

GREATER DUBLIN AREA TRANSPORT STUDIES

DUBLIN CITY CENTRE AREA

Final Report

National Transport Authority

November 2021

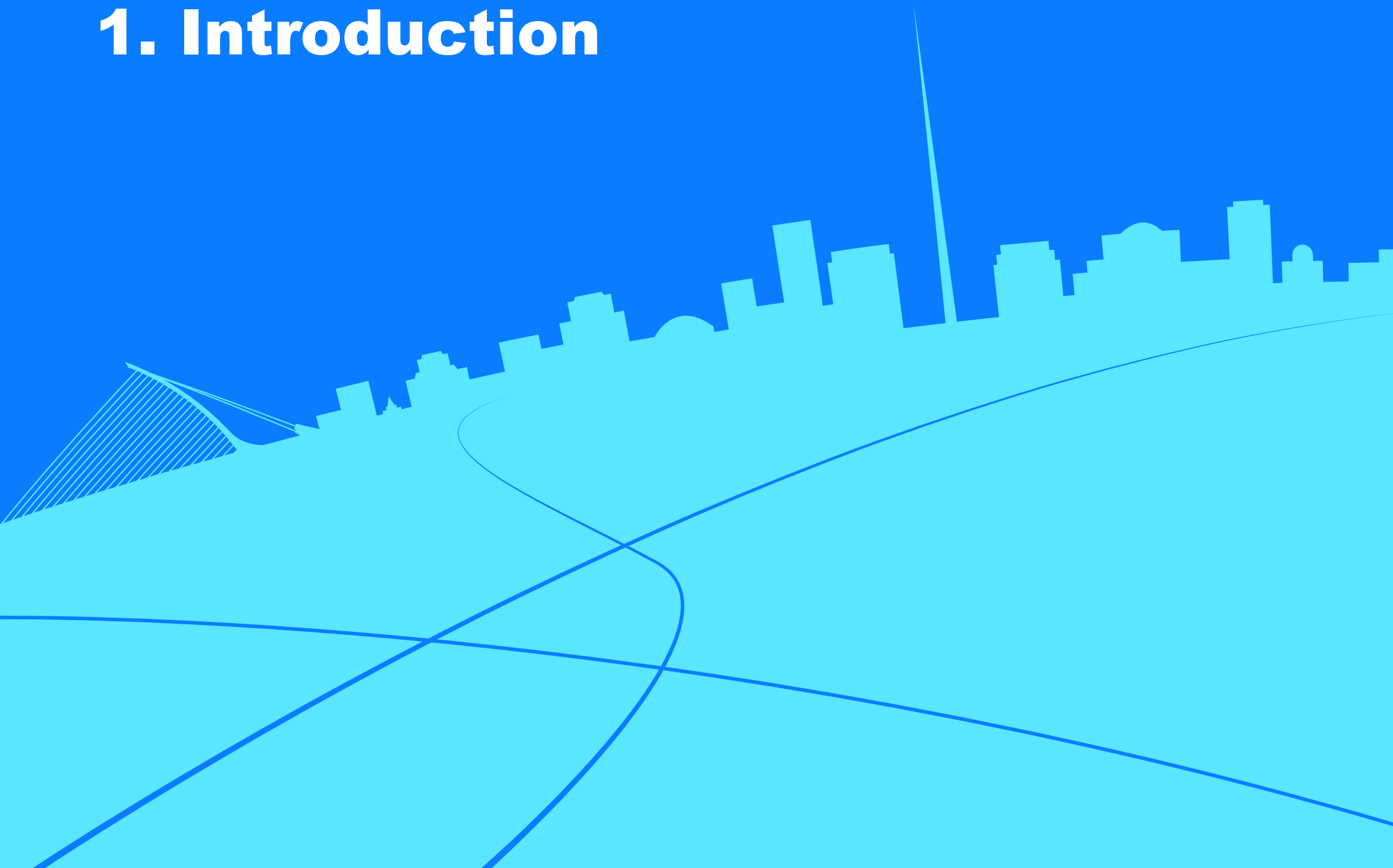


Contents

1. Introduction	1
2. Study Context	3
3. Methodology	8
4. Opportunities and Objectives for Dublin City Centre	10
5. Assessment	14
6. Conclusions	24
Appendix A: Policy Review	27
Appendix B: Case Studies	32



1. Introduction



Chapter 1 | Introduction

1.1 Purpose and objectives of the Study

The National Transport Authority (NTA) commissioned Jacobs Engineering Ireland Limited (Jacobs) to complete a high-level transport assessment of Dublin City Centre. The NTA has commenced the review of the 2016 Transport Strategy for the Greater Dublin Area 2016-2035, and the preparation of a new Transport Strategy, which will consider the future development of the transport system in the Greater Dublin Area (GDA) for the period up to 2042.

The NTA has undertaken a number of 'Area Based Transport Studies' to assist in the development of the new Transport Strategy, identifying high level issues and opportunities, and putting forward considerations which will feed into the new Transport Strategy. In line with this, the initial objective of this 'Dublin City Centre Area Study' (the Study) is to provide a high level review of transport in Dublin City Centre Area.

The Study will establish the key parameters to be brought forward for input into the new Transport Strategy, and will:

- Undertake a high-level review of the relevant policies and plans, to highlight priorities and identify opportunities for further consideration;
- Summarise the current challenges facing Dublin City Centre in relation to transport and the development of the urban realm; and
- Provide case studies to illustrate how specific transport/urban realm opportunities might be considered.



Figure 1.1: Aerial view of Dublin City

1.2 Report structure

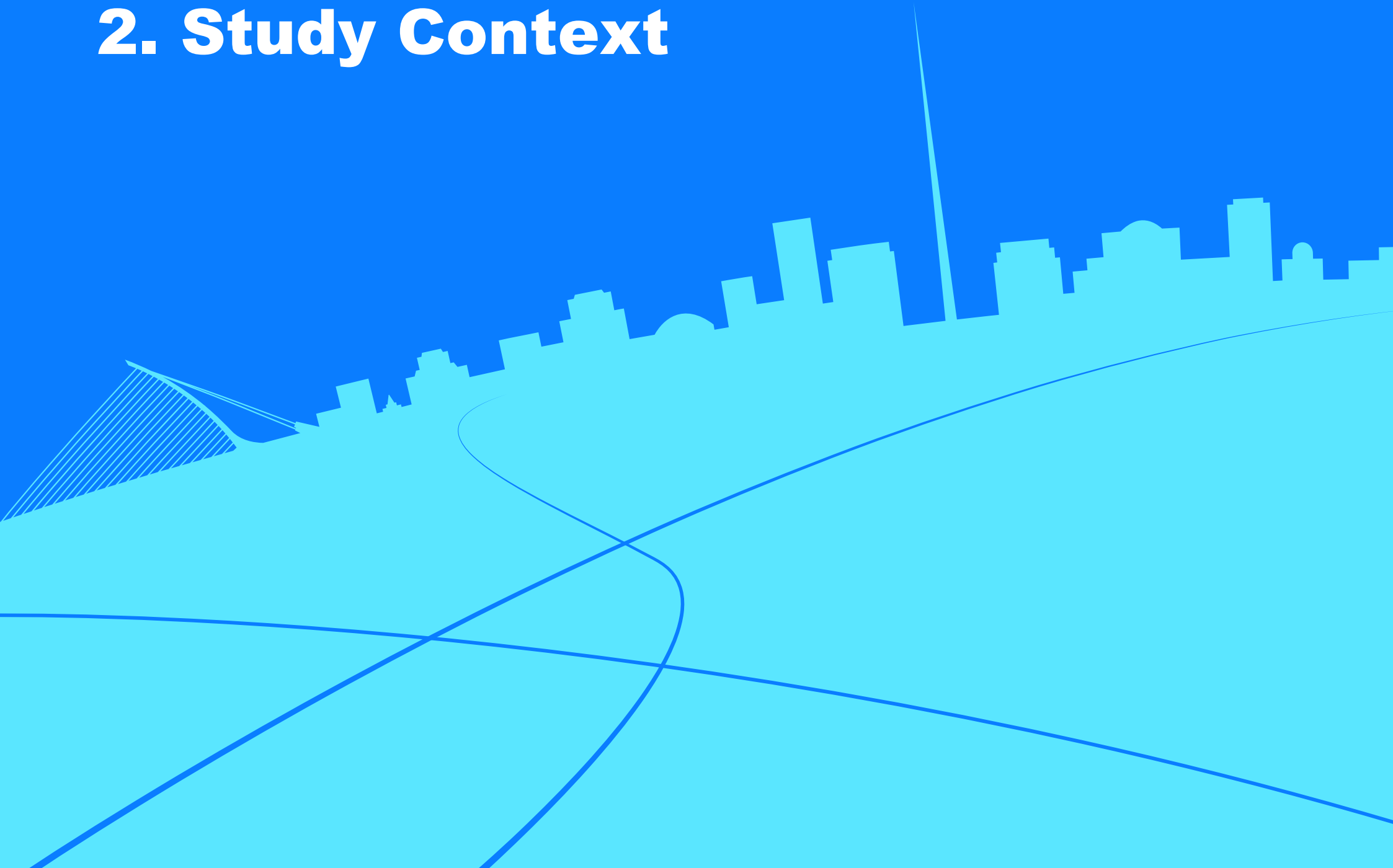
The report is structured as follows:

- Chapter 1: Introduction
- Chapter 2: Study context
- Chapter 3: Methodology
- Chapter 4: Opportunities and Objectives for Dublin City Centre
- Chapter 5: Assessment
- Chapter 6: Conclusions



Figure 1.2: Dublin Luas

2. Study Context



Chapter 2 | Study Context

2.1 Introduction

Dublin City Centre has a substantial role as the economic and administrative centre of Ireland, and hosts prominent health, education, retail, cultural and entertainment facilities and attractions. In recent years it has experienced significant population growth and economic development, with the population living within the Dublin City Council boundary increasing by approximately 4.6% between the 2011 and 2016 census years to reach 554,554 in 2016 (Census, 2016).

Determining the strategic direction for this continuing growth is essential in creating a positive and vibrant city that meets the needs of its residents and visitors in a sustainable and inclusive way.

Sustainable transport and improved mobility are fundamental to the progress of the city, both in terms of public transport capacity and as well-functioning walking and cycling routes integrated into a well-designed urban realm. The Study will focus on the transport network and urban realm specifically within the city centre.



Figure 2.1: Dublin Bikes Scheme

2.2 Transport in the City Centre

The way in which residents, workers and visitors travel to, from and within Dublin City Centre continues to evolve, with recent data suggesting a significant shift towards sustainable modes is already underway. Indeed, in 2019, over 72% of all trips across the canal cordon were by walking, cycling and public transport (Figure 2.2).

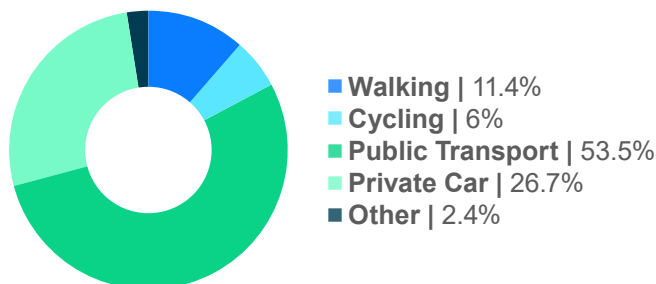


Figure 2.2: Mode share for trips across the Canal Cordon (Canal Cordon Count, 2019)

2.3 Impact of Covid-19 Pandemic

The Covid-19 pandemic has impacted the growth in public transport demand in Dublin. Indeed, due to social distancing requirements, public transport capacity during the pandemic was approximately 20% of pre-pandemic levels. To compensate for the shortfall, a range of temporary measures were implemented to reallocate road space to pedestrians and cyclists, as well as prioritise their movements. Indeed, during the pandemic period, a significant increase in pedestrian and, in particular, cycling trips were observed in the City Centre.¹

2.4 A Changing Transport Environment in Dublin City

Since the publication of the 2016 Transport Strategy for the GDA, there has been a significant change in plans, policy and legislation and external factors affecting the transport network in the city centre.

A detailed summary of policy and strategy documents considered in relation to the Study is available in Appendix A. Key changes include:

The National Development Plan 2021-2030

The National Development Plan was adopted on the 4th of October 2021. It is the national capital investment strategy plan that is integrated and aligned with Project Ireland 2040 – The National Planning Framework (NPF). It sets out the framework of expenditure commitments to secure the Strategic Investment Priorities to the year 2031 and supports the delivery of the ten National Strategic Outcomes (NSO) identified in the NPF.

The NDP sets out that investment will be guided by the metropolitan area transport strategies for the five cities. The strategic investment priorities include: active travel, BusConnects, Dart+, MetroLink and Light Rail. It outlines that the NDP will allow for commencement of planning and design of rail projects across Dublin that may emerge from the review of the Transport Strategy for the Greater Dublin Area. The NDP further comments that the review will set out additional Luas lines across Dublin. The Study has considered the key themes emerging from the NDP.

Dublin City Council Development Plan 2022 - 2028 - DCC are reviewing the current Dublin City Development Plan 2016-2022 in preparation for a new City Development Plan up to 2028. The objective of the Council is to ensure the continued consolidation of the City, sustainable patterns of development and the creation of a dynamic and vibrant city core complemented by well-serviced and integrated neighbourhoods. Whilst the 2022-2028 Development Plan is at an early stage of development, the recommendations developed as part of the Study will consider the policy themes outlined in the emerging 2022-2028 Development Plan Strategic Issues Paper.

¹ Covid Mobility Plan, May 2020

Climate Action and Low Carbon Development

(Amendment) Act 2021- Under the Climate Action and Low Carbon Development (Amendment) Act 2021, emissions must reduce by 51% by 2030, setting a path towards a net-zero emissions scenario by 2050. The transport sector is committed to meeting those targets in full. For transport, there are two main actions required, namely:

- Increased use of public transport, walking and cycling and a reduction in trips by car; and
- Conversion of the transport fleet to zero emissions vehicles.

