

Greater Dublin Area Transport Strategy

2022



2042



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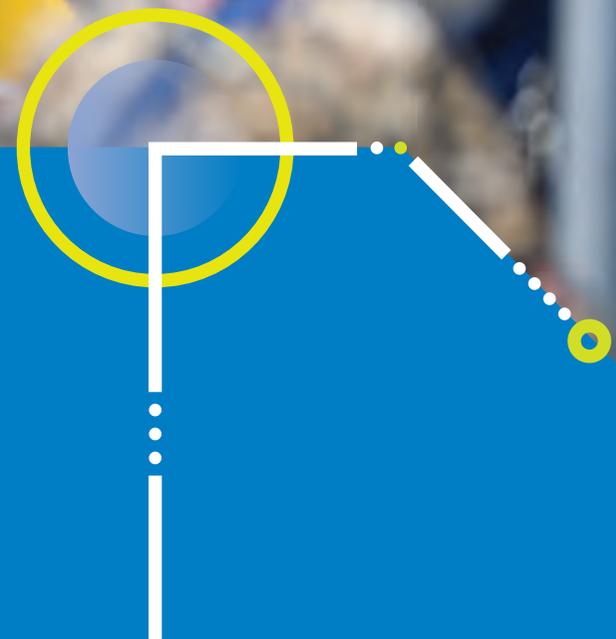
Part A

The Background





1. Introduction



1. Introduction

This Transport Strategy for the Greater Dublin Area 2022-2042 (Transport Strategy) replaces the previous framework, titled the Transport Strategy for the Greater Dublin Area 2016-2035, which was approved by the then Minister for Transport, Tourism and Sport in 2016.

That prior transport strategy set out to contribute to the economic, social and cultural progress of the Greater Dublin Area (GDA) by providing for the efficient, effective and sustainable movement of people and goods. In other words, it was about making the Dublin region a better place for people who live and work there, and for those who visit.

It did that by providing a framework for the planning and delivery of transport infrastructure and services in the GDA. It has also provided a transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing, water and power, could align their own investment priorities.

It has been an essential component, along with investment programmes in other sectors, for the development of the GDA which covers the counties of Dublin, Meath, Kildare and Wicklow. Major projects provided for in the strategy included:

- Luas Cross City;
- The reopening of the Phoenix Park Tunnel Rail Line;
- The on-going roll out of cycle tracks and greenways;
- Metrolink;
- DART+ Programme;
- Investment in bus priority and bus service improvements – BusConnects Dublin; and
- M7 Naas to Newbridge widening, Osberstown Interchange and Sallins Bypass.

Under the Dublin Transport Authority Act 2008, the National Transport Authority (NTA) must review its transport strategy every 6 years. Arising from the review of the 2016 plan, an updated strategy has been developed which sets out the framework for investment in transport infrastructure and services over the next two decades to 2042.

Of course no transport strategy can ever be a standalone document. A transport strategy will always be part of a larger picture of overall national policies that must work towards a single set of overall objectives. To a large extent, policies and objectives around issues such as land use, development, population distribution, investment, sustainability and climate action, for example, are determined by other state agencies



and authorities, but must be fully reflected in any transport strategy.

As such, this Transport Strategy has been developed to be consistent with the spatial planning policies and objectives set out in the Regional Spatial and Economic Strategy (RSES) as adopted by the Eastern and Midland Regional Assembly, and finalised in January 2020. These objectives in turn are consistent with the National Planning Framework and the National Development Plan as set out in Project Ireland 2040.

This Transport Strategy is also based on national policies on sustainability as set out in climate action and low carbon legislation, and in climate action plans. The potential impacts of the on-going Covid-19 pandemic, beyond the short-term, have also been taken into account.





2. Progress Made on the Prior Transport Strategy

2. Progress Made on the Prior Transport Strategy

Since the prior transport strategy was approved by Government in 2016, the NTA, along with the Councils, other transport delivery agencies and transport operators, have worked hard to build and develop that strategy's projects and proposals. Major progress in the last four years includes:

2.1 Rail

- In conjunction with Transport Infrastructure Ireland (TII), in December 2017 we opened Luas Cross City, linking the Red and Green lines and providing an interchange between commuter rail and Luas at Broombridge.
 - In conjunction with TII, as part of the Luas capacity enhancement project, the length of trams on the Green Line and the size of the overall tram fleet have both been increased. All of the existing trams on the Green Line have been extended to 55-metres, and the overall tram fleet has grown from 67 trams in 2016 to 81 trams today.
 - In conjunction with Iarnród Éireann, passenger services were reintroduced into the refurbished Phoenix Park Tunnel in 2016, providing direct rail access from the suburbs and towns of the south west of the region into Dublin City Centre.
 - In 2018, a 10-minute all-day DART service was introduced.
- "The Luas Cross City project has demonstrated the city's ability to conduct large scale infrastructure projects. Not only did it come in on time and on budget, but the city's footfall rose in each year of construction. This is a remarkable achievement that should be celebrated and is testament to the manner in which the NTA and TII undertook the project and the manner in which business concerns were taken on board. This certainly bodes well for future large-scale projects to be undertaken in the coming years"*
- The Dublin City Business Improvement District*
- www.wearedublintown.ie/2017/12/dublin-town-welcomes-introduction-luas-cross-city/
- A major upgrade of the city centre railway signalling system was completed in 2020, which allows a significant increase in the number of trains that can operate in the central city area, including a 50% increase in the number of trains able to cross the Loop Line Bridge over the Liffey.



2.2 Walking and Cycling

- We have invested tens of millions of euros in walking and cycling across the Greater Dublin Area since 2016, and significant additional investment for these modes was provided under the Covid-19 and Stimulus programmes in 2020.
- Some example projects include the new cycleway along the seafront in Clontarf, the off-road pedestrian/cycling route between Baldoye and Portmarnock, and the Royal Canal Greenway from North Strand Road into the Docklands, among numerous other schemes delivered across the GDA.

2.3 Bus

- We have commenced the largest ever investment programme in our bus network under BusConnects Dublin. This will deliver high levels of bus priority on all the main corridors and a significantly improved service network.
- The NTA has invested heavily in the renewal of the bus infrastructure, including bus stopping facilities, Real Time Passenger Information and fleet improvements.
- The size of the bus fleet providing the publicly subsidised bus services in the Dublin region has increased by 180 vehicles since the start of 2016, to comprise 1,139 buses in the fleet at the end of 2020.
- Increased investment in the rural Local Link services, notably in Kildare, Meath, Wicklow and Fingal counties.

2.4 Roads

- The Strategic Road Network in the GDA has continued to evolve, with modifications and safety improvements in all counties.
- The M7 enhancement project and Osberstown Interchange are now complete, improving national road accessibility to strategic employment locations on this corridor.
- Numerous other regional and local road projects have also been completed, such as the Donabate Distributor Road and roads serving the Cherrywood Strategic Development Zone.

2.5 Integration

- The Regional Spatial and Economic Strategy was adopted by the Eastern and Midland Regional Assembly (EMRA) in June 2019, with transport related inputs aligned with the existing transport strategy. This coordination between the NTA and EMRA ensured that land use and transport planning was appropriately integrated at the regional level.
- The NTA made over 200 submissions on Development Plans, Local Area Plans and Planning Applications in the GDA. These submissions have led to closer integration between land use planning and transport, including the protection of future transport project alignments.
- The Real Time Passenger Information and Journey Planner services have been continually updated and expanded.

2.6 Outcomes

- The share of people travelling in to Dublin City Centre by sustainable modes in the morning peak period has increased from 66% in 2015 to 72% in 2019;
- The number of cars entering the city centre between 7 am and 10 am has fallen from 65,000 in 2015 to 58,000 in 2019, while the total person trips has increased from under 200,000 to 217,000 over the same period.
- The total passengers carried daily by Irish Rail services in the Dublin region rose from 28 million in 2015 to over 35 million in 2019, with its peak hour mode share also growing.
- The total passengers carried by Metropolitan bus services annually in Dublin grew from 120 million in 2015 to 153 million in 2019.
- The total passengers carried by Luas grew from 35 million in 2015 to 48 million in 2019.
- The 2019 Customer Satisfaction Survey carried out on behalf of the NTA showed 87% of public transport users to be satisfied with their public transport services.

2.7 Forthcoming Schemes

- Metrolink – a Railway Order application will be made in 2022.
- DART+ West – a Railway Order application will be made in 2022
- DART+ South West – a Railway Order application will be made in 2022.

- DART+ Coastal – a Railway Order application will be made in 2023.
- Luas Finglas – a public consultation on its Emerging Preferred Route has been completed and it is expected that a Railway Order application will be submitted in 2023/2024.
- BusConnects Dublin Core Bus Corridors – the first tranche of planning applications will be lodged with An Bord Pleanála in 2021.
- BusConnects Dublin new services network – implementation has commenced and will continue throughout 2022, 2023 and into 2024.
- Cycle network – a major programme of cycling expansion is underway, which will deliver many of the priority routes of the planned cycle network.
- Safe Routes to School – this programme, which commenced in 2020, will deliver significant enhancements to the sustainable transport environment at and close to schools.

Public Transport Fleet expansion:

- 219 double-deck hybrid buses will be delivered prior to end 2021 for deployment on the Dublin region services;
- 100 fully electric double deck buses will be delivered during 2022;
- 41 extra Intercity rail carriages will be delivered in 2022, providing additional rail capacity in the GDA; and
- Up to 750 electric/battery-electric carriages for DART, will be delivered from 2024 onwards.







3. Strategy Challenges

3. Strategy Challenges

3.1 Introduction

In developing a regional transport strategy, there is a wide range of challenges that must be taken into account. This chapter sets out some of the key risks and difficulties facing transport in the GDA. These should be read in the context of the overarching challenge for Dublin and the GDA to maintain and enhance its role as the primary national gateway, which adds an additional layer of requirements to ensure efficient access to Dublin Port and Dublin Airport. Along with a comprehensive policy review, these challenges have fed into the formulation of the Strategy Aim and Strategy Objectives set out in Chapter 5.

3.2 Climate Change

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

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

“We want to make sure that we provide good public transport, cycling and walking infrastructure, so people are less reliant on their cars, and we can cut congestion. We have already committed to an additional 500,000 public transport and active travel journeys daily by 2035. Policies need to be better aligned to achieve more ambitious targets for modal shift, involving building supporting infrastructures.”

Government of Ireland, 2019 Climate Action Plan

In relation to the first point, the close integration of land use and transport planning will contribute to this aim, particularly in the medium and long term. Additionally, the trends in working from home and online education and retailing may play a significant role.

While the Transport Strategy has addressed these issues fully, a key objective is to address the second point. To this end this report sets out the scale and the strategic-level detail of the investment required to facilitate a reduction in the use of the private car in the GDA over the period to 2042.

Finally, notwithstanding the fact that the conversion of the national transport fleet to low and zero-emissions vehicles is primarily a matter for national level policy and investment

programmes, the Transport Strategy will promote and facilitate this change. All urban public transport vehicles operating State services in the GDA will be zero-emissions by 2035, with this transformation already underway. The NTA is committed to this provision on a national basis. In relation to the private car fleet, the Transport Strategy supports the local authorities in facilitating the roll-out of electric cars through the provision of public charging points where demand requires them.

However, simply transitioning the car fleet to electric vehicles is insufficient to deliver a sustainable transport system and a key focus of the strategy is to facilitate increased use of other modes in order to meet environmental, economic and social objectives related to emissions, congestion and car-dependency. As such, a number of additional measures have been considered in this strategy which will enable these statutory targets to be met. These measures are set out in Chapter 16 – Climate Action Management.

3.3 Recovery from the Covid-19 Pandemic

As we move into the final phases of the Covid-19 Pandemic, the debate has shifted to consideration of its potential permanent impacts. There has been a lot of debate about how Covid-19 will permanently alter our way of life; that it may lead to a significant reduction in the daytime population of our large towns and cities as technology facilitates working from home; that the trend towards online retailing will accelerate and that online teaching will become a significant part of school and college life.

At this point in time, the NTA cannot state with certainty how the pandemic will affect our travel plans, or indeed our settlement patterns, in the long-term.

It is our intention, however, to continue to plan for what we believe to be the most environmentally sustainable future. As such, the Transport Strategy proposes the transport system to support the National Planning Framework objectives in relation to consolidation of our towns and cities; it promotes public transport as a major contributor to a zero carbon transport system; and it sets out how we will meet the increased demand for safe and attractive walking and cycling infrastructure.

In relation to the appropriateness and viability of the Transport Strategy in the context of a post-Covid world, the NTA has developed an alternative future demand scenario instead of the “business as usual” approach, which takes account of likely potential travel pattern changes and tests the robustness of the Authority’s projects, plans and programmes. The Alternative Future Demand Scenario has adjusted downwards the likely demand for future travel to account for potential increases in working from home, remote learning and online shopping. Other areas such as a potential decrease in business travel together with an increase in shorter local trips have also been considered. The full details of this scenario are available in the “Alternative Future Scenario for Travel Demand” report available on the NTA website.

This approach provides a spectrum of potential transport patterns against which the Strategy can be validated. The NTA is satisfied that this approach fully accounts for the potential long-term impacts of the Covid-19 pandemic in line with the best information available at present.

In terms of the implementation of the Transport Strategy, travel patterns and trends will continue to be constantly monitored by the NTA and our partner agencies, and this information will be used as an input into the planning and design of major transport investment schemes. As the immediate transport impacts of Covid-19 through 2020 and 2021 settle into medium and long-term impacts, the NTA will respond and ensure our monitoring and analysis remains up-to-date.

3.4 Servicing the Legacy Development Patterns

Development patterns in the Greater Dublin Area have historically provided significant challenges to transport provision.

During various phases of growth, development has tended to the periphery; to greenfield lands, remote from existing or proposed transport infrastructure; and at densities too low to support public transport or facilitate walking and cycling. In many cases, development also leapfrogged the urban area to edge of town sites in various settlements across Leinster.

This pattern of growth created a whole new group of highly car-dependent commuters across the region. According to the 2016 Census, 55% of residents of the GDA travel to work by car. This masks spatial variations whereby the figure for those living in the inner suburbs is 47%, but rises to 70% for those outside the Metropolitan Area. Similar patterns are evident for trips to education.

Addressing this legacy, and ensuring it is not compounded, is a major challenge for the Transport Strategy and for the planning authorities.

