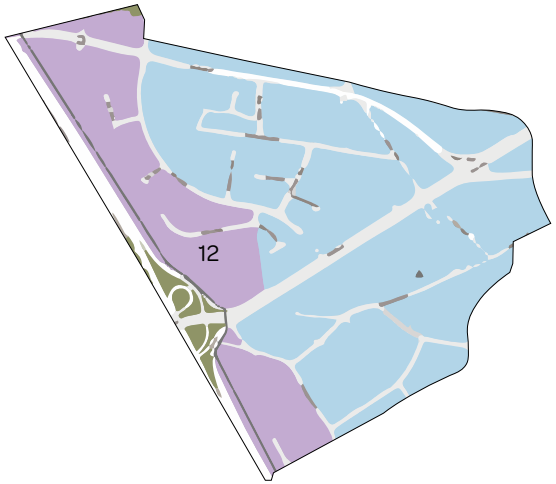


Figure 320. Red Cow District Location



Objective EE: Employment / Enterprise
Objective REGEN: Regeneration Lands
Objective OS:To Preserve and Provide for Open Space and Recreational Amenities

Figure 321. Red Cow District with Existing Development Zoning

11.9.2 RED COW DISTRICT CHARACTER AREAS

Mixed-Use Employment & Residential / High Street
The mixed-use employment & residential area will be located around the new proposed luas stop along the Naas Road. It will include a high street, beginning at the luas stop running along Knockmitten Lane.

Residential Led Mixed-Use
The residential led mixed-use character areas will be on both sides of the Naad Road. The western orbital corridor will run along the west of these character areas, providing active travel and transport potential through the district in a north-south direction. There will be an urban industry area along their western edge, providing a buffer from the M50 Motoryway.

Urban Industry
The existing industrial area to the west of the Red Cow District will be retained actng as a buffer along the M50 Motorway.

Mixed-Use Urban Industry / Residential
A mixed-use urban industry character area with the potential for residential development will be located south of the Naas Road.

Grand Canal Linear Park
The Major Park in this District will be located along the southern edge of the Grand Canal, extending eastwards along the Grand Canal Greenway. It is located in a significant flood zone of the River Camac.

River Corridor
The River Camac will be re-naturalised along the northern portion of the Red Cow District. The river corridor will connect the Major Park with the re-naturalised river network throughout the entire City Edge.

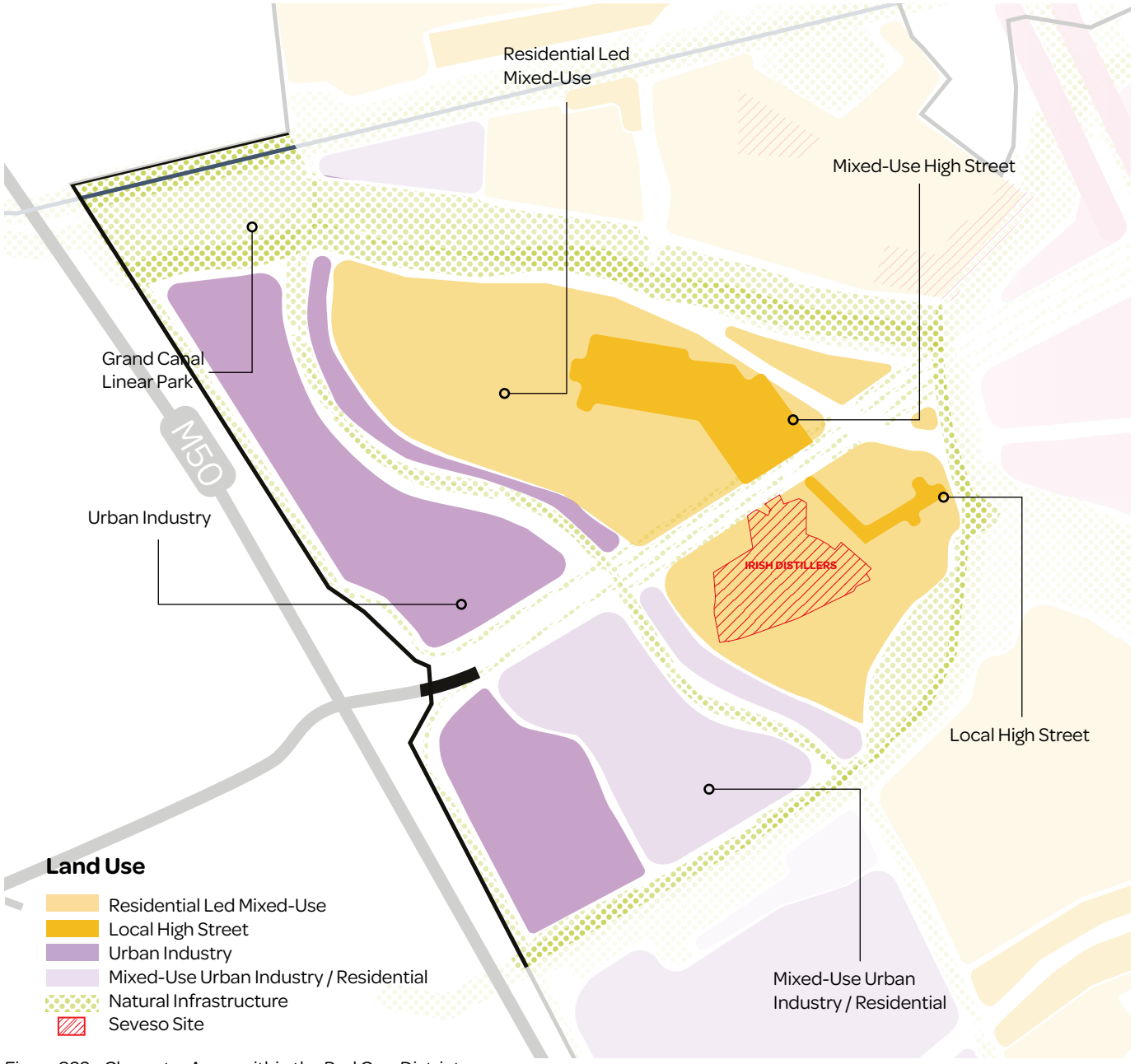


Figure 322. Character Areas within the Red Cow District

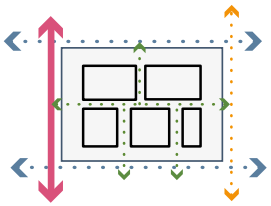
11.9.3 RED COW DISTRICT SPATIAL LAYOUT

Principal Proposed Spatial Elements

1. Additional Luas Stop
2. Knockmitten Lane High Street & Public Space
3. Local Centre / Node
4. Outer Orbital Transport Corridor & Luas Interchange (Location for grade separated multi-mode crossing)
5. Grand Canal Linear Park
6. Grade separated vehicles crossing at hamburger junction, see Chapter 8 (Movement) for details

Figure 323. Movement in the Red Cow District

Super Block Structure:
Within a proposed mixed-used 'super block', the structure would keep arterial and higher order roads on the periphery, leaving the inner roads to be car free with the exception of emergency access & servicing.



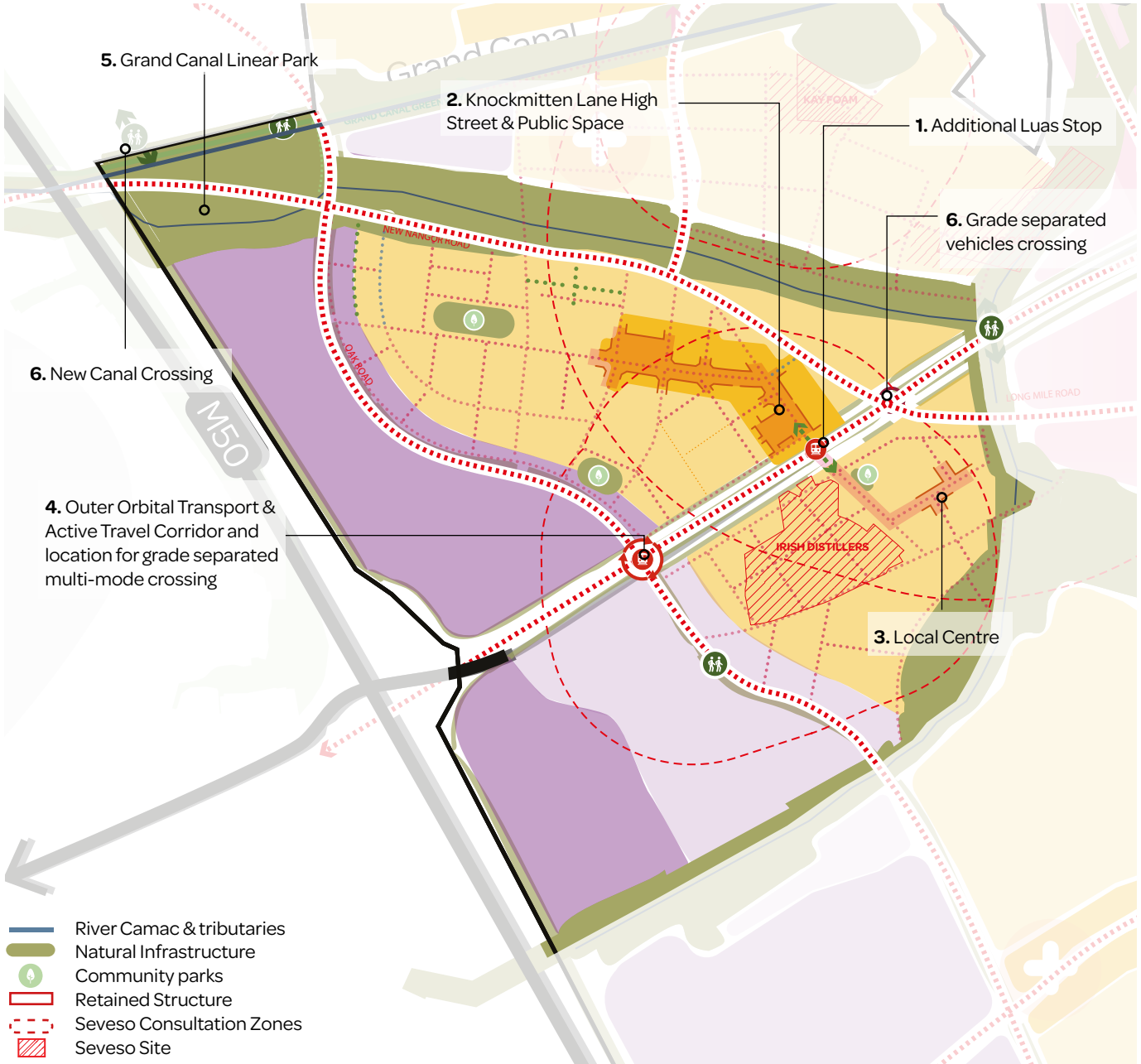


Figure 324. Indicative Spatial Diagram of the Red Cow District

Figure 325. Visualisation of new Luas stop along the Naas Road and the adjacent development.

RED COW Potential Capacity	
Potential Population	**15,500-16,500 ca.**
Potential Jobs	**14,500-15,500 ca.**

Area	
Gross Area (Ha)*	**155**
Developable Area (Ha)	**116.3**

Plot Ratio (FAR)	
Plot Ratio	**1.5 - 2.2**

Community infrastructure across the district	
Primary Schools**	**1820 ca.**
Post Primary Schools**	**1187 ca.**
Primary Care Centre	**min 3**
Childcare Spaces***	**min 98**
Community Centre	**2**
Community Parks	**3**

*Not Including major green infrastructure
**number of school places needed
*** 20 place facility

11.9.4 OBJECTIVES

1. To reduce the risk created by the River Camac flood zone by the use of sponge city principles within developments as well as the creation of a Major Park, encapsulating the flood zone.
2. To improve accessibility and encourage connections with the proposed river corridor.
3. Minimum of three community level parks which are placed at suitable distances from each other.
4. To enhance existing pedestrian movement across the Naas Road severance at the location of the new Knockmitten high street and the proposed Luas stop.
5. To improve transport and active travel movement across the Naas Road severance, along the outer orbital corridor.
6. Creating a finer urban grain, making better connections north-south and east-west.
7. The block structure should reflect that of a 'super block' concept; with clusters of inner-minor streets which are closed to traffic.
8. Optimise the district's location on the national road network in rleation to future urban industrial land uses.
9. Support the provision of a new pedestrian bridge across the Grand Canal in the location of the former Gallanstown waterworks.
10. Align with and integrate with the objectives of the Park West-Cherry Orchard LAP.

11.9.5 FUTURE FORM / TOWNSCAPE

Mixed-Use Employment & Residential / High Street
This character area will be dependent on the new luas stop proposed along the Naas Road. This new luas stop will act as a catalyst for the development of this character area. An upgrade of the crossing at this new luas stop will improve north-south movement across the Naas Road, connecting communities on either side of the severance.

North of this luas stop will be a south facing public plaza of no less than 0.2 Ha. This public space will be set back from the Naas Road.

Beginning at the luas stop will be a retail / commercial high street, along Knockmitten Lane. This high street will be the most intense area within the district and its land use reflects that. The high street will have a retail and commercial ground floor with mixed-use employment and residential also present.

Set back from the Knockmitten Lane high street, this character area will maintain its mixed-use employment and residential focus however its ground floor retail and commercial offering will be less intense. The focus of the retail and commercial intensity culminates at the aforementioned high street.

Residential Led Mixed-Use
The residential led mixed-use character areas will be on both sides of the Naad Road, in lands currently occupied by urban industry.

The outer orbital transport corridor is a key piece of public realm infrastructure which is proposed to run along the western edge of this character area, on Oak Road.

Naas Road will act as both a movement corridor as well as an active travel corridor. It's development will be crucial for the development of the Red Cow District.

The existing road layout will be used and enhanced within this character area in order to create a finer urban grain to improve movement.

For a high quality neighbourhood it is important that it has a mixed use character and mix of tenure and dwelling typologies. It is important any large scale developments that come forward are not of a mono use to be able to achieve the overall quantum of commercial and employment needed and as such developments towards the eastern side of this district need to possess a mixed use character.

Within these areas At least 3 community parks should exist. Their size, location and phasing need to be carefully assessed in any future masterplan bearing in mind the fragmented nature of this overall area as it exists today. Smaller Play spaces should be located throughout the development and within development plots that are publicly accessible. Other uses such as community buildings, schools, creches, public spaces, should be incorporated and their locations concentrated around public spaces.

Urban Industry
The existing urban industrial area to the west of the Red Cow District will be retained. This will act as a buffer along the M50 Motorway.

Throughout incremental change over time the opportunity of intensifying this urban industry will present itself. This character area is located on the national road network lending itself to certain types of urban industry e.g. logistics / distribution.

Mixed-Use Urban Industry / Residential
The mixed-use urban industry character area with the potential for residential will act as an intermediate character area between the urban industry and the mixed-use residential led area.

This character area, through the development of residential alongside industry, will provide opportunities for a residential-industrial block typology.

Grand Canal Linear Park
The Major Park within the Red Cow District will be located within the River Camac flood zone.

This Major Park has been proposed as a land art & sculpture park. The location of the park is convenient in terms of connectivity with the Grand Canal Greenway immediately to the north, as well as the new proposed bridge connection over the canal at the former Gallanstown Waterworks.

This park will extend eastwards on either side of the Grand Canal through the Cherry Orchard and Kylemore Districts as part of a greenway / blueway upgrade to a linear park

The Major Park will also be part of the overall River Camac network.

The park will be based around landform and art and its integration into landscapes. A park that connects the canalside, riverside and motorway landscape corridors providing a visually enticing portal into the wider site. An attraction based on providing key destination art and an educational, recreational landscape of high artistic merit inspired by nature and for all to enjoy.

River Corridor
The River Camac will be re-naturalised along the northern edge of this district.

The corridor will provide pedestrian movement across the district. A natural informal and meandering retention and water distribution zone providing a character of a wet dry tributary which also forms an important part of the wildlife and circulation network.

There will be a single legible riparian identity between the Camac and its tributaries. A blue artery bringing life and environmental well-being within the Red Cow District and across City Edge.

Well-coordinated riparian trees, semi formal avenues, strategically placed wet woodlands clusters and the like all have the potential to highlight and celebrated the water courses. They will not only make the river more visible but also provide habitat connection, carbon sequestration, and improved air and water quality.

11.10 CHERRY ORCHARD

11.10.1 INTRODUCTION

The Cherry Orchard District is located in the north western part of the City Edge, including the existing Park West Industrial Estate as well as the John F. Kennedy Industrial estate. Also included within the Cherry Orchard District is the Grand Canal and the Grand Canal Greenway from the 8th lock until Killeen Road.

This district will be a mixed use area with a residential focus.

Figure 327. Cherry Orchard District Challenges & Opportunities

Opportunities

1. Existing Street Layout
2. Park West Railway Station
3. Grand Canal Greenway
4. River Camac (open channel)
5. Link to Cherry Orchard LAP
6. BusConnects Route 8

Challenges

7. Grand Canal (severance)
8. Camac Flood Zone
9. HV Pylons
10. Existing EE Industrial Area
11. Railway Line as a severance
12. M50 Motorway (severance)
13. Integration of urban form with the nearby existing low-rise Cherry Orchard built environment
14. Kay Foam Seveso site
15. BOC Gases Seveso site
16. HSA Consultation Zones

Figure 326. Cherry Orchard District Existing Photograph

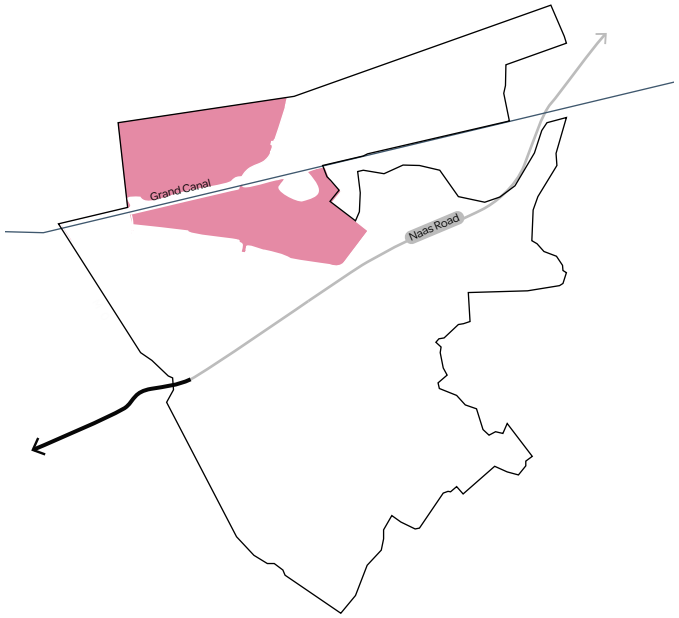


Figure 328. Cherry Orchard District Location

Figure 329. Cherry Orchard District with Existing Development Zoning

11.10.2 CHERRY ORCHARD CHARACTER AREAS

Cherry Orchard Local High Street
Within the Cherry Orchard District the mixed-use employment & residential character area will be located along the Grand Canal on its northern and southern edge, west of Killeen Road. This character area will include a high street along the canal edge.