The State will pursue the transition to a climate resilient and climate neutral economy by the end of the year 2050. The Act will require a major shift in how people move around the country. Investment in transport is likely to change with significant investment in public transport, cycling and walking and electric vehicles. The Study will be looking at the first action of increasing the use of public transport, cycling and walking within Dublin City Centre whilst considering opportunities to deter short distance car journeys.

The **Covid-19 pandemic** has had a dramatic impact on the way in which people communicate, socialise and work. Indeed, the increased focus on remote working has had a radical impact on travel patterns with reduced overall travel demand, peak spreading, a preference for private car use over public transport modes and a substantial increase in cycling and walking.

In response to the above, and in line with the Interim Mobility Intervention Programme for Dublin City (2020), Dublin City Council recently implemented a number of measures to accommodate changing travel demands including:

- Provision of new pedestrian crossings;
- Build out of footways, including at bus stops to provide additional space for social distancing;
- Time changes at signals to prioritise pedestrian movement;
- Implementation of protected cycle lanes;
- Provision of new cycle parking in the city centre and at schools; and
- Trial of filtered permeability at Grangegorman (Figure 2.3).

While the vaccine rollout is likely to restore confidence in the population leading to a gradual increase in public transport capacity in the medium term, the pandemic has forced people and businesses to re-evaluate many key issues, such as “Do we need an office space in the centre of the city?” or “Do we need an office at all?”.

This has the potential to change the uses traditionally found within the urban core and create new opportunities for a better mix of land uses, particularly in office-dominated areas of the city, which have tended to be empty and underutilised in the evenings and weekends.

2.5 Changing world context

Dublin is not unique in the challenges it faces. Cities across the world are facing a range of similar challenges including population growth, responding to climate change and the social and economic challenges resulting from the Covid-19 pandemic. Indeed, some of these challenges have also presented opportunities for cities to adapt, often quickly. Arguably, the Covid-19 pandemic has had the most drastic impact on the speed and scope of actions taken by cities in recent years, forcing them to rethink the use of space in a post Covid-19 era, and capitalise on opportunities to transform their transport networks in line with aspirations to reduce congestion and support more locally-centred trip making.

In Milan, where congestion has long been recognised as a growing problem with the potential to constrain the vibrancy of the city, the government capitalised on the changes in travel demand and requirements for social distancing to reallocate road space on major routes into the city to deliver 42 miles of new protected cycle lanes. This led to a 122% increase in cyclists in the central city area over a 3-month period.



Figure 2.3: Filtered permeability at Grangegorman

² Public transport capacity returned to 75% pre-pandemic levels from mid-July 2021

Milan – Strade Aperte (Open Roads) Programme



Figure 2.4: Milan Strade Aperte (Open Roads) Programme

The Milan Strade Aperte (Open Roads) Programme was launched in April 2020 with protected cycle lanes and pedestrian priority areas. The programme seeks to capitalise on the significant decrease in traffic congestion which has reduced between 30-75% during the course of the pandemic. Measures included within the Programme include:

- 68 km of new protected cycle lane and pedestrian priority areas;
- An additional 32 km by summer 2021.

The transformation is already underway, with the cycle route on Corso Buenos Aires being the busiest, used by 10,000 cyclists a day – an increase of 122% over a 3 month period.

On a wider scale, the Mayor of Paris is taking bold steps to deliver a wholesale transformation of the city by adopting a “15-minute city”. The approach consists of mixed-use neighbourhoods and traffic-free streets which provides residents with easy access to amenities for work, leisure and education within an easy walk or cycle from home.

Paris – 15-Minute City

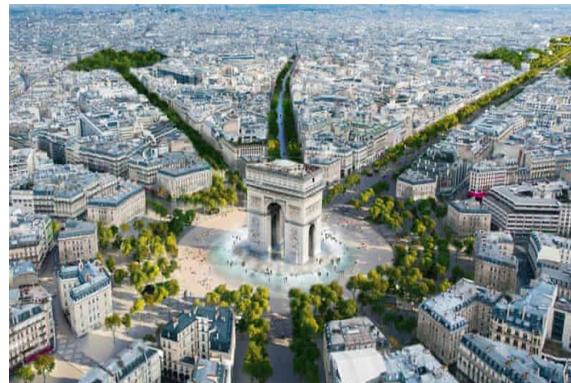


Figure 2.5: Proposal to transform the Champs-Élysées in Paris

As opposed to the isolated implementation of individual schemes, the 15-minute city approach aims to fully integrate decision-making in relation to the development of the city, considering all elements from the use of space to how people move between spaces.

Central to the approach is the recognition that road space will need to be reallocated to provide space for alternative uses. The proposals include showcase schemes, such as the redevelopment of the Champs-Élysées to reduce space for vehicles by half to provide pedestrian space and gardens including tunnels of trees to improve air quality.

Examples in the UK include measures to reduce car dependency and to support thriving neighbourhoods. The COVID pandemic has also seen a rise in active travel, with the introduction of the Active Travel Fund to support a modal shift to sustainable modes of transport. The examples outlined below in Manchester and Glasgow, demonstrate an effort to support a shift to sustainable transport.

Thomas Street, Manchester – traffic-free environment



Figure 2.6: Thomas Street, Manchester

Following positive feedback from a trial closure of the street during 2019, the route is now only accessible to those walking, wheeling and cycling, with necessary vehicle access permitted between 6am and 10am and 6pm and 7pm.

The street now facilitates the safe movement of people and provides outdoor seating, market and urban realm spaces. The city will look to implement permanent measures including the widening of pavements across a network of city centre streets.

Glasgow – Liveable Neighbourhoods Framework



Figure 2.7: Glasgow Liveable Neighbourhoods Framework

The Covid-19 pandemic and the ongoing climate emergency have had a substantial effect on local areas and town centres and have brought to the limelight the importance of public space and the need to address the current dominance of motor vehicles on our roads.

Within this context, Glasgow's Liveable Neighbourhoods scheme is a plan to maximise the social, economic and environmental benefits of local areas, making them social places in which people are the focus.

It encompasses the 'Place principle', whereby a sense of identity and purpose is formed by the interconnections between people, location and resources, and by ensuring the full potential of communities is realised.

It is designed to improve localities, tackle Glasgow's car dependency, and make active travel and public transport the transport modes of choice for residents and visitors by designing streets to improve sociality and commercial activity and by reallocating street space. Also included is the concept of the 20-minute neighbourhood, whereby a person's daily needs can be accessed within 20 minutes by sustainable modes of travel. 6 tranches, with 4 Liveable Neighbourhoods, are to be reviewed and implemented, subject to consultation with local communities, over the coming years.

Further examples of how European cities have developed interventions to tackle traffic related problems and promote sustainable transport can be found in Appendix B. Examples include car-free zones, improved cycle provision and the roll out of E-mobility.

3. Methodology



Chapter 3 | Methodology

3.1 Overview

To ensure the overall aims and outcomes of the Study are achieved, a methodology has been adopted to develop transport, urban realm and carbon reduction recommendations. The methodology presented below ensures the Study considers previous work, gathers a wide range of evidence, and allows the NTA to take forward a clear set of initial considerations for further development.



Figure 3.1: Dublin Rush Hour

A summary of the methodology adopted is outlined in Figure 3.2

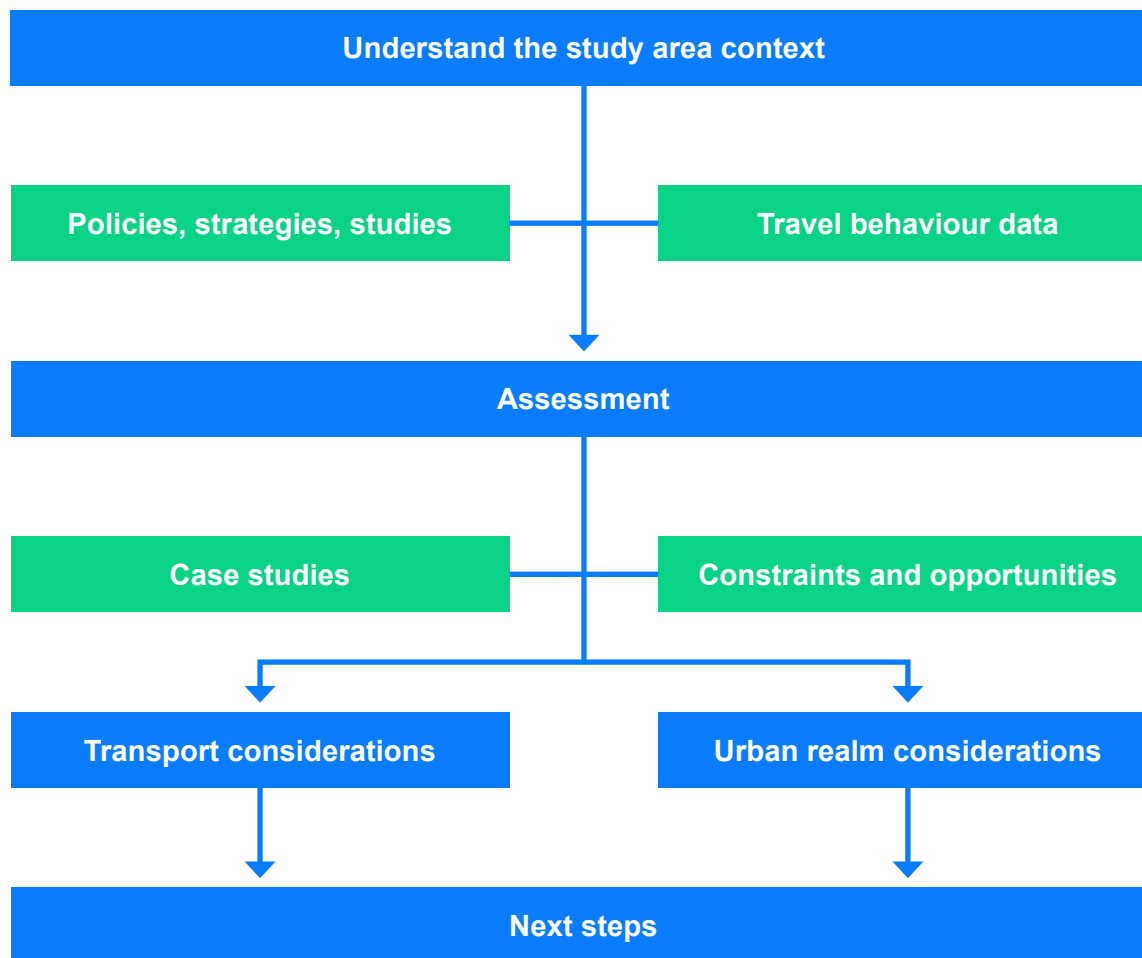


Figure 3.2: Study methodology

4. Opportunities and Objectives for Dublin City Centre



Chapter 4 | Opportunities and Objectives for Dublin City Centre

4.1 Introduction

Through the Transport Strategy for the Greater Dublin Area 2016-2035, opportunities were identified which support a rebalance of the transport network to provide more priority to sustainable modes. The emerging Transport Strategy for the Greater Dublin Area 2022-2042 (GDA Transport Strategy) will build on and replace the previous transport strategy for the GDA. The emerging GDA Transport Strategy is anticipated to focus on sustainable transport and providing efficient, effective and sustainable movement of people and goods across the region, particularly as a means of assisting in meeting national objectives in carbon reduction.

Since the adoption of the existing GDA Transport Strategy, sustainability and climate change, through the climate action and low carbon legislation, are at the core of national policy and this is likely to be reflected in the emerging GDA Transport Strategy. The Climate Action and Low Carbon Development (Amendment) Act 2021 provides that the first two five-year carbon budgets should equate to a total reduction of 51% over the period to 2030, relative to a baseline of 2018.

This is a challenging target, which will fundamentally guide transport investment and infrastructure in Ireland over the next decade. Achieving this target will require a major transformation in transport patterns and behaviours, focused on increasing travel by sustainable modes and a significant reduction in travel by petrol/diesel powered vehicles. The potential impacts of the on-going Covid-19 pandemic, beyond the short-term, are also expected to be considered in the GDA Strategy.

A number of themes have been identified for consideration of this City Centre Study and this analysis will assist in the formulation of the overall GDA Transport Strategy. The themes are explored in the context of Dublin City Centre in Chapter 5.

Key Considerations for the Study:





- **Carbon Reduction** - To support the national effort to combat climate change, Dublin City Centre will require interventions which support carbon reduction. Under the Climate Action and Low Carbon Development (Amendment) Act 2021, emissions must reduce by 51% by 2030. The emerging GDA Strategy (supported by the Study), will be required to set out the scale, and the strategic-level detail, of the investment and demand management interventions required, to facilitate a reduction in the use of the private car in the GDA.
- **15-Minute City** - The '15-minute city' is a concept currently being adopted or considered by many European cities. The concept aims to improve quality of life by creating cities where the daily needs of residents can be fulfilled within 15 minutes by foot, bike or public transport. The approach prioritises sustainable modes over the car. It is noted however, that Dublin City Centre's role as a regional centre, with a wide employment catchment area, means that while the concept of a '15-minute' city may work in some contexts, it needs to be balanced against the strategic role of the city as a major employment destination. If the concept is determined to be an appropriate consideration for Dublin City Centre moving forward, an integrated land use and transport planning approach is recommended.