3.5 Revitalisation of the City Centre and Town Centres

The Covid-19 Pandemic has created significant challenges for Dublin City Centre and for a number of town centres across the region. It has also created a number of opportunities to reduce the amount of travel through, for example, increased home working and blended home/office working and the use of remote working hubs. These are discussed in Chapter 8.

The importance of local services during the pandemic and the importance of access to these services was also highlighted, as concepts such as the “15-Minute City” and a “Town Centres First” approach emerged.

The implementation of the Transport Strategy will need to respond to these challenges by providing higher levels of accessibility by sustainable modes to Dublin City Centre and



other key urban centres; by expanding night-time and off-peak services; and by ensuring that towns and villages across the GDA are provided with safe and convenient cycling and walking facilities.

3.6 Transformation of the Urban Environment

Notwithstanding the progress made in recent years, the urban environments in Dublin City and the Metropolitan towns and villages are still dominated by the requirements to serve movement by private car. Apart from a limited number of high-profile pedestrian areas (primarily in Dublin City Centre) and public parks, there are few, if any, true refuges for pedestrians and cyclists, and there is an absence of coherent priority for public transport. Informal public open spaces and places to relax and sit down are lacking. This has a disproportionate adverse impact on persons with disabilities, the elderly and the socially disadvantaged. The manner in which the urban realm is set out and designed is a key indicator of the social, cultural and environmental health of a city or town.

While actions are underway to address some of these issues, the GDA generally does not currently present a healthy image in this regard. The Transport Strategy, sets out the manner in which this can be addressed in all urban areas in the GDA in three ways:

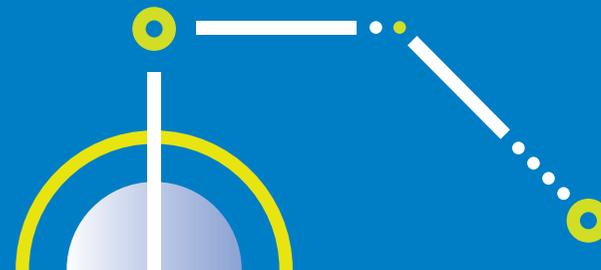
- Reducing car dominance;
- Improving the public realm; and
- Managing the movement of goods vehicles.

This is based on the recognition of the place function of streets in the Design Manual for Urban Roads and Streets whereby streets themselves are attractive and act as a location for social interaction, rather than as channels for the movement of traffic,

3.7 Ensuring Universal Access

Through the investment in public transport infrastructure and vehicles and by improving the urban environment, the NTA is committed to implementing a Universal Design approach. Universal Design is defined by the National Disability Authority as the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.

Transport is aimed at serving all sectors of society, and people's access to opportunities to work, get an education or partake in other activities should not be compromised by the design of the transport environment or transport vehicles. The Transport Strategy is underpinned by the on-going work of the NTA in improving the interface between the transport system and persons with physical and intellectual disabilities and this thread runs through all of the chapters in Part B of this report.





3.8 Serving Rural Development

While Dublin City and Suburbs and the large regional towns comprise the primary sources of travel demand in the GDA, ensuring that the socio-economic and cultural fabric of rural areas is protected and enhanced is a cornerstone of the Transport Strategy.

The most important actions that can be taken to serve the rural hinterland of the GDA are through the maintenance and improvement of the regional bus system, Local Link and the development of the Inter-Urban and Greenway cycle network, together with the maintenance and improvement of the critical road links that form the transport arteries of rural areas. The Transport Strategy incorporates a suite of measures which supports these items and addresses the mobility needs of the rural parts of the GDA.

3.9 Improving Health and Equality

A good transport network, based on sound foundations of sustainability and accessibility, has the potential to be an engine for positive change. It can do this by opening up access to social and economic opportunities such as education and employment, particularly for those who would otherwise be unable to avail of such opportunities. It can also have a positive impact on overall health and wellbeing among the people and communities that it serves.

- Ensuring that the transport network and services enhance people's quality of life is a considerable challenge, and

these considerations have informed the development of the strategy:

- The affordability of public transport so that it remains available and useful for families with lower disposable incomes;
- The role of public transport in further improving accessibility for persons with disabilities; and
- Promoting active commuting for its benefits to people's health and to the environment.

3.10 Fostering Economic Development

A good, reliable, efficient and affordable transport system can be a major driver of economic activity, jobs, investment and prosperity. We now have the opportunity to re-examine our transport priorities so that the economic benefit can be maximised in the years ahead, in a city and a region that works better for the people who live and visit there in the following ways.

- Improving connectivity to maximise the potential of our labour force;
- Identifying transport investment required to facilitate expansion of jobs and employment;
- Transport as a catalyst for entrepreneurship and innovation;

- Optimising our transport network for the distribution of products and goods to markets;
- Reducing the effects of congestion on the economy and workers; and
- Improving and protecting surface access to Dublin Port and Dublin Airport.

3.11 Delivering Transport Schemes

While the preceding chapter sets out the progress made since the approval of the previous Transport Strategy, it has been clear that the implementation of major transport schemes and projects has been challenging.

It is simply impossible to implement radical improvements to the city and region’s transport system without disruption and without discommoding some people, often in significant adverse ways. Some of these effects will be felt locally; others may impact on a whole community; and, in extreme circumstances, the effects may be experienced by a very large population across the region, such as a major change in the city centre, for example. This has been the case with almost all urban transport schemes throughout recent history, all of which have been subject to significant levels of opposition, including Luas, DART, Quality Bus Corridors, minor cycling schemes, the M50, the national Motorway programme, etc.

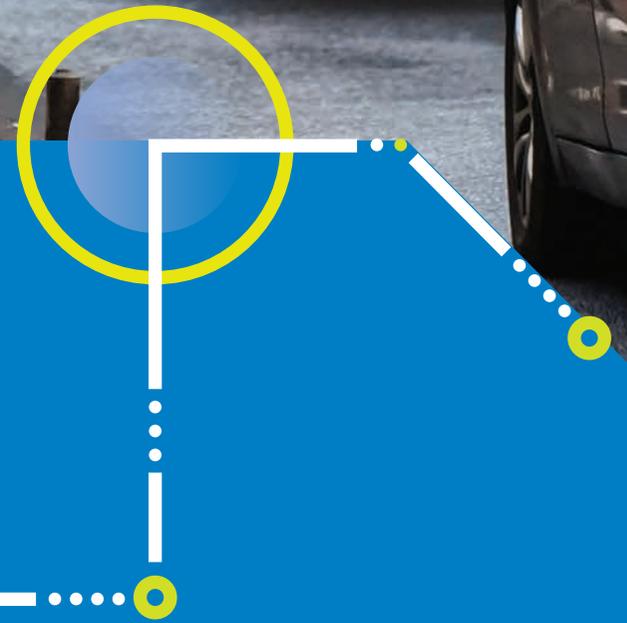
Extensive engagement with stakeholders, local communities and the wider public is essential to properly inform the public about major transport changes and scheme proposals, and

in order to highlight and reinforce the benefits of transport schemes. That engagement also provides an opportunity to work with those parties to achieve better overall outcomes and to allay unnecessary concerns. A central tenet of the delivery of the proposals in this Transport Strategy will be a process of dialogue and consultation with the relevant parties in the case of each proposal, affording opportunity for more collaborative development of balanced solutions.





4. Policy Review



4. Policy Review

4.1 Introduction

In preparing this transport strategy, the NTA took into account a vast array of policies, guidelines, plans and programmes of a large number of international, national, regional and local government bodies and agencies. These included the UN Sustainable Development Goals, the Climate Action Plan 2021 and recent climate action legislation.

This chapter focuses on a key input into the Transport Strategy – the Climate Action and Low Carbon Development (Amendment) Act 2021, which sets out emissions reduction targets on a statutory basis.

Detail is also provided on the two primary statutory policy documents which, from a policy and integrated planning perspective, have most directly framed the Transport Strategy:

- Project Ireland 2040; and
- The Eastern and Midland Regional Assembly’s Regional Spatial and Economic Strategy.

The Transport Strategy is required by legislation to be consistent with these plans and a close iterative relationship is required between them.

Other policy documents considered are listed at the end of this section.

“Planning and transport policies are highly interdependent. Establishment of the National Transport Authority (NTA) in 2009 was intended to deliver a more focused and integrated approach to the planning and delivery of integrated transport infrastructure and services both on a national basis generally and especially in the Greater Dublin Area.”

Government of Ireland, 2018 National Planning Framework

4.2 Climate Action Legislation

In July 2021 the Climate Action and Low Carbon Development (Amendment) Act 2021 was signed into law.

This Act establishes the following national climate objective:

“The State shall, so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy.”

To achieve that objective the Act sets out a number of actions. These include:

- The preparation of an annual update to the Climate Action Plan 2019;
- The preparation, not less frequently than once every 5 years, of a national long term climate action strategy (referred to as a ‘national long term climate action strategy’);
- The establishment of carbon budgets, aligned with the achievement of the national climate objective, for consecutive five year periods;
- The preparation of “sectoral emissions ceilings” which establish the maximum amount of greenhouse gas emissions that are permitted in different sectors of the economy during the five year period of a carbon budget;
- The preparation of “local authority climate action plans” covering periods of five years, which are required to specify the mitigation measures and the adaptation measures to be adopted by the relevant local authority in relation to climate matters; and
- An obligation that public bodies must take account of Climate Action Plans in the performance of their functions.

The Act 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. While that overall target has not yet been disaggregated into sectoral targets, it is understood that the transport sector will be required to achieve this 51% reduction in full.

This is a highly significant and challenging target, which will fundamentally guide and direct transport provision and use in Ireland over the next decade. Achieving this target will require a major transformation in transport patterns, focused on increasing travel by sustainable modes and reducing travel by petrol/diesel powered vehicles.

4.3 Project Ireland 2040

4.3.1 National Planning Framework 2040 (NPF)

The NPF is a strategic development framework that sets out the long-term context for Ireland’s physical development and associated progress in economic, social and environmental terms until 2040. These are set out under a number of National Strategic Outcomes and Priorities, as illustrated in Figure 4.1.

NPF National Policy Objectives

The various policies within the NPF are structured under National Policy Objectives (NPOs). NPOs were developed following extensive analysis and consultation and set a new way forward for regional and local planning and sustainable development policy in Ireland.

The key NPOs relevant to the development of the Transport Strategy include:

- **NPO 1b:** Population growth for the Eastern and Midland Region (EMR) of between 490,000 and 540,000 to 2040 (target population of almost 2.85 million);

- **NPO 1c:** 320,000 additional people in employment in the EMR (1.34 million in total);
- **NPO 2a:** A target of 50% of future population and employment growth will be focused in the existing five cities and their suburbs;
- **NPO 3a:** At least 40% of all new housing to be delivered nationally within the existing built-up areas of cities, towns and villages on infill and/or brownfield sites;
- **NPO 3b:** Deliver at least half (50%) of all new homes that are targeted in the five cities and suburbs of Dublin, Cork, Limerick, Galway and Waterford, within their existing built-up footprints;
- **NPO 9:** Settlements outside of 'City and Suburbs' may be identified for significant (i.e. 30% or more) rates of population growth at regional and local planning stages. The NPF makes reference to the fact that these settlements may lie within the commuter catchment of the City or in areas that have potential for high sustainable mode shares. This would align with settlements along the existing rail lines and future high capacity transport corridors in the GDA;
- **NPO 27:** Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments, and integrating physical activity facilities for all ages; and



- **NPO 68:** Metropolitan Area Strategic Plans (MASPs) may enable up to 20% of the phased population growth targeted in the principal City and Suburban area, to be accommodated in the wider Metropolitan Area i.e. outside the city and suburbs, in addition to growth identified for the Metropolitan area. The NPF states that this should be subject to any relocated growth being in the form of compact development, such as infill or a sustainable urban extension and/or being served by high capacity public transport and/or related to significant employment provision.

Key future growth enablers directly related to transport include:

- Delivering the key rail projects set out in the Transport Strategy for the Greater Dublin Area including MetroLink and the DART+ Programme (previously referred to as DART Expansion);
- The development of an improved bus-based system, with better orbital connectivity and integration with other transport networks;
- Public realm and urban amenity projects, focused on streets and public spaces, especially in the area between the canals and where linked to social regeneration projects;
- Delivery of the cycle network set out in the Greater Dublin Area Cycle Network Plan inclusive of key commuter routes and urban greenways on canal, river and coastal corridors;
- Improving access to Dublin Airport, to include improved public transport access; and
- Facilitating the growth of Dublin Port through greater efficiency, limited expansion into Dublin Harbour and improved road access, particularly to/from the southern port area.

4.3.2 National Development Plan 2021-2030 (NDP)

The NDP sets out the investment priorities that will underpin the successful implementation of the NPF up to 2030.

National Strategic Outcomes (NSO) defined by the NPF have been incorporated into the NDP with further investment details. Some of the projects of relevance to the Strategy are summarised as follows:

NSO 2 – Enhanced Regional Accessibility

- Protection and Renewal Programme for National Roads;
- Investment in regional and commuter bus fleet;
- Various national road schemes; and
- Protection and renewal of the railway network.

NSO 3 – Strengthened Rural Economies and Communities

- Greenways Strategy;
- Active Travel in towns and villages; and
- “Connecting Ireland” public transport programme.

NSO 4 – Sustainable Mobility

- Metrolink;
- BusConnects Dublin;
- DART+ Programme;
- Continued investment in bus and train fleets;
- Transition urban bus fleet to low emission, including electric buses;

- Delivery of comprehensive cycling and walking network in metropolitan areas;
- Safe Routes to Schools Programme; and
- Undertake appraisal, planning and design of Luas network expansion to Bray, Finglas, Lucan, and Poolbeg.