Residential Led Mixed-Use
The residential led mixed-use character area will represent the majority of area within this district. It will be residential focused but will have workspace included throughout. The residential areas will be integrated with the Park West Cherry Orchard LAP.

Urban Industry
Part of the existing industrial area along the Grand Canal will be retained as a site of industry.

Grand Canal Greenway
The existing Grand Canal Greenway will be a key infrastructural element of the Cherry Orchard District. It will act as an active travel corridor connecting west Dublin with the city centre.

River Corridor
The River Camac Corridor will be re-naturalised along the southern portion of the Cherry Orchard District. The corridor will connect the district with the re-naturalised river network throughout City Edge.

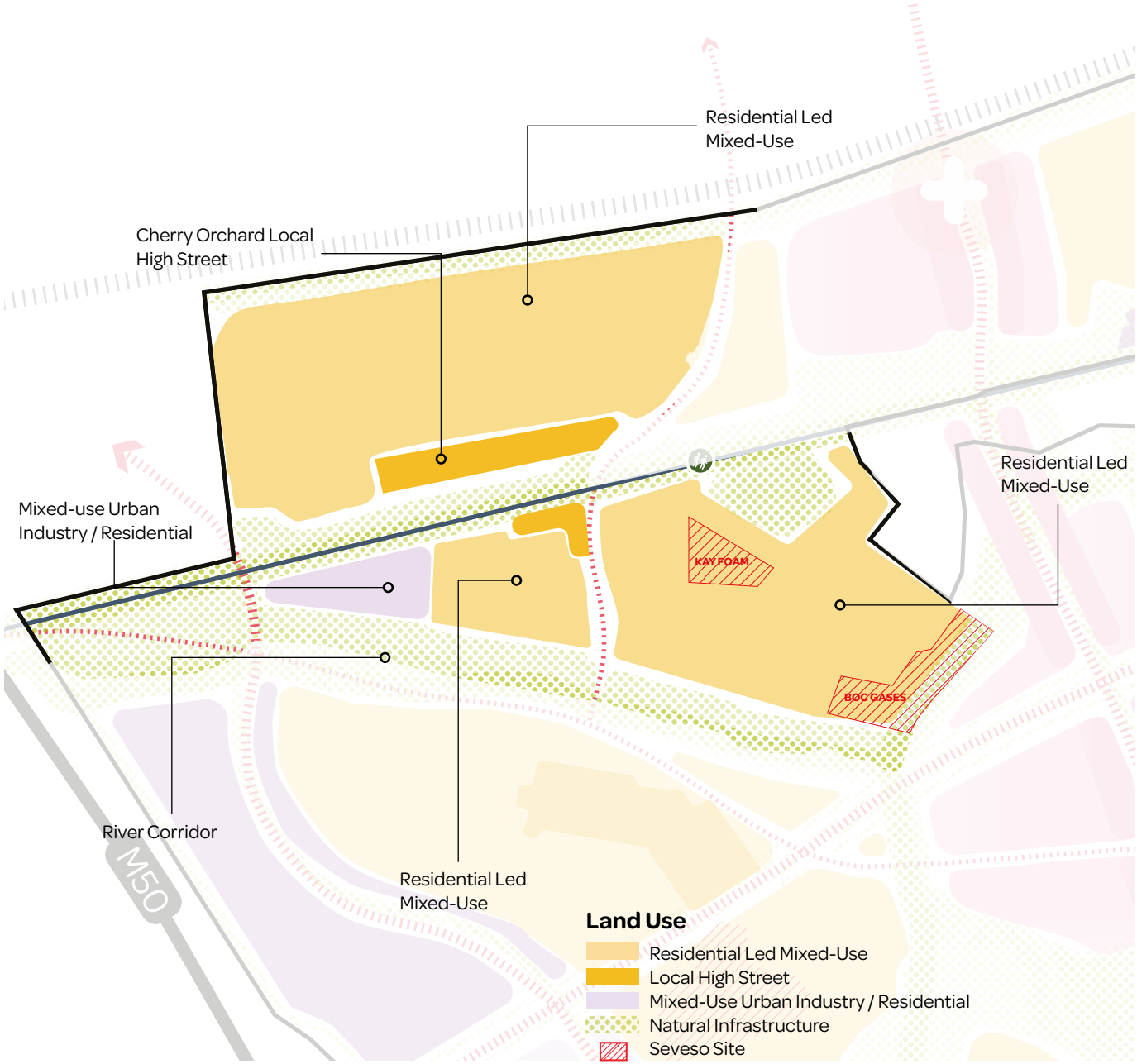


Figure 330. Character Areas within the Cherry Orchard District

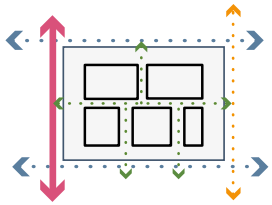
11.10.3 CHERRY ORCHARD - SPATIAL LAYOUT

Principal Proposed Spatial Elements

1. Grand Canal High Street
2. Grand Canal Greenway
3. Re-Naturalised River Camac Corridor
4. Upgraded Pedestrian Railway Crossing
5. New Canal Crossing (Pedestrian)
6. New Canal Crossing (Pedestrian & Active Travel

Figure 331. Movement in the Cherry Orchard District

Super Block Structure:
Within a proposed mixed-used 'super block', the structure would keep arterial and higher order roads on the periphery, leaving the inner roads to be car free with the exception of emergency access & servicing.



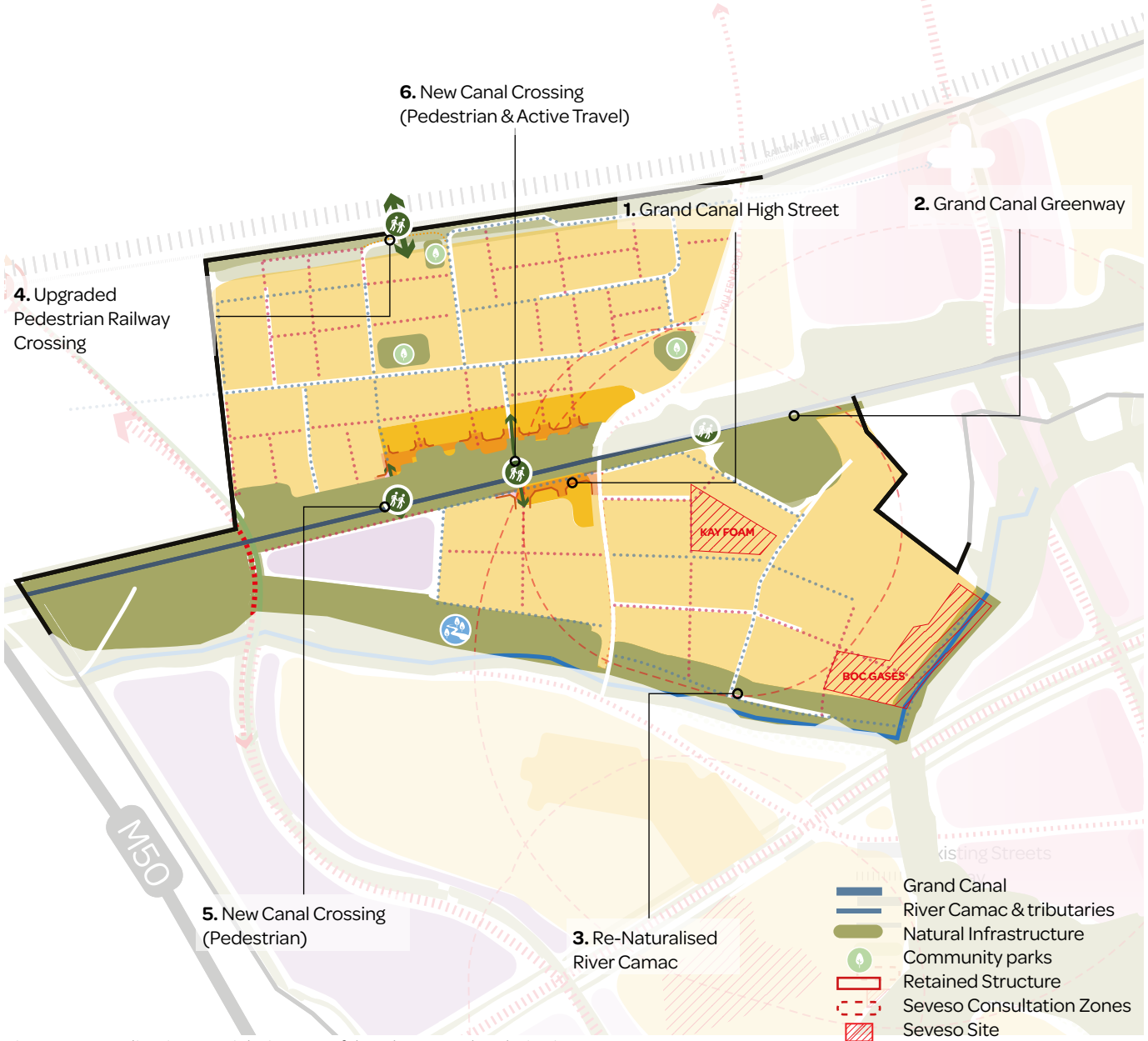


Figure 332. Indicative Spatial Diagram of the Cherry Orchard District

Figure 333. Visualisation of new local high street envisaged along the Grand Canal.

CHERRY ORCHARD Potential Capacity	
Potential Population	**17,000-18,000 ca.**
Potential Jobs	**10,000-11,000 ca.**

Area	
Gross Area (Ha)*	**94**
Developable Area (Ha)	**90.4**

Plot Ratio (FAR)	
Plot Ratio	**1.1 - 2**

Community infrastructure across the district	
Primary Schools**	**2016 ca.**
Post Primary Schools**	**1315 ca.**
Primary Care Centre	**min 3**
Childcare Spaces***	**min 107**
Community Centre	**2**
Community Parks	**3**

*Not Including major green infrastructure
**number of school places needed
*** 20 place facility

11.10.4 OBJECTIVES

1. To improve movement across the Grand Canal with the creation of new bridge crossings within the local high street.
2. To reduce the risk of floods with the use of sponge city principles within developments.
3. To create a park with amenity space along the Grand Canal and the Grand Canal Greenway.
4. To underground overhead high voltage lines throughout this district to allow for the full potential of development.
5. Improve connections with the existing Park West Railway Station and the existing Cherry Orchard community.
6. To improve connection across the railway line by upgrading the existing pedestrian crossing.
7. Creating a finer urban grain in order to create better connections north-south and east-west.
8. The block structure should reflect that of a 'super block' concept; with clusters of inner-minor streets which are closed to traffic.
9. To create a high street activity along the Grand Canal with pedestrian and bicycle focused street hierarchy.
10. To achieve a mix of tenure types within the district.
11. To retain some of the existing industrial areas and intensify them where possible.
12. Align with and integrate with the objectives of the Park West Cherry Orchard LAP.

11.10.5 FUTURE FORM / TOWNSCAPE

Cherry Orchard Local High Street
The area along the Grand Canal within the Cherry Orchard District will become an urban high street of a mixed use character with a strong and active ground floor presence. A strong active building frontage line is envisioned along the canal, with a direct relationship with the water. This direct relationship will be provided through public space along the high street.

This canal high street will act as a point of reference as you travel along the Grand Canal Greenway. Varied height within future developments will be crucial for the visual interest.

Set back from the canal high street, this character area will maintain its mixed-use employment and residential focus however its ground floor retail and commercial activity will be less intense.

Residential Led Mixed-Use
Within the proposed character area a mix of industrial and commercial use exists.

The existing commercial and industrial areas will change and be repurposed over time in order to represent the shift in land use focus.

The existing road layout will be used and enhanced within this character area in order to create a finer urban grain to improve movement. New bridge connections will be made across the Grand Canal at the location of the proposed local high street. This will allow new populations to access important infrastructural elements such as the Grand Canal Greenway as well as the Park West transport hub.

For a high quality neighbourhood it is important that it has a mixed use character and tenure of uses. It is important any large scale developments that come forward are not of a mono use to be able to achieve the overall quantum

of commercial and employment needed and as such developments towards the eastern side of this district need to possess a mixed use character.

Within these areas At least 3 community parks should exist. Their size, location and phasing need to be carefully assessed in any future masterplan bearing in mind the fragmented nature of this overall area as it exists today. Smaller Play spaces should be located throughout the development and within development plots that are publicly accessible. Other uses such as community buildings, schools, creches, public spaces, should be incorporated and their locations concentrated around public spaces.

Urban Industry
The existing urban industry area, currently occupied by Diageo, will retain its land use focus. The movement along the Grand Canal, north of this urban-industry character area will be retained as part of the Grand Canal Greenway.

The River Camac runs through the southern part of this character area. This river corridor will be re-naturalised in this area, meaning part of the current industrial area will become a linear river corridor.

Grand Canal Greenway
The existing Grand Canal Greenway will be a key infrastructural element of the Cherry Orchard District. It will act as an active travel corridor connecting west Dublin with the city centre.

The greenway will also take advantage of the proposed 20km and 40km canal loops, connecting the Grand Canal and the Royal Canal.

A series of new bridges will cross the Grand Canal along the new high street, increasing north-south permeability back to Cherry Orchard. This will link the Grand Canal Greenway with the Cherry Orchard LAP lands to the north.

The existing canal greenway will be extended in parts to create a dedicated park along the northern edge of the Grand Canal within this district.

The new bridges across the canal at this location as well as increased activity will result in a safer linear space.

River Corridor
The River Camac will be re-naturalised along the southern edge of this district.

The corridor will provide pedestrian movement across the district. A natural informal and meandering retention and water distribution zone providing a character of a wet dry tributary which also forms an important part of the wildlife and circulation network.

There will be a single legible riparian identity between the River Camac and its tributaries. A blue artery bringing life and environmental well-being within the Red Cow District and across City Edge.

Well-coordinated riparian trees, semi formal avenues, strategically placed wet woodlands clusters and the like all have the potential to highlight and celebrated the water courses. They will not only make the river more visible but also provide habitat connection, carbon sequestration, and improved air and water quality.

11.11 GREENHILLS DISTRICT

11.11.1 INTRODUCTION

The Greenhills District is situated to the south west corner of City Edge with the M50 road along its western edge. This district will retain it's industrial character on it's western side while also delivering a local centre / high street area that will share a synergy with Walkinstown to the east.

The Greenhills District Incorporates the Walkinstown Eco Park to the north as well as the Tymon to Phoenix Greenway along the Greenhills Road. The existing Tymon park to the south of the district is also an important amenity.

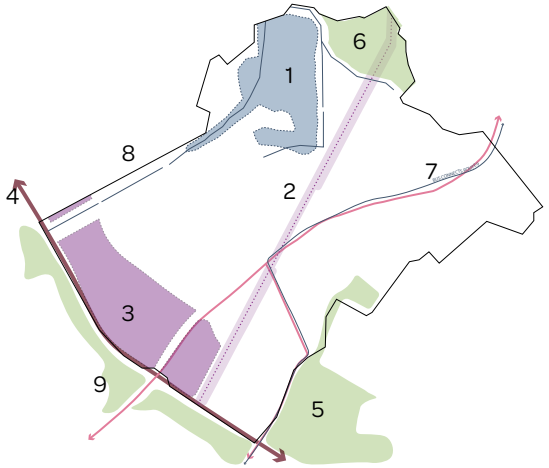


Figure 335. Greenhills District Challenges & Opportunities

Challenges

1. Camac Floodzone
2. HV Pylons
3. Existing EE Industrial Zoning
4. M50 Motorway (severance)

Opportunities

5. Existing Tymon Park
6. Existing Walkinstown Park
7. Proposed BusConnects Route
8. Culverted River Camac
9. Existing Ballymount Park

Figure 334. Greenhills District Existing Photograph

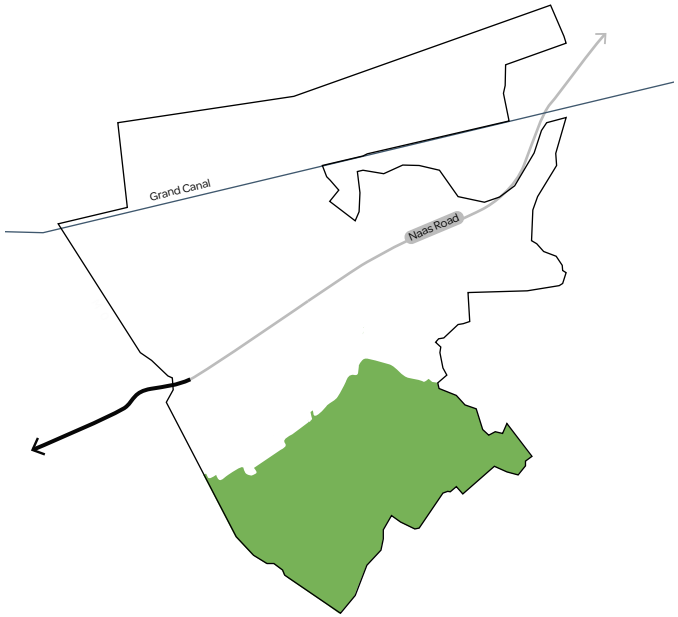


Figure 336. Greenhills District Location

Figure 337. Greenhills District with Existing Development Zoning

11.11.2 GREENHILLS DISTRICT CHARACTER AREAS

Mixed-Use Employment & Residential / Local High Street

Within the Greenhills District, the western end of Calmount Road as well as a new local centre at the confluence of Calmount Road & Greenhills Road will be mixed use employment with residential. Calmount road will have a high street intensity with the proposed BusConnects route running along it. This is route also the potential route of the Tallaght to Kimmage Luas as identified in the draft GDA transport strategy. A retail / commercial centre is proposed for Walkinstown at the confluence of Calmount Road and Greenhills Road.

Residential Led Mixed-Use

The areas north and south of Calmount Road will be characterised by a residential focus with mixed-use elements within. Smaller retail and commercial nodes / centres will be necessary within these areas.

Urban Industry

To the west of the Greenhills District the industrial area will remain as urban industry, providing a buffer along the M50 motorway with employment uses added to the area.

Mixed-Use Urban Industry / Residential

The area south of the re-naturalised River Camac will be a mixed-use urban industry led area with potential for residential.

Walkinstown Eco Park

The existing Walkinstown Park will be extended west, aligning with flood zones, to form an extensive Eco Park.

Greenway & River Corridor

The Tymon to Phoenix Greenway will begin at the south of the Greenhills District, allowing active travel through the district. The River Camac will be re-naturalised, allowing a natural infrastructure corridor running east-west from Ballymount Park to the proposed Eco Park.