- **Revitalisation of City Centre** - While changing travel patterns created by the Covid-19 pandemic have created new challenges for Dublin City Centre, they have also opened a number of opportunities to revitalise and regenerate the city. How the city utilises new land use development sites (with some derelict land and end of life buildings still dotted across the city) is important, to facilitate renewal and uplift of the area. Better use of the land in the city centre could reduce the amount of travel, taking pressure off the local road and public transport networks and potentially facilitating more space for walking, cycling and improvements to the public realm.
- **Transformation of the Urban Environment** - Whilst interventions are beginning to provide increased priority to pedestrians and cyclists, the urban environment in Dublin City is still dominated by the highway network and providing for private vehicles. The Study will outline a series of considerations which will further support the ambition of modal shift and reducing the dominance of the car within the city centre.
- **Facilitating the Growth of Public Transport** - Although it is important that the City Centre becomes a place which is welcoming to pedestrians and cyclists, it is critical that the future growth of the city acknowledges the vital role of public transport. The future provision of bus services, underpinned by the new BusConnects Network, is central to providing the capacity for people to travel into and out of Dublin City. Bus stopping facilities, interchange points and bus priority need to be central to the design of the road network in the city centre. There is also a need for the city to prepare for how higher capacity modes, such as Luas and MetroLink can be integrated into the existing street network and public realm within the city centre.



- **Filtered Permeability** - Facilitating movement by walking and cycling is a critical element in neighbourhood planning. Filtered permeability can be applied within a city centre context to encourage walking and cycling to local services through providing direct and convenient access. Interventions to consider include modal filters and one-way streets to cater for contraflow cycle lanes. Filtered permeability should be considered to support cycling, walking and public transport trips to educational sites and within new neighbourhoods.
- **Car-Free Zones** - Car-free zones have the potential to increase the number of cycling, walking and public transport journeys undertaken within the city centre. Preventing access by car on a permanent or a time limited basis can reprioritise the use of and enhance public space. Such zones can prioritise sustainable modes whilst maintaining access for those who live in the area or for essential services and facilitating public transport. The implementation of such zones could be undertaken on a gradual or trial basis to understand the merits and challenges of the intervention; this will help to identify the need for improvements should the intervention become permanent.
- **Mobility as a Service (MaaS)** - MaaS is a total mobility solution focused on the individual's need to get from A to B as simply and conveniently as possible. It is evolving from service models which provide vehicle transport without the cost of ownership. MaaS combines multiple transport modes via a sleek user experience with dynamic journey planning and streamlined payment processes which will encourage the use of public and active transport. The Study will consider the public transport offer in the city centre, including bike share, and the potential for MaaS.

Table 4.1: Objectives of the emerging GDA Transport Strategy

Strategy Outcomes	Strategy Objectives
 <p>An enhanced natural and built environment</p>	To create a better environment and meet our environmental obligations by transitioning to a clean, low emission transport system, reducing car dependency and increasing walking, cycling and public transport use.
 <p>Connected communities and better quality of life</p>	To enhance the health and quality of life of our society by improving connectivity between people and places, delivering safe and integrated transport options, and increasing opportunities for walking and cycling.
 <p>A strong sustainable economy</p>	Supporting economic activity and growth by improving the opportunity for people to travel for work or business where and when they need to and facilitating the efficient movement of goods.
 <p>An inclusive transport system</p>	To deliver a high quality, equitable and accessible transport system, which caters for the needs of all members of society.

4.2 Objectives for the City Centre

There is an emerging set of objectives for the new Transport Strategy for the Greater Dublin Area (GDA) which aim to meet the overarching strategy aim. As the strategy outcomes and objectives align to the city centre, the Study will adopt the objectives set out within the emerging GDA Transport Strategy as presented in Table 4.1.

The aim of the new GDA Transport Strategy is: *"To provide a sustainable, accessible and effective transport system for the GDA which meets the region's climate change requirements, serves the needs of urban and rural communities, supports economic growth and meets the future demand for travel for its citizens".*

The current **Dublin City Council Development Plan 2016 - 2022** sets out a clear vision for the city centre, which will be "a socially inclusive city of urban neighbourhoods, all connected by an exemplary public transport, cycling and walking system". Recognising the key role the transport network will play in the future successful development of Dublin, the Plan outlines a number of transport principles, as follows;

- A strong emphasis on sustainable transport modes, such as walking, cycling and public transport;
- Prioritising transport schemes, particularly those that increase the use of sustainable modes;
- Restricting through-traffic and calming traffic within the city centre;
- To give increased levels of priority for pedestrians, cyclists and public transport, along with improvements to the public realm; and
- Underpinning all transport and movement measures with an integrated approach to land use and transportation that promotes intensification.

In conclusion, a number of key themes and objectives for the city centre are emerging which are presented below.

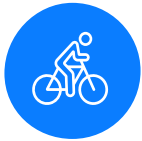
The themes will be applied when identifying key considerations for the city centre in the context of the development of the new GDA Transport Strategy.



Consolidation of development to create a vibrant and compact urban form



Integrated land use and transport planning



Reducing car use and increasing the uptake of sustainable transport modes



Reallocating road space to prioritise walking, cycling and public transport



Considering the needs of all users of the transport network and urban realm



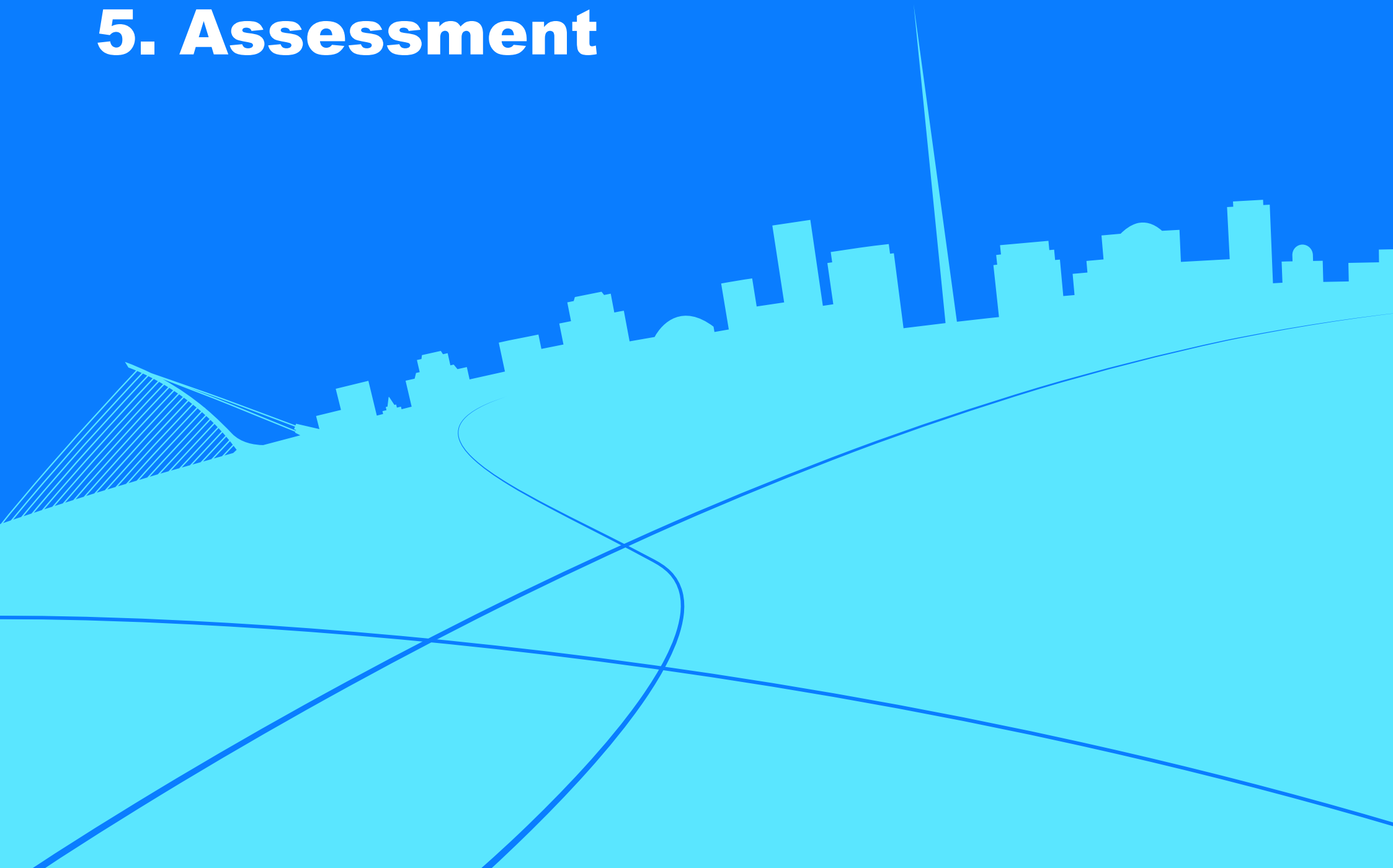
Decarbonising the transport network

Figure 4.1: GDA Transport Strategy Key Themes



Figure 4.2: The Dublin Luas

5. Assessment



Chapter 5 | Assessment

5.1 Overview

This section provides an overview of key themes in relation to each mode, followed by a summary of key constraints and opportunities in the Dublin City Centre context. Subsequently, a series of considerations are outlined which can be taken into account in the development of the new GDA Transport Strategy.

5.2 Walking

5.2.1 Overview

The walking mode share of trips crossing the Canal Cordon, has increased from 8.3% in 2006 to 11.4% in 2019 (Canal Cordon, 2019). Despite the increase in people walking, to further encourage the uptake of this mode there is a need to improve and promote high quality walking infrastructure in Dublin City Centre, which will both provide an improved level of service to existing users, and also attract new users for both end-to-end trips and as a first and last mile solution.

Improving provision for pedestrians and promoting walkability presents an opportunity to significantly enhance the health and wellbeing of people, by promoting exercise, while also reducing emissions, particularly by providing an alternative to private car trips over short distances. As well as benefits to people, there are also wider benefits to the urban realm, with opportunities to reconfigure street spaces in favour of a more pedestrian friendly environment, which can facilitate better use of the space outside shops and entertainment venues, support the night-time economy, and provide space for outdoor events and festivals.

5.2.2 Constraints and opportunities

In relation to the pedestrian network, there are a number of challenges which must be overcome in Dublin City Centre. Challenges to the pedestrian network include the following:

- A disparity in the quality of pedestrian provision in the city centre;
- Narrow and poor-quality footways which present a barrier to movement, particularly for those using wheelchairs, mobility scooters or pushchairs;
- Street signage and clutter also limit accessibility, particularly for vulnerable groups;
- A lack of pedestrian priority on key routes in central areas extends waiting times at crossings and reduces the convenience of trips on foot;
- Pedestrian crossings missing on key desire lines, e.g., on certain junction arms, imposing detour and delay on their journeys; and
- Heavily trafficked nature of many city centre streets, which accommodate a mix of cars, vans, light rail and HGVs, significantly reduces the attractiveness of journeys on foot.

However, there are a number of opportunities relating to the pedestrian network in the city centre, including the following:

- The compact urban environment of the city centre, with many instances of high density and mixed-use development enabling short distance journeys;
- Comparatively young population and low car ownership rates is conducive to encouraging more walking trips - according to the Census (2016³) 42% of the population within the canal cordon are under 30 years old -;
- Large volumes of tourists visiting Dublin City every year, many of whom travel without a car;
- COVID-19 measures have promoted and improved pedestrian provision; and

- Traffic-free areas support increased pedestrian journeys. Figure 5.1 is an example of a traffic free street.



Figure 5.1: Recent traffic-free streets implementation in Dublin City Centre (Source: RTE)

5.2.3 Key considerations

Creating environments to support and promote pedestrian movement within cities is key to encouraging healthier and active lifestyles, enabling the safe movement of all users and facilitating more walkable and sustainable cities.

An audit of the pedestrian infrastructure within the city centre would quickly highlight where facilities for walking are substandard, and a review of pedestrian footfall would highlight key areas for pedestrian improvements, including potentially traffic-free spaces. The creation of traffic-free spaces can be implemented permanently, or during a specific time of the day, week, or month to allow for vehicular movement during off peak times, with flexibility of access. During the pandemic, many cities implemented temporary schemes to allow for safe social distancing where existing street configurations prevented this. Many are now seeking support and further detailed studies to determine their success and implement longer term traffic-free solutions.

³ Data was taken from the Census for electoral divisions within the canal cordon

Several key considerations which should be further explored as part of the development of the new GDA Transport Strategy are:

- Expansion of traffic-free areas of the city centre core to enhance the attractiveness and user experience for those travelling on foot;
- Deliver upgrades to poor quality footways, particularly on popular thoroughfares, with a focus on accommodating users with specific mobility requirements i.e. wheelchair users, buggies etc.;
- Conduct audits of pedestrian facilities at key interchange points with public transport modes;
- Ensure major projects such as MetroLink and BusConnects consider the requirements of pedestrians;
- Review potential areas of conflict with cyclists and E-scooters and identify opportunities to remove such conflicts; and
- Consider pilot projects which transform existing space using lighter, quick and cheap interventions to facilitate rapid assessment of the impacts of such measures.

5.3 Cycling

5.3.1 Overview

Alongside trips on foot, there has been a substantial growth in the number of cyclists crossing the Canal Cordon over time, with a 171% increase since 2006. By 2019, cycle trips accounted for 6% of all trips crossing the cordon into the city centre. While in terms of size and function would otherwise be comparable to Utrecht.

The NTA, as well as key partners such as Dublin City Council, recognises the importance of enabling further increases in the proportion of trips by bike in

the city centre. Accordingly, the delivery of the GDA Cycle Network Plan is already underway, and it is anticipated that there will be a significant acceleration in the delivery of the Plan in the lifetime of the Dublin City Development Plan. Further improvements to cycle route provision within the City are also proposed to be delivered as part of the BusConnects Core Bus Corridors project.

More recently, and in response to the changing travel demands resulting from the Covid-19 pandemic, an additional 10km of protected bicycle lanes were delivered alongside increased cycle parking at workplaces and major trip attractors in the city centre and schools. Figure 5.2 shows a protected cycle lane that was implemented along Dame Street.