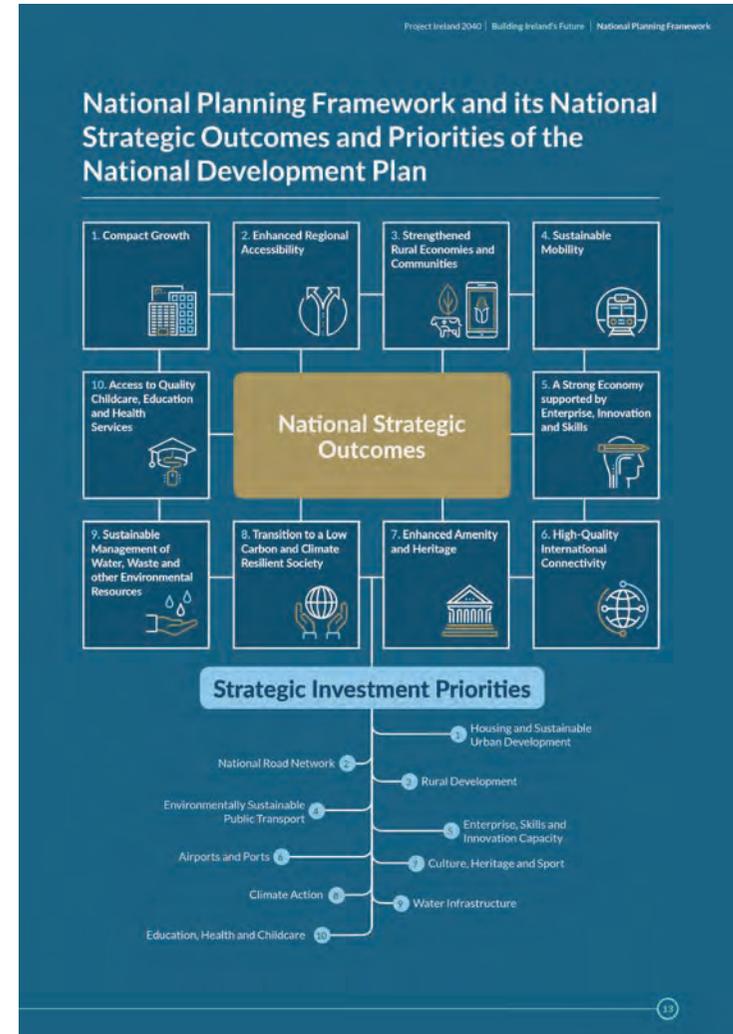
NSO 6 - High-Quality International Connectivity

- Completion of the new North Runway for Dublin Airport; and
- Further infrastructural investment at Dublin Port to accommodate larger sea-going vessels; and increase capacity.

NSO 8 - Transition to a Low-Carbon and Climate-Resilient Society

- Nearly one million electric vehicles on the road by 2030 with additional charging infrastructure to cater for growth;
- An additional 500,000 sustainable mobility journeys per day by 2030;
- Transition to a low or zero emission public bus fleet;
- Expand the refuelling network for alternately fuelled vehicles to address freight emissions; and
- Comprehensive integrated public transport network for Ireland's cities connecting more people to more places.

Figure 4.1: NPF National Strategic Outcomes and NDP Priorities



4.4 Regional Spatial and Economic Strategy

Under the Planning Acts, the Regional Spatial and Economic Strategy (RSES) addresses, inter alia, the following matters:

- Government policies or objectives related to population targets;
- Enabling job creation;
- Proposals for augmenting the economic performance of the region;
- The location of employment, industrial, commercial and retail development;
- The location of housing; and
- The provision of transportation, including public transportation.

When making the RSES, the Eastern and Midland Regional Assembly (EMRA) must ensure that it is consistent with the prevailing GDA Transport Strategy. This consistency relates to those elements of the RSES for which the NTA is responsible in terms of strategic planning, i.e. investment in public transport, roads, walking and cycling. The current RSES covers the period 2019-2031 and is consistent with the 2016-2035 Transport Strategy, as it incorporates the strategy's measures in the appropriate manner.

In turn, the Transport Strategy 2022-42 is required to be consistent with the spatial and economic policies and objectives of the prevailing RSES. The NTA has cooperated closely with the EMRA in the development of the Transport Strategy. It has incorporated its population distribution and has taken into account the forecast future employment patterns. The Transport Strategy has been developed to align with, and support the objectives of, the current RSES.

The RSES provides the spatial framework for alignment of key transport infrastructure and investment throughout the Region, setting out locations for population and employment growth, with a focus on delivering compact growth within existing urban footprints in Dublin and designated settlements in the RSES Settlement Hierarchy.

Key transport policies which were developed in collaboration with NTA include Guiding Principles for Integration of Land use and Transport, and Transport Investment Priorities for the Region.

In addition to setting out Regional Strategic Outcomes (RSOs), which are aligned with the National Strategic Outcomes (NSOs) in the NPF, the RSES also identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives (RPOs). See Figure 4.2.

The following RPOs of the RSES are of most relevance to Transport Strategy:

- **RPO 4.2:** Infrastructure investment and priorities shall be aligned with the spatial planning strategy of the RSES. All residential and employment developments should be planned on a phased basis in collaboration with infrastructure providers so as to ensure adequate capacity for services (e.g. transport) is available to match projected demand for services and that the assimilative capacity of the receiving environment is not exceeded;
- **RPO 4.3:** Support the consolidation and re-intensification of infill/brownfield sites to provide high density and people-intensive uses within the existing built up area of Dublin City and suburbs and ensure that the development of future development areas is coordinated with the delivery of key public transport projects;
- **RPO 4.31:** Support Swords-Dublin Airport as a key location for airport-related economic development and employment provision linked to the protection and enhancement of access to Dublin Airport lands including the delivery of Metrolink;
- **RPO 4.33:** Support the continued development of Maynooth, coordinated with the delivery of strategic infrastructure including pedestrian and cycle linkages within the town and to the Royal Canal Greenway, DART expansion and road linkages forming part of the Maynooth Outer Orbital Route in a manner which supports future development and population growth and builds on synergies with Maynooth University promoting a knowledge-based economy;
- **RPO 4.40:** To support ongoing investment in public transport infrastructure, including the appraisal, planning and design of the Luas extension to Bray. The development of Bray-Fassaroe should be undertaken in collaboration between Wicklow County Council, Dún Laoghaire-Rathdown County Council and the transport agencies to ensure the delivery of enabling transportation infrastructure and services;
- **RPO 4.48:** Promote the improvement of the transport network within and serving Naas town, including delivery of a robust and efficient walking, cycling and bus network with strong links to Sallins Railway Station, key destinations within the town and to the North West Quadrant and town centre area;
- **RPO 4.52:** Support the delivery of new and enhanced public transport infrastructure in Naas and Sallins, including Park and Ride and interchange facilities as identified by the NTA and Kildare County Council;
- **RPO 8.1:** The integration of transport and land use planning in the Region shall be consistent with the guiding principles expressed in the transport strategy of the RSES;
- **RPO 8.2:** The capacity and safety of the Region's strategic land transport networks will be managed and enhanced, including through the management of travel demand in order to ensure their optimal use;

- **RPO 8.3:** That future development is planned and designed in a manner which maximises the efficiency and protects the strategic capacity of the metropolitan area transport network, both existing and planned and to protect and maintain regional accessibility;
- **RPO 8.4:** Land use plans within the GDA shall demonstrate a consistency with the NTA's Transport Strategy for the Greater Dublin Area and plans within or outside of the GDA shall be consistent with the guiding principles expressed in the RSES;
- **RPO 8.5:** To support the preparation of a regional strategy for freight transport in collaboration with the relevant transport agencies and the other Assemblies;
- **RPO 8.6:** In order to give local expression to the regional level Transport Strategy within the Region in conjunction with the NTA, Local Transport Plans (LTP) will be prepared for selected settlements in the Region.

Metropolitan Area Strategic Plan

The RSES also incorporates the Dublin Metropolitan Area Strategic Plan (MASP). This plan includes a number of guiding principles and identifies the strategic development corridors for accommodating future growth. It also sets out the enabling infrastructure, including transport. The MASP comprises a key input into the transport strategy by providing clear direction in terms of spatial planning policy at the Metropolitan level.

The Strategic Development Areas and Corridors identified by the MASP are set out below along with a selection of the identified enabling transport infrastructure:

- City Centre and Area within the M50 – Luas extensions, DART Underground, Dodder Bridge;
- North-South Corridor – DART+; Luas Bray, Access Roads;
- North-West Corridor – DART+, New Orbital Roads;
- South Western Corridor – DART+; and
- MetroLink / Green Line Corridor – Luas Green Line Upgrade; MetroLink.

The following Regional Policy Objectives are included as part of the MASP:

- **RPO 5.2:** Support the delivery of key sustainable transport projects including Metrolink, DART and Luas expansion programmes, BusConnects and the Greater Dublin Metropolitan Cycle Network and ensure that future development maximises the efficiency and protects the strategic capacity of the metropolitan area transport network, existing and planned;

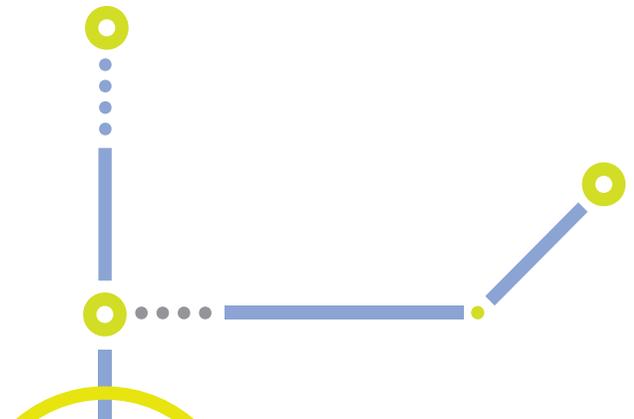
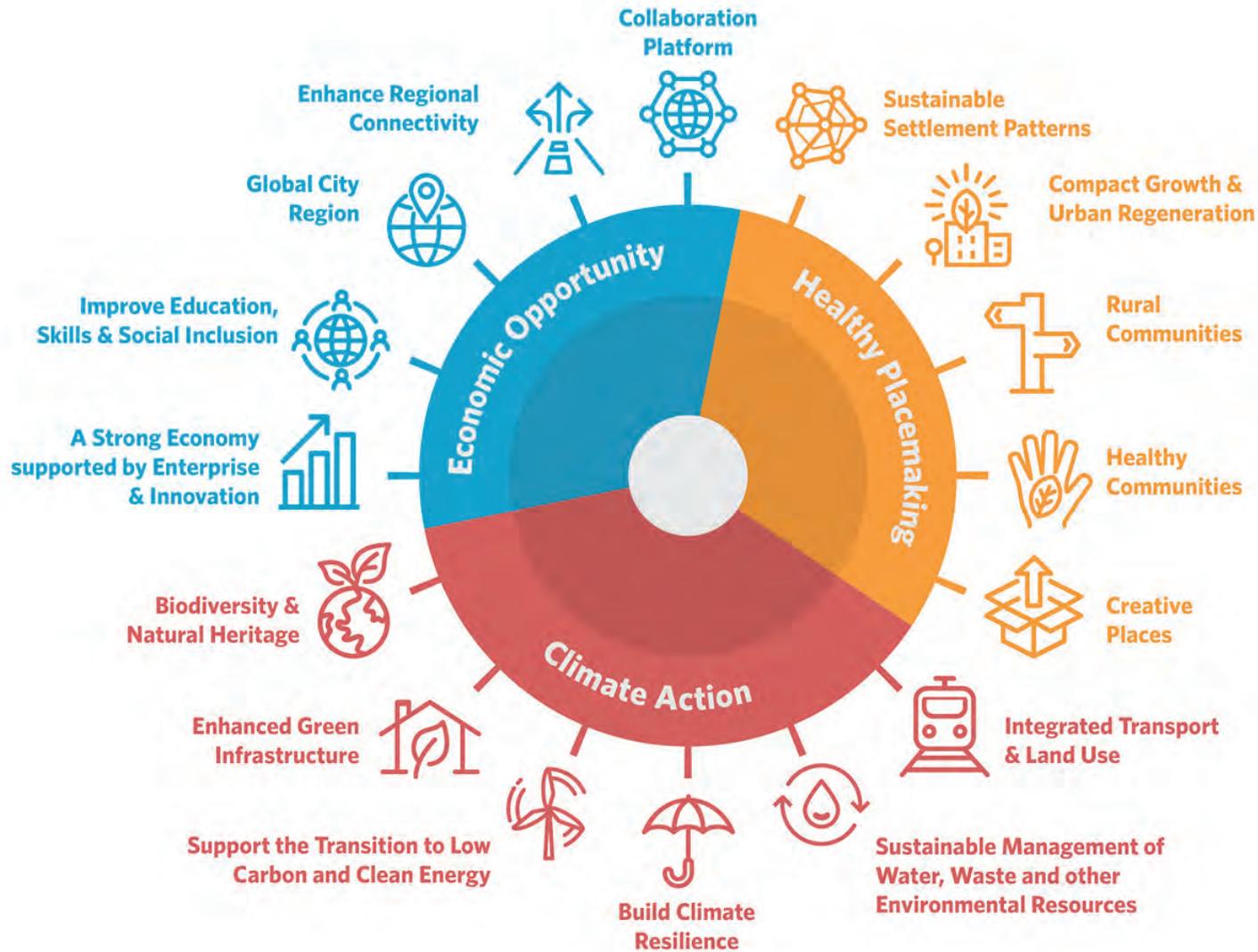


Figure 4.2: Regional Spatial and Economic Strategy – Regional Strategic Outcomes



- **RPO 5.3:** Future development in the Dublin Metropolitan Area shall be planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes (walking and cycling) and public transport use and creating a safe attractive street environment for pedestrians and cyclists; and
- **RPO 5.8:** Support the promotion and development of greenway infrastructure and facilities in the Dublin metropolitan area and to support the expansion and connections between key strategic cycle routes and greenways as set out in the NTA Greater Dublin Area Cycle Network Plan.

The MASP also sets out the potential growth of the Strategic Employment Development Areas, which include:

- Docklands, Poolbeg and Grangegorman;
- Bray and Greystones;
- Dublin Enterprise Zone (Dublin 15);
- Dunboyne, Leixlip and Maynooth;
- Naas Road / Ballymount;
- Tallaght / Cookstown;
- Grange Castle;
- Cherrywood / Ballyogan / Sandyford; and
- Swords / Dublin Airport / South Fingal.

A further set of RPOs detail the EMRA's support for the transport schemes and projects set out in the Transport Strategy for the GDA 2016-2035. The NTA has taken the above objectives, the population and employment forecasts, and the outcomes of our detailed liaison with the local authorities which translated the regional forecasts into local areas, and has prepared this Transport Strategy as a transportation response to the demand set out by the land use agencies. In this manner, the Transport Strategy has been developed to be consistent with the RSES, incorporating the MASP, in line with the relevant legislative requirements .

4.5 Other Policies

The following policies and plans have also been taken into account in a number of ways in preparing this Transport Strategy. They have assisted in crafting the strategy's aims and objectives, provided direction in terms of future land use patterns, set out overarching government policies; and provided detailed guidance on how best to deliver the transport strategy.