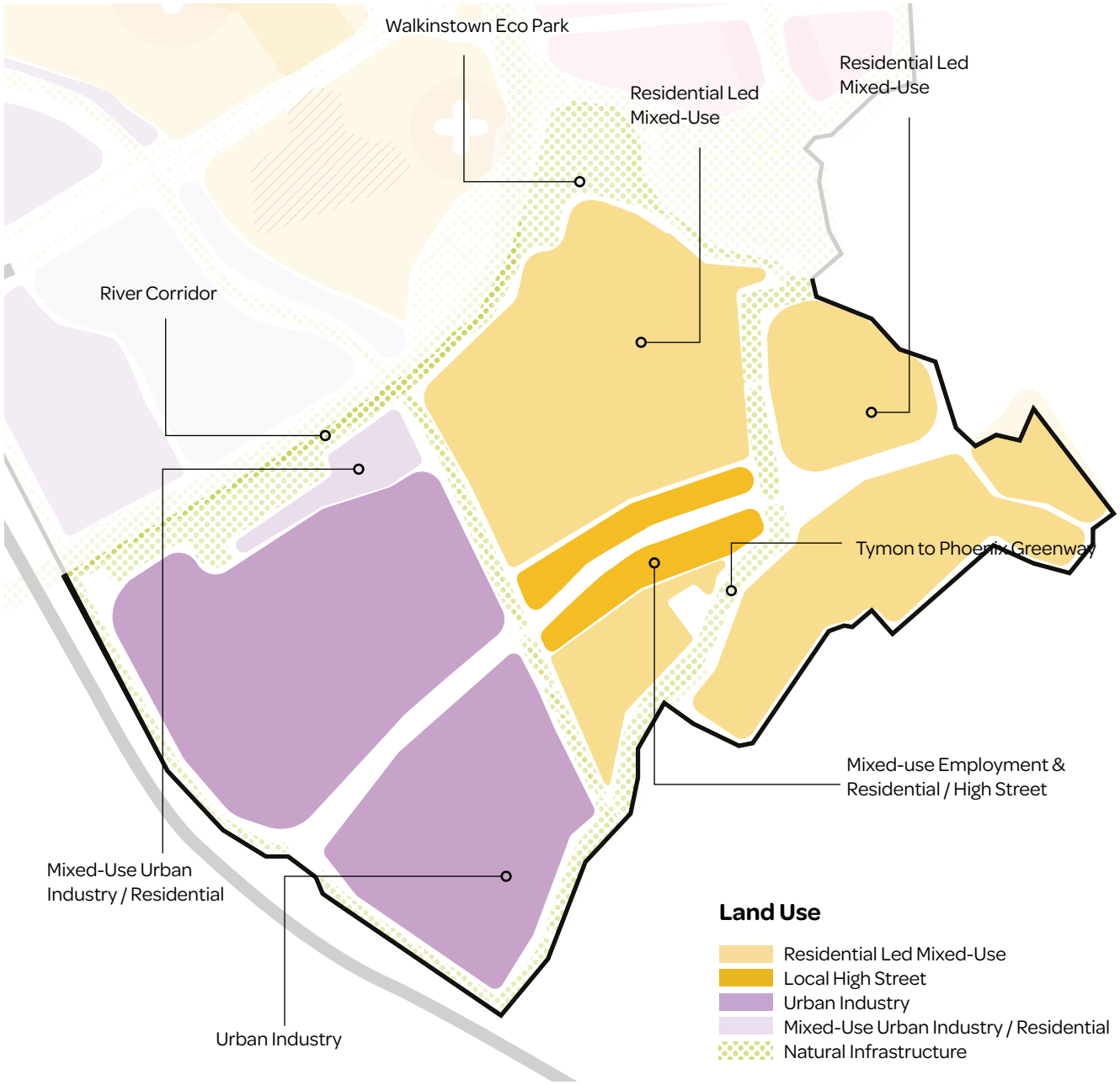


Figure 338. Character Areas within the Greenhills District

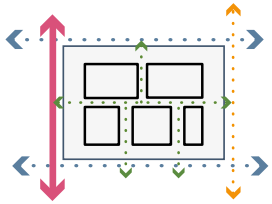
11.11.3 GREENHILLS DISTRICT SPATIAL LAYOUT

Principal Proposed Spatial Elements

1. Tymon to Phoenix Greenway
2. Calmount Road High Street
3. Outer Orbital Transport Hub
4. Walkinstown Local Centre / Node
5. Pedestrian & Cycle Crossing of M50
6. Outer Orbital Corridor
7. Walkinstown Eco Park
8. River Camac Corridor
9. Luas Lucan Extension

Figure 339. Movement in the Greenhills District

Super Block Structure:
Within a proposed mixed-used 'super block', the structure would keep arterial and higher order roads on the periphery, leaving the inner roads to be car free with the exception of emergency access & servicing.



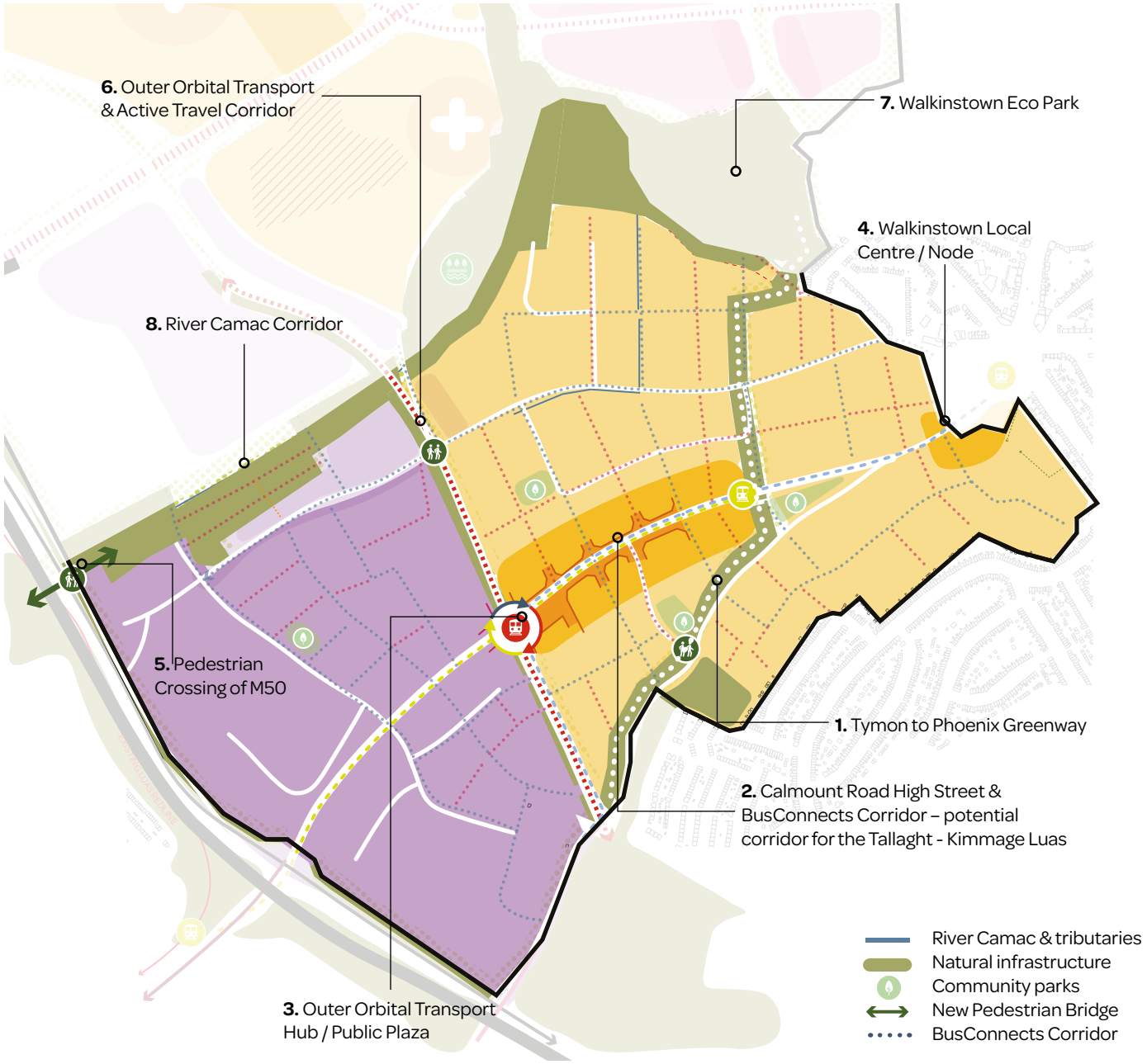


Figure 340. Indicative Spatial Diagram of the Greenhills District

Figure 341. Visualisation of Calmount Road local high street.

GREENHILLS Potential Capacity	
Potential Population	**17,500-18,500ca.**
Potential Jobs	**12,500-13,500 ca.**

Area	
Gross Area (Ha)*	**167**
Developable Area (Ha)	**122.5**

Plot Ratio (FAR)	
Plot Ratio	**1.5 - 2.2**

Community infrastructure across the district	
Primary Schools**	**2056 ca.**
Post Primary Schools**	**1341 ca.**
Primary Care Centre	**min 3**
Childcare Facility***	**min 115**
Community Centre	**2**
Community Parks	**4**

*Not Including major green infrastructure
**number of school places needed
*** 20 place facility

11.11.4 OBJECTIVES

1. To maintain existing industrial land use in the western edge of the Greenhills District, acting as a buffer between the M50 and the Residential Led Mixed-Use areas.
2. Creating a finer urban grain, making better connections north-south and east-west.
3. Where suitable, the block structure should reflect that of a 'super block' concept; with clusters of inner-minor streets which are partially closed to traffic.
4. To encourage connections with the proposed river corridors and along the proposed Tymon to Phoenix greenway, improving accessibility.
5. To encourage the new Luas line with associated stops to run on Calmount Road.
6. To encourage the development of a new local centre and associated high street along Calmount Road.
7. A major urban square of ca.0.2 Hectares in or around the intersection of Ballymount Avenue and Calmount Rd. - subject to a future masterplan.
8. To create a connection between the existing Ballymount Park, east of the M50, and the proposed blue and green infrastructure corridors.
9. Minimum of four community level parks which are placed at suitable distances from each other.
10. A mix of tenure and dwelling types throughout the various districts.
11. Upgrade Calmount Road into a pedestrian friendly, SuDS orientated 'Green High Street'.
12. Play and urban play should be integrated into any future masterplan.

11.11.5 FUTURE FORM / TOWNSCAPE

Mixed-Use Employment & Residential / Local High Street

The mixed-use employment & residential with high street will be defined on the west by the Calmount high street. Calmount Road is to be upgraded to a mixed-use high street with a SuDS orientated focus, meaning sufficient width must be allocated for swales / green retention basins / rain gardens / tree planting etc. The design of the high street will be in conjunction with that of the BusConnects Corridor planned for Calmount Road with the potential for this to transition to Tallaght to Kimmage Luas Post 2042 as per Draft GDA Transport Strategy. The Calmount Road high street will include segregated cycle lanes in both directions as well as a footpath / emergency access adjacent to the building frontages. A strong active building frontage line is envisioned for this street and it should be landscaped with mature vegetation to break down its scale.

At the confluence of Calmount Road and Greenhills Road, west of the Walkinstown roundabout, a new commercial / retail centre has been proposed. The BusConnects route will run through this centre, providing intensity. The centre itself will be accessible via pedestrian links from Walkinstown Avenue. This new centre will service the existing communities of Walkinstown and Greenhills as well as new communities in and around Calmount Road.

Residential Led Mixed-Use Area

Currently the existing land use in this character area is primarily industrial and retail. The existing plots will be renovated over time to reflect a shift to a residential focus in this character area.

At least 4 community parks should exist in this area. Their size, location and phasing need to be carefully assessed in any future masterplan bearing in mind the fragmented nature of this overall area as it exists today. One site to take into consideration is the triangular plot at the con-

fluence of Greenhills Road and Calmount Road, which has been highlighted in the BusConnects proposal as a site for a green space. Smaller Play spaces should be located throughout the development and within development plots that are publicly accessible. Buildings should respond positively to parks and not overshadow them.

Other uses such as community buildings, schools, creches, public spaces, should be incorporated and their locations concentrated around public spaces and parks. For a high quality neighbourhood it is important that it has a mixed use character and tenure of uses. It is important any large scale developments that come forward are not of a mono use to be able to achieve the overall quantum of commercial and employment needed and as such developments in this district need to possess a mixed use character. In this character area the mix of uses and tenure will transition across the area, with the western edge being urban industry focused and the east being residential focused.

Urban Industry Area
Currently the existing land use in this character area is industrial. These existing industrial plots will retain their urban industry focus but will be renovated over time to intensify their employment offering.

This area will have a green buffer on its western edge, providing a noise and pollution buffer from the existing M50 motorway. The eastern edge should be cognisant of its interaction with the outer orbital transport corridor and the associated transport hub. It's design should be considered in order that it has an active edge which is well structured. Setbacks to this edge with loading bays or car parking as surface are not appropriate. Active uses, entrances for pedestrians and active, visual frontages are a necessity of any new development. This is in order to protect the character of the greenway and the bookend of Calmount High Street

Mixed-Use Urban Industry / Residential
The area south of the re-naturalised River Camac will be a mixed-use urban industry led area with potential for residential. This mixed-use area will have the potential to include mixed industry and residential typologies.

Walkinstown Eco Park
The existing Walkinstown park will be expanded and transformed into a Walkinstown Eco Park which will have an interface with other districts such as the Naas Road District. This park will be connected to the rest of City Edge along the River Camac will be re-naturalised. This proposed Eco Park will primarily be in the existing flood zone of the River Camac. This park will have an ecological wetland character. It will be accessible via the River Camac as well as the Tymon to Phoenix Greenway. The Eco Park will make use of the existing bio-diversity within existing green areas.

Greenway & River Corridor
The River Camac will be re-naturalised along the northern edge of this district. The corridor will provide pedestrian movement east-west across the character area. The adjacent Ballymount Park will be connected to City Edge by a pedestrian and cycle bridge across the M50 along the route of the re-naturalised river.

A greenway from Tymon park to Phoenix park will have its origin in the south of this district. This greenway will begin along the Greenhills Road at the new junction with Ballymount Avenue.

11.12 RIVER CAMAC RE-NATURALISATION

Figure 342. River Camac Re-naturalisation with Adjacent Development

11.13 DISTRICTS & CHARACTER AREAS SUSTAINABILITY SUMMARY

Sustainability is instrumental in the City Edge Strategic Framework and links every chapter to create a singular vision for a self-sustaining community in social, economic and environmental terms. Below is the summary of the key sustainability actions relating to the Districts & Character Areas Theme.

Mitigating Climate Change And Achieving Regenerative Sustainability

- Urban development to be in accordance with 15-minute city principle: forming a compact urban environment with an active travel focus, that supports the health and wellbeing of residents, through access to opportunities, services, resources, and green and natural amenities.
- Provide a mix of uses, typologies and tenures at a block or building level to ensure there is access to services and facilities in accordance with 15-minute city principle. Encourage active ground floor use that can activate streets and spaces throughout the day and early evening.
- Ensure a balanced mix of dwelling types, sizes and tenure to create lifetime neighbourhoods and a sustainable, mixed community.
- Provide of 50% green cover through new major, linear and community parks, greenways and blue and green infrastructure. The increased green cover will enhance biodiversity, connect wildlife habitats, mitigate flood risk, and the heat island effect, as well as provide local green amenity and recreational spaces.
- Enable active travel and support active lifestyles through the creation of a clear network of urban streets with cycleways, as well as cycleways in greenways, that prioritise the needs of pedestrians, cyclists and public transport users.
- Ensure an amenable public realm through the inclusion of high-quality green spaces, provision of appropriate services, overlooking, overbearing and high-quality light for surrounding buildings, public realm, social and public functions.
- Support economic growth and provide employment opportunities through providing new business locations in safe, functional, and enjoyable urban environments.

12 DELIVERY

12.1 INTRODUCTION

12.1.1 VISION

Delivery of a regeneration project at the scale of City Edge over a long time horizon presents major opportunities and challenges. This Strategic Framework has set out a strong and compelling blueprint for regeneration of this area over the coming decades. A key role of the Framework is to build confidence in the process of placeshaping over time that will in turn attract investment and act as a catalyst for further development.

City Edge is a unique opportunity to achieve Government policies of compact growth, transport-oriented development and climate resilience, at scale, and a chance to make a significant contribution to resolving the housing crisis while also generating substantial employment opportunities. The scale of the opportunity offered by City Edge is ground-breaking in a national and European context. Critically, its successful implementation requires government departments and state agencies to act in unison, to align their policies and programme priorities and to back this up with the allocation of resources.

This chapter sets out how the City Edge vision and the attendant regeneration opportunities and challenges will be delivered over time with the sequential provision of strategic infrastructure. City Edge's delivery will be considered in the context of planning policy, viability, funding delivery, and governance. The chapter concludes by identifying 24 actions to follow in the next statutory plan stage of the City Edge project. These actions are necessary to build the confidence and the certainty required to attract both public and private investment and will ultimately ensure the delivery of this new urban quarter.

12.2 REGENERATION OPPORTUNITIES & DELIVERY CHALLENGES

City Edge can deliver significant long-term economic, social and environmental benefits and opportunities. These are set out below.

12.2.1 ECONOMIC BENEFITS AND OPPORTUNITIES

The regeneration of City Edge will be centred on a strong economy that will bring forward employment, housing and services that will support the wider Dublin region. Businesses and investment are attracted to cities and locations with strong economies which are resilient, and which look to the future, and a strong economy is a fundamental element in delivering a new mixed-use neighbourhood at City Edge. The economic benefits derived from a resilient and diverse economy supported with new homes, employment space, support services, and infrastructure will help to strengthen the Dublin and Irish economy.

Retaining existing businesses in the area will be important, along with the attraction of new and emerging sectors that will create high density employment opportunities. Key to attracting new businesses / sector development will be creating the optimal conditions in City Edge that can deliver high value jobs – this includes placeshaping, sustainable accessibility, infrastructure delivery and support services. Through the creation of new job opportunities, the aspiration is that workers will want to relocate to City Edge permanently and take advantage of living in close proximity to their place of work, which has significant long-term social and environmental benefits. Strategically, the opportunity exists for City Edge to maintain and ultimately strengthen its economic value to Dublin City, and the wider Region.

12.2.2 SOCIAL BENEFITS AND OPPORTUNITIES

The creation of a new mixed-use neighbourhood will deliver significant social benefits for the Dublin region. Through the delivery of a significant number of new homes over time and a critical mass of residents and workers, there will be an associated demand for social and community services such as education, recreation, open spaces and healthcare. Delivering the appropriate social infrastructure is important as it helps with creating a sense of community and an attractive and liveable environment where citizens will expect such services to be available. At present, City Edge lacks the necessary social infrastructure to accommodate an intensification of housing and employment.

One of the primary social benefits that City Edge can deliver is to facilitate the establishment of sustainable communities. At a strategic level, this is achievable by bringing forward new housing and jobs to the area. This, together with a strong series of social and physical characters, will make City Edge an attractive place to live and work.