Figure 5.2: New protected cycle lane in Dame Street, Dublin City Centre (Source: Dublin City Council)

5.3.2 Constraints and opportunities

There are a number of key challenges in relation to the cycle network which need to be overcome to enhance the attractiveness of cycling in Dublin City Centre. Challenges to cycling in the city centre include the following:

- At present, there are significant gaps in the cycle network;
- Majority of routes are shared with buses or on-road with no physical segregation from motorised traffic.
- Limited opportunities to provide increased space to cycling without impacting upon other modes;
- Ensuring people feel confident to cycle within the city centre is a key challenge; and
- Reducing traffic volumes and speeds to ensure potential cyclists feel comfortable to travel on bike.

Whilst a number of challenges exist, the COVID-19 pandemic has demonstrated an appetite for cycling within the city centre.

Cities across Europe have re-allocated road space to cycling to enable and encourage short to medium distance journeys to be undertaken on bike. The opportunities for cycling in Dublin City Centre are as follows:

- A compact urban environment and relatively flat topography are highly conducive to further increasing the cycle mode share;
- Dublin bikes scheme provides access to bicycles from over 115 stations across the city, in addition to a number of dockless bike share schemes;
- BusConnects project will improve cycle provision into the city centre;
- Opportunity to reallocate on-street car parking to provide cycle lanes; and
- All new major public transport infrastructure has the opportunity to provide improved cycle parking storage and associated facilities.

5.3.3 Key considerations

The following key considerations relating to the cycle network in Dublin City Centre should be explored further in the development of the new GDA Transport Strategy:

- Review of proposed cycle routes within the City Centre and in the context of the revised GDA Cycle Network Plan, to ensure that new developments and major public transport interchange sites are considered within a revised network plan;
- Reallocation of road space to provide improved segregated and safe cycle routes through the heart of the city centre;
- Provide high quality cycle infrastructure, delivering high quality cycle routes along key desire lines, ensuring conflict between cyclists and other users is removed (including vehicular traffic and pedestrians);
- Consideration of filtered permeability schemes to enhance pedestrian and cycle priority through the city centre. These could include physical barriers to restrict motor vehicle traffic, one-way arrangements with cycle contraflow or self-enforcing signage;
- Provision of high-quality cycle parking opportunities at key destinations, including interchanges, and within residential areas of the city; and
- Expansion of the bike share scheme, including the provision of e-bike options.

5.4 Bus

5.4.1 Overview

Bus passenger numbers crossing the canal cordon into Dublin City Centre have increased from 54,251 in 2011 to 65,048 in 2019, and while the overall mode share has remained consistent at 29% of morning peak period (Canal Cordon Report, 2019) the network has continued to improve and expand to meet the demand of a growing city.

The BusConnects Project will see a step change in the provision of bus services in Dublin City, the Network Redesign will rationalise the routes coming into the city, and the coordination of these routes and their stops will facilitate better interchange, both between bus services as well as other public transport modes. While it is important to note these improvements to the Dublin Area bus services, it is also important to recognise the requirement for, and need to facilitate other bus services coming into the city centre. Bus stop locations, routings and layover of commuter coaches, private operators and Bus Eireann services, as well as the range of tourism related buses operating within the city centre all need to be fully considered in planning of transport in the city centre.

5.4.2 Constraints and opportunities

Rapid population growth in Dublin is placing increasing pressure on the bus network, with bus transport capacity required to adapt to changing demands over time. Challenges facing the bus network include the following:

- High traffic volumes constraining the potential for the bus network;
- Improving bus journey times is a challenge without significant measures to improve bus priority;
- Integration across all public transport services;
- Connectivity and interchangeability of the bus network in Dublin City Centre, with further improvements needed to provide a highly convenient and connected multi-modal transport network; and
- Ensuring safety and reducing conflict with other modes of transport, including sharing space with cyclists (Figure 5.3).



Figure 5.3: Urban realm concept for North Wall Quay (Source: BusConnects)

The delivery of major schemes, such as the BusConnects Dublin Area Bus Network Redesign and Core Bus Corridors, offers a significant opportunity to provide more physical space and separation for bus services, enhancing their journey times and reliability and enabling them to compete with equivalent trips by car. Providing dedicated road space for buses will also enable high levels of service capacity to be provided to cater for the growing population, assuming pre-pandemic demand levels gradually start to return.

Fully considering how the movement of buses through the city centre will interface with the development of the urban realm within the city, and in particular along key routes such as the city Quays, are critical to enabling the bus network to successfully evolve as part of a more sustainable and user-friendly city environment. Balancing adequate priority for bus services on the key routes within the city centre will be critical, and presents opportunities for transformational changes to the urban realm for the wider benefit of pedestrians, cyclists and all users of the space.

In addition, the future provision of bus services, underpinned by the new BusConnects Network, must remain cognisant of the need for the city to prepare for higher capacity modes, such as Luas and MetroLink, that can be integrated into the existing street network and public realm within the city centre.

5.4.3 Key considerations

The following key considerations relating to the bus network in Dublin City Centre should be explored further in the development of the new GDA Transport Strategy:

- Continue to support the rollout of the BusConnects programme, including the implementation of the New Dublin Area Bus Network to improve the legibility of bus services in the city;
- The automatic enforcement of bus lanes should be prioritised;
- Reconsider the use of road space where it is required to accommodate bus priority measures on key corridors such as the Quays and on other corridors proposed as part of BusConnects Network Redesign;
- Remain cognisant of the need for the city to prepare for higher capacity modes, such as Luas and MetroLink, that can be integrated into the existing street network and public realm within the city centre
- Undertake an audit of existing bus stop locations and, in line with the proposed roll out of the BusConnects network, consider if the current locations and facilities (include the accessibility of the stop) require an upgrade; and
- To remove on-street parking where there are clashes with bus priority or stop facilities.

5.5 Luas / Heavy rail

5.5.1 Overview

Luas and Heavy Rail play an essential role in movement to, from and within Dublin City Centre, with heavy rail trips accounting for 17% of all trips into the city in 2019, and Luas accounting for 6% of all trips (Canal Cordon Counts, 2019). Demand for these modes has increased over time, which reflects not only a growing demand for travel into the city centre, but also significant investments in major projects to expand and enhance the network:

- Luas Cross City launched at the end of 2017 and provides an essential connection between the Red and Green Luas lines to enhance north-south connectivity across Dublin City Centre;
- To enhance connectivity into the city from the wider GDA, the DART+ Programme was announced in early 2018; and
- Further, work is ongoing in relation to the delivery of MetroLink, a proposed high-capacity and high-frequency rail line which will connect Swords to Charlemont running underground through the heart of Dublin City Centre.

While these transformative projects will provide users with a range of high-quality public transport options for travel into and across the city, the pace of delivery creates challenges for the successful integration between these and other modes.

A high quality and fully integrated network requires careful consideration in relation to how transport users will access the services, how interchange between services will work, and also in relation to land use planning and improvements to the urban realm in the vicinity of the new transport infrastructure. In this regard, these new projects, in conjunction with the city's existing infrastructure and services, present Dublin with a timely opportunity to reconsider how

the City Centre can function as a multi modal transport destination and interchange, and in particular as a city where, in future, the mass movement of people will be facilitated by public transport.

5.5.2 Constraints and opportunities

As noted elsewhere in the Study, the population of Dublin, and indeed the wider GDA, is anticipated to continue to rise over time placing increasing pressure on the rail network which will need to cater for a growing demand for travel in future years. Challenges facing the Luas and heavy rail include the following:

- Determining the demand for Luas/Heavy rail and future requirement for higher capacity public transport following the Covid-19 pandemic and planning accordingly;
- Understanding how new public transport options, particularly on-street public transport, can operate efficiently, particularly within the confines of the already constrained road network of Dublin City Centre;
- How interchange between heavy rail / light rail and other modes can be maximised, and how access by pedestrians can be improved, need to be fully considered; and
- Cycle parking facilities at light rail, bus stops and rail stations are currently quite limited. Where bicycle parking is available, the majority is often poor quality and unsupervised.

In addition to interchange between conventional transport modes, heavy rail and light rail interchange points also need to consider opportunities for integration with new mobility offers such as e-bikes, e-scooters, electric car club vehicles etc.

Since 2016, new technology has advanced to enable the use of new ticketing and passenger information technologies. Whilst the use of technology to inform



public transport users was identified in 2016, enabling the use of 'Smarter Mobility' within the city centre is still to be advanced. The use of smarter mobility could also now be incorporated with the operation of shared bike schemes and / or new modes of mobility such as E-scooters.

5.5.3 Key considerations

The following key considerations relating to Luas/heavy rail in Dublin City Centre should be explored further in the development of the new GDA Transport Strategy:

- Ensure all relevant parties coordinate their efforts and ensure transport policy, networks, and services are developed as an integrated system – this is of particular importance when planning for future Luas / MetroLink infrastructure;
- Closely aligned services between DART, Luas, BusConnects and MetroLink following implementation of all projects (maximum 10 minutes waiting time per transfer);
- Integrated public transport offering with bikes share (and possible future e-scooter) rental scheme;
- Conduct an audit of cycling and walking facilities/ connections within a 1km radius of key city centre interchanges to assess the extent to which improvements could cater for first and last mile trips;
- Consider the local environments around Luas stops within the city centre, including improved access through enhanced pedestrian and cycle connectivity and improved waiting areas;
- Integrated ticketing and fares (MaaS) are critical to enable seamless transfer from one service or mode to another, without financial penalty; and
- Traveller information, particularly real-time service information, is also a key to success, by helping users make informed decisions about travel modes.

5.6 Emerging mobility

5.6.1 Overview

Advances in data science, artificial intelligence and sensing technology have increased the speed of transport innovation. Cleaner transport, automation and new modes of travel promise to transform how people, goods and services move. Whilst emerging mobility has the potential to provide significant benefits, if technological changes are not effectively managed, they could have undesired effects, such as increasing congestion or reducing sustainable travel.

In line with targets to reduce greenhouse gas emissions from the transport sector by 2030 and improve air quality, encouraging a shift towards the use of electric vehicles will be an important part of the emerging transport network within the city centre. Not only does this concept apply to a shift to electric for private vehicles, but also in shifting fleet vehicles such as buses, taxis, Council-operated vehicles, and freight. Whilst E-vehicles have the potential to make our cities cleaner, they will not solve the congestion problems faced in Dublin City Centre. The roll out of E-bikes and E-Scooters are seen by many as a way to travel in an efficient and environmentally friendly fashion. E-mobility is seen as a way to increase accessibility for those that are not physically able to travel in conventional active modes.



Figure 5.4: E-Scooter and E-Mobility

The use of technology will also be vital in supporting a greener and more efficient transport network. The use of Apps to support the free flow of traffic and provide live traffic information will enable more efficient journeys to take place. Utilising technology through Mobility as a Service to improve the door to door journey will also help encourage more public transport and cycling and walking journeys.

The concept of Mobility as a Service is a type of service that through a joint digital channel enables users to plan, book, and pay for multiple types of mobility services. The concept describes a shift away from personally owned modes of transportation and towards mobility provided as an overall service. For example, Mobility as a Service could result in a person leaving their home for work, travelling via a bike sharing scheme, metro and DART using the same app or contactless system for that particular journey.

5.6.2 Constraints and opportunities

Whilst emerging trends around E-mobility are increasing in importance, a number of constraints need to be overcome to support their introduction. Challenges for E-mobility include the following:

- Ensuring that E-mobility will not impact on the safety of all road users;
- Developing experience of running E-scooter and E-bike programmes;
- Ensuring that pedal bikes and E-bikes are able to use the same infrastructure safely;
- Ensuring adequate levels of charging provision for E-vehicles; and
- Developing confidence in autonomous vehicles.

Whilst it is important that sustainable modes of transport are encouraged in the city centre, it is important to acknowledge that some car journeys will still be required. Increasing the number of E-vehicle journeys within the city centre, whilst reducing petrol/diesel journeys, has the real potential to improve air quality in the city centre. To enable and encourage the use of E-vehicles it will be important to increase the provision of E-charging points, ensuring the city centre is a convenient location to charge such vehicles. There are opportunities to work with local businesses, developments and council-owned car parks to increase the provision of charging points.

Mobility services are quickly and continually evolving with new emerging trends continuing to gather pace, propelled by advancements in technology. The use of technology to support mobility is leading towards improved convenience and seamless transition between mobility providers. Dublin City Centre has a number of public transport operators, which brings constraints and opportunities to provide MaaS.

Another interesting future consideration is the concept of autonomous vehicles. While still in its infancy this new technology could significantly change the mindset of how vehicles can function within the city environment, possibly assisting in improving traffic flow, reducing and managing congestion, and possibly even a reduced level of accidents. There is a lot to be considered, not least how such a technology can adapt and understand other road users' behaviour, particularly pedestrians and cyclists.

5.6.3 Key considerations

The following key considerations relating to E-mobility in Dublin City Centre should be explored further in the development of the new GDA Transport Strategy:

E-Vehicles

- Provide fast off-street charging facilities for E-vehicles;
- Work with businesses and developers to provide electric vehicle infrastructure at workplaces and as part of new city centre developments;
- Encourage the implementation of electric car share schemes within the city centre;
- Continue the transition to low emission fleet and freight delivery vehicles; and
- Consider providing incentives to support local taxi operators to purchase E-vehicles.

E-Scooters and bikes

- Consider the potential to complete an e-scooter hire trial in Dublin City Centre using best practice from trials currently underway elsewhere;
- Expand the number of e-bikes available as part of the Dublin bikes scheme, ensuring that e-bikes are available at all major city centre railway stations;

- Ensure high quality cycle storage is available to encourage E-bike private cycle use into the city centre;
- Consider the requirements for e-bikes / e-scooters / e-cargo bikes when designing new or upgrading existing cycle infrastructure;
- Work with providers to initiate the roll out of e-cargo bike delivery in Dublin City Centre; and
- City centre traffic app to support better real time transport routing whilst not encouraging rat-run movements.