4.5.1 International/European

- Transforming our world: the 2030 Agenda for Sustainable Development (UN, 2015)
- The Paris Agreement (UN)
- Smart and Sustainable Mobility Strategy – putting European transport on track for the future (European Commission, 2020)

- European Union (EU) Green Deal (European Commission, 2019)
- Trans-European Transport Network – TEN-T (European Commission, 2019)
- European Union White Paper, Roadmap to a Single European Transport Area - Towards a Competitive and Resource Efficient Transport System (European Commission, 2011)
- Habitats Directive (The Council Of The European Communities, 1992)
- SEA Directive (Council of the European Union, 2001)

4.5.2 National

Policies and Plans

- Draft National Investment Framework for Transport in Ireland (Dept. of Transport, 2021)
- Five Cities Demand Management Study (Department of Transport)
- Smarter Travel (Department of Transport Tourism and Sport, 2009)
- The White Paper: Ireland’s Transition to a Low Carbon Energy Future 2015-2030 (Department of Environment, Climate and Communications, 2020)

- National Adaptation Framework 2018 (DECC, 2018) accompanied with Sectoral Adaptation Plan for Transport Infrastructure 2019 (DoT, 2019)
- National Mitigation Plan (Government of Ireland, 2017)
- The Sustainable Development Goals National Implementation Plan 2018-2020 (Government of Ireland, 2018)
- Investing in Our Transport Future – Strategic Investment Framework for Investment in Land Transport (DTTaS, 2015)
- Rebuilding Ireland: Action Plan for Housing and Homelessness (Government of Ireland, 2016) and Housing for All - a New Housing Plan for Ireland (Department of Housing, Local Government and Heritage, 2021)
- Climate Action Plan: To Tackle Climate Breakdown (Government of Ireland, 2019)
- Interim Climate Actions (Government of Ireland, 2021)

Guidance

- Sustainable Residential Development in Urban Areas (Department of Environment, Heritage and Local Government, 2009)

- Guidelines for Planning Authorities on Sustainable Urban Housing: Design Standards for New Apartments (Department of Housing, Local Government and Heritage, 2020)
- Urban Design Manual: A Best Practice Guide
- Design Manual for Urban Roads and Streets (Government of Ireland, 2019)
- Permeability: A Best Practice Guide (NTA)
- Spatial Planning and National Roads: Guidelines for Planning Authorities (TII)
- Achieving Effective Workplace Travel Plans: Guidance for Local Authorities (NTA)
- National Cycle Policy Framework (DTTAS, 2009)
- National Cycle Manual (NTA, 2011)

4.5.3 Regional

- Transport Strategy for the Greater Dublin Area 2016-2035 (NTA, 2016)
- Integrated Implementation Plan 2019-2024 (NTA, 2019)
- Greater Dublin Area Cycle Network Plan (NTA, 2013)

4.5.4 County

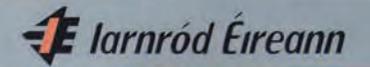
- Dublin City Development Plan
- Fingal County Development Plan
- South Dublin County Development Plan
- Dun Laoghaire-Rathdown County Development Plan
- Meath County Development Plan
- Kildare County Development Plan
- Wicklow County Development Plan
- Emerging Draft Development Plans

4.5.5 Local

- Local Area Plans (LAPs)
- Strategic Development Zone (SDZ) Planning Schemes

Departure / Imeacht

11:01



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NEW SERVICES

Ticéid Tickets

AMT COFFEE

Menu items: Cappuccino, Latte, Espresso, etc.





5. Strategy Aim and Objectives



5. Strategy Aim and Objectives

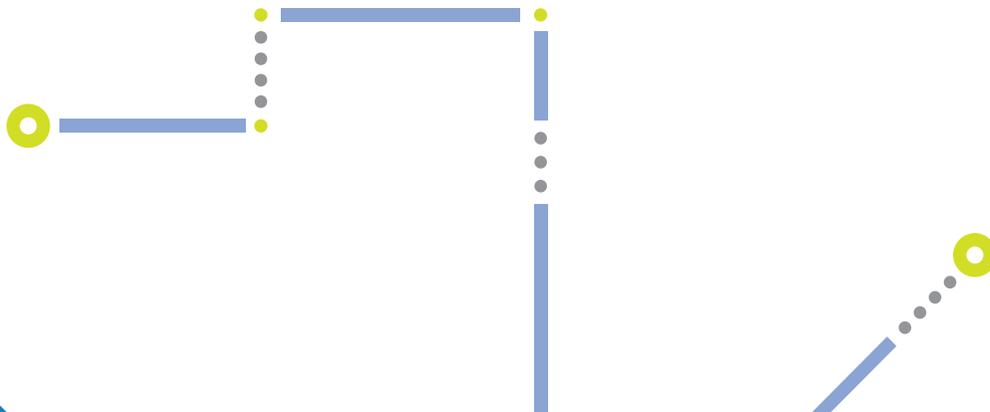
5.1 Introduction

In crafting a 20 year transport strategy, it is vital at the outset to develop a clear understanding of what it is you are trying to achieve. Based on the challenges set out earlier, plus the plans, programmes and policies at the international, national and local level, and on the statutory role of the strategy, the following aim and objectives has been established for the Transport Strategy.

5.2 Strategy Aim

The overall aim of the Transport Strategy is:

“To provide a sustainable, accessible and effective transport system for the Greater Dublin Area which meets the region’s climate change requirements, serves the needs of urban and rural communities, and supports economic growth.”





6. Public Consultation

6. Public Consultation

6.1 Consultation Process

The views and opinions of the public and stakeholders in the development of the draft Strategy was considered a central element of the process. Section 12 (8) of the Dublin Transport Authority Act sets out the requirement to engage with a number of stakeholders and members of the public at the outset during the preparation of the draft Strategy.

To this end, the NTA prepared a Pre-Draft Issues Paper in November 2020. This Issues Paper highlighted some of the main considerations and opportunities for the new Transport Strategy, and sought public and stakeholder input into its development at the inception stage.

A full Public Consultation then commenced from 23rd November 2020 to 22nd January 2021, and the public were asked to assist in the development of the strategy goals and objectives, and to help identify transport requirements and opportunities. Parallel to this a list of key stakeholders were contacted and asked for their views.

Due to the Covid-19 related restrictions it was not possible to undertake in-person events, and instead the consultation was run online with the public given an opportunity to submit commentary via a pre-prepared questionnaire and, if required, via a written submission portal. To best achieve accessibility for all members of the public, accessible versions of the Issues

“We should re-engineer our towns and cities for public transport, cyclists and pedestrians and invest in sustainable transport solutions that meet the needs of rural and urban communities. For example, the concept of the ‘15-minute city’ is receiving greater attention as a means to reduce congestion, enhance public spaces, revitalise local economies, increase public transport efficiency and improve quality of life.

Furthermore, open public spaces in the GDA should be realigned to apply more sustainable travel measures such as additional pedestrian crossings, cycle facilities and bus routes to increase sustainable accessibility and allow our public spaces to be used in a more sustainable way.”

Engineers Ireland - Pre-draft Submission on the Transport Strategy, January 2020

Paper were prepared, and direct contact was made with various Disability Groups.

To ensure maximise exposure of the Strategy Consultation, an extensive publicity campaign was undertaken, with advertisements placed in national and local newspapers, on radio, on social media and also utilising outdoor advertising on bus shelters – see Figure 6.1.

Figure 6.1: Outdoor Advertisement on Transport Strategy Review from November 2020



In total over 4,000 submissions were received, predominantly from the general public, with 92 submissions received from various stakeholders and groups. Almost half of respondents who gave a place of residence, were from County Meath, reflecting the scale of the campaign to deliver a rail service to Navan.

The responses to the consultation covered many different aspects of transport needs across the region, some with very local issues and others of a more strategic nature. Two of the most significant outcomes of the questionnaire are illustrated in figures 6.2 and 6.3 with almost universal support for the reduction in reliance on the private car, and with just under half stating it was the most important mode pre-pandemic.

In summary the main issues raised were as follows:

- Navan Rail Line;
- Metro to South West Dublin;
- Extension of DART;
- Improvements and expansion of the Luas network;
- Improvements to the cycling infrastructure;
- Improvements to the pedestrian environment;
- Matters related to various BusConnects schemes; and
- Electric bikes and scooters.

All of the submissions were carefully considered and taken into account in the development of the Transport Strategy.

Figure 6.2: Response - Reliance on Car

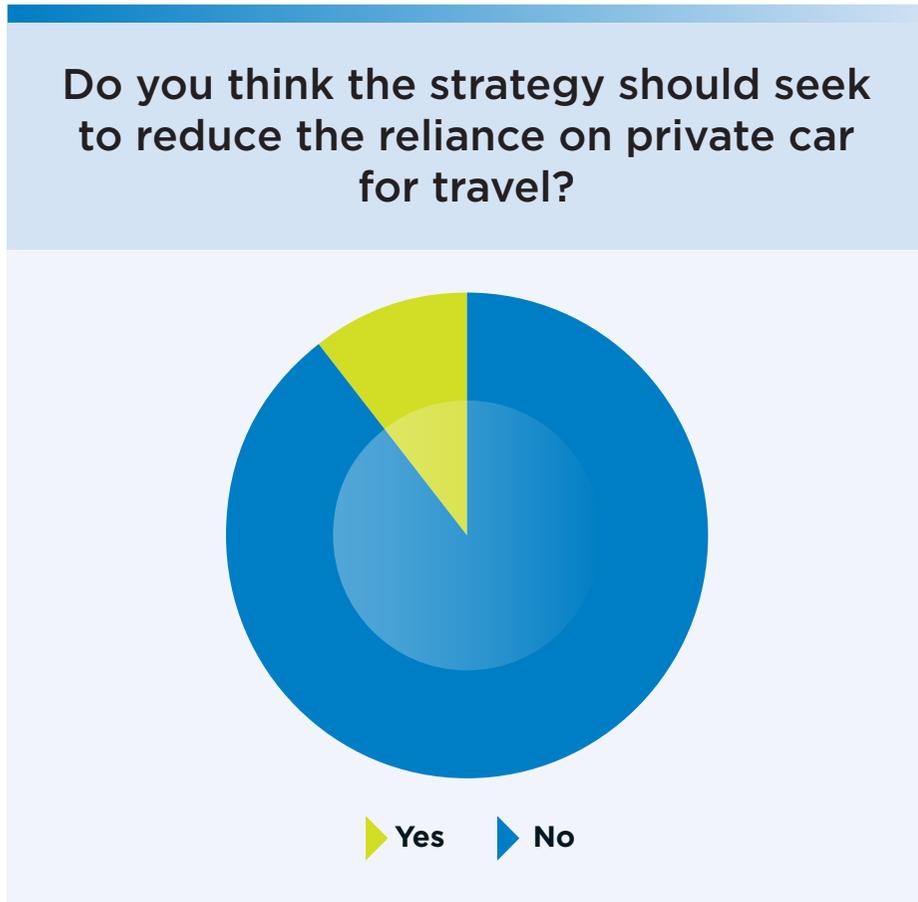
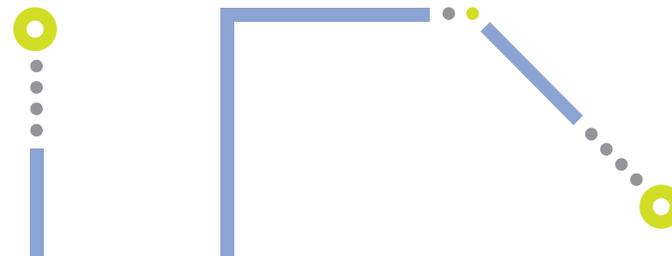
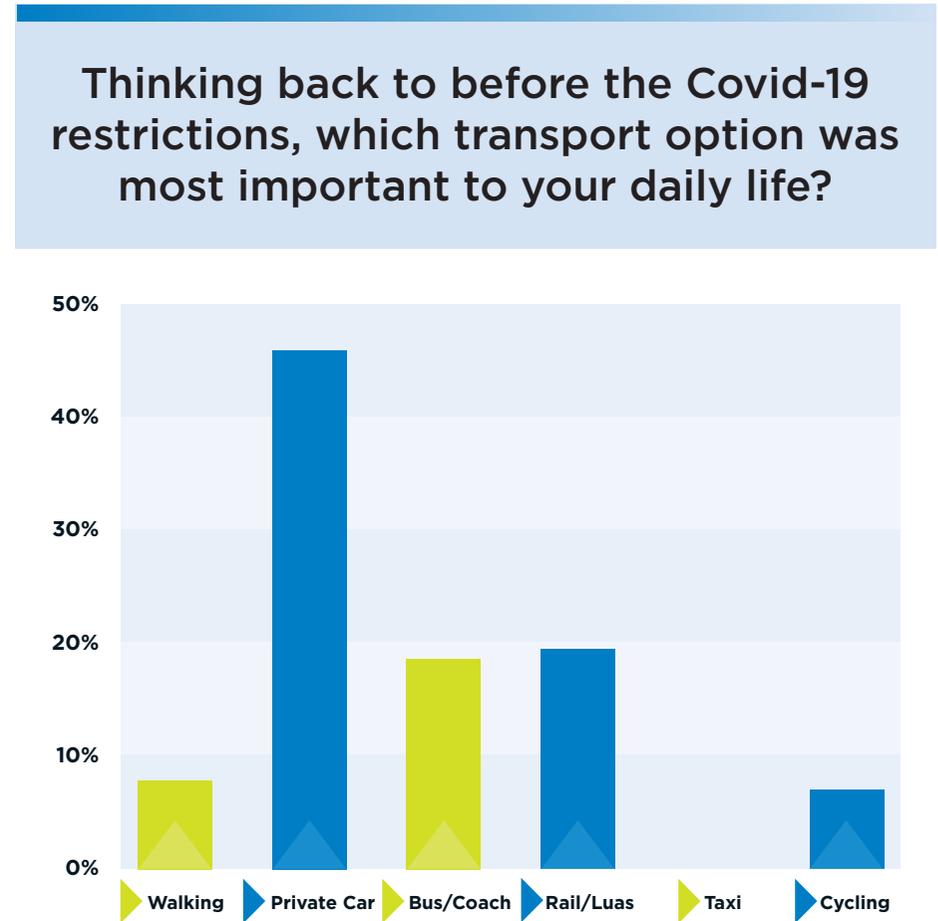
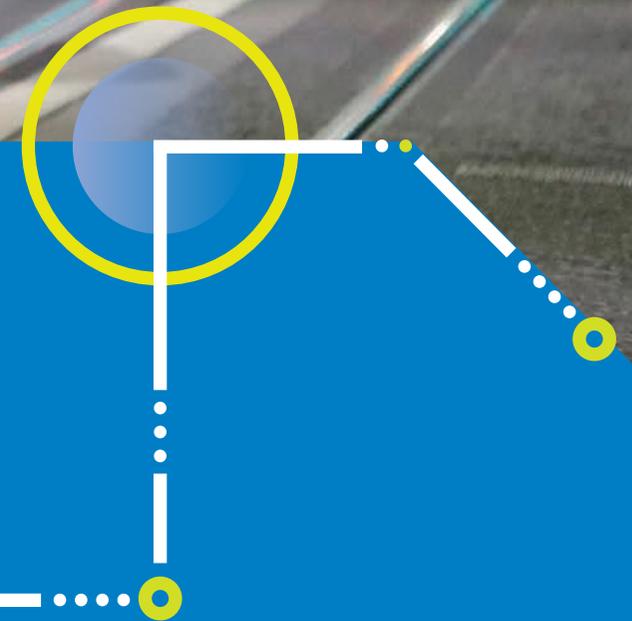