12.2.3 ENVIRONMENTAL BENEFITS AND OPPORTUNITIES

As part of its overall sustainable development, City Edge will deliver considerable and wide ranging environmental benefits for Dublin. At a high level, City Edge will be characterised by the sustainable management of urban land, the efficient use of natural resources, assisting with the transition to a low carbon economy, promoting transport orientated development and an increased use of sustainable modes of transport and delivery of the appropriate blue / green infrastructure to the area, all of which, cumulatively, can act as a catalyst for future growth in a manner that ensures climate resilience.

The physical size of City Edge, at over 700 hectares, means that it is imperative that the future development of its lands, the vast majority being brownfield, is undertaken in an efficient manner in order to deliver compact urban growth. Such compact growth has environmental benefits such as reducing the use of the private car for journeys by locating housing, jobs and services within walking / cycling proximity to each other and adhering to the 15-minute city principle.

The area is presently characterised by a low level of green space and this is not unsurprising given its industrial nature. City Edge offers the opportunity to improve the quality and quantum of its green infrastructure and deliver a new network of green open spaces that will help to soften the visual character of the area. Promoting the overall liveability aspect of City Edge can also have eco nomic benefits such as helping to attract new investment to the area. The pandemic has served to reinforce the premium that citizens are now placing on having access to open space areas in proximity to residential areas, which is a central part of the City Edge vision.

In terms of blue infrastructure, the Grand Canal and River Camac run through the northern portion of City Edge and there are distinct environmental opportunities associated with developing a major greenway along the canal to promote walking and cycling, and for the naturalisation of the Camac, for instance. As with green infrastructure, facilitating improvements to the quality of blue infrastructure can deliver positive placeshaping benefits which can have additional socio-economic advantages for City Edge.

12.2.4 DELIVERY CHALLENGES

As well as the above benefits and opportunities, there are significant challenges associated with delivering a regeneration project of the scale of City Edge. These include, but are not limited to:

- **Transboundary Project** - City Edge comprises lands situated within the jurisdictions of South Dublin County Council and Dublin City Council which gives rise to challenges around delivery and governance.
- **Brownfield Development** – At a fundamental level, the complexities associated with brownfield development will be a challenge, including a multiplicity of landowners and uses, lack of infrastructure and services, an unsuitable existing environment for new residential and employment development, and existing and legacy uses such as designated Seveso sites which may restrict development opportunities.
- **Physical Area** – The regeneration area covers ca.700 hectares of land within Dublin City and the sheer physical land take is a regeneration challenge.
- **Economic Cycles** – As the Covid 19 pandemic has shown, the stability of economic conditions is by no means guaranteed and it is expected that City Edge will be subject to a number of economic downturns / upturns over the long-term.
- **Infrastructure Investment / Provision** - Physical, social and natural Infrastructure is crucial to unlocking future development within City Edge and there are challenges around securing the necessary funding in order to deliver these.
- **Land Assembly** – There will be a requirement for land assembly in order to support the delivery of Infrastructure. This challenge is amplified by the number of land owners in City Edge who may have future estate strategies identified for their lands.
- **State Agencies** – In order to successfully regenerate City Edge, a number of different state agencies will be involved with different, sometimes conflicting aims and objectives.
- **Land Ownership** – There are a large number of land owners in City Edge which gives rise to a somewhat fragmented land ownership structure.
- **Land / Property Values** - Increasing land and property values are presently being experienced at both city and national levels which in turn is having an impact upon development viability.
- **Impact on Local Communities** – City Edge has a relatively low resident population of just under 5,000 people. While small in number, there may be residents who do not wish for the area to undergo a process of regeneration, while other residents will welcome it. The impact of City Edge on the communities around the boundary will also be an important element to successfully integrating new communities and providing social and community infrastructure that serves not only those in, but around City Edge. This will be informed by a continued transparent process whereby all citizens can have their say in how the area develops over time.
- **Impact on Existing Businesses** – As raised during the public consultation process, some operations have expressed concerns regarding the impact of the regeneration process on their business, while others have stated their support for enhanced commercial activity within City Edge. There is a challenge in accommodating the aspirations of existing businesses and the concerns they have in relation to the objectives of City Edge.
- **Approved Development** – There are a number of large-scale mixed use and residential developments which have planning permission in City Edge. These existing planning permissions may not tie in with the overall City Edge vision which presents challenges.
- **Early Development Proposals** - There is the issue of how to deal with early development proposals, particularly for new residential development in areas where there is a current lack of infrastructure and amenities. Ensuring the compatibility of existing and new development will also be important.
- **Balanced Land Use Development** – There is a defined challenge in trying to bring forward balanced development across City Edge including achieving an appropriate mix of uses in order that all Districts benefit from the regeneration process. This issue is made more difficult when dealing with development proposals in areas with a current lack of infrastructure and amenities.
- **Viability** – There are challenges around development viability within City Edge, particularly in relation to residential development at this moment in time. At a high level, it is considered that only industrial development is likely to give a positive return presently. An overall approach is needed which attempts to rise above what the market demands at any given time, in order to create a more resilient delivery model.
- **Development tariffs** – tariffs such as development levies and land value capture mechanisms may present viability issues at the level of the individual development, particularly in the early stages of regeneration where the benefits of placeshaping have yet to be realised.
- **Political Support** – Having a consensus of political support for the objectives of City Edge will be somewhat challenging, and particularly in relation to housing which is a key political issue at city and national levels presently.

12.3 GROWTH OVER TIME

12.3.1 SEQUENCING OF AREAS FOR DEVELOPMENT

At this strategic level, development within some districts / character areas may come forward more quickly than others due to: existing public transport provision, geographical location within City Edge, linkages / relationships to other neighbourhoods, existing social infrastructure, existing character / uses, approved development, development under construction, landowner considerations, public land ownership etc.

One key factor influencing the sequencing of areas is the degree of State / Local Authority intervention that will enable development to come forward in some areas more quickly (e.g. LDA lands in the Kylemore Character Area).Such public intervention includes mechanisms such as the delivery of strategic infrastructure and the potential acquisition and assembly of critical land(s) for this purpose.

As further engagement (e.g. with LDA, landowners, developers, businesses, key institutions and communities, etc.) takes place, this will help to further refine where early development will take place. The following table provides indicative high-level sequencing of where within City Edge in general development is most likely to occur in the Short, Medium and Long-term.

Figure 343. 5 districts across City Edge

Influencing Factor	Regeneration Phases				
	Short Term	**Short / Medium Term**	**Medium Term**	**Medium / Long-terms**	
	Naas Road District	**Kylemore District**	**Greenhills District**	**Cherry Orchard District**	**Red Cow District**
Development Activity	c.470 residential units under construction (Old Naas Rd & Carriglea Ind. Estate). Potential for further ca.2,700 units through existing permissions	No extant permissions or significant housing construction activity at present. Public lands scheduled for transfer to the LDA.	Strategic Housing Development for 171 no. apartments granted in June 2021 at former CHM Premises, Walkinstown Road – could act as a stimulus to encourage further development proposals in this locality	No extant permissions or significant housing construction activity at present. Potential to tie in with the Parkwest Cherry Orchard LAP.	No extant permissions or significant housing construction activity at present
Adjacency / Location	Situated at the heart of City Edge and has proximity and linkages to Drimnagh to the east and Inchicore to the north east. District located in area that is naturally expanding	Situated on the northern periphery of City Edge and has proximity and linkages to Ballyfermot, Inchicore, and Kilmainham	Situated on the southern periphery of City Edge and has proximity and linkages to Walkinstown to the east	Situated on the north western periphery of City Edge and has proximity and linkages to Cherry Orchard / Ballyfermot to the north	Situated on the western periphery of City Edge - lack of linkages to other neighbourhoods
Existing Uses	Mix of industrial / commercial uses in the area	Mix of industrial / commercial uses in the area with state owned lands situated at the Iarnród Éireann / OPW and ESB sites	Highly industrialised area	Variety of employment uses located in the area in locations such as Park West Business Park and Park West Industrial park	Likely to be a focus on the preservation of the industrial eco-system in this location over the short and medium terms
Transport Infrastructure	Sustainable connectivity with Luas red line service running through the area to the city centre (NE) and Tallaght (SW) along with Dublin Bus services. Accessibility and connectivity will be further improved by future BusConnects spine and orbital routes	Dublin Bus services available. Proposed Kylemore Rail Interchange and Lucan Luas would strengthen overall sustainable accessibility of the area and provide increased connectivity for future workers and residents.	Dublin Bus services available. Increased future connectivity to be provided by BusConnects spine route for this area with longer term the potential Luas line between Tallaght and the city centre.	Good connectivity within the area with the presence of Park West and Cherry Orchard rail stop and Dublin Bus services and proximity to M50 Motorway	Good connectivity within the area with Luas red line service running through area and proximity to M50 Motorway

Influencing Factor	Regeneration Phases				
	Short Term	**Short / Medium Term**	**Medium Term**	**Medium / Long-terms**	
	Naas Road District	**Kylemore District**	**Greenhills District**	**Cherry Orchard District**	**Red Cow District**
Placeshaping	Approved and under construction developments can bring forward placeshaping benefits along with proposed Mixed-use major centre	Placeshaping improvements required – potential high street area and Mixed-use Employment and Residential and Residential Led Mixed-use Quarter could drive improvements to the quality of the urban fabric in this location	Placeshaping improvements required – potential Mixed-use Employment & Residential area with high street can generate placeshaping benefits	Placeshaping improvements required – the Grand Canal greenway and naturalisation of the River Camac offer significant placeshaping benefits and improvements to the visual quality of the area	Placeshaping improvements required – proposed Mixed-use high street could act to improve the visual quality of this District
Social Infrastructure	Existing residents have access to social infrastructure in the form of a number of schools and Lansdowne Valley Park as a recreational area. Approved mixed use developments have the potential to bring forward additional uses and local services	Lack of social infrastructure available in the District however wider provision within adjoining Inchicore and Kilmainham locales	Lack of social infrastructure available in the District however wider provision within adjoining Walkinstown neighbourhood	Lack of social infrastructure available in the District however wider provision including further education college, playing fields and leisure centre in Ballyfermot	Lack of social infrastructure available in the locale – complete transformation of social infrastructure required

12.4 SEQUENCING OF STRATEGIC INFRASTRUCTURE

12.4.1 HOW INFRASTRUCTURE WILL SUPPORT GROWTH

Infrastructure spending is one of the key factors in stimulating any economy. Building out new infrastructure lays the foundation for future economic growth through, for example, increased sustainable transport options for residents and workers, providing the utilities needed to support new housing and community development (such as schools and healthcare), creating a network of open space areas and promoting City Edge as a 'business-friendly' location in Dublin. Infrastructure and growth are inextricably linked and identifying and delivering key infrastructure requirements will sustain economic growth and activity within City Edge over the long-term. The positive impact of delivering infrastructure can play a critical role in shaping the future of the City. For example, the Luas light rail system has brought significant benefits for Dublin and its population.

Focusing on City Edge, it is recognised that delivering all the infrastructural requirements needed to achieve the overall vision will require substantial funding and resources. These requirements cannot be delivered in a short space of time. However, some pieces of infrastructure are needed now and if delivered will have a catalysing impact on growth and their delivery should be prioritised.

The long-term vision for City Edge is to increase the number of residents and workers within the area. However, creating the first wave of new housing and new jobs will require a catalyst or a development spark upon which the later stages of the regeneration process can be built.

For example, the delivery of a new railway station at Kylemore would be a significant catalyst as this will have the benefit of making the area more accessible and connected for residents and workers. A station in this location would be central in the creation of a new Place that would drive market values and make the delivery of new development attractive and viable. From this, new residential development and employment operators can utilise the new station as a means of promoting themselves as suitable locations for living and working respectively thus generating a magnet-like effect. As a critical mass of people develops through time, there will be an associated demand for local retail, leisure and food and beverage services, for example, that will then be attracted to the area. Delivering a new station at Kylemore will promote economic growth as mentioned and will also have the key characteristics of being long-term, resilient and inclusive. This will maximise the infrastructure investment, as well as achieving environmental benefits through increased use of sustainable modes of transport.

Whilst a new rail station at Kylemore is one example, there are several pieces of strategic infrastructure that are needed to create the Place and make development viable. The potential benefits for growth within City Edge through infrastructural delivery are significant. However, a key component in delivering such growth is funding. In other regeneration projects around the world, funding has been provided 'upfront' at a State level and this has acted as an incentive for growth. Providing upfront financial investment for the purposes of infrastructure within City Edge can unlock development potential and act as a catalyst for growth for the area in order to generate economic, environmental and social benefits.

12.4.2 INFRASTRUCTURE SEQUENCING

The 'Sequencing of Key Infrastructure' diagram below sets out a timeline between now and 2070 for what strategic infrastructure is needed and when, under the headings Schools, Community Infrastructure, Movement, Public Open Space and Utilities. The table also indicates the growth scenario for population and employment that provides the context for the infrastructure requirements. Growth is assumed to be linear.

This is followed by 4 tables setting out strategic infrastructure delivery considerations in the categories Utilities, Natural Infrastructure and Movement. The considerations include actors / stakeholders, process, timelines and estimated costs.

What is clear from this analysis is that in the initial stages of City Edge, several large pieces of infrastructure are required to catalyse growth. These are as follows:

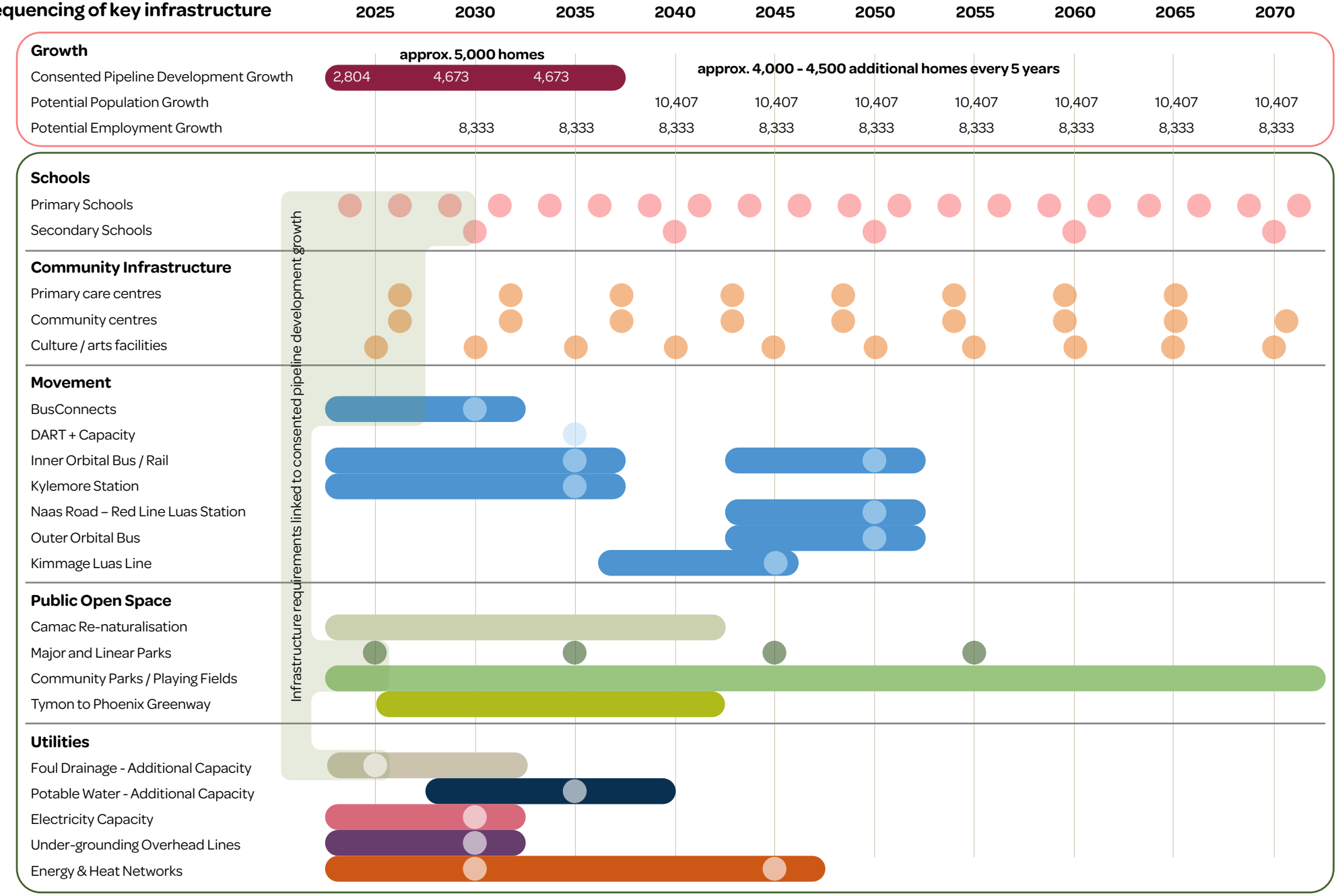
1. Foul water network upgrades
2. Kylemore Railway Station
3. New Luas stop on Naas Road
4. Bus services, BusConnects and active travel
5. Inner Orbital Public Transport
6. New and enhanced Parks
7. Camac Re-naturalisation
8. Undergrounding of Overhead Electric Cables
9. Energy networks

Actions required to achieve implementation of these early pieces of infrastructure are set out in the section 'Priorities for Infrastructure Delivery' later in this chapter.

It should be noted that the future development of transport infrastructure schemes will be dependent on the following:

- Aligning with national and regional government policy and objectives both in current plans and in future iterations for these given the long-term nature of the project;
- The availability of funding and the ability to secure this;
- The phasing of development and the prioritisation of schemes; and
- The timing and outcomes of any necessary statutory planning or regulatory processes.

Sequencing of key infrastructure



12.4.3 DEVELOPMENT AREAS OVER THE FIRST 0–15 YEARS AND ASSOCIATED STRATEGIC INFRASTRUCTURE

Development areas

The map and accompanying tables indicate locations where it is envisaged development will happen over the next 15 years, and other areas where development is likely to proceed over the longer term. These areas have been identified by factoring in a number of considerations including the extent to which:

- areas are currently well served by infrastructure such as public transport and green space;
- areas will be served by infrastructure coming on stream in the short to medium term;
- there is development currently in the pipeline (i.e. existing planning permissions);
- there is interest from land-owners and business owners in redevelopment / relocation.

This a view of where development may most likely take place at a point in time. As time progresses there may well be scope to progress delivery of new development in other areas and where this does happen it will need to be supported by the necessary social, community, utility and transport infrastructure.

Delivery of new infrastructure in the short to medium term will be focussed on the areas identified for development in the first 15 years. This strategy of focussing on particular areas which are expected to deliver early development wins, is most likely to deliver transformational change, is the most efficient use of both public and private investment, and will help bridge the viability gap that will exist in the early stages of the regeneration of City Edge.