Technology

- Work with public transport operators to seek better integration including the potential for MaaS within Dublin;
- Continue to monitor autonomous vehicle development, working with key stakeholders to understand potential roll out/trials in Dublin;
- Explore opportunities to further improve city centre signalisation ensuring signals respond to live traffic to support free-flowing movement; and
- City centre traffic app to support better real time transport routing whilst not encouraging rat-run movements.

5.7 Vehicular traffic

5.7.1 Overview

While private vehicles only accounted for 28% of trips across the canal cordon in 2019 (between 07.00 -10.00), congestion in Dublin City Centre is a major issue for the city and, if left unchecked, has the potential to constrain the city's growth and reduce its vitality. Indeed, a study by TomTom in 2019 stated that Dublin is the 6th most congested city in Europe, with commuters spending 213 hours sitting in traffic in 2019⁴.

⁴ <https://www.thejournal.ie/dublin-traffic-congestion-4985027-Jan2020/>



There will continue to be an ongoing role for private vehicles in a future Dublin City Centre. Notably, private vehicle use can be a necessity for some people with mobility issues. There is also a need to facilitate access to private residences, and to provide access to retail service for those who need to drive.

Support for a reduction in vehicular movement in the city centre is very much apparent, with aspirations clearly outlined in a range of policy documents discussed in Section 2.3. Importantly, this support also extends to residents of Dublin, with over 90% of respondents the NTA's consultation on the Issues Paper prepared as part of the review and update of the 2016 Transport Strategy confirming that the new strategy should seek to reduce a reliance on private car travel.

Whilst a reduction in private car use is required, a thriving and well serviced city relies on goods and services being able to operate effectively. In order to maintain a lively and prosperous city centre, managing the movement of goods to and from shops and services is critical. However, urban freight transport activities also have a major impact on the environment (pollutant and noise emissions, visual, road safety etc.) and, consequently, on the quality of life in cities. It is important that the movement of goods within Dublin city is fully considered, and a strategy for freight and goods movement is developed that supports economic growth whilst also helping to achieve transport and environmental targets.

5.7.2 Constraints and opportunities

As with many other major European cities, Dublin has a constrained historic road network which provides the following challenges to the road network:

- Constrained network provides limited capacity to accommodate the existing volume of private vehicle traffic;
- Existing traffic levels cause significant congestion and journey reliability problems;
- Covid-19 pandemic could see increase car journeys into city centre with reduced public transport patronage;
- The existing road network is not designed to accommodate the levels of freight vehicles that travel into city centre;
- The availability of on-street parking provides a challenge to allow road space reallocation;
- Road network with existing vehicle flows will not accommodate targeted public and active mode journey levels; and
- High levels of car parking provision deters sustainable journeys and enables high levels of car journeys.

Whilst there are a number of challenges to the road network and vehicular traffic, opportunities are available to improve how Dublin City can provide access by private vehicles in a manner which facilitates the requirements for essential car journeys, particularly in terms of mobility impaired drivers, but also improves the utilisation of the road space for all users. With more restrictive control of car movement, there can be better management of traffic flow, and more certainty on journey times within Dublin City Centre. Opportunities include:

- Remove the opportunity for private vehicles to travel across the city centre; for example, using traffic cells where traffic would be required to enter and leave the city via the same access points. Reorganising city centre traffic into different zones will support traffic management and the movement of sustainable modes;

- Promote the use of alternative options for drivers who do not have an essential reason for travelling into the city centre. For example, for drivers travelling longer distances with limited public transport options, encourage the use of the edge of metropolitan park and ride facilities;
- Explore the options for developing 'edge of city centre' car parking, to reduce the need for vehicles to travel directly into the city centre to access car parking;
- Develop a goods and freight movement strategy to ensure that goods delivery is planned in an efficient manner which will benefit the urban environment and the freight industry;
- Consider reducing the amount of space utilised for car parking within the city centre generally, both by looking at opportunities to repurpose existing city centre car parks, and by removing existing 'on-street' car parking;
- Consider the introduction of a 'low emission zone' to restrict access by private cars to those with low emission vehicles or those with exemptions (such as blue badge pass holders). This would act to reduce traffic levels and improve air quality;
- Consider increasing car parking charges (potentially ringfencing the income to provide for sustainable alternatives);
- Car sharing – increasing the occupancy of car journeys; and
- Shared mobility – reducing car ownership and improving the efficiency of the transport network.

Large spaces utilised for car parking can also be repurposed to create opportunities for other uses. For example, in London, an underused multi-storey car park was transformed into a cultural community hub with space for local creatives and entrepreneurs, while, in Lisbon, the top floor of a multi-storey car park was converted into a popular rooftop bar.



Figure 5.5 shows this rooftop bar.



Figure 5.5: Rooftop bar on top floor of multi-storey car park in Lisbon, Portugal (Source: Scandinavian Traveller)

5.8 Traffic Demand Management

A variety of methods can be applied to manage travel demand in relation to private car use; many of these approaches were documented in the *Five Cities Demand Management Study (2021)*, which outlined approaches that can be taken at both the national and local level. The top measures outlined in the Study, which can be considered in the context of Dublin city Centre and its inner suburbs, include:

- **15-minute neighbourhoods** - combining land use and transport planning to create neighbourhoods within Dublin where the majority of daily needs for education, services, leisure, healthcare and retail are within a 15-minute walk or cycle from home.
- **Public parking controls** - controlling the availability and cost of public car parking with consideration for demand responsive charging, better enforcement of on-street restrictions and providing incentives for electric vehicles.
- **Clean air zones** - the implementation of a clean air zone (CAZ) to either ban or charge users, with regulations tailored to impact a specific range

of vehicles, times of day or geographic area. Methods of enforcement vary from Automatic Number Plate Recognition (ANPR) to sticker-based systems. In the Dublin City Centre context, a clean air zone may be most effective in controlling the number of private cars travelling into the heart of the city centre.

- **Congestion charging** - the introduction of road user pricing for specific routes or defined geographic areas. This is a divisive but effective measure which has proven successful in major cities such as London and Stockholm at significantly reducing levels of private car traffic in city centre locations.
- **Residential and workplace parking standards** - continue to apply maximum parking standards for new developments, including car-free developments where appropriate. This should ensure sufficient provision is allowed for, without oversupplying and enabling detrimental levels of car use. These measures should be accompanied by residential and workplace travel planning activities and high quality cycling and walking provision to provide residents and workers with access to information and incentives for alternative modes.
- **Traffic-free zones and streets** - defining areas within which to restrict vehicle access, whether by vehicle type, within specific time-periods or days of the year. Filtered permeability measures such as the concept of “Low traffic neighbourhoods” help to improve the attractiveness and convenience of active mode trips by restricting the movement of vehicle traffic through local neighbourhood streets. Based on the type of journeys taking place in Dublin City Centre, filtered permeability could be considered where schools are situated or in areas which have significant opportunities for short distance journeys or links to high quality urban realm areas.

5.8.1 Key considerations

The following key considerations relating to traffic management in Dublin City Centre should be explored further in the development of the new GDA Transport Strategy:

- Consider applicability of measures set out in the Five Cities Demand Management Study:
 - 15-minute neighbourhoods concept;
 - Public parking controls and pricing;
 - Clean air zones;
 - Congestion charging;
 - Traffic-free zones and streets; and
 - Residential and workplace parking standards.
- Review requirements for car-free developments to ensure they are situated in appropriate locations well served by a broad range of public transport and walking and cycling options;
- Explore opportunities to work with technology companies and car sharing providers to promote and enable car sharing/shared mobility services;
- Continue to progress the removal of on-street car parking, where possible, to prioritise space for walking, cycling and public transport schemes;
- Ensure priority is given to those with reduced mobility when analysing car parking provision; and
- Review the quantity and location of public and private car parking facilities in Dublin City Centre and seek opportunities to reduce provision, where appropriate, and repurpose space to other complementary uses.

5.9 Urban realm

5.9.1 Overview

The urban realm is essential in defining a city's identity as it shapes the daily experiences of its users and hosts a wide variety of human exchanges and relationships. The Dublin City Public Realm Strategy (2012) states that “generally, all areas to which the public has access (such as roads, streets, lanes, parks, squares and bridges) make up the ‘public realm’. This includes the publicly accessible space between buildings, along with the spaces and the buildings or other structures that enclose them.”

In relation to Dublin City Centre, urban realm improvements must be considered in relation to the changing context for cities including:

- Changes to retail including technological innovation, changing consumer habits, restructuring of the retail process, how deliveries are made and the impact of the pandemic;
- Changes to office demand due to increases in remote working;
- A requirement to support the night-time economy;
- The returning prominence of tourism post-pandemic;
- A desire to transition to a zero-carbon society; and
- A requirement to incorporate Universal Design principles; and
- Consideration of how the city utilises new land use development sites, with some derelict land and end of life buildings still dotted across the city, it is important to embrace the opportunities to bring renewed lift and uplift the area. Better use of the lands in the city centre could reduce the amount of travel, taking pressure off the local road and public transport networks and potentially facilitating more space for walking, cycling and improvements to the urban realm.

5.9.2 Constraints and opportunities

Challenges relating to the urban realm include the following;

- The reconfiguration of the road network in the city has evolved historically to facilitate vehicular routes to the detriment of the quality of the urban realm quality within Dublin City Centre;
- Traffic congestion on some roads is very heavy, notably on routes traversing the heart of the city, such as the Quays;
- Through-traffic further deteriorates the quality of spaces such as Christchurch Place;
- There is an unequal distribution of public green spaces across the city and poor tree canopy coverage;
- Traffic emissions contribute to poor air quality and impact upon the quality of public space;
- Pedestrian access to the River Liffey and riverfront is relatively poor, even with the provision of the north quays Boardwalk and Docklands Campshires; and
- The cluttered streetscape, due to a proliferation of street furniture, signage and other forms of street clutter, negatively impacts visual quality and accessibility.

Dublin City Centre has a range of strengths in relation to its urban realm. The historic street network and dockland infrastructure, which date back to medieval, industrial and modern urban growth stages, provide identity, while the urban canals define the historic city core and the River Liffey, an important landmark, provides an important orientation point and focus for navigation.

Multiple bridges cross the river, while the Civic Spine connects primary civic, economic, cultural and historic attractions such as Parnell Square through O'Connell Street, College Green and Dame Street to Christchurch Place.

Traffic-free streets such as Grafton Street, Henry Street and the regenerated Temple Bar area are attractive destinations, while the public Georgian Squares contribute significantly to the green spaces available in the city core.

Nevertheless, there are a range of opportunities to enhance and transform the urban realm of the city centre. Transport hubs, such as Heuston Station and Connolly Station, could be developed as hubs and gateways to the city, while traffic-oriented urban spaces such as Christchurch Place and College Green could be revised to revitalise their potential as key urban realm destinations and statement projects for the city centre (Figure 5.6).



Figure 5.6: Previous proposals for College Green (Source: Irish Times)

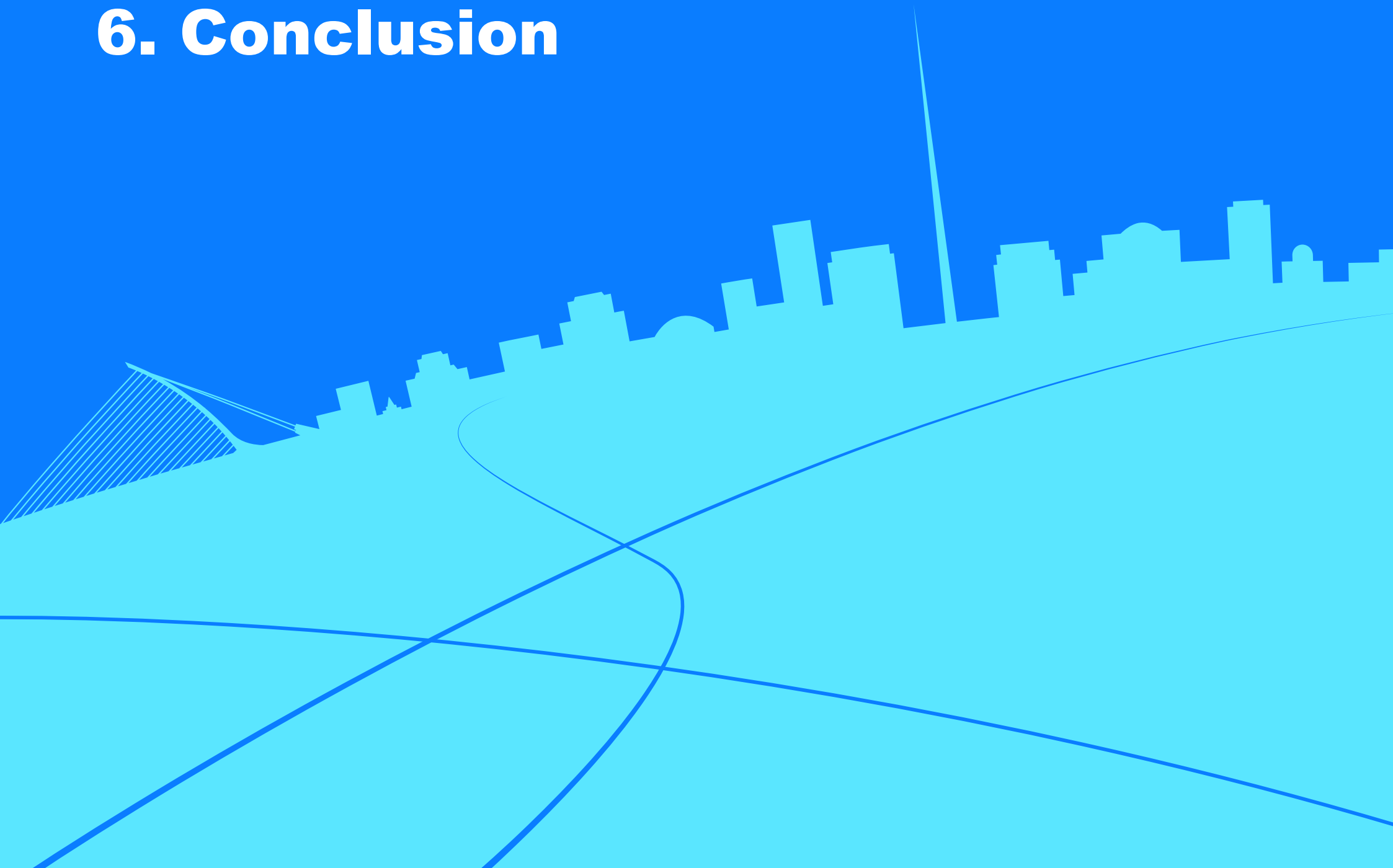
5.9.3 Key considerations

A range of urban realm opportunities which should be further explored as part of the development of the new Transport Strategy are outlined below.