Figure 6.3: Response - Most Important Mode





7. Strategy Development Process



7. Strategy Development Process

7.1 Introduction

This chapter provides a brief summary of the process of developing the Transport Strategy. Further details of aspects of the development work can be found in the following separate documents:

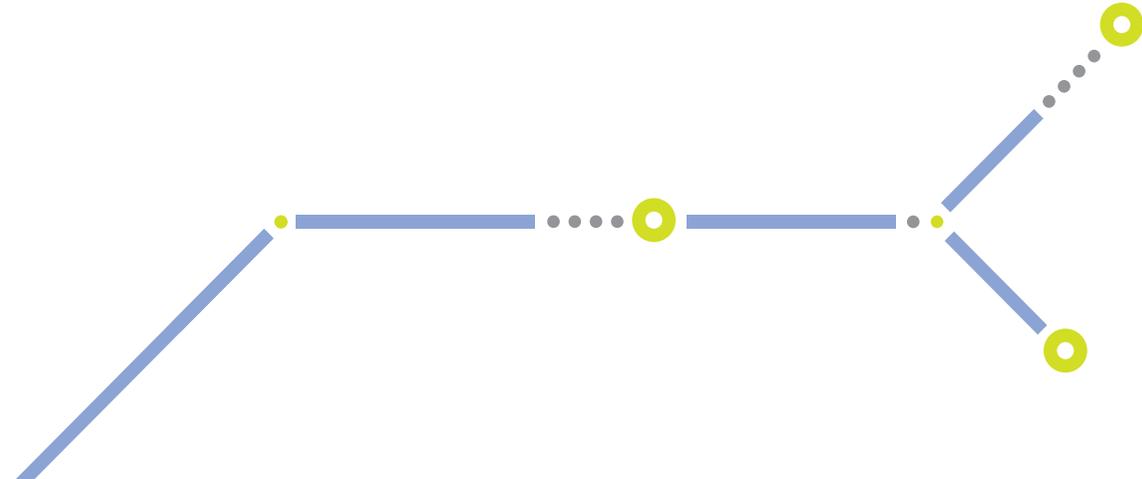
1. Report on the Pre-Draft Public Consultation;
2. GDA Transport Strategy Modelling Report;
3. Supplementary Area Based Studies;
4. Various Scheme Studies;
5. Various Sectoral Studies; and
6. The SEA Environmental Report and AA Natura Impact Statement.

“The objective of the transport strategy shall be to provide a long-term strategic planning framework for the integrated development of transport infrastructure and services in the GDA.

When preparing a transport strategy the Authority shall have regard to:

- *demographic, economic, social, travel and transport trends in the GDA;*
- *existing, planned and projected land use developments.”*

Dublin Transport Authority Act, Government of Ireland, 2009



7.2 Analysis Work

7.2.1 Population and Employment Projections

Central to the development of a transport strategy is a clear understanding of likely future population and employment projections and their spatial distribution across the relevant counties. In the case of the GDA, the projections set out in the National Planning Framework for the Dublin region formed the foundation of this work, supplemented by information from the Central Statistics Office. Spatial distribution of the overall region's growth was guided by the RSES and by local authority development plans.

7.2.2 Supplementary Area-Based Studies

To provide more detailed analysis in certain geographic areas, including particular growth locations, a number of area-based studies were undertaken to supplement the information already available. The outputs from this work then fed into the regional level considerations undertaken in framing the Transport Strategy.

7.2.3 Supplementary Scheme Studies

Specific scheme studies were undertaken to assess the appropriateness of certain infrastructure proposals for inclusion in the Transport Strategy. These included road, rail and metro proposals. The outcome from those scheme-specific studies then fed into the overall assembly process for the Transport Strategy.

7.3 Sectoral Studies

In addition to the analysis of various transport infrastructure measures, from the top-down and bottom-up, there are a number of non-infrastructure measures for which the NTA are responsible, and which are required to be considered in the strategy. For some of these measures, the NTA commissioned a number of background reports to inform the development of this group of strategy measures.

7.4 Development of Transport Strategy

The development of the Transport Strategy took account of the various area-based studies, scheme studies and sectoral studies, in addition to feedback from the public consultation process, in assembling the overall Transport Strategy. Use of the NTA's transport modelling system formed a key element in that work, allowing quantitative evaluation of individual components of the strategy and assessment of the performance of the combined measures.

A key driver in the development of the Transport Strategy has been the legislatively-based target to reduce overall greenhouse gas emission by 51% by the end of 2030, compared with 2018, with the achievement of such an ambitious target directing large elements of the strategy.

The following sets out the key steps in the development of the Transport Strategy:

Step	Task
1	Determine 2042 Land Use Scenario
2	Test an Idealised Public Transport Network (one in which there are no capacity or frequency limits) in order to determine Maximum Potential Demand for public transport across each part of the GDA
3	Develop a Package of Public Transport Measures to meet this Demand
4	Test the Appropriateness of these Measures in terms of Capacity, Viability and Deliverability
5	Incorporate the GDA Cycle Network Plan, road schemes, park & ride plans and other infrastructure / service proposals
6	Develop a Package of Climate Action Measures
7	Assemble and Assess the Final Draft Transport Strategy

7.4.1 Environmental Assessment

The alignments and details of proposed transport projects set out in the Transport Strategy, unless already provided for by plans or proposals that have been subject to environmental assessment, are indicative only and are subject to further development as the design and planning processes for individual projects progress. New projects will be required to be subject to lower-tier environmental assessment and detailed corridor and route selection processes as relevant (including those arising from SEA recommendation “Corridor and Route Selection Process” integrated into Chapter 18).



Part B

The Strategy





8. Planning for Sustainable Transport

8. Planning for Sustainable Transport

8.1 Introduction

Transport is a derived demand, in that people travel primarily out of a need for other things such as education, work and shopping. The management of this demand where it is created is a critical element of transport planning in the GDA. The pattern of where people live, work, attend school or college, socialise etc. is therefore the key determinant in the type of transport system we require. Historically in the GDA, the location of services and employment, and the policy of providing car-based solutions to transport problems has led to the creation of an overly car-dependent city-region. The consequences of this include issues such as congestion, air pollution, severance, unattractive urban environments, poor walking and cycling environments, and a public transport system which is significantly compromised by the requirement to serve travel patterns which are dispersed and complex.

This section sets out the measures that the NTA believes are essential in meeting the objectives of the transport strategy to foster sustainable development and to fully integrate land use planning and transport planning, as a means of reducing travel demand both in terms of numbers of trips made and the length of trips.

“The objective of transport investment is to contribute to economic, social and cultural progress of the Region, and the protection and enhancement of the environment, in line with Government priorities in other sectors.

The success of transport planning in meeting society’s needs requires close integration of transport investment and land use planning, to guide the direction of future development within the Region.”

Regional Spatial and Economic Strategy, 2019-2031 – The Eastern and Midland Regional Assembly



8.2 Emerging Concepts in Urban Planning

The 15-minute city and 10-minute neighbourhood concepts have emerged in recent years and have gained particular traction globally as a result of the Covid-19 pandemic. They have emerged as a coherent means of expressing the need to include transport as a central consideration in the planning and design of urban areas. In essence, these concepts are centred on the premise that people should be able to meet most of their needs within a short walking or cycling distance of their homes.

This does not supersede or replace the concept of the settlement hierarchy whereby land uses which serve metropolitan or regional catchments are provided in larger centres. As such, while everything cannot be within 15 minutes of everyone, (e.g. major universities, specialist health care, or major cultural and sporting venues) many of one's daily or regular requirements can realistically be met within your own neighbourhood.

The land use measures contained within the Transport Strategy will maintain a focus on this approach and provide a statutory basis for its implementation in development plans and local area plans. Their application to transport and land use integration in the GDA is set out in the sections below.

8.3 Sustainable Delivery of Housing

Facilitating the delivery of large numbers of new housing units of high quality and diversity, in locations which maximise the number and the range of households who can travel by public transport, walking and cycling, is a critical aspect of integrated transport and land use planning in the GDA. All of the major land banks in Metropolitan Dublin which will cater for the demand for housing in the region, in line with the NPF and RSES, are supported by the NTA and will be served by high-quality public transport.

Measure PLAN1 - Housing and Transport

The NTA will continue to support sustainable housing provision in the GDA.

SDZ Planning Schemes, Local Area Plans and large planning applications should be accompanied by appropriate Transport Plans or Transport Assessments setting out how the plan or development minimises the need to travel and how public transport, walking and cycling together can cater for the majority of travel demand. They should also be accompanied by a statement setting out the infrastructure and services required to achieve this, and an agreed phasing programme for its provision.

The NTA is fully engaged with EMRA and the local authorities in this matter and will continue to play its role, via the planning process, in ensuring that demand for housing is met in a timely and sustainable manner.

8.4 Consolidation of Development

The consolidation of development is a means of ensuring that the negative patterns of urban sprawl and edge of town development cease and are not repeated. The National Planning Framework and Regional Spatial and Economic Strategy are predicated on the redevelopment of sites within the existing footprint of the city and suburbs, and large regional towns, to a much greater extent than previously applied, with targets of at least 50% of all new homes within or contiguous to the built up area of Dublin city and suburbs and a target of at least 30% for other urban areas.

Such an approach allows for new populations to emerge in areas already served by public transport and active travel modes, and where a range of social services and retail can be accessed without recourse to the private car, and without the need to travel long distances. It also facilitates the use of existing infrastructure and service patterns to deliver significant uplifts in accessibility whereby new services can effectively “plug-in” to an already established network. For example, the City Edge Masterplan can benefit from existing rail lines and bus services but also from the major investments in those modes contained in the later sections of this Transport Strategy.



Measure PLAN2 – Consolidated Development

In accordance with the NPF and RSES, the NTA will only support development patterns in the GDA which seek to consolidate development as a means of preventing urban sprawl, reducing the demand for long-distance travel and maximising the use of existing transport infrastructure and services.

Peripheral development will only be considered in exceptional circumstances – on an evidence-based planned approach – and for specific land uses that cannot be accommodated in town and city centres.

Measure PLAN3 – Retail Development

From a transport perspective, the development of major “out-of-town” retail developments in the GDA, other than those which form part of major residential development areas such as Cherrywood or Clonburris, or extensions to legacy retail centres, should not be permitted.

Measure PLAN4 – Office Developments

From a transport perspective, large office developments outside the footprints of existing and proposed urban areas served, or proposed to be served, by high quality public transport, should not be permitted.

Additionally the consolidation of development served by sustainable transport reduces the use of greenfield land, protecting biodiversity. Consolidation of development is at the core of integrated land use and transport planning and one which is fully supported by the Transport Strategy. Figure 8.1 illustrates a medium-high density suburban centre typology which would support sustainable transport.

8.5 Transit-Oriented Development

At a level down from the strategic consolidation of development generally into existing built-up areas, the focussing of this development towards public transport services is critical. Transit-Oriented Development (TOD) is a concept that has existed for some time (see Figure 8.2). In the GDA, it has been given expression in recent years by development proposals based primarily on accessibility to existing and proposed rail lines. Most notably, the Adamstown and Cherrywood Strategic Development Zones (SDZs) and the forthcoming City Edge Masterplan are based on servicing a major part of the transport demand by Luas and/or DART.

TOD incorporates the idea that the level of accessibility afforded by such infrastructure and services allows for a higher intensity of development, and in some cases, a higher proportion of uses such as office and retail than would ordinarily be considered outside central areas, e.g. Sandyford. TOD can also be applied to sites around city centre transport hubs whereby the levels of accessibility afforded at such locations could facilitate extremely high levels of intensity in the context of Dublin.

Figure 8.1: Suburban Development Centre



Figure 8.2: Plan of Transit-Oriented Development Centre





Measure PLAN5 – Transit-Oriented Development

The NTA will continue to support and facilitate the delivery of Transit-Oriented Development at locations identified as appropriate for such, and will work with EMRA and the local authorities in identifying further locations served by existing and proposed public transport which are appropriate for high density development supporting a mix of uses.

8.6 Mixed Use Development

At the district or neighbourhood level, and a cornerstone of the 15-minute city concept, is the requirement to provide for an appropriate mix of uses within development areas, an outcome of which is the reduced need for longer distance travel. The traditional planning concept of discrete zonings for housing, industry, employment and recreation simply no longer apply in an era of diverse household types, non-polluting employment, and the increasing desirability to provide for informal and passive recreation as much as more formal playing pitches and parks and gardens. In other words, at the district level, and without compromising city centres and the need for large regional-scale facilities, many of people's daily needs can be provided within walking and cycling distance of their homes.

Measure PLAN6 – Mixed Uses

The NTA will continue to support and facilitate land use policies which seek to provide for an appropriate mix of uses at the district and neighbourhood level.

8.7 Filtered Permeability

Facilitating movement by walking and cycling is a critical element in neighbourhood planning. In particular, the concept of filtered permeability, whereby pedestrians and cyclists can travel through areas and motorised traffic cannot, is important in conferring an advantage on these modes making them safer and more attractive than the car for short trips to local services. This concept has been applied in multiple locations across the GDA, both in new developments and via retrofitting of new links into existing areas.