Figure 344. Development areas over the first 0–15 years

12.4.4 DEVELOPMENT AREAS OVER THE LONGER TERM AND ASSOCIATED STRATEGIC INFRASTRUCTURE

The map, right, indicates locations where it is envisaged development will happen over the longer term, beyond the first 15 years.

Below is set out where intensification of industrial uses will occur over time.

Figure 345. Industrial intensification areas

Figure 346. Development areas over the longer term, 15 years plus

12.4.5 STRATEGIC INFRASTRUCTURE IN RELATION TO GROWTH

The tables here highlight the strategic infrastructure that is needed to support the development areas over the first 0–15 years, per district, and over the longer term. These are in turn elaborated upon in further detail in the tables on the following pages which set out the different types of infrastructure required along with details on actors, stakeholders, process, sequencing, timelines, and costs, etc.

*approximation based on expected quantum of development during that time period
** approximate equal split assumed between early and later phases based on anticipated development in first 15 years
🔴 – Infrastructure required but currently no progress has been made in delivering this infrastructure'
🟡 – Infrastructure required, and currently under consideration outside the City Edge framework
🟢 – Infrastructure required and In place / enhancement required

City Edge-wide projects		
Requirement	**0-15 years**	**Longer Term**
Flooding, Drainage and Foul water	🟡 Local upgrades to free up capacity within the 9B sewer network.	
	🟡 Full 9B sewer upgrade.	
	🔴 Strategic SuDS network.	
Potable water	🟡 Local upgrades*	🟡 Parteen Basin scheme
Energy and Electricity	🟡 Local upgrades to the electrical network*	🔴 New electrical substations and networks *
	🟡 Support the decarbonisation of the electrical grid	🔴 Support the decarbonisation of the electrical grid, provide new electrical substations and deliver integrated energy networks and storage systems
Community Parks	🔴 1 *	🔴 2*
Local Centre and Services	🔴 Commence delivery of a major new centre including new retail and associated services supporting high street uses along and around Kylemore Road	🔴 Comprehensive delivery of a major new centre

Naas Road District		
Requirement	**0-15 years**	**Longer Term**
Schools & community infrastructure**	🔴 600-800 primary school places*	🔴 600-800 primary school places*
	🔴 400-500 post primary school places*	🔴 400-500 post primary school places*
	🔴 1 primary care centre*	🔴 1 primary care centre*
	🔴 30-40 childcare facility places*	🔴 30-40 childcare facility places*
	🔴 1 community centre*	🔴 1 community centre*
Public Transport	🟢 Luas red line & Naas Road Luas stop	🔴 Inner orbital (potential for a new light rail system in the future)
	🟡 Bus Connects (planned)	
	🔴 Inner orbital, (additional high frequency services, and route safeguarding)	
	🟡 Naas Road Luas & Bus Connects interchange	
	🔴 Naas Road inner orbital interchange	
Active Travel	🟡 Proposals included in Bus Connects	🔴 Full active travel network
	🟡 Segregated cycleways on Kylemore Road and Naas Road	
Energy and Electricity	🔴 Underground north-south overhead lines, northern portion	
Strategic Parks & Waterways	🟡 River Camac Re-naturalisation (in part, eastern portion)	
	🟢 Lansdowne Valley Park upgrades (including Drimnagh Castle green space upgrades)	
	🟢 Walkinstown Avenue Park upgrades	
Community Parks	🔴 1 *	🔴 2*
Local Centre and Services	🔴 Commence delivery of a major new centre including new retail and associated services	🔴 Comprehensive delivery of a major new centre

Kylemore District		
Requirement	**0-15 years**	**Longer Term**
Schools & community infrastructure**	600-800 primary school places*	600-800 primary school places*
	400-500 post primary school places*	400-500 post primary school places*
	1 primary care centre*	1 primary care centre*
	30-40 childcare facility places*	30-40 childcare facility places*
	1 community centre*	1 community centre*
Public Transport	New Kylemore station, included in the GDA transport strategy	New Luas F line (included within the GDA transport strategy)
	Bus Connects (planned)	Inner orbital (potential for a new light rail system in the future)
	Inner orbital, (additional high frequency services, and route safeguarding)	
	Kylemore station interchange	
Active Travel	Proposals included in Bus Connects	Full active travel network
	Segregated cycleways on Kylemore Road	
Energy and Electricity	Underground east-west overhead lines, eastern portion	
Strategic Parks & Waterways	Grand Canal Linear Park (eastern portion)	
	Lansdowne Valley Park upgrades (including Drimnagh Castle green space upgrades)	
	Walkinstown Avenue Park upgrades	
Community Parks	1 *	2*
Local Centre and Services	Commence delivery of a major new centre including new retail and associated services supporting high street uses along and around Kylemore Road	Comprehensive delivery of a major new centre

Greenhills District		
Requirement	**0-15 years**	**Longer Term**
Schools & community infrastructure**	400-600 primary school places*	1,400-1,600 primary school places*
	300-400 post primary school places*	900-1,100 post primary school places*
	1 primary care centre*	2 primary care centres*
	29 childcare facility places*	86 childcare facility places*
	1 community centre*	1 community centre*
Public Transport	Bus Connects (planned)	New Luas line, (planned longer term, Calmount Road routing)
		Outer orbital (in part) & interchange with BusConnects & new Luas line
		Inner orbital, (in part), & interchange with BusConnects & new Luas line
Active Travel	Proposals included in Bus Connects	Full active travel network
	Segregated cycleways on Calmount Road & Ballymount Avenue & Long Mile Road	
Energy and Electricity	Underground north-south overhead lines, southern portion	
Strategic Parks & Waterways	River Camac Re-naturalisation (in part, southern tributaries)	Eco Park* (including Walkinstown Avenue Park upgrades)
	Greenway from Tymon to Phoenix (in part)	
Community Parks	1 *	3*
Local Centre and Services	New retail, and other supporting high street uses at Walkinstown and along Calmount Road	

Cherry Orchard District		
Requirement	**0-15 years**	**Longer Term**
Schools & community infrastructure**	400-600 primary school places*	1,400-1,600 primary school places*
	300-400 post primary school places*	900-1,100 post primary school places*
	1 primary care centre*	2 primary care centres*
	20-30 childcare facility places*	80-90 childcare facility places*
	1 community centre*	1 community centre*
Public Transport	Bus Connects (planned)	Outer orbital & interchange with BusConnects
Active Travel	Proposals included in Bus Connects	Full active travel network
	Segregated cycleways on New Nangor Road & Killeen Road	
Energy and Electricity	Underground east-west overhead lines, western portion	
Strategic Parks & Waterways	River Camac Re-naturalisation (in part, western portion)	Green space at New Nangor Road adjacent to M50*
	Grand Canal Linear Park (western portion)	
Community Parks	1 *	2*
Local Centre and Services	New retail, and other supporting high street uses along the Grand Canal	Comprehensive delivery of a major new centre

Red Cow District		
Requirement	**0-15 years**	**Longer Term**
Schools & community infrastructure**	300-400 primary school places*	900-1,100 primary school places*
	200-300 post primary school places*	600-800 post primary school places*
	1 primary care centre*	1 primary care centres*
	10-20 childcare facility places*	50-60 childcare facility places*
	1 community centre*	1 community centre*
Public Transport	Bus Connects (planned)	Outer orbital & interchange with BusConnects
	Luas stop on Naas Road, including crossing	
Active Travel	Proposals included in Bus Connects	Full active travel network
	Segregated cycleways on Naas Road and Oak Road	
Energy and Electricity	Underground north-south overhead lines, northern portion	
Strategic Parks & Waterways	River Camac Re-naturalisation (in part, western portion)	
Community Parks	1 *	2*
Local Centre and Services	New retail, and other supporting high street uses around Knockmitten Lane	

Utilities Infrastructure

Project description	Actor / Stakeholder	Process	Sequencing	Timelines	Benchmark Costs	Recommendations
Potable Water Trunk Main	Irish Water	Route selection to commence by Irish Water	Can be aligned with City Edge timelines to facilitate growth	10 year +	€10-15 m (City Edge Project area only)[1]	In response to City Edge growth
9B Sewer Upgrades	Irish Water	Route selection to commence by Irish Water 2022 / 2023	Can be aligned with City Edge timelines to facilitate growth	5-10 year delivery	€150-200 m^2	In response to City Edge growth
Feasibility of Undergrounding of HV overhead lines	ESB & EirGrid	Power systems study required by EirGrid and ESB to determine technical feasibility of undergrounding	Required ASAP	6-8 months from appointment	€80,000[3]	Power Systems study require to determine feasibility of undergrounding HV infrastructure
Option 1 – Full undergrounding of HV overhead Lines	ESB & EirGrid	Detailed technical analysis	Upon completion of Power Systems Study	5-10 years	€9-€18 m per km[4]	Unlocks opportunities for type and scale of development
Option 2 – Undergrounding of priority HV overhead areas	ESB & EirGrid	Detailed technical analysis	Upon completion of Power Systems Study	5-10 years	€9-€18 m per km[4]	Unlocks opportunities for type and scale of development
Deep Bore Tunnel	ESB & EirGrid	Detailed technical analysis	Upon completion of Power Systems Study	10 years +	€16.3-30.1 m - estimate[5]	Unlocks opportunities for type and scale of development

Natural Infrastructure

Project description	Actor / Stakeholder	Process	Sequencing	Timelines	Benchmark Costs	Recommendations
Grand Canal Linear Park (32ha)	City councils Land owners Developers Other stakeholders	Business case Lands ownership / any involved parties' agreement Feasibly study / Agreeing the Project Budget Design process Planning process / any environmental assessment requirements Construction	Interlinked with undergrounding of HV overhead Lines Delivery can be staged	2022 - 2030 (East) 2030 - 2035 (West) Design: 1-3 years Construction: 3-7 years	€1.7-2.9m / ha €55-92m (Category B Quality)[6]	Can be constructed in different phasing in response to the surrounding district development programme
River Camac Linear Park (44ha)			Ongoing as part of the Camac Flood Alleviation project	Design: 1-3 years Construction: 3-7 years	€1.7-2.9m / ha €73-127m (Category B Quality)	Can be constructed in different phasing in response to the surrounding district development programme
Walkinstown Eco Park (15ha) (exists in part)			Required ASAP to support committed growth and early delivery period	2022 - 2030 Design: 1-2 years Construction: 3-6 years	€2.9-4.0m / ha €43-60m (Category A Quality)	
Lansdowne Drimnagh Castle Park (22ha) (exists in part)			Short to Medium term	2030 - 2040 Design: 1-2 years Construction: 3-6 years	€2.9-4.0 m / ha £63-89 m (Category A Quality)	
Railway green corridor (4ha)			Delivery can be staged	Design: 1-2 years Construction: 2-4 years	€0.85-1.7m / ha €3.5-7m (Category C Quality)	Can be constructed in different phasing in response to the surrounding district development programme
M50 green corridor (5ha)			Delivery can be staged	Design: 1-2 years Construction: 2-4 years	€0.85-1.7m / ha £4.6-9.2m (Category C Quality)	Can be constructed in different phasing in response to the surrounding district development programme
Tymon to Phoenix Greenway (7ha)			Delivery can be staged, and interlinked with adjoining development	Design: 1-2 years Construction: 3-6 years	€1.7-2.9m / ha £12.7-19.5m (Category B Quality)	Can be constructed in different phasing in response to the surrounding district development programme
Secondary Green Corridors (14ha)			Delivery can be staged, and interlinked with adjoining development	Design: 1-2 years Construction: 3-6 years	€0.85-1.7m / ha £12.7-24.2m (Category C Quality)	Can be constructed in different phasing in response to the surrounding district development programme

Movement Infrastructure

Project description	Actor / Stakeholder	Process	Sequencing	Timelines	Benchmark Costs	Recommendations
BusConnects services provision	NTA	National Transport Authority (NTA) lifecycle Phase 6: Implementation	Project underway	2022-2025	Not costed as project is underway by NTA	
Local bus priority interventions: S4 Corridor (Kylemore Road) G1 Corridor (Parkwest Avenue)	NTA / SDCC / DCC	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Suggested early interventions to improve existing public transport priority and enhance accessibility to stations by active mode	2022-2025	Kylemore Road 12 - 24m Parkwest Avenue €6 - 8.4m	Integrate with utility works where practicable
BusConnects CBC07 Infrastructure (New Nangor Road)	NTA	National Transport Authority (NTA) lifecycle Phase 4: Legislative Process	Project underway	2026-2030	Not costed as project is underway by NTA	NTA, Irish Water, OPW to discuss relationship between BusConnects, 9B Sewer and River Camac upgrades and BusConnects - potential to co-ordinate Works
BusConnects CBC0809 Infrastructure (Greenhills)	NTA	National Transport Authority (NTA) lifecycle Phase 4: Legislative Process	Project underway	2026-2030	Not costed as project is underway by NTA	
Naas Road - Parrallel Service Roads and Junction Enhancements Red Cow to Hamburger Junction	SDCC / TII / NTA	Part 8 Application as road is local authority designated	Suggested intervention to improve multi-modal access along Naas Road, enabling works for new development, new Luas stop	2026-2030	€15.6 - 24m	Integrate with utility works where practicable and create passive provision for future utility connections
Active Travel – primary and secondary route at-grade upgrades	NTA / SDCC / DCC	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Ongoing over next 10 year period as per GDA Strategy	2026-2030	€18 - 24m	Develop a pipeline of continuous improvements. Integrate with utility works where practicable and create passive provision for future utility connections
Active Travel – new canal, rail, M50 crossing upgrades	NTA / TII / SDCC / DCC	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Ongoing over next 10 year period as per GDA Strategy	2026-2030	€24 - 36m	

Project description	Actor / Stakeholder	Process	Sequencing	Timelines	Benchmark Costs	Recommendations
BusConnects Orbital / Inner Orbital Corridor	NTA	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Kylemore Road section delivered as early intervention for S4 Corridor	2026-2030	See cost above for Kylemore Road	
Kylemore Heavy Rail Station	NTA / Irish Rail	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Interdepency with DART+ Southwest	2031-2035	€12 - 24m	
New Red Line Luas Station	NTA / TII	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Timeline associated with pace of development in adjacent lands	2031-2035	€7.2 - 12m	
Luas Line Lucan (F)	NTA / TII	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Interdepency with DART+ Southwest - bridge replacement works	2031-2035	€240 - 360m	
Capacity enhancements on Red Luas Line corridor - frequencies / journey times	NTA / TII	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Deliver in response to growth in demand for services	2031-2035	Not costed	
Capacity enhancements on BusConnects corridors - frequencies / journey times	NTA	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Deliver in response to growth in demand for services	2031-2035	Not costed	
Outer Orbital Public Transport Corridor	NTA / SDCC / DCC	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Timeline associated with pace of development in adjacent lands	2041-2045	€54 - 72m	
Luas Line Kimmage	NTA / TII	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Timeline associated with pace of development in adjacent lands	2041-2045	€300 - 420m Extent through City Edge (Line and cost of 4 stations)	City Edge to advocate for preferred routing to align with development proposals
DART+ Tunnel	NTA / Irish Rail	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Deliver in response to growth in demand for services	2041-2045	GDA Strategy estimate for full project delivery is €6bn	
Inner Orbital Corridor – Higher Public Transport capacity (Assume Light Rail upgrade)	NTA / TII	National Transport Authority (NTA) lifecycle Phase 1: Scope & Application	Deliver in response to growth in demand for services	2046-2050	€300 - 420m Line and cost of stations through City Edge	

Endnotes

1 Based on present day costs and benchmarking against recent projects of a similar scale coupled with inflation, represents approx. costs associated with the Peamount to City Centre potable trunk main. These costs are associated for the element within City Edge and do not consider other sections of the trunk main.

2 Based on present day costs and benchmarking against recent projects of a similar scale coupled with inflation, i.e. Blanchardstown Regional Drainage Scheme costs approx. €90M, the capital estimate for the 9B sewer upgrades could be €150-€200M excl. VAT depending on final scope.

3 The above includes costs received from EirGrid for a Power Systems study and approx. costs associated with undergrounding HV infrastructure in Ireland and a deep bore tunnel option.

4 Costs taken from Kildare-Meath consultation plus inflation at eirgridgroup.com. Cost are approx. €9-€18M per km

5 Costs taken from Electricity Transmission Costing Study – Parsons Brinckerhoff, in association with Cable Consulting International Ltd. (2012) plus inflation £16.3m to £30.1m per kilometre for tunnel construction only

6 Parks costings exclude the following: VAT, land costs and any demolition or decontamination costs. Costings are based on typical current prices.

A coordinated approach is critical to the planning and delivery of City Edge. Proposed new policy mechanisms, and the transboundary nature of City Edge which straddles the boundaries of Dublin City and South Dublin County, present a number of planning opportunities and challenges. These are set out below.

12.5.1 LAND VALUE SHARING AND URBAN DEVELOPMENT ZONES

The concepts of Land Value Sharing (LVS) and Urban Development Zones (UDZs) were introduced in Housing For All, the Government's new housing plan for Ireland. The proposed Land Value Sharing and Urban Development Zones Bill (the Bill) was published at the end of 2021.

Land Value Sharing:
Land Value Sharing (LVS) would involve securing a proportion of the value uplift of a development site, tracked from a point of zoning or designation, to a point of planning permission. It is envisaged as operating in addition to any Part V obligations and would secure financial contributions and / or land for the provision of public infrastructure including roads, public transport, schools, parks and community facilities

Urban Development Zones:
The Urban Development Zone (UDZ) designation is envisaged as addressing the challenges of delivering compact growth on brownfield land in a plan-led manner. Subject to legislation being enacted, UDZs could provide for:

- A development agency role for Local Authorities and / or the LDA;
- An appraisal stage, prior to designation to identify the broad development potential of the relevant area and the extent of physical and community infrastructure likely to be required to support development, including public transport infrastructure;
- Oversight of the LVS mechanism applicable to the area, backed up with CPO powers to enable the authority acquire critical lands required for the provision of public infrastructure, facilities, and enabling works;
- A plan-led process that includes a key decision-making role for the local planning authority and provides up-front certainty for both communities and the development sector;
- Post-designation fast-track planning arrangements where development proposals are submitted in accordance with an approved scheme; and
- Prioritisation of UDZs for complementary State investment to ensure housing delivery at scale, including up-front enabling of strategic infrastructure and services, including public transport.

As drafted the legislation has the potential to bring significant benefits in delivering the Vision of the Strategic Framework in terms of certainty of planning, access to value uplift, ability to identify critical land, assemble land and deliver infrastructure. The legislation, if enacted, would appear to make City Edge an ideal candidate for future designation.

Timing of LVS and UDZ Legislation
An issue relates to the timing of the coming into force of legislation providing for UDZs and LVS and its impact on the overall delivery of a statutory plan for City Edge. It is unlikely that a final legislation would be in place until 2023 and following that, an evidence-based process would need to be followed before a final designation decision could be taken. The requirements for this process have not been finalised but the process will take time.