- Build on existing urban realm guidance, such as the Dublin City Public Realm Strategy (2012), to ensure consistent approach and implementation.
- Review the options to reduce on-street parking to facilitate increased space for public realm.
- Downgrading or removing vehicular routes, incorporating access restrictions, and increasing spaces dedicated to urban realm, footpaths and cycle routes.
- Opportunities to 'green the street' by introducing, as the opportunity arises, sustainable urban drainage solutions, encouraging biodiversity and enhancing the attractiveness of the urban area.
- Opening up space can provide opportunities for activities, pop-up events, markets and incidental play.
- Development of gateways and interchanges such as popular landmarks to demonstrate the start/end point of public realm locations and car free zones.
- Introduction of green infrastructure such as green corridors and utilising underused spaces to implement high quality public realm and open green spaces.



6. Conclusion



Chapter 6 | Conclusions

6.1 Summary

Dublin City Centre has a substantial role as the economic and administrative centre of Ireland. As the period of restrictions associated with the Covid-19 pandemic has gone on, the way we use Dublin City Centre, and its transport network, has changed significantly. A positive sign over the last year is the increasing importance of cycling and walking and the need to make our cities more environmentally friendly. It is imperative that Dublin, like other cities across Europe, capitalises on changing behaviours to ensure that sustainable travel patterns are sustained. To encourage sustainable travel, transformative changes to the transport network are required.

Whilst the pandemic has provided an opportunity to reconsider how Dublin functions, local and national policy has also clearly outlined the need for change. The current Dublin City Council Development Plan 2016 - 2022 sets out a clear vision for the city centre, which will be *“a socially inclusive city of urban neighbourhoods, all connected by an exemplary public transport, cycling and walking system”*. The Study has outlined a range of considerations which support local policies in their aims to provide more sustainable communities.

The considerations outlined as part of this Study align closely with the interventions currently being implemented across major European cities. They outline the potential to reconfigure how Dublin City can work in a transport environment which facilitates better use of sustainable modes, including public transport, and can develop, as appropriate, the use of new e-technology in transport. In turn, this will lead to a city centre where the use of the private car for travel is not as necessary as before, and where the reorientation of road space can facilitate significant benefits for the vitality and vibrancy of the city centre, primarily by providing the opportunities to improve the public realm and street environment.

6.2 Key considerations for the new Transport Strategy

As part of the Study, transport modes and the urban realm have been reviewed to identify existing constraints and opportunities. Based on the desktop research undertaken, a range of considerations have been identified to take forward for further development.

The considerations have identified specific interventions per mode; however, when considered together, a number of key themes have been identified as should be brought forward for further analysis, and as part of the wider NTA Strategy development process, namely:

- **Carbon reduction and climate change -**
The Government published the Climate Action and Low Carbon Development (Amendment) Act 2021. This Act will set the country on course to become climate neutral by 2050. A 51% reduction in carbon emissions by 2030 has been committed to. To achieve the commitments set out in the Act, it will be vital that Dublin City Centre be a primary driver in ensuring that low carbon transport interventions which support the country reaching this target are met.
- **Delivering a significant reduction in car traffic in the city centre -**
There has been a growing acknowledgement that a significant reduction in car use is required to tackle various problems that have been created by the over reliance on the private car. Congestion in Dublin City Centre is a major issue for the city and, if left unchecked, has the potential to constrain the city's growth and reduce its vitality. It will be important to consider interventions which will reduce the need for car traffic in the city centre and support improved sustainable travel options.

- **High quality cycling and walking provision -**
To encourage more cycling and walking journeys, it is imperative that high quality infrastructure is provided. Currently, there is limited high quality cycle infrastructure and cycle priority in Dublin City Centre. Safety is often identified as the key barrier to cycling and the introduction of a high quality cycle network, in line with the revised GDA Cycle Network, is vital to encourage more people, particularly less confident users, to cycle. The evolution of E-bikes is an opportunity to promote cycling to a wider audience in tandem with facilities such as bicycle storage / changing facilities. In terms of the walking environment, it is important that pedestrians are provided with priority on the network including increased space allocation, reduction in severance and reduced waiting times at crossings. Public realm improvements are central to providing a more attractive and safer environment for pedestrians, to encourage walking as the primary mode for travelling within Dublin City.
- **Car-Free Zones -**
To support a move away from the primary role of vehicle movement of streets within Dublin City, the introduction of more car-free areas should be encouraged to facilitate a move towards more sustainable travel modes. Restricting car use in certain areas enables better provision for walking and cycling and will support the prioritisation of the use of space for expanded public realm, where pedestrians can move more freely through the space.
- **Public Transport improvements -**
To help facilitate a modal shift away from the private car, it is important that the provision of, and accessibility to, public transport is of the highest standard.



With various forms of public transport in the city centre, it is vital that quality and accessibility of public transport interchange points is prioritised in the design of the scheme and/or the street network. Interchange points need to be simple and convenient to promote multi-modal journeys. Public transport uptake in Dublin City could also be improved by the consideration of MaaS, providing individuals with a seamless and convenient journey from A-B. In addition, there is also the need for the city to prepare for how higher capacity modes, such as Luas and MetroLink, can be integrated into the existing street network and public realm within the city centre.

- **Road space reallocation** - To support the economy and vibrancy of Dublin City, careful consideration should be given to the reallocation of road space in the existing road network, notably to better balance the amount of space provided for pedestrians, cyclists and for public transport traversing the city centre. Road space reallocation (including re-allocating on-street parking) provides opportunities to improve provision for pedestrians, cyclists and public transport users. Moving forward, it will be important to consider opportunities to reallocate road space to create a better environment for users of sustainable modes.

6.3 Next steps

The key focus of the Study has been to identify the transport requirements for a city of Dublin's scale, taking into account the likely future growth within the Study area and its commuter catchment. The Study provides general advice as to how the provision of transport could evolve as Dublin City grows and the new Transport Strategy for the GDA is implemented.



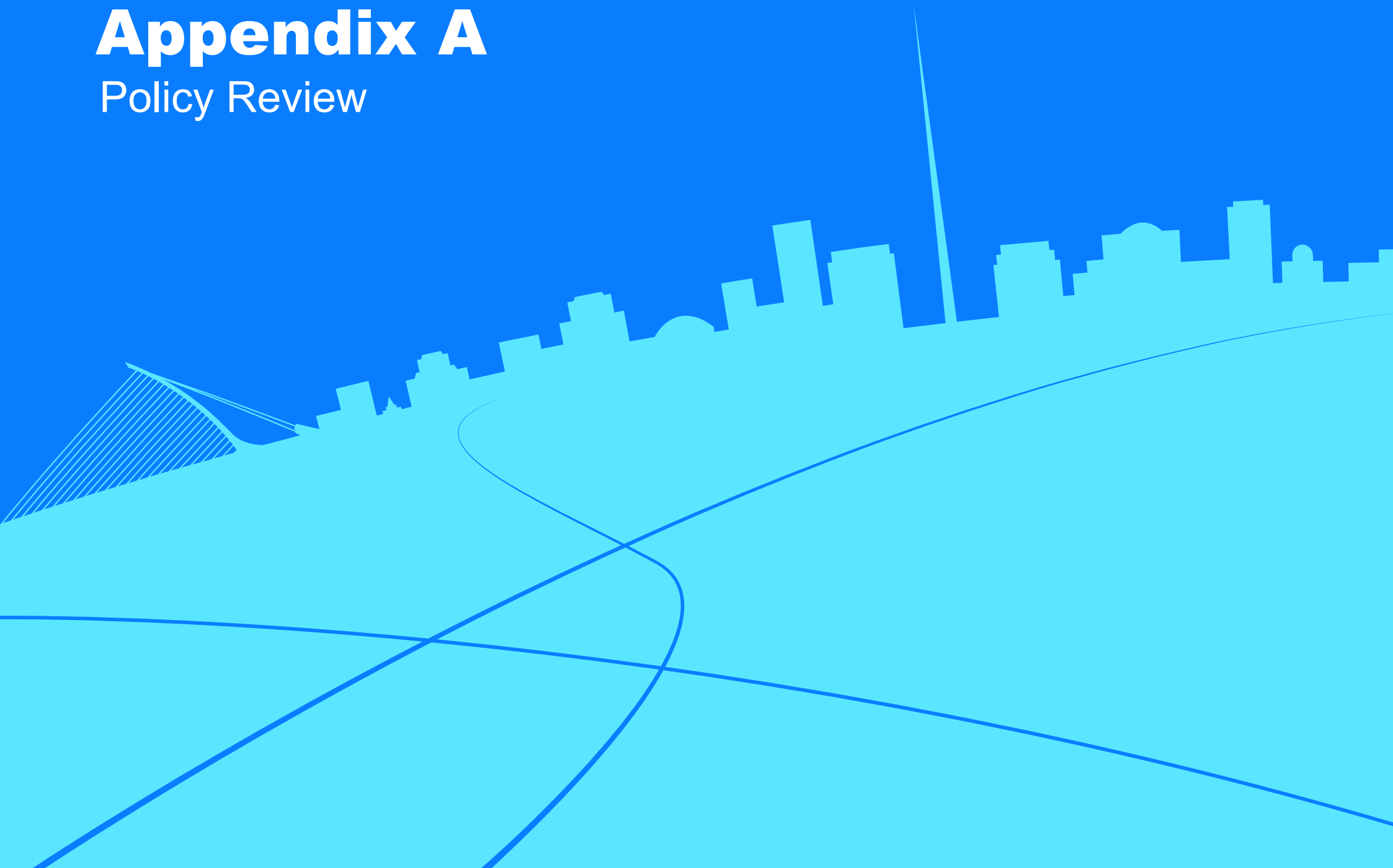
Figure 6.1: Aerial View of Dublin City

The Study outlines how transport could act as a catalyst for changes to the public realm and to the function of roads and streets, with the ultimate aim of improving the vibrancy and vitality of Dublin City as a place to live in, work in and visit. The issues and considerations developed in the Study will feed into the emerging NTA Transport Strategy.

Following the finalisation of the Strategy process, there will be an opportunity for the NTA, in conjunction with Dublin City Council to revisit and further develop the considerations raised in the study, which will ultimately need to be reassessed in the context of the proposals agreed in the finalised NTA Transport Strategy 2022-2042.

Appendix A

Policy Review



Appendix A | Additional Information

Appendix A. Policy Review

National Policy

Programme for Government - Our Shared Future (October 2020)

This presents a vision for reform and renewal, including achieving social solidarity and equality of opportunity, reaching ecological harmony and economic equity, securing good livelihoods from land and housing for all, and embracing our cultural diversity.

It is recognised that cycling and walking and public transport need to be made better and more accessible, to achieve improvements in climate impact, quality of life, air quality and physical and mental health. A range of commitments are made, including reallocation of space to pedestrians and cyclists, and decarbonisation of the transport fleet.

National Development Plan 2021-2030

The National Development Plan was adopted on the 4th of October 2021. It is the national capital investment strategy plan that is integrated and aligned with Project Ireland 2040 – The National Planning Framework (NPF). It sets out the framework of expenditure commitments to secure the Strategic Investment Priorities to the year 2031 and supports the delivery of the ten National Strategic Outcomes (NSO) identified in the NPF.

The NDP sets out that investment will be guided by the metropolitan area transport strategies for the five cities. The strategic investment priorities include: active travel, BusConnects, Dart+, MetroLink and Light Rail. It outlines that the NDP will allow for commencement of planning and design of rail projects across Dublin that may emerge from the review of the Transport Strategy for the Greater Dublin Area.

The NDP further comments that the review will set out additional Luas lines across Dublin. The Study has considered the key themes emerging from the NDP.

Project Ireland 2040 - The National Planning Framework (NPF)

The framework presents an approach which focusses on building more accessible urban centres, as well as improved outcomes for communities and the environment. Compact, high density growth and urban regeneration is promoted for Dublin.

The framework aims to co-ordinate the delivery of infrastructure and services in tandem with growth, helping to tackle congestion and quality of life issues. There is also a focus on better managing growth and ensuring it can be accommodated within and close to Dublin city. This includes a focus on underutilised land within the canals and M50 ring, and a more compact urban form.

The NPF includes ten National Strategic Outcomes (NSO), those considered relevant to the Study include:

- NSO1 - Compact Growth;
- NSO2 - Enhanced Regional Accessibility;
- NSO4 – Sustainable Mobility.
- NSO5 – A Strong Economy supported by Enterprise, Innovation and Skills;
- NSO6 – High Quality International Connectivity;
- NSO7 – Enhanced Amenity and Heritage;
- NSO8 – Transition to a Low Carbon and Climate Resilient Society; and
- NSO10 – Access to Quality Childcare, Education and Health Services.

Draft Future Land Transport Investment Framework 2021

The Department of Transport (DoT) is in the process of updating the existing transport framework, the Future Land Transport Investment Framework (hereafter referred to as draft FLTIF) (DoT 2021) to ensure alignment with the policies of the NPF (Government of Ireland 2018). The draft FLTIF (which was formerly called the National Investment Framework for Transport in Ireland) sets out the DoT's strategy for the development and management of Ireland's land transport network (roads, public transport, walking and cycling) over the next two decades.