In existing urban and suburban areas which are defined by cul-de-sacs and boundary walls which segregate neighbourhoods – often along social class lines – the “breaking through” of these barriers to allow access for pedestrians and cyclists, including connections to nearby public transport, can be problematic. Many schemes, however, have been successfully realised by the local authorities in the GDA, in collaboration with the NTA.

Measure PLAN7 – Filtered Permeability

Development Plans, SDZ Planning Schemes and Local Area Plans in the GDA should ensure that the road and street networks in new development areas are designed on the basis of providing for filtered permeability, and should incorporate measures which deliver filtered permeability in existing neighbourhoods.

8.8 Planning for Schools

The location and design of schools, and the management of transport requirements for those travelling to schools, are major considerations in land use and transport planning in the city-region.

Only 4% of teenagers cycle to education in the GDA. 32% are driven by car. Nationally, the proportion of children being driven to school has risen from 16% in 1981 to 53% in 2016. The proportion cycling to school nationally has fallen from a peak of 15% to 2%. While these figures do not show the significant geographical variations, the trend has been clear for many years in that the school run has become a prominent challenge for transport planning in the city-region. This gives rise to a number of issues, including:

- Congestion at peak hours;
- Development of a car-culture instilling driving as the norm at a young age;
- Lack of social interaction for children and parents;
- Increased air pollution levels at schools; and
- Lack of exercise for children leading to obesity and other associated health issues.

The NTA is addressing school transport issues nationally in three specific ways:

- Redesigning urban bus networks to provide enhanced bus services to school locations;
- Development of cycling and pedestrian infrastructure serving schools; and
- Managing An Taisce’s Green Schools Travel Module on behalf of Department of Transport.

The latter two items are set out in more detail in the Traffic Management and Behavioural Change sections of this report. This section sets out the core measures for school planning and design which should be considered by the Department of Education and local authorities when zoning for school sites and when designing schools. The ideal of schools being located at the core of a walkable neighbourhood is shown in Figure 8.3.

Measure PLAN8 – School Site Selection

In the site selection process for new schools, sustainable transport shall be a critical consideration. Except in exceptional circumstances, sites should not be progressed until it can be demonstrated that the majority of students and staff will travel to the school by public transport, walking and cycling.

Measure PLAN9 – Location of Schools

Development Plans, SDZ Planning Schemes and Local Area Plans in the GDA should ensure that access by walking, cycling and public transport is a key determinant in the location of new schools.

Measure PLAN10 – Design of Schools

Planning for new schools and the expansion of existing schools in the GDA should ensure that the detailed design is undertaken in a manner which maximises the priority for pedestrians and cyclists. Access, footpaths, car parking (if required) and cycle parking should all be arranged so as to eliminate, as far as practicable, interference and conflict between motorists and pedestrians and cyclists.

Measure PLAN11 – Road Network Serving Schools

Planning applications for new schools or the expansion of existing schools will be supported by the NTA only where it has been demonstrated that the road network in the vicinity of the proposed development facilitates, or is planned to facilitate, safe and convenient walking and cycling access to the school.

Figure 8.3: Local School in Walkable Neighbourhood Centre



8.9 Urban Design and Placemaking

Placemaking is the process of creating quality places that people want to live, work, invest and spend time in. It is based on a simple principle; that if you plan for people and places, you get people and places. Increased traffic and congestion is not the inevitable result of growth. It is the product of choices made to shape our communities to accommodate the private car.

Better street design in urban areas, including the presence of active street frontages, will encourage more people to choose to walk, cycle or use public transport by making the overall experience safer, more accessible and attractive. It will lower traffic speeds, reduce unnecessary car use and create a built environment that responds more sympathetically to the distinctive natures of the individual communities and places



across the GDA. The potential also exists to foster greater biodiversity in urban areas through good urban design which takes this issue fully into account.

With this in mind, the NTA to date has incorporated high-quality urban design and placemaking improvements into the design of major transport schemes. This policy will continue as part of the implementation of the Transport Strategy. In conjunction with the local authorities, the NTA have also implemented a number of walking and cycling schemes across the GDA which have led to significant enhancements to the urban environment.

Measure PLAN12 – Urban Design in Major Infrastructure Projects

The NTA will incorporate a high standard of urban design and placemaking into the planning and design of all major public transport infrastructure schemes, and will consider how greater biodiversity could be fostered.

Measure PLAN13 – Urban Design in Walking and Cycling Projects

In the design, planning and prioritisation of walking and cycling schemes, the NTA and the local authorities will ensure the incorporation of urban design and placemaking considerations.

Measure PLAN14 – Reallocation of Road Space

The NTA, in conjunction with the local authorities, will seek the reallocation of road space in Dublin City Centre, Metropolitan towns and villages, and towns and villages across the GDA to prioritise walking, cycling and public transport use and prioritise the placemaking functions of the urban street network.

within the Dublin Metropolitan Area. The latter would include major regeneration areas such as City Edge and the lands at Jamestown, Finglas.

Measure PLAN15 – Local Transport Plans

The NTA will promote and assist Local Authorities to develop Local Transport Plans based on the ABTA methodology, as part of the statutory plan-making process.

8.10 Local Transport Plans

The NTA, in conjunction with TII, have developed an advice note which sets out a methodology on how to assess the opportunities and constraints for sustainable transport within an area. This Area Based Transport Assessment (ABTA) methodology has been designed as a key input into Local Transport Plans (as provided for in the NPF and RSES), and can be undertaken in parallel to statutory plans. The ABTA approach should be used to ensure that transport planning and land use planning are fully aligned at the local level and that all opportunities for sustainable transport are maximised.

Additionally, the RSES sets out that EMRA will work with the NTA and relevant local authorities to prepare Local Transport Plans for selected settlements such as Drogheda, Arklow, Ashbourne, Balbriggan, Naas, Navan, Newbridge, and Wicklow-Rathnew and certain large settlements or development areas

8.11 The Road User Hierarchy

In order to encourage the use of sustainable modes of transport, the design of our networks must consider a hierarchy of users and provide for them in that order.

Almost all journeys begin and end on foot. In addition to those who walk for the entirety of journeys, public transport users have to walk to and from stops and stations and car drivers often need to walk from their parking spaces to shops and places of work. As such, the pedestrian is placed at the top of the user hierarchy.

A high priority must also be given to cyclists, because trips by this mode have a great potential to replace trips by private car, most specifically for short to medium distance trips, but increasingly for longer trips as e-bikes extend the range of this mode.

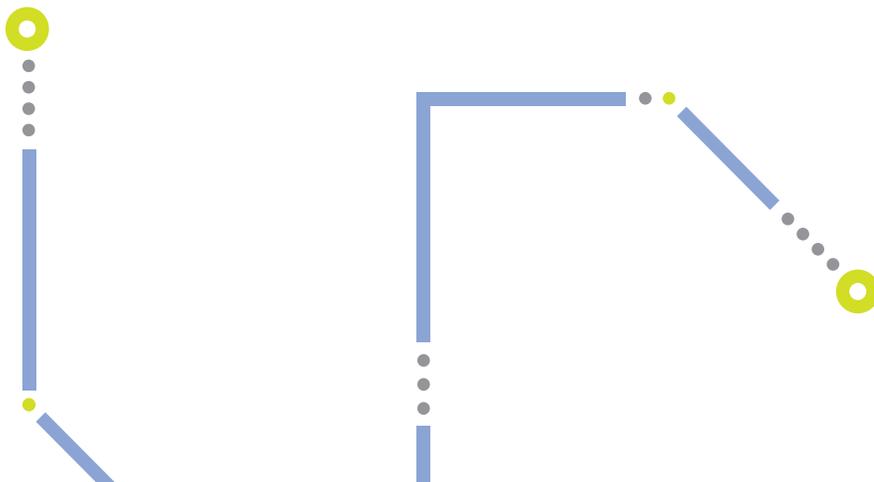
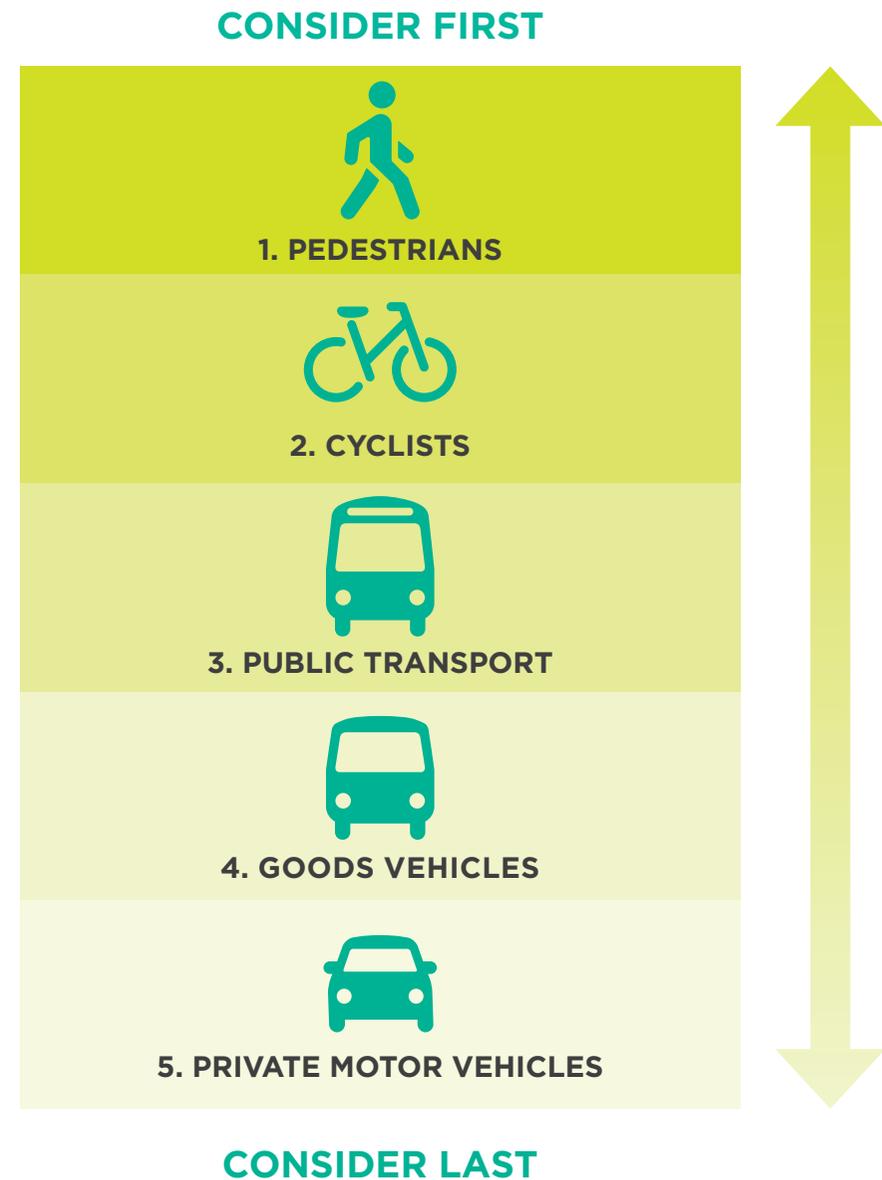
Due to the significantly greater numbers of people that can be carried by bus and tram, public transport needs to be prioritised over the private car in the design of our transport networks. Below that, access for goods delivery and services should be considered next, in particular for serving the economic needs of town and city centres.

The road user hierarchy is outlined in Figure 8.4.

MEASURE PLAN16 - The Road User Hierarchy

The NTA, in the decision-making process around the design, planning and funding of transport schemes in the GDA, will be guided by the priority afforded to each mode in the Road User Hierarchy as set out in the Transport Strategy.

Figure 8.4: Road User Hierarchy





9. Integration and Inclusion

9. Integration and Inclusion

9.1 Introduction

Metropolitan and regional transport operates as a network. This network is only as strong as its weakest link and the ability of people to change seamlessly from one mode to another – walking to the bus; cycling to the train station; changing from one bus to another – is critical. The features of a well-integrated transport system include the physical environment of stops and stations; the length and quality of the walk between services; crossing points; travel information; fares integration; cycle parking; shelter; frequency and capacity of connecting services.

Transport Integration also encompasses the manner in which the public transport, pedestrian and cycling networks link to other major facilities such as major rail stations, Dublin Port and Dublin Airport.

Finally, Transport Integration relates to the fact that the transport system operates in the context of wider social and cultural norms prevalent in the city region. The manner in which service providers and infrastructure respond to the wide variety of needs across all sectors of society is a central consideration.

In advance of setting out the various strands of investment in the individual modes of transport, this chapter addresses the way in which the NTA will continue to develop these strands into a seamless and inclusive transport network across the GDA over the coming years.

“Mobility plays a vital role in our daily lives and has become a defining factor of current society, the way we live and move. Mobility, or the ability to move from one location to the other, links cultural, economic, social and political aspects of our global society.

The global mobility demand continues to grow, along with the mobility systems’ carbon impact. In order to manage future mobility demand, and a much-needed transition to sustainable, low carbon mobility, it will be crucial to achieve seamless transitions from one transport mode to another. The sole provision of transport options will not be enough.”

Mobility Hubs Of The Future: Towards A New Mobility Behaviour, ARUP, 2020

9.2 Design and Planning of Schemes

In designing and planning transport infrastructure schemes, it can be tempting for agencies, stakeholders and the public to focus on the one primary objective of the scheme, without giving due attention to the myriad other aspects which need to be considered and the wider benefits which may accrue.

Examples of this include the step-change in the quality of the cycle network proposed as part of BusConnects Dublin, or the significant traffic calming and management improvements brought about by Luas in Dublin City Centre.

As such, the integration of all transport modes and wider transport considerations into the implementation of individual transport schemes is an important element.