12.5.2 PROVISION FOR A JOINT STATUTORY PLAN

The possibility for a transboundary local area plan is provided for under Section 18(2) of the Planning and Development Act, 2000 (as amended) (the Act) which states:

'Two or more planning authorities may co-operate in preparing a local area plan (LAP) in respect of any area which lies within the combined functional area of the authorities concerned'.

It should be noted that the Act does not specify how decision making by the elected members of the respective local authorities would work in relation to elements of the plan located in the Local Authority area which they do not represent.

The principle of a joint or unitary LAP is also supported in the document *'Local Area Plan Guidelines for Planning Authorities'* (2013).

The Draft Dublin City Development Plan 2022-2028 (which will be operational in December 2022) includes objective CSO2 'Local Statutory Plan for lands at Kylemore Road / Naas Road and Ballymount' which supports the principle of a joint or unitary LAP specifically in relation to City Edge.

Objective CS02 of the draft Plan is: 'To prepare a local statutory plan in conjunction with South Dublin County Council for lands at Kylemore Road / Naas Road and Ballymount lands to enable a co-ordinated and phased development on these lands over the medium to long-term'.

The current South Dublin County Development Plan 2016-2022 and the new Draft South Dublin County Development Plan 2022-2028 (which will be operational in August 2022) also contain objectives and land use zonings which set the context for the delivery of a statutory plan for the portion of City Edge within South Dublin County.

Therefore, the principle of a transboundary plan is provided for in legislation and guidance, and within the Draft DCC Development Plan, while the Draft SDCC Development Plan provides for a statutory plan for the area.

12.5.3 DUBLIN CITY COUNCIL DEVELOPMENT PLAN: ZONING ISSUES

The land-use zoning in the Dublin City Council area of City Edge is an issue and needs to be addressed in advance of the preparation of a statutory plan.

There are significant lands within City Edge that are zoned Z6 (Enterprise and Employment) in the Dublin City Development Plan and some lands that are zoned Z15 (Community and Social Infrastructure). The Draft Dublin City Development Plan 2022-2028 proposes to remove residential development as 'open for consideration' in these zones. If this policy position is incorporated into the final Dublin City Development Plan, there would be a presumption against residential development, and mixed-use development that includes residential, in the Z6 and Z15 zones.

A Variation of the Dublin City Development Plan would be required to ensure policy alignment with a future City Edge LAP. The Variation would ensure that the Dublin City Development Plan supports the land uses envisaged within the Strategic Framework which include residential and mixed-use development. The Variation would be timed to conclude in advance of the LAP being made.

12.5.4 SOUTH DUBLIN COUNTY COUNCIL DEVELOPMENT PLAN

Given the time required to prepare a LAP and possible delays to the commencement of a transboundary LAP if DCC pursues a Variation, it may be prudent for SDCC to also carry out a Variation to the South Dublin County Development Plan 2022-2028 (due to be operational from July 2022). This would have the effect of providing a Statutory Framework for assessing development proposals within City Edge in the interim until a statutory plan is prepared.

12.5.5 ASSESSING EARLY PLANNING APPLICATIONS

One of the challenges of a regeneration project such as City Edge is ensuring adequate infrastructure and facilities and a liveable environment for early-stage developments. There is already good public transport infrastructure and green space in parts of City Edge, or committed for certain areas, while other parts are extremely lacking in any facilities. This Strategic Framework is a non-statutory high-level strategy and does not form a basis for development consent. As such, early planning applications will be assessed on a case-by-case basis, against the relevant statutory plan in place at the time. Such applications will be evaluated having regard to what infrastructure and amenities exists, how proximate the development is to such facilities, and what additional infrastructure and amenities may be provided as part of the development proposal e.g. A development may include proposals to provide a section of a local centre, community park or a community centre or public transport facilities, which would count as a positive in the assessment of that development proposal. If a site is not close to existing infrastructure or facilities, the development proposal would need to be large enough to provide its own. Small development not proximate to, and not providing the necessary infrastructure and facilities would not be in keeping with the anticipated sustainable and phased development of City Edge.

Chapter 5 (Housing) of this Strategic Framework identifies and quantifies these elements in a Liveable City Matrix which sets out indicators for what facilities, amenities and other qualities are required to make an area liveable. e.g. Under the heading 'Housing', factors include density range, compact urban form, mix of housing types, mix of unit sizes, mix of tenures; under the heading 'Nature and Open Space', considerations include provision for play, parks, sports, community gardens and biodiversity areas and perception of safety in the public realm; while under the heading 'Active Travel', aspects include cycle lanes, wayfinding, pleasant streets and access to public transport.

Early development will act as a catalyst for further development, and infrastructure, placeshaping and liveability will improve as regeneration gathers momentum. The statutory plan that will follow this Strategic Framework will provide more detailed guidance and rules around placeshaping and amenity requirements at the level of the individual development proposal as well as more strategic issues of phasing and sequencing of development, what infrastructure pieces need to be provided and when, linked to specified development thresholds being reached. The Liveable City Matrix will also be refined for use as an assessment tool for individual planning applications as part of the Statutory Plan.

12.6 VIABILITY

12.6.1 GENERAL

When looking at what the future City Edge may become, it is important to establish the economic characteristics and economic base from which the regeneration process will commence. Today, City Edge is dominated by industrial and distribution activity. Linked to the predominant activities, the occupations of workers within the area tend to be those traditionally linked to industrial-based economies. Whilst 24% of occupations are in the 'Managerial and Technical' positions, ca.40% are in either skilled or unskilled manual work. Less than 10% of occupations are 'Professional Workers', again reflecting the low level of office-based economic activity present in the area.

Given this economic composition, it is unsurprising that earnings within City Edge are likely to be lower than other parts of the Dublin city region where a broader range of employment opportunities exist. Data from the CSO indicates that earnings in the industrial sectors range from €20 - €24 per hour across Wholesale, Industry and Transport activities. This would indicate an average annual salary of ca.€45,760*.

The level of employment, given the land area, is also modest with an estimated 25,000 workers employed in the area today. This suggests there is a broad employment density of ca.35 workers per hectare of land. If it is assumed that these workers earn (on average) €22 per hour, then there would be total earnings of ca.€1.1bn.

Based on the current economic mix and levels of employment, it is estimated that based on an average GVA contribution of €171,325** per worker, City Edge would generate in the region of ca.€4bn of GVA to the Irish economy. This context is important for understanding the potential benefits unlocked by the regenerative changes proposed, as any benefits should be considered 'net' of the existing activity to understand the true additionality of the intervention made.

12.6.2 ECONOMIC BENEFITS

Given the nature of the Strategic Framework, any assessment of potential benefits should only be considered a high-level indication of what may be achieved rather than a detailed assessment of the economic impacts. However, in developing the rationale and justification for investment, even at this point, an initial understanding is helpful and it can help inform initial business case and gateway processes.

The approach to the assessment of potential benefits has focused on the core employment generating uses proposed within the Strategic Framework as these have the most clarity and shape at this point – therefore, an assessment is presented for office and industrial space. While it is likely that other benefits will accrue, these cannot be estimated at this stage but are further considered qualitatively later on.

In assessing potential benefit, a range of data sources and information has been drawn on. To ensure consistency with the assessment of baseline conditions, information from the CSO has been used as well as best practice sources such as the UK government's Additionality Guide (4th Edition, 2014) and Employment Density Guide (3rd Edition, 2015). The analysis is provided for the five City Edge districts and estimates of impact have been based on a medium density development scenario.

As provided at Table 7, the assessment shows that delivery of the full Framework aspirations for City Edge would create ca.62,000 gross direct employment opportunities, generating gross direct GVA to the economy of ca.€13.3bn and gross earnings of ca.€4bn. It is also anticipated that jobs within other sectors such as education, healthcare, retail, commerce, etc. would generate an additional 5,000 jobs with total employment opportunities approaching ca.70,000 within City Edge. These findings illustrate that the additionality of these benefits is significant.

* This assumes €22 per hour, an 8 hour day working 5 days a week for 52 weeks per year.

** Source: CSO, 2018, combines data for NACE sectors C, D, E, F, G and H

		Naas Road	Greenhills	Kylemore	Cherry Orchard	Red Cow	Total Direct Benefits
Floorspace	Office (NIA)	205,316	45,812	143,756	99,993	32,164	527,041
	Industrial (GEA)	17,110	133,081	23,170	92,587	402,044	667,992
Empolyment Density (persons per ha)	Office	11	11	11	11	11	11
	Industrial	48	48	48	48	48	48
Gross Direct Jobs	Office	18,665	4,165	13,069	9,090	2,924	47,913
	Industrial	356	2,773	483	1,929	8,376	13,917
Average Earning per Worker €	Office	€ 68,640	€ 68,640	€ 68,640	€ 68,640	€ 68,640	€ 68,640
	Industrial	€ 45,760	€ 45,760	€ 45,760	€ 45,760	€ 45,760	€ 45,760
Gross Direct Earnings €	Office	€ 1,281,171,637	€ 285,865,488	€ 897,037,517	€ 623,958,317	€ 200,701,957	€ 3,288,734,917
	Industrial	€ 16,311,135	€ 126,870,318	€ 22,089,148	€ 88,266,026	€ 383,282,128	€ 636,818,755
Average GVA per Worker €	Office	€ 227,985	€ 227,985	€ 227,985	€ 227,985	€ 227,985	€ 227,985
	Industrial	€ 171,325	€ 171,325	€ 171,325	€ 171,325	€ 171,325	€ 171,325
Gross Direct GVA €	Office	€ 4,255,360,077	€ 949,490,725	€ 2,979,474,042	€ 2,072,452,462	€ 666,623,480	€ 10,923,400,785
	Industrial	€ 61,068,734	€ 475,001,249	€ 82,701,557	€ 330,467,154	€ 1,435,004,601	€ 2,384,243,294

NIA: Net Internal Area
GEA: Gross External Area

Table 7. Estimated High Level Economic Benefits for City Edge Districts | Source: Avison Young, 2021

The analysis demonstrates that the Naas Road District could deliver the most significant potential benefits in terms of employment levels, GVA and earnings. This reflects the focus of this area on new, higher density office-based employment activity linked to the delivery of a major new urban centre. The Red Cow District will retain a much more significant industrial presence, re-providing and intensifying space provision for urban industry use and therefore delivers / retains more jobs in these activities.

Unsurprisingly, given the scale of change, the potential direct economic benefits would be significant and would be enhanced by a range of induced and indirect impacts within the wider economy as expenditure of both workers and businesses in the area increases thereby creating new opportunities for both supply chain activities and ancillary amenity provision. For instance. It is anticipated that an additional jobs figure of ca.25,000 could be indirectly generated for City Edge, providing an additional GVA of in excess of ca.€4.8bn to the economy (both before leakage, substitution and displacement are taken into account). Outside of these quantified impacts, a range of wider economic benefits could also arise that include but are not limited to:

Worker Expenditure Impacts

- Increasing workers in the area will increase daytime spend – supporting the presence of increased retail and leisure provision.

Increased Population Impacts

- These residents would significantly increase local ex-

penditure on retail, leisure and other amenity provision, supporting further jobs and activity in those sectors.

Quality of Life Impacts
Through improved housing, new open space and more sustainable transport a range of positive impacts will occur to people's lives. These would include:

- A decrease in commuting times as people could live closer to their work.
- Improvements to mental health and well-being from access to open space.
- Improved air quality as industry and transport patterns change.

Qualifications and Education Attainment
- City Edge population generally falls below both State and wider Dublin City in terms of educational attainment (for e.g. at Upper Secondary and Third Levels). Provision of a greater range of employment opportunities in the area can help open up awareness of career opportunities and stimulate improved education achievement.
- The presence of new education facilities can also increase engagement in education at both school and post-school ages.

Overall, the potential benefits are significant both in terms of scale and range of impacts that would be experienced in the area and beyond, all of which form a solid basis from which to consider more detailed investigations of investment and intervention opportunities.

12.6.3 STRATEGIC HEADROOM ASSESSMENT

The starting point for the process of strategic headroom assessment is to understand the ability for development to fund (in whole or part) the required infrastructure. Clearly, at the strategic level this Framework operates at, it is not possible to prepare a detailed viability appraisal or project cashflow models to estimate potential income, although this should be considered a key next step as sub-area specific detailed work is progressed. However, based on the figures contained within the Strategic Framework, it is possible to develop a high-level understanding of the relationship between 'costs' and 'values' in order to identify if any 'headroom' exists and to begin to consider how value created can be captured.

A strategic headroom assessment has been undertaken to support the Strategic Framework. It should be noted that this macro-level assessment is prepared solely to identify any potential headroom in the financial returns on development. It does not constitute a formal viability appraisal or valuation, and therefore should not be relied upon as such.

The headroom assessment presents a strategic assessment of costs and value relationships between existing values and future values that development could create. It establishes broad value parameters and uses existing evidence for this purpose to allow the future scenario to be compared with the current day on a consistent basis.

The assessment is based on broad value and cost assumptions drawn from secondary, published and widely available data sources which have then been checked by the Avison Young team to ensure they are relevant to City Edge. Further assumptions common to such assessments (such as typical profit, contingency, professional fees etc) are based on industry standard metrics.

Given the nature of City Edge, benchmark land values are difficult to establish given a lack of land deals and transactions in the area. To account for this, and to model the incentive landowners may need in order to release their sites for redevelopment, premiums (at 10%, 15% and 20% above the benchmark land value) have been considered. This is in line with good practice set out by the Royal Institute of Chartered Surveyors (RICS). The assessment has assumed that all land has a base value linked to industrial use.

In line with the economic benefits calculations as presented, the headroom assessment has considered a medium density scenario that applies a density of 150 dph across three district areas known as Kylemore, Naas Road and Greenhills. It is recognised that this is a simplification of how each area will come forward within the regeneration process, as density will vary. However, it represents a sufficiently broad range for this high-level assessment. To further model how the development may come forward, a sensitivity has been run which includes a workspace and residential typology into the mix.

Strategic Headroom Assessment Findings and Observations
A key observation regarding the baseline position for the districts of Kylemore, Naas Road and Greenhills, as summarised, is that the ability to create any headroom based on current values and costs is very limited as residential, office and industrial uses are not able to generate a positive return when compared to the benchmark land value plus a 10% premium incentive.

When the Existing Land Value per ha and the Residual Land Value per ha for residential, office and industrial land use typologies are compared, it was observed that the value of new development in the first instance sits far below the cost of the land. This is also without considering a 10% premium incentive. Therefore, any new development brought forward is unable to stack up to the existing cost of the land presently. This has the result that current value sets (i.e. rents and yields) are not wholly sufficient to drive the delivery without intervention. Moreover, it is acknowledged that value of industrial land in City Edge is potentially likely to continue to increase, as speculative development continues to occur. Whilst this may be the current dynamic, there are interventions that could support future delivery. These range from public sector funding to placeshaping interventions (to drive real growth in values over time).

Undertaking a comparative analysis of residential, office

and industrial land use typologies reveals that residential development generates the smallest return providing a Residual Land Value of ca.€931,000 per ha. This return is inclusive of a grant modelled in to cover the cost of delivering social housing. This finding is not surprising given the current nature of the market in City Edge. It would be expected that values achieved when developments are delivered would, in reality, be higher than the current market rate to reflect the fundamental change in the character of place.

The strategic headroom assessment also considered the impact of delivering 10% of total residential development as a 'residential / workspace typology', and it was observed that there would be a marginal improvement in the overall Residual Land Value ranging from ca.4% - 5%. However, this is not surprising given that the industrial element would be utilised to cross-subsidise the delivery of the residential units.

Industrial development is challenging to deliver given the cost of removing and replacing space without necessarily achieving a significant uplift in quantum on site. Clearly some sites with lower site coverage / value would generate a more positive return within City Edge.

Promoting Viability through Infrastructure

As referred to, it is considered that headroom within City Edge is returning negative values at a high level and this, in turn, gives rise to related issues around development viability. The challenge for City Edge to meet, particularly over the short / medium term, is how to increase viability which in turn can generate financial headroom within the area.

In other large regeneration schemes, there is evidence of significant infrastructure-led value impacts which can range from ca.5% - 20% above baseline conditions. While further detailed work would be needed to estimate this for City Edge, based on such factors as the character of place created and the nature of accessibility improvements for example, it illustrates at a high level how the delivery of infrastructure can positively drive viability and is a necessity for supporting regeneration.

Given the issues around headroom and viability at the present time in City Edge, the funding of infrastructure takes on greater importance, as such infrastructure can be the basis for and generate future economic growth. Due to the current considered lack of headroom, funding is likely to be initially required to fund strategic infrastructure from the public purse. This will ensure enhanced intervention in the area and allow funding to act as a development catalyst. Investing in infrastructure can assist with increasing the overall viability of City Edge across a range of infrastructure categories which, in turn, makes the area a more viable development proposition. As City Edge becomes more developed, its viability will invariably increase over the long-term.

Note: With respect to the Strategic Headroom Assessment, Avison Young accept no responsibility or liability for any use of the information provided beyond the scope and purpose set out.

12.6.4 THE IMPORTANCE OF PLACESHAPING IN REALISING LONG-TERM VALUE

As established in the previous section, at a macro-level there are current issues around the viability of development within City Edge, particularly residential development, that can be attributed to, in part, rising land and property values, increasing construction-related costs and additional inflationary pressures.

In situations where low profitability levels may exist for a residential scheme, developers may typically seek to simply increase the quantum of units in order to increase overall profitability. From a planning perspective, one approach is to increase building height in order to accommodate greater unit numbers, which in turn can result in negative placeshaping outcomes.

This approach of 'building up' and increasing densities can result in poor quality placeshaping outcomes for both residents and the wider locale. Increased building height can potentially be accommodated if the optimum conditions are present, such as at a key node or high capacity transport location. However, cognisance needs to be taken regarding human scale in urban design which is critical in creating a sense of place and connection with street level. While tall buildings can serve a purpose, their relationship to the streetscape and placeshaping quality of the locality needs to be carefully considered along with the potential desire of future residents to actually live in such tall buildings. Whilst hyper density and multiple tall buildings can make individual sites more viable, when applied at the scale of an area like City Edge, they can have a detrimental placeshaping impact, which will in turn impact on viability in the long run.

There have been a number of large scale residential and mixed use developments already approved early in the regeneration process and particularly around the Naas

Road, Kylemore Road and Walkinstown Avenue areas. As set out in Chapter 5 (Housing) these schemes have been brought forward and approved within an existing planning policy context that is driving a particular residential typology, which if carried forward across the whole City Edge area would present challenges.

It is also clear at the moment, that whilst these large scale residential and mixed use developments receive planning, they are challenging to fund and so delivery is very slow. In short, in the current economic climate, it may not be attractive for developers to promote new schemes in City Edge due to a lack of confidence caused by the previous lack of a long-term vision for the whole area, a plan for the coordinated delivery of strategic infrastructure, rising land values and construction costs. These issues are not just related to City Edge but are being experienced across Ireland at the present time.

This issue serves to highlight the importance of taking a plan led approach, that sets a credible vision and programme for the area. It highlights the need for the State to take key role in enabling the early delivery of key infrastructure that will enable development, ensure placeshaping and bring confidence for supplementary investment.