The NPF and its projections around population and settlement patterns are central to the development of draft FLTIF. The purpose of the draft FLTIF is to enable the delivery of Project Ireland 2040 and the 10 NSOs by guiding the appropriate investment in Ireland's roads, active travel and public transport infrastructure.

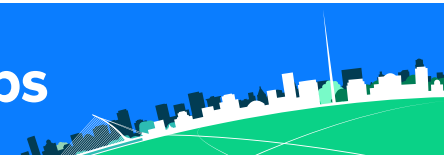
Five Cities Demand Management Study (2021)

The development of the Five Cities Demand Management Strategy is a result of the urgent requirement to reduce transport-related greenhouse gas emissions and address rising concerns in relation to urban air quality.

The report looks at how demand management can help reduce air pollution and congestion, improve the urban environment and tackle climate change through a range of interventions developed from a detailed evidence base.

The Sustainable Development Goals (SDG) National Implementation Plan 2018 – 2020

This Plan in direct response to the 2030 Agenda for Sustainable Development and provides a whole-of-government approach to implement the 17 Sustainable Development Goals.



It sets out specific actions to implement over the duration of this first SDG National Implementation Plan. Goals 9 and 11 are relevant to this Study.

Table A.1: Summary of SDG 9 and 11

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Target 9.1	Develop quality, reliable, sustainable, and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human wellbeing, with a focus on affordable and equitable access for all
Goal 11: Make cities and human settlements inclusive, safe, resilient, and sustainable	
Target 11.2	By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

Energy White Paper, Ireland’s Transition to a Low Carbon Energy Future 2015 - 2030

The Energy White Paper sets out an energy policy framework up to 2030 and outlines a transition to a low carbon energy system for Ireland by 2050. It is a high-level policy framework and does not set specific targets or detailed policy measures.

The objective is to guide a transition to a low carbon energy system, which provides secure supplies of competitive and affordable energy to citizens and businesses. It supports a modal shift through alignment of land use and transport planning.

Climate Action Plan (2019)

The plan identifies how Ireland will achieve its 2030 targets for reduction in carbon emissions and a pathway towards achieving a net zero emissions by 2050. A central pillar of this plan is the role that transport can play in reducing our carbon footprint and improving air quality in our towns and cities.

National Adaption Framework 2018 (Accompanied with the Transport Climate Change Sectoral Adaption Plan)

This is a statutory framework that outlines the government’s approach to climate adaptation in Ireland, setting out the National strategy to reduce the vulnerability of the country to the negative effects of climate change and to gain from any positive impacts. Under the NAF, Government departments are required to prepare sectoral adaptation plans in relation to a priority area that they are responsible for.

The NAF enables climate resilience actions to be mainstreamed into all National policy making as well as Regional and Local planning policies. The Transport Climate Change Sectoral Adaptation Plan sets policy on adaptation strategies for transport, this will help to build adaptive capacity within the sector’s administrative structures and assist organisations to better understand the implications of climate change for Ireland and how it may impact on transport infrastructure and services.

The overarching goal of transport adaptation planning is to ensure that the sector can fulfil its continuing economic, social, and environmental objectives by ensuring that transport infrastructure is safeguarded from the impacts of climate change.

Integrated Implementation Plan 2019-2024

The Implementation Plan was prepared to be aligned with the Government’s review on capital spending. The Implementation Plan identifies the key objectives and outputs to be followed by the NTA of the period of the NDP (Government of Ireland 2018a) and actions taken to ensure effective integration of public transport infrastructure.

Investing in Our Transport Future: Strategic Investment Framework for Land Transport (2014)

This sets out the strategic framework for the role of transport in the future development of the Irish economy and estimates the appropriate level of investment required in the land transport system. Recognising the role of urban centres as key drivers of economic activity, the priorities include addressing urban congestion; improving the efficiency and sustainability of urban transport systems; expanding public transport capacity; development of walking and cycling infrastructure; and Intelligent Transport Systems.

Smarter Travel: A Sustainable Transport Future (2009 to 2020)

The key goals of this document include improving the inclusivity and accessibility of sustainable transport; maximising the efficiency of the transport system and alleviating congestion; reducing air pollution; reducing overall travel demand and commuting distances in the private car; and reducing reliance on fossil-fuel-based transport modes.

National Cycle Policy Framework (2009 to 2020)

Ireland’s first National Cycle Policy Framework 2009-2020’s vision is that all cities, towns, villages and rural areas will be bicycle friendly. This will involve reducing volumes of vehicular traffic, enforcing low traffic speeds, making junctions safe for cyclists, prioritisation of cyclists and pedestrians in urban areas.



Building on Recovery: Infrastructure and Capital Investment (2016 to 2021)

This presents the Government's new €42 billion framework for infrastructure investment in Ireland over the period 2016 to 2021, focussing on maintaining and renewing the strategically important elements of existing land transport system, addressing urban congestion and improving the efficiency and safety of existing transport networks.

Road Safety Strategy (2013 to 2020)

This strategy sets out targets to be achieved in terms of road safety in Ireland, with the primary target for a reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020. The strategy recognises that the attractiveness of walking depends strongly on the safety of the infrastructure provided.

UN Convention for the Rights of People with Disabilities

This includes the right to transport and creating an accessible end to end journey, with the user focus central to this approach. Its focus is to enable persons with disabilities to live independently and participate fully in all aspects of life.

Regional Policy

Regional Spatial and Economic Strategy for the Eastern and Midland Region (2019 to 2031)

The RSES is underpinned by the key principles of healthy placemaking, climate action, and economic opportunity. The Metropolitan Area Strategic Plan (MASP) for Dublin, part of the RSES, sets out a strategic planning and investment framework.

The vision is focussed on consolidation of Dublin City and suburbs; the key towns of Swords, Maynooth and Bray; and planned development in strategic development areas in Donabate, Dunboyne, Leixlip and Greystones.

Local and Other Policy

Dublin City Development Plan 2016 – 2022

The adopted Dublin City Development Plan 2016 - 2022 is based on the principles of sustainability and resilience on the social, economic and environmental fronts. In terms of spatial development and transport, the overarching vision for Dublin is for it to become “a beautiful, compact city, with a distinct character, a vibrant culture and a diverse, smart, green, innovation-based economy. It will be a socially inclusive city of urban neighbourhoods, all connected by an exemplary public transport, cycling and walking system and interwoven with a quality bio-diverse green space network”.

Dublin City Development Plan 2022 – 2028 Pre-Draft Plan Strategic Issues Paper

This presents several themes that will frame the emerging Development Plan, including a focus on the spatial development of the city in a way that supports sustainable movement and efficient and effective transport systems, all within the context of climate action and the need to reduce carbon emissions and energy use.

As a key document that will guide the development of Dublin over the coming years, its emerging objectives in relation to transport, land use and urban realm are of particular importance and, as such, are summarised in the Table A.2 below.

Table A.2: Summary of Key Transport and Urban Realm & Land Use Objectives

Transport Objectives	Urban Realm and Land Use Objectives
<ul style="list-style-type: none">• New opportunities presented by continued investment in public transport including key projects such as BusConnects, Luas extension and MetroLink are fully maximised;• Enhance public transport corridors, which are likely to be transformative, changing the shape, accessibility and mobility of the capital City well into the future; and• Accelerate a shift to cycling and walking, and upscaling in infrastructure for pedestrians and cyclists. Serious consideration of micro mobility.	<ul style="list-style-type: none">• Ensure the continued consolidation of the City;• Ensure the intrinsic character of the City and built heritage assets are protected;• Develop a strong, dynamic and vibrant city core, with an integrated network of well-serviced high-quality neighbourhoods; and• Ongoing development of the Strategic Development Zones (SDZs) at North Lotts & Grand Canal Dock and Poolbeg West, and the Strategic Development Regeneration Areas (SDRAs), as well as the continued repurposing and redevelopment of brownfield and former industrial lands.



NTA Response to Dublin City Council 2022-2028 Issues paper (22nd February 2021)

This emphasises the goal to deliver a zero-emissions transport network, based on measures to encourage cycling and micro-mobility and to reduce dependency on private car use.

The NTA's response recognises the benefit of closely integrating land use development patterns with transport investment and, as such, supports in principle the continued consolidation of development, suggesting that this is prioritised at city centre transport hubs followed by city centre Strategic Development Zones (SDZ).

Transport Strategy for the Greater Dublin Area (2016 to 2035)

This provides a framework for the planning and delivery of transport infrastructure and services in the GDA up to 2035. The Strategy sets out high-level proposals for the walking, cycling, public transport and road networks, as well as parking management measures and other supporting measures for the entire GDA.

Transport Strategy for the Greater Dublin Area Review
The review process recognises the particular challenges and considerations for the new strategy including climate change and the environment; spatial growth and change; opportunities to improve health and quality. It is recognised that transport needs to lead the way towards a net zero emissions future.

Dublin City Centre Transport Study (2016)

This was prepared as an input to the Dublin City Council Development Plan 2016 - 2022, the Study looks at the challenges and requirements for transport within the city centre for walking, cycling, public transport, private vehicles and goods vehicles. It sets out various transport proposals for each mode including:

- Traffic network proposals;
- Bus Network Proposals;
- Rail Network Proposals;
- Cycle Network Proposals;
- Pedestrian Network/Urban Realm Proposals; and
- Site-specific interventions.

The Study identified strategically important public transport interchanges, a number of specific improvement schemes which offer opportunities to improve current arrangements whilst also improving the overall transport function of the city.

Greater Dublin Area (GDA) Cycle Network Plan 2013

This forms the strategy for the implementation of a high quality, integrated cycle network for the GDA. This involves the expansion of the urban cycle network from 500km to 2,480km, comprising a mix of cycle tracks and lanes, cycle ways and infrastructure-free cycle routes in low traffic environments.

BusConnects Summary of Distilled Comments, Dublin City Council, January 2021

DCC supports the project aim to provide enhanced walking, cycling and bus infrastructure on key access corridors. They state the importance of the integration with other transport systems, and that pedestrian movement is protected from any negative impacts.

Other key considerations include protection of architectural heritage, construction impacts, the operation of Active Traffic Management systems, long-term maintenance of infrastructure, adequate street lighting, surface water management, green infrastructure and biodiversity.

The Heart of Dublin City Centre Public Realm Masterplan, Dublin City Council, 2016

The vision is that the heart of the city must be easy, comfortable and enjoyable to move within (particularly for pedestrians and cyclists) and offer an attractive, lively, high quality experience. The development of a Pedestrian-Friendly Core is a central focus, expanding pedestrian space and providing more opportunities for pedestrians to move through the city core.

Your City, Your Space; Dublin City Public Realm Strategy, 2012

This provides a series of guiding principles strongly focussed on qualitative improvements that are centred around the users' experiences of the urban realm. There is also recognition that streets play various roles and these need to be balanced in a way that makes places universally accessible, welcoming and safe, using well-integrated contemporary design to enhance Dublin's character in a sensitive manner.

Draft Temple Bar Public Realm Plan, Dublin City Council, 2016

This draft public realm plan aims to present a long-term vision for Temple Bar, a key cultural and animated area of the city core. This vision is to create a high quality, attractive and accessible urban realm.

North Lotts and Grand Canal Public Realm Plan, Dublin City Council, 2014

The central ambition is to create 'a quality urban realm integrated with the wider city'. There is a key focus on the prioritisation of pedestrian accessibility in the Docklands area.

Grafton Street Quarter Public Realm Plan, Dublin City Council, 2014

The plan promotes an approach that reduces visual clutter and provides coherence and legibility throughout the street network. There is a strong recognition that a thriving urban realm must be user-centred, to create a calmer more pedestrian-centred streetscape. The plan also recognises the opportunity for green infrastructure enhancements and habitat creation.

Enabling the City to Return to Work: Interim Mobility Intervention Programme for Dublin City (2020) – Dublin City Council and the National Transport Authority

Developed by DCC and the NTA, this programme addresses the urgent needs and changing travel habits which emerged as a result of the Covid-19 pandemic, and considers how a more pedestrian, cycling and public transport friendly centre can be set out. The objectives include provision of additional pedestrian and cyclist facilities, and additional space at bus stops to facilitate social distancing.

Key Policy Themes

There are several common themes across the policy and guidance documents, and these will be of particular importance to the future transport and land use strategies for Dublin. There are linkages and overlap between the themes, and as such, they should not be thought about in isolation, but rather as interlinked elements of a holistic vision on which their combined success is dependent.