Measure INT1 - Integration of all Modes in Transport Schemes

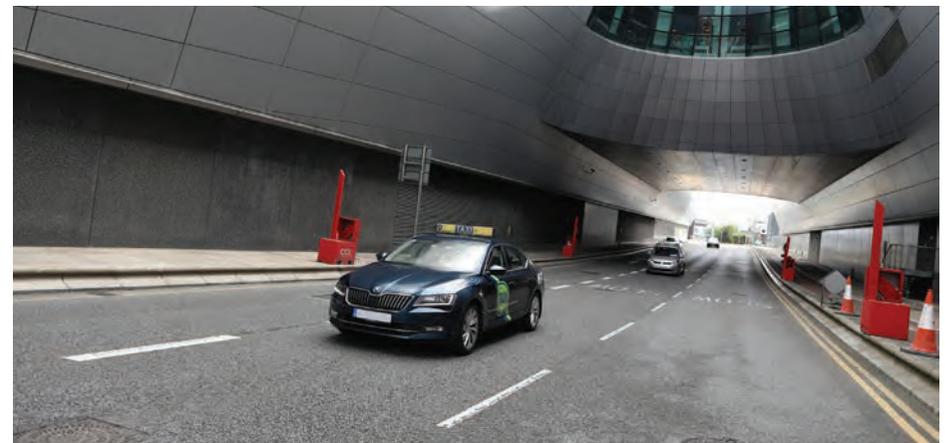
It is the intention of the NTA, in the design and planning of transport schemes, to ensure that the needs of all transport modes are considered, as appropriate, based on the objectives of the scheme and on the road user hierarchy.

9.3 International Gateways

Dublin Airport and Dublin Port are two of the most important economic assets in the state. It is the responsibility of the NTA, through this Transport Strategy, to ensure that the landside transport network meets the requirements of these international gateways.

In terms of Dublin Airport – as a major employer, passenger destination and freight hub – access by all modes is vital. This strategy incorporates MetroLink, BusConnects Dublin and demand management measures which will enhance and protect essential access to Dublin Airport, and ensure that it will operate in a sustainable fashion in terms of landside transport. Surface access to the Airport will be periodically reviewed and improved as necessary, including consideration of additional access from the western side of the airport campus.

In relation to Dublin Port, while the volumes of trips generated are significantly lower than those generated by the Airport, they are of primary economic importance. The location of the port is also a factor which places additional emphasis on the need to cater appropriately for goods vehicles. This



strategy incorporates additional road access for the South Port, protection of the national road network, public transport, HGV management and demand management measures across the city-region which will facilitate more efficient operations of Dublin Port, in tandem with the requirements of the wider city.

The NTA recognise that there are numerous ports and harbours in the GDA which require access and which may grow in importance during the lifetime of the strategy. It is the intention to ensure that these facilities are served by landside transport in the appropriate manner.

Measure INT2 – International Gateways

It is the intention of the NTA, in conjunction with public transport operators, TII, and the local authorities, to serve the international gateways with the landside transport infrastructure and services which will facilitate their sustainable operation.

Throughout the lifetime of the strategy, the NTA will continue to work with Dublin Port Company, other port and harbour operators and DAA in respect of Dublin Airport, in monitoring, assessing and delivering these transport requirements.



9.4 Park & Ride and Interchanges

9.4.1 Park and Ride

There is a substantial number of people in regional towns, the rural hinterland and to a lesser extent in the metropolitan area, who do not have ease of access to high quality public transport by walking or cycling.

Appropriately located and designed Park & Ride facilities can enable these people to access public transport and enhance their options to reach a wide range of destinations in a sustainable manner and increase the usage of public transport, thereby maximising the value of investment in existing and new schemes.

Park & Ride can intercept car trips where people are reliant on private car at an early point in their journey thereby reducing the distances travelled by private car with a corresponding reduction in carbon emissions and congestion.

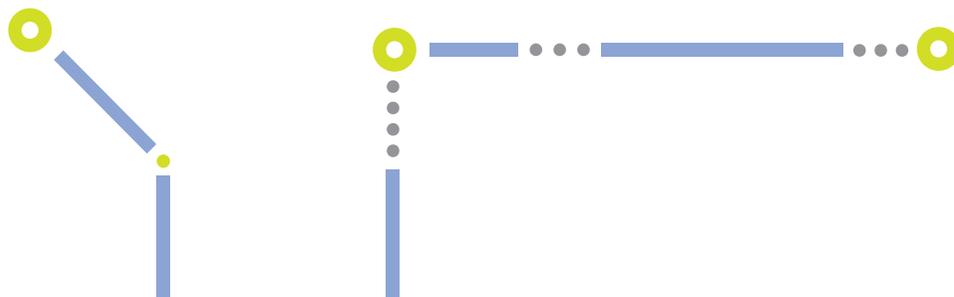
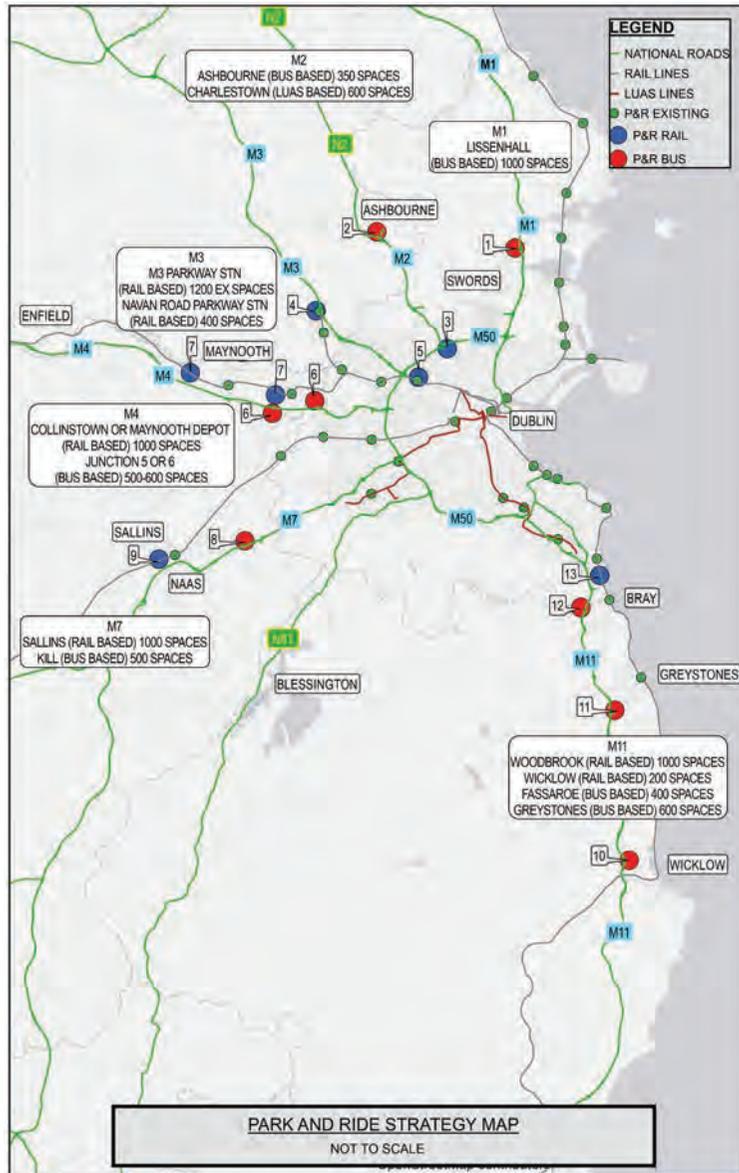


Figure 9.1: Park and Ride Strategy for the GDA



Corridor	Number on Strategy Map	Type of P&R	Indicative No. of Spaces
A (M1/N1)	1	Bus/Metro	1000
B(i) (M2/N2)	2	Bus	350
	3	Luas	350
B(ii) (M3/N3)	4	Rail	1200
	5	Rail	400
C (M4/N4)	6	Bus	500-600
	7	Rail	1000 (500 initially)
D (M7/N7)	8	Bus	500
	9	Rail	1000
F (M11/N11)	10	Bus	200
	11	Bus	600
	12	Bus	400
	13	Rail	1000

Caution must be exercised in the planning of Park & Ride facilities to ensure that unintended consequences do not arise as a result of their provision, such as:

- Encouraging more dispersed development patterns by enabling longer distance commuting;
- Allocating excessive public transport capacity to motorists and thereby promoting local car trips, including outbound trips, to the facility; and
- The opportunity cost of developing land for extensive uses in a highly accessible location.

A Park & Park and Ride Development Office was established within the NTA in February 2020 as recommended in the Climate Action Plan 2019. Through this office a set of recommendations for the development of park and ride facilities have been developed. Those recommendations have been incorporated into the Transport Strategy and the locations selected for potential development are shown in Figure 9.1.

Measure INT3 – Park & Ride

It is the intention of the NTA to secure the development of a network of regional level bus and rail based Park and Ride facilities in the GDA at appropriate locations where the national road network meets, or is in close proximity to, high capacity bus and rail services.

9.4.2 Major Interchange Facilities/Mobility Hubs

As high-capacity bus routes, heavy rail plus light rail increase their coverage across the urban area of Dublin and the region's settlements, the full benefit of this investment, (the “network effect”) can only be fully capitalised on by the development of high-quality interchange facilities or Mobility Hubs.

Examples of major interchanges in operation in the GDA include Bray and Dún Laoghaire stations and Tallaght, where a number of local bus routes meet rail services for onward travel to the city centre and elsewhere. Under BusConnects Dublin, a number of interchanges are currently in development and as the DART+ and light rail projects currently being designed are progressed, additional facilities will be developed. These will include major bus/bus, bus/rail and rail/rail interchanges. At these major interchanges, shared mobility options could be considered such as car club facilities, and significant numbers of secure and sheltered cycle parking and supporting services are also required. Taxis will also play a significant part in the overall public service offer at these locations.

These mobility hubs must be carefully designed to ensure the transfer or waiting experience is as efficient, safe, and attractive as possible. They could also perform an additional placemaking function by providing access to additional services that benefit the surrounding neighbourhoods serving as a vital part of the urban fabric, integrating people as well as transport. In many cases, such as Liffey Valley and Tallaght, it is intended to deliver these facilities within the major retail and services centres.

In general, high quality interchanges or Mobility Hubs can significantly broaden the transport offer for their catchment and add to the appeal and attractiveness of sustainable transport by ensuring that people can easily change services to access a wider range of places by these modes. They are an essential component of a regional transport system and will require particular focus as the strategy is implemented.

Measure INT4 - Major Interchanges and Mobility Hubs

It is the intention of the NTA, in conjunction with TII, Irish Rail and the local authorities, to deliver high quality major interchange facilities or Mobility Hubs at appropriate locations served by high capacity public transport services.

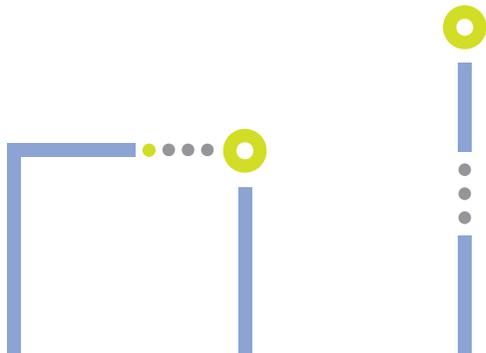
These will be designed to be as seamless as possible and will incorporate a wide range of facilities as appropriate, such as cycle parking, seating, shelter, kiosks selling refreshments plus the provision of travel information in printed and digital formats.

9.4.3 Other Interchanges

In addition to the major interchanges and Mobility Hubs linked to high capacity services, any point on the transport system where services intersect is considered an interchange and aspects of Measure INT4 will also apply to all of these locations. With the introduction of significantly enhanced orbital bus services as part of BusConnects Dublin, it is anticipated that the role of interchange will increase. The pedestrian environment, in particular how convenient and safe it is for passengers to cross roads between stops, becomes critical in these locations as improvements to services occur and as passenger numbers increase. The quality of the information and signage for passengers changing services is also a key factor in making the interchange as easy as possible.

Measure INT5 - Interchange

It is the intention of the NTA, in conjunction with local authorities and transport operators, to ensure that passengers wishing to change between services on the transport network are provided with as safe, convenient and seamless interchange experience.



9.5 Revised Fare Structure

As part of the Bus Connects Dublin programme, fares will be simplified in a way that will make interchange between Bus, Dart and Luas seamless, resulting in a more affordable, efficient and integrated public transport system.

The new fares structure will comprise of a short-distance fare on single leg journeys (approximately 3kms or less) and a 90 minute fare that will allow a customer any combination of travel on Bus, Dart/Commuter Rail and Luas services.

Provided customers commence the final leg of their journey within 90 minutes of the start of their overall trip, the new 90 minute fare will permit travel on all Bus, Luas and Rail services in Dublin including Dart and Commuter Rail services (up to a certain distance on the heavy rail services).

This revised structure will commence its phased introduction in line with the roll-out of the New Dublin Area Service Network (see section 12.2.2) in 2021.

Measure INT6 - Fare Structure

It is the intention of the NTA to revise the fare structure for transport in the GDA in the short-term. This new fare structure will be monitored throughout the period of the strategy and further changes implemented where appropriate.



9.6 Next Generation Ticketing

One of the NTA's overall objectives is to develop a state-of-the-art ticketing system that ultimately makes payments more convenient for passengers. The Next Generation Ticketing (NGT) element of BusConnects Dublin will implement an account based ticketing system as the preferred option. This system aims to use cashless technology, allowing for payments to be made using cEMV (contactless credit and debit cards), mobile phones and tokens, all linked to a payment account. In addition to the bus system, NGT will also be implemented across other public transport modes including Metro, Luas and Heavy Rail allowing for a seamless multimodal trip. The BusConnects Dublin NGT element, in conjunction with simpler fares, will also facilitate the bus boarding process and reduce dwell times at bus stops.

Measure INT7 – Next Generation Ticketing

It is the intention of the NTA to deliver Next Generation Ticketing in the short term, facilitating seamless multi-modal travel and reducing dwell times at bus stops.

9.7 Mobility as a Service

Mobility as a Service (MaaS) describes a mobile application that allows a single consumer portal for all forms of mobility to be planned, procured and compared. Economic research points to pricing as the primary driver of behaviour change, and through MaaS, customers can be better informed about the

price of different mobility options. In the GDA, this concept has been integrated into the Next Generation Ticketing which will be brought provide a foundation for the future development and roll-out of MaaS. The development of such services by the private sector will also be monitored and integrated where appropriate.

Measure INT8 – Mobility As A Service

It is the intention of the NTA to investigate the potential for MaaS to play a role in the GDA transport system and the use of the Next Generation Ticketing roll-out as a basis for its implementation, as appropriate.