12.7 FUNDING DELIVERY

As noted elsewhere, the scale of change envisaged within City Edge is reliant on the delivery of major pieces of infrastructure. There is a need for a coordinated and considered approach to the design and delivery of this strategic infrastructure to realise City Edge.

How infrastructure interventions are funded and delivered is a critical factor to consider. Some infrastructure requirements will be linked directly to specific development opportunities and sites whereas others are less site specific, but create benefits and opportunities that will be experienced across the area.

Infrastructure delivery is important on many levels for City Edge – it creates a desirable place where people will want to live, work and invest in, it brings confidence to the public, politicians, landowners and investors as it will sustain the desired population growth; it will bring economic benefits to City Edge and the wider Dublin Region such as generating direct employment (and indirect employment - e.g. supply chains, wages being spent on goods / services etc); it can generate a rate of return above the initial infrastructure investment; and it will support social development through the provision of schools, health care and community facilities, for example. However, the scale of strategic infrastructure required over time is significant.

12.7.1 FUNDING MECHANISMS

At present, there are a number of policy mechanisms available for capturing financial value within City Edge and these include the collection of development contributions as provided for under the Planning and Development Act, 2000 (as amended) (the Act). Part V of the Act provides for the contribution of social and affordable housing. The following sections will address funding for the purposes of providing physical and social infrastructure.

Development Contributions

Section 48 Development Contributions
The starting point for infrastructure funding should be the 'traditional' mechanisms of developer contributions as provided for under Section 48 of the Act. This provides that a planning authority, when granting permission for a development, may include conditions for requiring the payment of a contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority and that is provided, or that it is intended will be provided, by or on behalf of a local authority.

Section 48 of the Act also provides for the payment of a special contribution where exceptional costs not covered by a scheme are incurred by the local authority regarding public infrastructure and facilities which benefit the proposed development.

Section 49 Supplementary Development Contribution Schemes
Section 49, sub-section 1, of the Act provides for the collection of supplementary development contributions in respect of any public infrastructure service or project.

By way of example, a supplementary development contribution scheme was established by Dublin City Council to assist the funding and delivery of the Luas Cross City extension (St. Stephen's Green to Broombridge) which had a project cost of €382.5 million. At present, there is no such supplementary development scheme in place to assist the funding required to deliver the necessary infrastructure for City Edge.

Development Contributions in City Edge
A significant challenge for development in City Edge today is likely to be the impact of any special or section 49 contribution on development viability, meaning that such a levy might not be affordable by the development today. However, as statutory plans are adopted, land values are managed, and as placeshaping infrastructure and early development begin to enhance the area, viability will improve and development will be able to contribute more towards the overall vision of City Edge. As such, the next stage of the statutory plan making process, will consider:

- if and when, special or section 49 contributions could be introduced;
- the role of LVS and UDZs; and
- the role of an 'overage agreement' for early developments whereby profits generated beyond a pre-agreed level are shared with the local authority thus not impacting delivery. Such agreements are increasingly common in complex development projects and therefore should be within the realms of possibility for City Edge.

State Level Support

National Development Plan
The government brought forward its revised National Development Plan (NDP) for 2021-2030 in October of 2021. The NDP set out a total figure of €165 billion for investment in, inter alia, housing, transportation, climate action and job creation. The NDP states that achieving a high-quality stock of infrastructure throughout Ireland will require sustained and elevated levels of investment over the long-term.

Recovery and Resilience Plan
At a European level, funding is currently available to the government through the 'Recovery and Resilience Facility' (RRF). In short, the RRF is a funding mechanism available to EU member states to finance new projects and to boost their economy due to the impact of the pandemic. This funding stream is available until 2026 and therefore represents a potential short-term option for City Edge. As part of the funding process, national governments are required to submit Recovery and Resilience Plans (RRP) to the EU Commission. Ireland's RRP has three primary investment areas: green transition; digital transition; and

economic and social resilience which has relevance to City Edge. For instance, the RRP sets out that the government will support a jobs-led recovery by, inter alia, investing in job-rich infrastructure that supports long-term capacity and policies to encourage employment and economic growth and promote sustainability. A total of €915 million is available at a state level for investment under the RRP.

'Housing for All' (A New Housing Plan for Ireland)
The recent government report 'Housing for All' (A New Housing Plan for Ireland), prepared by the Department of Housing, Local Government and Heritage, provides commentary around a number of key areas that have relevance to City Edge. The mechanisms of LVS and UDZs have already been discussed in Section 12.5 'Planning Policy'. They are discussed below in the context of state level funding.

Land Value Sharing
The 'Housing for All' report proposes a land value sharing mechanism in relation to a proportion of land value gain arising from public policy decisions, such as the re-zoning of land and investment for the wider public benefit / community gain. In terms of funding, the report states that,

'Part V obligations and development contributions do not generate sufficient revenue to address the cost of providing land, infrastructure and housing to meet the needs of sustainable communities, particularly for development at scale on an area-wide basis'.

The land value sharing concept will involve securing a percentage proportion of the value of a development site (tracked from a point of zoning or designation to a point of planning permission). The government has since published the 'General Scheme of the Land Value Sharing and Urban Development Zones' Bill (December 2021) which proposes up to 30% of the value uplift. The legislation sets out that it is proposed that all or part of the contribution to be secured by condition of the planning permission may be facilitated by financial contributions, land transfer, and / or the undertaking of infrastructural works by the developer, in order to fund or provide for the necessary infrastructure to support the development of sustainable communities.

The implementation of such a land value scheme / mechanism will be financially significant given the future residential and mixed use developments that will come forward in City Edge over time, and the quantum of physical and social infrastructure required to be funded to support these developments.

Urban Development Zones
The 'Housing for All' report, and aforesaid legislation, provide for a new mechanism of governance in the form of Urban Development Zones (UDZ). UDZ designations will be applied to large scale areas that could include lands in public and / or private ownership and transport-led development areas. A central aspect of the application of a UDZ is that land value sharing, as referred to, can be applied. The commentary around the UDZs sets out that given the need to ensure that the key pieces of infrastructure to support the comprehensive development of these strategic areas can be delivered in a timely manner, it is also proposed to introduce enhanced land assembly and acquisition powers, which may include obligations for the transfer of 'critical land' required for infrastructure within the UDZ to the designated development agency on behalf of the State.

The introduction of a UDZ may present real governance and financial options for City Edge given its significance as referred to within the Regional Spatial and Economic Strategy for the Eastern & Midland Regional Assembly. A key advantage of a UDZ designation, and particularly for City Edge, is the prioritisation for complementary State investment to ensure housing delivery including the upfront enabling of strategic infrastructure and services.

Urban Regeneration and Development Fund
The NDP initially brought forward the Urban Regeneration and Development Fund (URDF). The URDF has proven to be an important and significant source of funding for the renewal and regeneration of cities and towns across Ireland, with ca.€1.6 billion allocated to date. The fund has now been extended to 2030. Project funding includes Clonburris and Adamstown SDZ (South Dublin County Council) and North and South Inner City (Dublin City Council) with a total of ca.€361 million invested in these projects.

Further URDF funding will take account of the objectives of 'Housing for All' and reflect the significant investment proposals for regenerating key areas of cities and also the investment needed to promote residential development on brownfield lands.

Ireland Strategic Investment Fund
The Ireland Strategic Investment Fund (ISIF) is managed by the National Treasury Management Agency and offers finance for infrastructural requirements that will support Project Ireland 2040 priorities such as regional development, housing, and climate change. The Fund has provided finance for a wide variety of projects to date, including the Cherrywood SDZ where assistance was provided to enable the construction of essential infrastructure.

Tax and / or VAT relief measures
This type of financial intervention, which has been used in Ireland in the past, would incentivise and drive development in specific locations or encourage delivery of specific uses – this could take the form of incentives such as reduced VAT on construction costs and professional fees, stamp duty exemptions or income tax relief. This would need to be supported by national government.

Tax Increment Funding
Tax Increment Funding (TIF) is a tool that principally allows local authorities to invest in public infrastructure upfront by using anticipated future tax revenue generated by development as a means of finance. The aim of TIF is to provide the necessary infrastructure for an area in order to encourage new development and activity thereby creating an uplift in the value of an area. This, in turn, also generates increased rates revenue.

Public Spending Code
It is important to note that any Government decisions to fund projects will need to be taken in line with the requirements of the Public Spending Code (PSC) as revised by the Department of Public Expenditure and Reform. The updated PSC will assist public bodies in delivering greater value for money and provide clarity on roles and responsibilities within the project lifecycle. All Government departments, local authorities, public bodies, etc. and any bodies in receipt of public funding must adhere to requirements of the PSC. The PSC is a key enabling reform for Project Ireland 2040 to ensure better project appraisal mechanisms, more commercial delivery of projects and better estimation and management of costs.

12.7.2 ROLE OF STATE AGENCIES IN DELIVERING INFRASTRUCTURE

There is a significant level of strategic infrastructure required across City Edge, the majority of which will ultimately need to be coordinated and delivered by a number of state agencies, including public transport, new and enhanced roads, utility networks, parks, education and health facilities.

The current structure for the delivery of capital projects provides challenges for the funding and delivery of physical and social infrastructure across City Edge due to the number of actors involved. Delivery of infrastructure within City Edge will require a number of government departments and agencies to successfully work in tandem, and this challenge is further amplified by City Edge being located across two local authority jurisdictions. The funding that is allocated to these agencies can bring significant infrastructural benefits to City Edge.

- **National Transport Authority (NTA):** Since 2010, the NTA has operated a Sustainable Transport Measures Grants (STMG) programme. This programme provides funding to local authorities, public transport bodies and other agencies for the implementation of various projects within the Greater Dublin Area. In total, the NTA allocated ca.€108 million in funding under the STMG programme. Over 2021, the NTA earmarked €240 million to fund sustainable transport projects in Ireland.
- **Transport Infrastructure Ireland (TII):** TII has responsibility for managing the national road and light rail networks. For the 2021-2025 period of the NDP, TII has earmarked €676 million for funding for greenways and national road projects.
- **Iarnród Éireann:** Under Project 2040, and supported by the NTA, Iarnród Éireann will deliver rail infrastructure improvements such as investing in the development of the rail network, new stations, new carriages and track, signalling and level crossing improvements. In 2019, the government announced a €1 billion investment programme over five years to fund and improve the national heavy rail infrastructure.
- **Irish Water:** The NDP sets out that for the period 2021-2025, almost €6 billion will be invested by Irish Water in respect of public water infrastructure and significant capital projects, of which over ca.€4.5 billion will be funded by the Exchequer.
- **ESB and Eirgrid**: EirGrid is a state-owned company and since 2006 has responsibility for managing, developing and operating the transmission grid. EirGrid will be investing ca.€1 billion in the power system over a 5 year period to 2025. ESB Networks is 95% owned by the State and is responsible for carrying out maintenance, repairs and construction on the grid. ESB Networks invests over €1 billion per annum to facilitate a more sustainable energy environment that supports economic growth.

Land Development Agency
The adoption of the NDP resulted in the creation of the Land Development Agency (LDA). The LDA has two main objectives:

- Co-ordinating appropriate State lands for regeneration and development, opening up key sites which are not being used effectively for housing delivery; and
- Driving strategic land assembly, working with both public and private sector landowners to smooth out peaks and troughs of land supply, stabilising land values and delivering increased affordability.

The LDA has an initial focus on managing the State-owned lands to promote the development of new housing, particularly affordable housing, and on under-utilised sites. Over the long-term, the LDA will assemble strategic land areas (from a mix of public and private ownership) in order to make these areas available for housing. This long-term objective seeks to promote a stable housing market in Ireland. The government has provided the LDA with funding of €1.25 billion.

12.8 GOVERNANCE

12.8.1 INTRODUCTION

The governance structure that is adopted for City Edge will have a key influence on its future economy. A governance structure that is public sector driven and incorporates a Strategic Framework (such as a statutory plan) to guide development, can provide a degree of certainty that can have long term economic benefits, particularly in terms of investment.

SDCC and DCC have worked collaboratively to prepare this non-statutory Strategic Framework and this approach has worked well to date. The preparation of a statutory plan will be a key early step in the overall governance of the area and South Dublin County Council and Dublin City Council will continue to work in a co-ordinated fashion to bring this forward. As stated earlier within this chapter, there are several options for putting the regeneration of City Edge on a statutory footing including variations to Development Plans, a Local Area Plan, an Urban Development Zone planning scheme (should the latter mechanism be legislated for) or a combination of some of these options.

A governance strategy incorporating a full options analysis will be prepared alongside the statutory plan. This strategy will assess a range of potential long-term Governance options including, for example:

- Continued collaborative working across both authorities.
- Establishment of a single team.
- Establishment of a stand-alone Delivery Agency with decision making and investment powers.

The creation of a bespoke vehicle such as a development authority, board, taskforce, or similar, could provide governance advantages for City Edge such as:

- Amalgamating the South Dublin County and Dublin City jurisdictions into a single City Edge development authority.
- Establishing a singular development direction and focus for the regeneration process.
- Eliminating any confusion or ambiguity in relation to who is responsible for City Edge regeneration.
- Allowing decision-making responsibilities to be delegated in a transparent manner.
- Promoting economic development within City Edge by providing a 'public face' for potential businesses who may wish to locate within the area.
- Promoting potential strategic partnerships and collaborations (for example, public-private partnerships).
- Establishing an effective monitoring system that can re-assess and evaluate defined aims and objectives at periodic stages throughout the regeneration process.

The following two case studies give examples of successful governance structures in England and Australia.

Case Study: Mayoral Development Corporations in England

Legislation in England allows for the establishment of Mayoral Development Corporations (MDC) where there is a directly elected Mayor in place. MDCs are established using Statutory Instruments and take on a number of statutory powers from local authorities, including the ability to prepare a Statutory Development Plan, determine planning applications, and the MDC is afforded the power to compulsorily purchase land, and given the remit to deliver infrastructure and development. In London two MDCs have already been established including: firstly, the London Legacy Development Corporation, which was set up to deliver the legacy of the London Olympic and Paralympic Games 2012; and secondly the Old Oak and Park Royal Development Corporation, which was set up to realise the huge potential benefits from the delivery of a new HS2 (high speed railway project) superhub interchange on brownfield land in west London. These Corporations are charged with setting and delivering the Vision for these places and play a central role in coordinating the works and funding needed to regenerate these lands and have the benefit of reporting to the Mayor and board appointed by the Mayor.

Case Study: Fisherman's Bend Regeneration Project, Melbourne, Australia

The governance approach for this regeneration scheme (just under 500 hectares in area) comprises, at a statutory level, the state of Victoria government, and Melbourne City and Port Phillip City Councils. A Taskforce and Development Board was also established to oversee the delivery of the regeneration framework. The regeneration scheme demonstrates the need to work in a collaborative manner at all levels of the governance framework, in this case being from local councils to state government, while also creating effective partnerships with the community, industry, landowners and businesses. The governance structure also promotes collaboration through, for example, the development of Precinct Plans for individual neighbourhood areas that are the responsibility of both the Taskforce and the two City Councils.

12.8.2 IMPLEMENTATION

Following the preparation of the statutory plan, key projects and recommendations contained in the Plan will be moved from the concept stage into the implementation stage (i.e. planning, design, business case, and construction).

The implementation phase will involve the careful coordination of important elements that make up a self-sustaining and integrated urban community such as parks, green and blue infrastructure, transport / movement infrastructure, employment, housing, community, retail, sports, arts and cultural facilities.

City Edge can only move into the implementation stage when there is certainty around the governance arrangements, planning instrument, and funding streams. In essence, the governance arrangements will be critical to the successful implementation of the City Edge project.

12.8.3 MONITORING

A monitoring framework incorporating targets, phasing, sequencing and tracking will form an integral part of the statutory plan. Monitoring will use a combination of quantitative and qualitative measures to track economic performance and the implementation of the various plan policies, objectives (including economic objectives) and projects and will help ensure the overall realisation of the aspirations of the plan. Quantitative measures could include metrics such as the number of residential units constructed, the number and types of jobs, pieces of infrastructure provided, the spatial location of these, carbon impact, etc.; while qualitative measures could include assessment of achievement of design standards, placeshaping, liveability etc.

12.9 PRIORITY ACTIONS FOR CITY EDGE

12.9.1 INTRODUCTION

City Edge is a once in a generation opportunity to deliver a new urban quarter fit for the future.

A lot of elements that will help achieve the City Edge vision are already in place: -

- A Steering Group with stakeholders including state agencies (Department of Housing, Local Government and Heritage, Irish Water, Land Development Agency, National Transport Authority, Transport Infrastructure Ireland);
- Ongoing collaboration between the two local authorities and a commitment to continue to work together;
- A Strategic Framework in place to inform the next stages of the regeneration programme;
- A commitment to preparing a Statutory Plan following this Strategic Framework which will set out a detailed development strategy;
- Positive engagement from stakeholders including landowners, business owners, local communities, interest groups and state agencies;
- The benefit of experience from best practice abroad via a team of consultants with international experience.
- Several major infrastructure projects at various stages of planning and implementation including BusConnects, new Naas Road Luas stop, and the Camac Flood Alleviation Scheme.

However, notwithstanding these positives, to deliver the scale of opportunity offered by City Edge requires a coordinated approach that will involve actions sitting with both the public and private sectors.

At this stage it Is not possible to set out all activities needed to realise the City Edge vision. However, this next section sets out those priority actions that should be progressed over the coming two years.

12.9.2 PREPARATION OF A STATUTORY PLAN

To progress the regeneration process for City Edge a statutory plan will be needed. However, in the first instance DCC will need to progress a variation to the City Development Plan to change the zoning of lands within the City Boundary. SDCC will also need to progress Development Plan Variations to provide a statutory footing for consideration of planning applications within the SDCC part of City Edge, in the interim until a statutory plan is in place. The preparation of a LAP for City Edge must take account of its lands being situated within the local authority jurisdictions of SDCC / DCC and as described in earlier sections, there is provision in legislation for transboundary local area plans.

While not being wholly prescriptive at this stage, it is envisaged that a number of reports and studies will inform the preparation of a statutory plan as follows:

- A detailed building height and density study;
- An Employment Space study / Employment Opportunity study (or similar);
- A Housing Needs Demand Assessment;
- An Energy Management and Energy Provision Feasibility study;
- The required environmental assessments including a Strategic Environmental Assessment (SEA), Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA).

Action 1:
Progress Variations to the SDCC and DCC Development Plans, with the purpose of providing a statutory footing for assessment of planning applications, in the case of SDCC; and to address land use zoning changes, in the case of DCC. The intention is that both Councils will also jointly progress a transboundary statutory plan that would provide more detailed policies. The type of plan will need to be determined in due course, but would likely be either a Local Area Plan or an Urban Development Zone Planning Scheme.