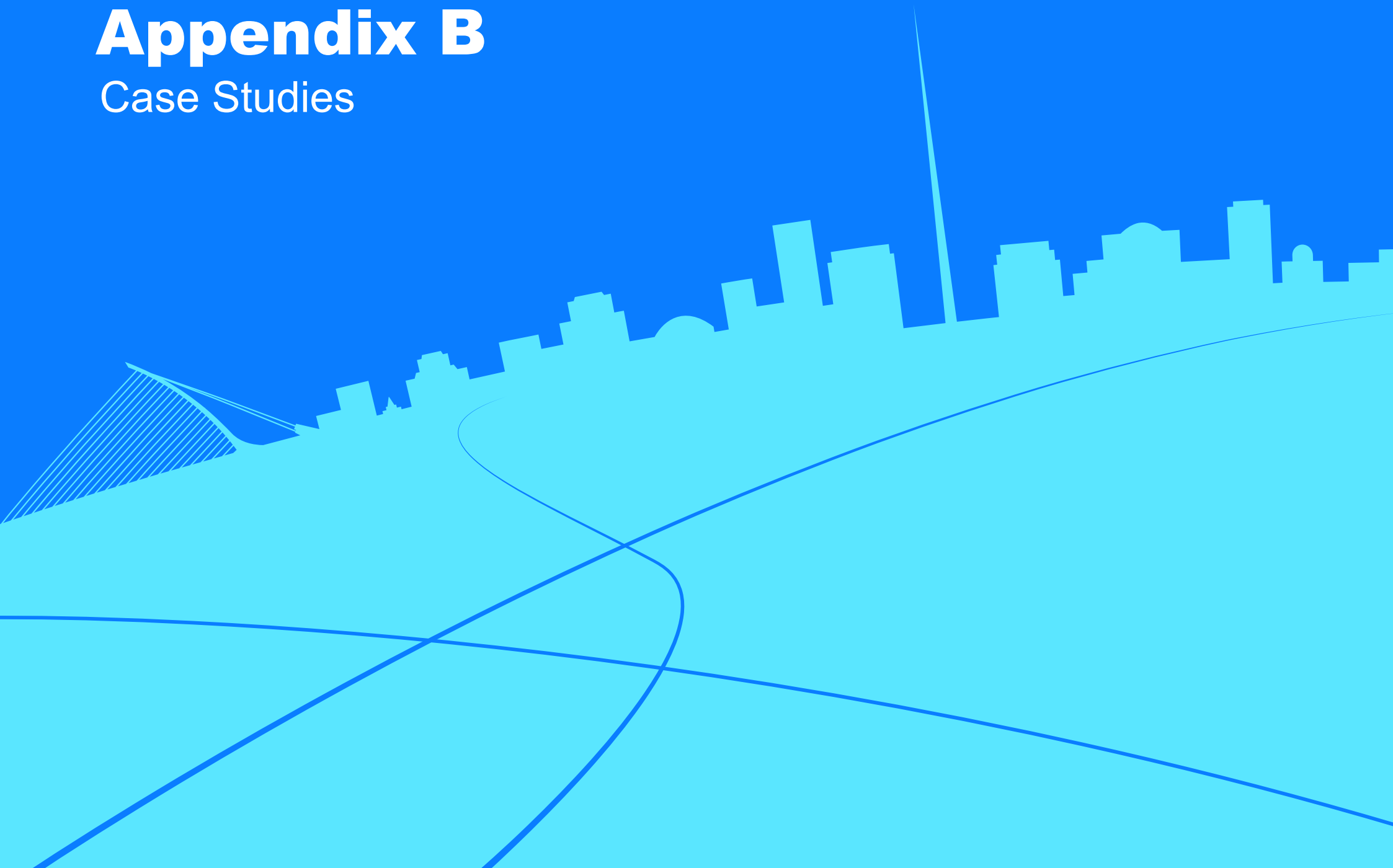
Table A.3: Key Policy Themes

Key Policy Themes	Urban Realm and Land Use Objectives
Compact and Well-Managed Spatial Development <ul style="list-style-type: none">Supporting future growth by better managing growth and ensuring it can be accommodated within and close to the city. This includes a focus on underutilised land within the canals and M50 ring, and a more compact urban form.	Sustainable Mobility <ul style="list-style-type: none">Fundamentally, there needs to be a shift away from the private cars to greater use of active travel and public transport. The focus is on the enhancement and prioritisation of active modes such as walking and cycling within urban areas, as well as delivery of key public transport projects. The inclusivity and accessibility of the transport networks should be enhanced.
Enhanced Amenity <ul style="list-style-type: none">Urban realm and transport enhancements should be focused on the user experience, to encourage sustainable choices and to create attractive, pleasant places that contribute to the quality of life for people.	Transition to a Low Carbon and Climate Resilient Society <ul style="list-style-type: none">Decarbonisation is an urgent priority in the context of climate change targets and needs to be considered across all other aspects of land use and transport planning.



Appendix B

Case Studies



Appendix B | Case Studies

The European case studies presented below have been grouped into six themes which seek to address transport and environmental problems that exist across Europe. All six themes look to rebalance the transport network in favour of sustainable transport whilst reducing the use of private vehicles.

1. Car Free Zones and Reallocation of Space

Oslo – Car Free Liveability Programme



Figure B.1: Oslo Car Free Liveability Programme

City-wide initiative to reduce car usage, create more spaces for people and become fossil-fuel free by 2030. The strategy is delivering a network of interventions including urban realm improvements, traffic-free spaces, street furniture, temporary parklets and lighting installations to support the car-free movement.

Using a phased approach, the city has achieved an 11% reduction in car traffic during the period 2016 to 2018, and by 19% between 2018 and 2019.

Rotterdam Happy Streets – temporary traffic-free space



Figure B.2: Rotterdam Happy Streets

Specific streets within high density neighbourhoods were closed off to vehicular traffic to help people re imagine the car-centric public space and the way they move in the city.

In collaboration with an art collective, an intervention called “Hello you” was created; an invitation to all neighbours and visitors to come out and use the street differently.

The result is a new, temporary public space full of life in which people of all ages can gather and play, dance, eat and meet one another.

Peckham Levels – Repurposing multi-storey car parking



Figure B.3: Peckham Levels

In Peckham, London, an underused multi-storey car park has been transformed into a cultural destination and workspace for creative workers. The space includes 50 studios for artists, makers and small businesses, as well as space for food businesses, retailers, markets, events and more.

The project emerged following a call by Southwark Council for community submissions for ideas to utilise underused car parking spaces. The space has become a highly popular community asset, and a fantastic example of how car parking space in city centre locations can be repurposed.

1. Car Free Zones and Reallocation of Space

Walthamstow Village, London – Low Traffic Neighbourhood



Figure B.4: London Borough of Walthamstow

The London Borough of Waltham Forest was one of three boroughs to be awarded funding by Transport for London (TfL) to implement a LTN scheme. As a result, Walthamstow Village is now one of London's most advanced liveable neighbourhood schemes and traffic levels have fallen by over 90% on some streets and by 56% on average.

The scheme has also led to an increase in the number of walking and cycling trips, with residents reporting walking an additional 32 minutes, and cycling an additional 9 minutes per week.

As a result of the scheme, it is now easier to cross the road, users of the space report feeling safer and air quality has improved. The village has also become greener with new trees and pocket parks offering attractive planters, seating and community gardens.

2. Cycling and Walking Infrastructure Improvements

Copenhagen the Cycling City



Figure B.5: Copenhagen City

Since the 1970s, the city has invested heavily in cycle infrastructure, tailoring roads and transport policy to cyclists' needs. In 2012, the City of Copenhagen adopted a new cycling strategy for 2025 with a goal of increasing the modal share of bicycles to 50% of commuter trips and reducing serious injuries by 70%.

The success of cycling in Copenhagen is due to a number of measures including;

- A vast network of Green Cycle routes and Super Cycle Highways. The cycle tracks are designed with safety and convenience of the bike user in mind;
- Commuters are permitted to bring bicycles on local trains for free;
- Copenhagen also has a number of high-profile cycling advocates, including city government officials.

Utrecht - Bicycle Parking Garage



Figure B.6: Utrecht Bicycle Parking Garage

A three storey bicycle park to store 12,656 bikes below Utrecht Station, in the Netherlands, was completed in 2019.

The project forms part of a wider redevelopment of the area surrounding the city's railway station, and is designed by Ector Hoogstaad Architects to enable cyclists to ride from the street level to the bike store, from which they can quickly access the station.

It is hoped to encourage locals to commute using bikes and public transport instead of cars, and in turn ease congestion in Utrecht and make it a more sustainable city.

Alongside the storage, the structure incorporates a repair service and bicycle hire outlet. It also relies on a digital system to guide cyclists to a parking spot that provides the quickest access to the platforms.

2. Cycling and Walking Infrastructure Improvements

CyclePoint, Cambridge – the UK's largest rail station cycle hub



Figure B.7: Cambridge's Cyclepoint

In 2015 the CyclePoint facility opened at Cambridge Rail Station. Occupying three floors with access via specially designed ramps, the facility is open 24 hours a day, seven days a week and provides free of charge cycle parking for up to 3,000 bicycles.

The parking spaces are made up of a combination of Sheffield stands and two-tier racks, while a dedicated area on the ground floor is available for non-conventional bikes such as cargo bikes or tandems. The facility is covered by CCTV and also has manned security patrol, as well as an adjacent bicycle shop.

Public Realm Design Guide, Croydon, UK



Figure B.8: Croydon's Public Realm

Croydon Council introduced the Croydon Public Realm Design Guide (PRDG) in 2019 to secure a high-quality, consistent and simple to maintain public realm.

The PRDG sets out a consistent approach and palette of materials and street furniture for the entire Borough. In addition, three sub-areas within the Borough have been identified in order to respond to specific circumstances.

The PRDG is underpinned by a set of core principles to ensure the Croydon public realm will be accessible, attractive, sustainable, safe, well-designed, maintained to high standards and place-specific.

3. 15 Minute-City Approach

Paris – “ville du quart d’heure”



Figure B.9: Map of Paris - 15-minute City

Paris is undergoing a transformation into a 'collection of neighbourhoods' as part of its 15-minute city approach. This will reduce pollution and stress to create socially and economically mixed districts to improve quality of life for residents and visitors.

As part of this approach, there are commitments to:

- Pedestrianise large areas of the capital;
- Invest £300m to create a bike lane in every street by 2024;
- Remove 60,000 parking spaces for private cars to make space for active modes.

The transformation is already underway, with bicycle use in the city up by 54% in one year following the implementation of new cycle lanes.

4. Public Transport Improvements

The bus stop of the future - Boulevard Diderot, Paris



Figure B.10: Boulevard Diderot, Paris bus stop

In 2012 Paris' transport agency trialled a revolutionary bus stop concept as part of the Osmose Programme for a six month period. The conventional bus stop was enhanced to move beyond its original function and offer additional services to the local population.

The choice of location was key, located on the Boulevard Diderot outside the busy Gare de Lyon station and at a crossroads between several day and night bus lines carrying 15,000 passengers per day. The sleek shelter was designed as a multi-purpose public space where you can buy a ticket, get information about the local area, have a coffee, borrow a book, charge your phone or rent an electric bike.

The project was considered to be highly successful and led to an extension of the trial period.

Abellio ScotRail - Station travel Plan



Figure B.11: Abellio ScotRail

ScotRail commissioned the production of 18 station travel plans which aims to increase sustainable travel to railway stations and the reduction of single-occupancy car journeys. These studies included detailed site audits to identify opportunities and barriers to last-mile trips.

It was found that many of the barriers to a greater uptake of cycling and walking to railway stations resulted from a lack of joined up and segregated cycle routes.

Rotterdam Central Station



Figure B.12: Rotterdam Central Station

Central station is a key transit hub in the Netherlands, accommodating for more than 100,000 passengers a day using trains, metro, tram and bus services.

Spatial layout has allowed the existing tram station to be moved to the east side of the station, so the platforms broaden the public square. This solution also maximises the pedestrian space and minimises vehicle space.

There is a wayfinding strategy incorporated to help passengers navigate transport routes and provide useful information.

5. E-Mobility and Emission Free Transport

The rise of e-scooters

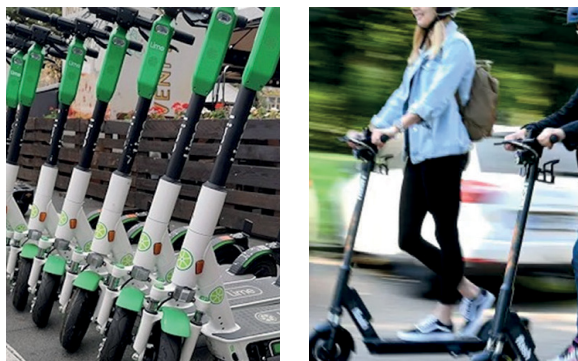


Figure B.13: E-scooters

In only a couple of years, e-scooters have rapidly expanded throughout many cities in the USA and Europe. In 2019, two years after launching e-scooter operations in California, one e-scooter rental start-up had already entered the market in over 100 cities, spread across almost every continent. In the UK, Halfords reported that demand for private e-scooters rose by 71% during the pandemic. In Milton Keynes, the results from a recent public e-scooter trial shows clear evidence of mode shift from cars to e-scooters, with more than 23,000 journeys on e-scooters in the first 10 weeks. Research conducted among 600 riders revealed that 63% had replaced a drive alone by car with an e-scooter ride, with 23% using e-scooters twice in a typical week. Across Europe, the following considerations are under review following the roll out of public e-scooter hire schemes as well as a rise in private use. These include:

- The spaces where e-scooters can be used e.g., roads, bike lanes, traffic-free areas;
- The need for safety measures and compliance i.e. helmets, lights, turn signals;
- Age requirements for users;
- The need for a provisional or full driving licence.

Project ZEUS: Zero Emission off-peak urban deliveries



Figure B.14: Project ZEUS

Project ZEUS is an initiative supported by the European Institute of Innovation and Technology (EIT) which is working together with a number of major cities including Stockholm, Munich and Barcelona. It is a concept for silent and emission-free city deliveries which help to contribute to a more liveable, clean and safe urban environment.

The project aims to achieve this by:

- Avoiding rush hour traffic jams with deliveries restricted to 19:00-07:00;
- Preventing any noise nuisance through the use of quiet transport trailers and low-noise pallet trucks;
- Producing zero emissions as much as possible through the use of electric or plug-in hybrid trucks; and
- Making transport safer and more efficient through optimal delivery route planning.

6. Congestion Zones

Congestion taxes in Stockholm, Sweden



Figure B.15: Map of Stockholm

A congestion charge covering Stockholm city centre was introduced permanently following a seven-month pilot scheme and subsequent referendum in 2007. The charging system consists of 18 charging points located on the main bottlenecks on arterial roads leading into and out of the inner city forming a cordon. Vehicles are registered automatically by ANPR with the owner of the vehicle being sent an invoice for the total charge incurred during each month. Costs vary from €1-2 depending on the time of day, with the maximum amount set at €6 per day.

A study by the Centre for Transport Studies: Stockholm in 2014 reported that since its introduction there has been:

- A 20% reduction in traffic crossing the cordon;
- A 16% reduction in vehicle km in the inner city;
- A one-third reduction in travel times on arterial routes;
- Between a 10-15% reduction in transport-related emissions in the inner city.

Jacobs