12.9.3 URBAN DEVELOPMENT ZONE

As referred to earlier in this chapter, new legislation is being brought forward at central government level in the form of the 'General Scheme of the Land Value Sharing and Urban Development Zones' Bill. This legislation, if / when enacted, provides for a new governance mechanism through the creation of UDZs. As described in earlier sections, the UDZ designation as proposed in the legislation would offer significant benefits to City Edge including certainty of planning, access to value uplift, identification of critical land for infrastructure provision and land assembly. Engagement will be required with the DHLGH regarding expediting the legislation and to explore the potential of future UDZ designation for City Edge.

Action 2:
Engage with the DHLGH regarding bringing forward legislation providing for UDZs and explore the potential of future designation for City Edge.

12.9.4 REVIEW OF SPECIFIC PLANNING POLICY REQUIREMENTS (SPPRS)

The 'Sustainable Urban Planning: Design Guidelines for New Apartments' (DHLGH, 2020) (the Apartments Guidelines) contain Specific Planning Policy Requirements (SPPRs) relating to various aspects of apartment provision and design including size, facilities and tenure. The 'Build-to-Rent' concept was also introduced whereby there are reduced standards for larger apartment schemes built specifically for the rental sector. The consequence of this guidance has been the proliferation of Build-to-Rent schemes in certain locations, including City Edge. The 'Urban Development and Building Heights: Guidelines for Planning Authorities' (DHPLG, 2018) (the Building Heights Guidelines) also introduced SPPRs that promote increased building heights and densities in certain locations.

As part of the research for Chapter 5 (Housing), recent schemes within City Edge were assessed against a Liveable City Matrix developed through analysis of best practice international housing case studies. Four planning applications within City Edge accounting for approximately 2,000 units were evaluated. These developments were granted permission after the introduction of the SPPRs in the Apartments and Building Heights Guidelines.

The assessment indicates that the schemes constructed in the context of this policy environment, result in developments that are not performing as well as the international case studies, particularly in relation to criteria including mix of uses, tenure type and unit size. Schemes were also found to be higher in density, to result in poorer urban form and to have less private open space provision than the international case studies.

The City Edge strategic objective in relation to Homes is to 'Accommodate a mixed and balanced community..... with a choice of different housing types, tenures and sizes'. Achievement of this objective will be challenging in the current policy context. As such, engagement with the DHLGH is required with the aim of reviewing certain SPPRs and gaining support for a bespoke approach to housing policy and guidance within City Edge.

Action 3:
Engage with the DHLGH to review certain SPPRs and to garner support for a bespoke approach to housing policy and guidance within City Edge, informed by HNDA's.

12.9.5 SUPPORT THE PREPARATION OF A HNDA

Guidance recommends that Housing Need and Demand Assessments (HNDAs) be carried out at a local authority level with scope for assessments for individual catchment areas where required. Interim HNDAs have been prepared by both SDCC and DCC which can provide a holding position for the Strategic Framework until they have been progressed. Preparation of a HNDA that treats City Edge as a single catchment area would appear to be the optimal way to proceed for the purpose of informing a transboundary Statutory Plan for the area.

Action 4:
Investigate the potential for preparation of a HNDA for City Edge as a single catchment area spanning the SDCC and DCC boundaries.

12.9.6 ENSURE LONG-TERM RSES HOUSING FIGURES ACCOUNT FOR FUTURE CITY EDGE GROWTH

At regional level, the RSES / MASP (the Regional Spatial and Economic Strategy / Metropolitan Area Strategic Plan) allocate 66,000 people for the South-West Corridor (which includes City Edge) up to 2031. Therefore, it appears that there is sufficient short to medium term capacity in these regional allocations to accommodate the population envisaged over the same period, as set out in the sequencing table for City Edge. However, post 2031 a larger allocation of homes for City Edge will be required in the updated RSES. The statutory plan that will follow this Strategic Framework will provide the opportunity to inform any revised RSES.

Action 5:
Liaise with the Eastern and Midland Regional Authority to ensure long-term RSES housing figures account for future City Edge growth.

12.9.7 PRIORITIES FOR INFRASTRUCTURE DELIVERY

A series of significant early infrastructure interventions are required for City Edge to achieve the vision set out in this Strategic Framework which will see it evolve over time into a new urban quarter, providing new homes and employment space. Particular actions are required to ensure that these pieces of infrastructure are advanced in a timely manner.

12.9.8 NEW FOUL WATER INFRASTRUCTURE:

As set out in Chapter 10 (Utilities), there is very limited capacity within the 9B sewer system which serves most of the existing City Edge area, to take additional loadings. Interventions such as local network upgrades and dealing with misconnections which have resulted in rainfall induced infiltration and high trade flows may release a small amount of capacity in the short-term, while the City Edge sponge city principles will also contribute to alleviating surface water infiltration. However, to cater for development at the scale of City Edge, the ultimate solution is upgrade of the 9B sewer system. Further engagement is required with Irish Water in order to ensure that this project is prioritised. Addressing wider capacity issues in relation to the 9B will also benefit areas upstream of City Edge including Clonburris and Adamstown,

where significant development is planned. There should therefore be a multi-agency approach to the funding and delivery of such infrastructure in City Edge.

Action 6:
Agree a programme of local interventions to free up current and additional foul network capacity.

Action 7:
Work with Irish Water to plan for the upgrade of the 9B sewerage system.

12.9.9 KYLEMORE STATION:

A new railway station at Kylemore Road is provided for in the Draft GDA Transport Strategy 2022-2042. This is a key piece of infrastructure for City Edge which will deliver a multi-modal interchange directly connecting services planned under DART +, BusConnects and Lucan Luas Line. A SAR (Strategic Assessment Report) is required for Kylemore Station, as per the obligations of the Public Spending Code Guidelines (2019). The SAR is the first phase of the project lifecycle and allows for early analysis of rationale and objectives, consideration of options and identification of risks associated with a potential investment proposal. The NTA will be responsible for arranging for the assessment of a new Kylemore rail station which will be progressed through Iarnród Éireann.

Action 8:
Arrange for the assessment of the proposed Kylemore Rail station to be progressed through Iarnród Éireann (IE) engaging with the relevant stakeholders, as per NTA undertaking.

12.9.10 NEW LUAS STOP ON NAAS ROAD

There is currently a 2km distance between the existing Red Cow and Kylemore Luas stops. The City Edge Strategic Framework proposes a new Luas stop in between these stops which would provide a much wider catchment area within comfortable walking distance of public transport. In the GDA Transport Strategy, the NTA commits to exploring options for additional Luas stops where demand for travel is identified. The NTA will arrange for the assessment of the proposed Naas Road Luas stop to be progressed through Transport Infrastructure Ireland (TII).

Action 9:
Arrange for the assessment of the proposed Naas Road Luas stop to be progressed through TII engaging with the relevant stakeholders, as per NTA undertaking.

12.9.11 UNDERGROUNDING OF OVERHEAD HIGH VOLTAGE LINES:

Pylons and overhead lines within City Edge considerably reduce the developable area, while they also have a negative visual impact and are perceived to have adverse health implications. Therefore, in terms of making the best use of land and creating an improved setting, undergrounding of the overhead lines is desirable. There are various options for this including full undergrounding or undergrounding in priority areas only. Engagement has already taken place with ESB Networks and Eirgrid. The first step is the carrying out of a feasibility study which would take 6-8 months from appointment of consultants. Undergrounding is expensive and would take 5-10 years to complete, or if a deep-bore tunnel method is used, completion time would extend beyond ten years. Further engagement with the providers is required to progress this project.

Action 10:
Carry out further engagement with ESB Networks and Eirgrid with a view to initiating a feasibility study for the undergrounding of overhead lines.

12.9.12 CAMAC RE-NATURALISATION

This is a key blue green infrastructure objective for City Edge with a number of potential benefits including flood alleviation, creation of a linear park, improved biodiversity, and a focus for amenity and recreation. Much of the Camac re-naturalisation will be achieved on a piecemeal basis as individual development sites come forward, and as the Camac Linear Park is created, all guided by the provisions of the Camac Flood Alleviation Scheme.

Action 11:
Engage with the OPW and Environment sections of DCC and SDCC regarding progressing the Camac Flood Alleviation Study with a view to aligning implementation of the flood alleviation scheme and City Edge development timelines.

12.9.13 FIRST PARK

The Sequencing of Key Infrastructure diagram sees the first park as coming on stream by 2030. Of the 4 major and linear parks, two involve enhancement of existing parks (Lansdowne Park and Walkinstown Park) while two are new parks (the Camac and Grand Canal Linear Parks). Three out of the four parks are within, or border on the Naas Road District which is the area where development is likely to come on stream first – these are Lansdowne Park, Walkinstown Park and the eastern part of the Camac Linear Park. Kylemore is identified as likely to host development in the short to medium term and as such, priority should also be given to the eastern section of the Grand Canal Linear Park which is within this district. The Statutory Plan to follow this Strategic Framework will set

out in detail a mechanism for delivery of parks. Existing and potential funding mechanisms include development contributions, land value sharing and identification of critical land for infrastructure. Engagement with the DHLGH regarding bringing forward the legislation to provide for UDZ and LVS is required to progress this.

Action 12:
Commence a feasibility study to deliver the first sizable park enhancement (a new park and / or enhancement to an existing park) around the Kylemore area, including defining the exact location, layout, land assembly requirements, cost and funding options.

12.9.14 IMPROVED BUS SERVICES AND ACTIVE TRAVEL MEASURES

A number of high-quality bus routes serve City Edge. However, there will be need for continuous improvement to meet growing demand and to cater for modal shift as set out in the NTA's Draft GDA Transport Strategy 2042. This document highlights the importance of enhanced bus capacity, reliability and performance. Bus will be key to serving City Edge as the area regenerates and evolves as it is a more cost-effective and responsive way of providing mass-transit than rail. Planned improvements are already underway that will benefit City Edge through implementation of the BusConnects core bus corridor infrastructure, network redesign and next generation ticketing. However, engagement with the NTA will be required to ensure that improvements continue to keep pace with development in the area. There is also an important role for enhanced active travel infrastructure to enable people to move easily to and from the area, which can be delivered more quickly.

Action 13:
Support the planned delivery of BusConnects through City Edge, but in addition, engage with the NTA with a view to ensuring additional high frequency bus services and enhanced active travel measures are delivered in a timely fashion to serve City Edge, in particular early development areas which are likely to be within Naas Road and Kylemore Districts.

12.9.15 INNER ORBITAL ROUTE

Two key orbital corridors have been identified as required to support regeneration of City Edge into the future – an inner and an outer orbital public transport route. While bus is envisaged as serving these routes in the short to medium term, longer term forecast demand would suggest that the inner route would require a higher capacity solution that would be provided by rail. Engagement with the NTA will be necessary to ensure that inner orbital public transport is identified as a priority to support regeneration and that funding and other requirements are made available to facilitate this.

Action 14:
Engage with the NTA with the aim of progressing the design and delivery of street works along the Inner Orbital route to facilitate enhanced bus services and safeguard land for future potential light rail services, including examination of possible funding mechanisms.

12.9.16 ENERGY NETWORK

To achieve Government climate action targets and the vision of City Edge to create a climate-resilient urban quarter, major interventions are required in relation to energy provision and use. This will require exploration of all potential opportunities for renewable energy including waste heat, solar PV, solar thermal, wind biomass, CHP, anaerobic digestion, hydrogen production and sewer heat recovery. Consultation has already taken place with Codema regarding the potential for renewable energy within City Edge and further engagement will be necessary. Additional analysis to inform an Energy Provision and Energy Feasibility Study will be required during the forthcoming Statutory Plan stage.

Action 15:
Carry out a detailed Energy Management and Energy Provision Feasibility Study and as part of this work engage further with Codema

12.9.17 SEVESO SITES

Seveso sites are defined as industrial sites that, because of the presence of dangerous substances in sufficient quantities, are regulated under EU Directive. Of the 4 Seveso sites within City Edge, risk contour mapping has only been carried out for one – the BOC Gases site, which is an upper tier (higher risk) site and for which a report has been prepared separately by the HSA. The risk contour report advises that specific consultation with the Health and Safety Authority (HSA) is required for development inside one of the risk zones identified (middle zone) for the BOC Gases site. Further clarity is also needed in relation to more general HSA advise on the application of prescribed development details and sizes in Risk Zones as per the Guidance on technical land-use planning advice For planning authorities and COMAH establishment operators (2022). Research on Seveso Sites and on the HSA Guidance has been undertaken as part of the City Edge Project and the HSA have already been engaged with, with a view to expediting risk contour mapping for the remaining 3 sites which are lower tier (lower risk) sites. Consultation Zones / Distances have also been identified by the HSA and these are mapped in Chapter 11 (Districts and Character Areas) of this document. As established Seveso sites have potential off-site effects on the type and density of development permissible within risk contours for each site, risk mapping is required as soon as feasible. Engagement of consultants to carry out mapping for these sites is an option that should be explored while continued consultation with the HSA is also crucial. The completed risk contour mapping will

inform the Statutory Plan that will follow this Strategic Framework.

Action 16:
Progress the preparation of Risk Contour mapping for the lower tier Seveso sites and obtain further clarity on development within risk zones either via the HSA or if necessary the engagement of consultants.

12.9.18 COMMUNITY PARKS

As set out in Chapter 9 (Natural Infrastructure), Community Parks will be provided at the rate of approximately one per 4,000 residents. Some community parks may be provided as part of an entire development while others may need to be co-ordinated between sequential schemes. One method of co-ordinating and funding delivery is for landowners to support a collective fund, which can be used both to acquire land to provide the park and to reimburse the lost development revenue for the landowner(s) shouldering the burden of providing land for a park. There may also be opportunities to facilitate greater density on the balance of a site where a landowner has provided land for a park, subject to satisfying urban design and placeshaping principles and other development criteria. Oversight of this process would sit with the development agency. The Statutory Plan to follow this Strategic Framework will provide more detail on location, sequencing, phasing and precise mechanisms for delivery of community parks.

Action 17:
Prepare a strategy for delivery of community parks to inform the Statutory Plan for City Edge.

12.9.19 LAND ASSEMBLY

Achievement of regeneration at the scale of City Edge will involve the change of use of some land currently used for employment and industrial to mixed use development and / or associated infrastructure. This will require land assembly either by proactively acquiring land or assembling necessary land via CPO powers.

Action 18:
Work with both local authorities, Central Government and state agencies to identify and secure funding to proactively acquire lands in the area to facilitate the delivery of new homes and mixed-use development.

Action 19:
Access to funding should be available from the state to enable the local authorities to assemble land (including through the use of CPO powers) to facilitate the delivery of strategic infrastructure.

12.9.20 STATE SUPPORT FOR BUSINESS RELOCATION

A recurring concern for business owners that was raised both during the public consultation process and also in the context of ongoing stakeholder engagement over the last eighteen months is the issue of support for relocation for those businesses who are interested in moving to facilitate redevelopment of their site. Given the scale of City Edge, this requires to be considered at a strategic level within the MASP (Metropolitan Area Strategic Plan) region.

Action 20:
Consider a regional approach to the zoning of land for industrial purposes to facilitate the relocation of existing industrial uses from this land to less central locations. State ownership of a strategically zoned area of industrial land could play a significant role in facilitating the relocation of existing businesses not just from City Edge but a range of other centrally located industrial estates.

12.9.21 FUNDING AND FINANCING ANALYSIS

There are multiple options for how infrastructure can be funded and financed over time to support the delivery of the long-term City Edge vision. This can include, for example, access to grant funding, cheap financing, state incentives, tax relief and tax Increment Funding.

Action 21:
Carry out a comprehensive analysis of potential infrastructure funding and financing mechanisms. This can include, for example, access to grant funding, cheap financing, state incentives, tax relief and tax Increment Funding.

12.9.22 COORDINATION OF STAKEHOLDERS

Intensive engagement with stakeholders has already been carried out in the period leading up to the preparation of the Strategic Framework including a four-week public consultation period from 9th September to 6th October 2021; International Conference Events; live online public presentations; creation and launch of dedicated City Edge website The City Edge Project | A Transformative Initiative for Dublin City; and a Facebook, Instagram and Twitter campaign.

The City Edge website was viewed by 8,800 people over the public consultation period and approximately 6,000 people attended the live events, with over 400 additional offline views. This is a significantly greater level of engagement than is generally achieved by more traditional means of engagement. A total of 106 formal submissions were received from residents, landowners, businesses, interest groups and agencies.

A summary of the public consultation process including the issues raised in the submissions and the response of the Chief Executives of SDCC and DCC is contained in the Chief Executive's Report on Submissions Received, available at the following link: Chief Executive's Report on Submissions Received

Engagement has continued during the preparation of the Strategic Framework including meetings with state agencies and other stakeholders including:

- Department of Housing, Local Government and Heritage (DHLGH)
- Land Development Agency (LDA)
- National Transport Authority (NTA)
- Transport Infrastructure Ireland (TII)
- Irish Water
- Health and Safety Authority (HSA)
- Waterways Ireland
- ESB Networks
- Eirgrid
- Iarnrod Eireann
- Coras Iompair Eireann (CIE)
- Housing Infrastructure Services Company (HISCo)
- Irish Business and Employers' Confederation (IBEC)
- Technological University Dublin (TUD)

Meetings have also been held with many landowners within City Edge.

There are many other relevant stakeholders that will be important to connect with during the next stage of the City Edge Project. These include the Department of Education and Skills regarding schools provision; engagement with the community, arts and culture sectors regarding such facilities within City Edge; continued work with the LDA / CIE regarding development on the Inchicore lands; liaison with landowners regarding existing permissions in City Edge; and continued engagement with residents, businesses and landowners.

Public consultation will form a central part of the Statutory Plan preparation process during the next step of the City Edge project. However, the time constraints of the Statutory Plan process limit the level of engagement that can be pursued. Therefore, it is considered appropriate to organise a more comprehensive stakeholder engagement programme in order to more fully involve and connect with the many interested parties. This will include a discussion with businesses in the area to support them in their decision to relocate or remain in situ. A stakeholder engagement programme will therefore be prepared for the next stage of the City Edge project, for the consideration of the Steering Group.

This will include engagement with the local community living both within and around the City Edge boundary to ensure their views on the project are taken into account. Continued engagement is being encouraged through the use of the Cityedge.ie dedicated website.

Action 22:
Prepare a stakeholder engagement programme for the next phase of the City Edge planning process.

Action 23:
Engage with the LDA in supporting the regeneration of lands at Inchicore identified for transfer to the LDA.

12.9.23 GOVERNANCE

Organisation for Economic Co-operation and Development (OECD) research indicates that cities with fragmented governance structures have lower rates of productivity and economic development. Therefore, governance will be of critical importance to a regeneration project at the scale of City Edge. Three options were presented earlier in this chapter as possible examples of future governance arrangements:

- Continued collaborative working across SDCC and DCC.
- Maintenance and resourcing of the SDCC / DCC project team.
- Establishment of a stand-alone Delivery Agency with decision making and investment powers.

A governance strategy incorporating a full options analysis will be carried out including evaluation of the three options presented.

Action 24:
Prepare a governance strategy incorporating a full options analysis.

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