9.8 Behavioural Change

Behavioural Change encompasses a wide range of measures which aim to encourage and incentivise sustainable transport behaviour. They can be targeted at individuals, neighbourhoods, workplaces, schools and colleges. Generally, they involve promotional campaigns and information dissemination rather than infrastructural investment, although in many cases investment in things like cycle parking and signage can form part of a programme. The NTA have been running Smarter Travel Workplaces and Campuses in some form since the agency's inception in 2009 and have managed the Travel Module of An Taisce's Green School Programme on behalf of the Department of Transport over that period as well. Behavioural Change is an integral part of the NTA's functions and responsibilities and will continue as such over the period of the Transport Strategy.

9.8.1 Smarter Travel Workplaces and Campuses

Smarter Travel Workplaces and Campuses is a public awareness programme working with large employers and colleges to implement voluntary travel plans based on the concept of Community Based Social Marketing.

A growing number of Irish employers are engaging in Smarter Travel, working with their employees to facilitate travel choice in favour of more sustainable transport, resulting in reduced costs, enhanced employee wellbeing and more effective parking management. The program has over 200 partners nationwide including clusters of companies in some locations. These include many of the largest employers in Ireland plus many local authorities and hospitals.

Smarter Travel Campus is a hands-on programme working with third level institutions to implement campus travel plans to encourage and support students and staff to walk, cycle, take public transport or carpool on the commute to campus.

The results from this direct engagement with workplaces and campuses have been extremely positive. A reduction in the use of the private car in the range of 10-24% has been achieved through the programme. The outcome of this programme, however, is not measured solely by the numbers of single-occupancy car trips being removed from the roads, but also by the fostering of a sustainable transport culture in places where the car had previously played a predominant role.



Measure INT9 – Smarter Travel Workplaces and Campuses

The NTA will continue to expand the Smarter Travel Workplaces and Campuses Programme in order to directly influence travel behaviour in the GDA and to maximise the use of public transport, walking and cycling infrastructure and services to be developed under the Transport Strategy.

9.8.2 Green-Schools Travel

Green-Schools is Ireland's leading environmental management and education programme for schools. Travel is the fourth module of the programme and through a wide range of measures and a high level of hands-on engagement with school communities, this programme has been extremely successful in promoting the sustainable travel agenda and reducing car use for travel to school. The success of the Green-Schools Travel programme is based on two factors. The first is that the Green-Schools Travel module is delivered through their effective '7 Step' methodology (as set out on the Green Schools website), which acts as a guide to teachers and pupils.

The second success factor is that experienced An Taisce Green-Schools Travel Education Officers are on hand to assist schools interested in changing travel behaviour. They offer resources, advice, and the opportunity to network with other schools. The NTA is committed to the maintenance and expansion of this programme on a national basis.

Measure INT10 – Green Schools Travel

The NTA will continue to support An Taisce in the operation and expansion of the Green-Schools Travel Module as a key measure in reducing car use to school and in the fostering of a sustainable transport culture from a young age.

9.8.3 Residential Travel Planning

Residential Travel Planning or Personal Travel Planning programmes involve delivering a set of measures to a neighbourhood or development area. The overall aim is similar to workplace, campus or schools programmes, but the programmes are delivered on a door-to-door personalised basis. They include undertaking surveys; providing personalised travel information; holding events; and monitoring and evaluation. As they relate to large populations and require an individualised and personal approach, these programmes require significant resources, including personnel.

They are often used in single large developments, such as major apartment schemes and new development areas such as Adamstown – a pilot project was undertaken here in 2010 – but could be rolled out to any location in the GDA. The development of major new infrastructure and significant improvements to public transport services as part of the implementation of the Transport Strategy may

offer an opportunity for this type of direct engagement with communities.

Measure INT11 – Residential Travel Planning

The NTA, in conjunction with the local authorities and the transport operators, will consider the role of Residential Travel Planning programmes as a means of encouraging sustainable travel behaviour across the GDA.

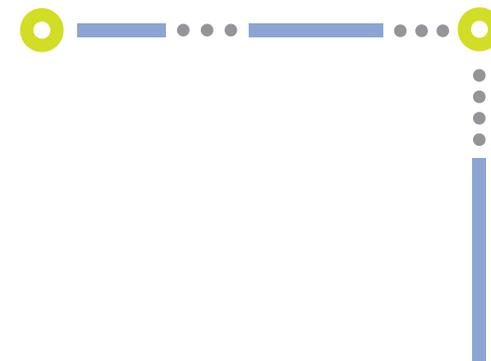
9.9 Small Public Service Vehicles

Taxis provide an important transport service offering door-to-door trips and form a key component of the overall public transport system. Taxis offer the ability to complete one-off trips that are difficult to provide for efficiently by other modes and are an intrinsic part of the region’s public transport system. There is therefore potential for taxis to play an important role in Mobility Hubs and Interchanges as set out in 9.4.2. The following measures will be brought forward in cooperation with the local authorities and the taxi industry over the period of the strategy.

Measure INT12 – Small Public Service Vehicles

The NTA, with the cooperation of the local authorities and the taxi industry, will support the operation of an efficient and effective taxi service for the GDA through the following actions:

- The provision of appropriate additional taxi rank space in towns and cities, taking into account the needs of all transport users;
- Continuing to review the national maximum fare for taxi use approximately every two years;
- Investigating the need for driver welfare facilities to be provided at public transport interchanges and in town centres;
- Incentivising the use of low and zero emissions vehicles, and;
- Ensuring that the fleet transitions to be a 100% accessible fleet during the period of the Transport Strategy;



9.10 Late Night Transport

The provision of night-time transport options is essential for any modern city. Late night transport is critical to meet the travel needs of late-night/early-morning commuters, to serve the night-time economy of Dublin City, major suburban centres and regional towns, and to provide a reliable transport alternative to the private car.

In recent years, the NTA has begun to introduce 24-hour bus services and is committed to expanding the standard public transport offer outside of the traditional peak periods and beyond the traditional schedules, subject to the provision of necessary funding.

The safety of people walking and cycling at night time is also an important factor and will need to be considered more carefully in the design of transport schemes and services.

Measure INT13 – Late Night Transport

In order to serve those who travel to work outside the AM and PM peaks; to support the night-time economy of Dublin City and the wider GDA; and to generally broaden access to public transport at all times for all trip purposes, the NTA will expand a range of public transport services to run on a 24-hour basis as appropriate.

Measure INT14 – Walking and Cycling at Night

The NTA and local authorities will ensure that personal security and safety for those travelling at night by walking and cycling are carefully considered in the design process for new schemes and in retrofitting existing schemes where such issues arise.

9.11 Accessible Infrastructure

There are many bus and rail stations on the network that did not have universal design in mind when they were originally built many decades ago. In order for all people to be able to utilise public transport, the infrastructure must not create barriers to people in accessing the services. Significant work has already been undertaken in retrofitting train and bus stations to provide enhanced accessibility by people with disabilities but further work is required to ensure that all stations are fully accessible.

There are many lifts in existing train and tram stations, which are essential for some passengers being able to access a platform or station building. Lifts that break down or are out of service for long periods of time cause a customer to lose confidence in being able to access that station and potentially

stop them from using public transport altogether. Significant funding is being provided to replace and/or renovate older lifts to ensure that they are in good working order for their passengers. Video surveillance of the lifts is being installed to reduce the potential of future breakdowns caused by vandalism.

Most bus stops in the GDA are serviced by low floor buses and are accessible to wheelchair users who board the bus via a wheelchair ramp. On coach routes, which operate at higher speed and don't permit standing passengers, wheelchair lifts are used on some vehicles. Wheelchair lifts require significantly more space at footpath level to allow the wheelchair lift to operate.

A retrofit programme to create suitable stops at which to operate coach wheelchair lifts is ongoing and will be continued as part of this Transport Strategy. In addition, the NTA has invested in newly developed low floor coach vehicles, which allow more convenient access by wheelchair ramp from conventional bus stops.

Measure INT15 – Accessible Infrastructure

During the period of the Transport Strategy, the NTA will ensure that public transport infrastructure, and facilities in the GDA are made accessible for all users.

9.12 Accessible and Reliable Information

The NTA recognise the need for passengers to be able to plan their journey and get reliable information in an easy and accessible manner. The TFI website is constantly being updated so that customers have one place to go to get information on all the transport modes. The National Journey Planner App allows people access information on their journeys in real time to allow them to make an informed decision.

At present, bus poles are a variety of red, grey and yellow poles at bus stops, which are maintained by different operators including commercial operators. The installation of a single style bus stop pole at all bus stops in Ireland will allow decluttering of the bus stop area. A yellow/green head plate and yellow carousel on the bus pole (providing additional visibility for the visually impaired), will have up to date information of the services stopping at that location. A QR code will allow a passenger to be connected directly to the Journey Planner App to obtain the real time information of the services stopping at that specific stop.

Measure INT16 – Travel Information

The NTA will ensure that public transport information on websites, apps, on-street, at key destinations, and in-vehicle – in both digital and printed format – is standardised, up-to-date and universally accessible.

9.13 Travel Assistance Scheme

Using the Public Transport System can seem daunting for many people with disabilities. The Travel Assistance Scheme, which is funded by the NTA, provides a service to meet with individuals and show them how to travel from their home to their preferred destination until the person feels confident to do so on their own. This covers all of the State provided public transport services within the GDA.

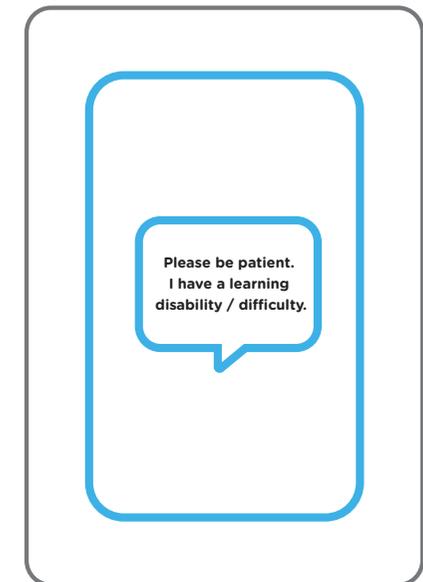
Measure INT17 – Travel Assistance Scheme

The NTA, in conjunction with the transport operators, will maintain and expand the Travel Assistance Scheme.

9.14 Equality and Inclusivity Campaigns

The public transport system aims to be a reliable and accessible system but also where people feel confident and safe to travel on. Campaigns will continue to be run on all modes of public transport to remind people of politeness and etiquette for others as we travel together. Anti-racism; JAM Card (a card which allows people with a learning difficulty, autism or communication barrier tell others they need ‘Just A Minute’ discreetly and easily); LGBTQ+; and Respect for staff campaigns will continue to be highlighted on the public transport system.

Inclusivity Campaigns:
Anti Racism campaign poster (top) and the JAM Card (bottom)



Measure INT18 - Equality and Inclusivity

The NTA, in conjunction with the transport operators, will continue to implement inclusivity campaigns across the GDA's public transport network.

9.15 Equality Impact Assessment

Related to inclusivity, there is a requirement to ensure that the Transport Strategy meets the standards of equality across the nine grounds under which people may potentially experience inequality, as follows:

- Gender;
- Marital status;
- Family status;
- Age;
- Disability;
- Sexual orientation;
- Religion;
- Race; and
- Membership of the Traveller community.

While many transport measures within the Transport Strategy seek to address inequality by improving access to the transport system for all ages and abilities; and while the system itself may be considered to be neutral under some of these headings, it is prudent and appropriate for the NTA to subject the emerging final Transport Strategy to an equality assessment prior to its formal completion.

Measure INT19 - Equality Assessment

The Transport Strategy will be subject to a full Equality Assessment in advance of its finalisation.



9.16 Enforcement of Road Traffic Laws

The NTA and local authorities invest significant sums of public monies in the provision of transport schemes, such as cycle lanes, bus lanes and rail lines. The level of service that this investment provides is reliant on a high degree of compliance with road traffic laws and such compliance is not always achieved. In particular, the following offences can have a significant adverse impact on the utility of transport infrastructure:

- Parking on footpaths;
- Parking on cycle tracks and cycle lanes;
- Disabled Parking Spaces being illegally used by non-disabled persons;
- Loading from cycle tracks and cycle lanes;
- Motorists driving in bus lanes;
- Motorists, in particular truck drivers, striking railway bridges;
- Motorists stopping on Luas tracks;
- Speeding on motorways leading to turbulence and congestion;
- Red-light jumping causing collisions with trams and suspension of services;
- Failure to stop at railway level crossings causing collisions with barriers and suspension of services;
- Cyclists travelling on footpaths or pedestrianised streets;
- Footpaths being blocked by construction material and other working equipment; and
- Dangerous driving leading to accidents and a hostile environment for pedestrians and cyclists.

The NTA, local authorities and An Garda Síochána will continue to cooperate with each other and other relevant agencies, such as the Road Safety Authority and TII, in addressing the above issues. A number of proposals and methods will be considered including greater use of camera technology (including on-board cameras), education campaigns and additional legislation.

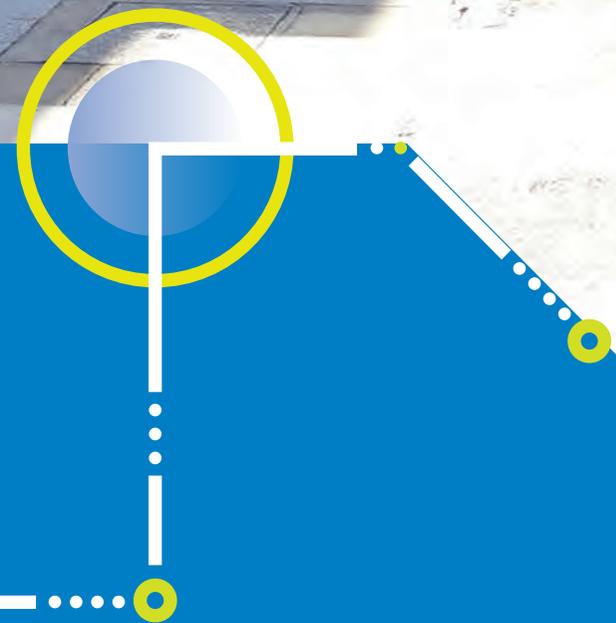
Measure INT20 – Enforcement of Road Traffic Laws

The NTA, in conjunction with the local authorities, the Road Safety Authority, TII, transport operators and An Garda Síochána, will ensure that investment in transport infrastructure and services is protected through comprehensive enforcement of road traffic laws, including exploring innovative new methods, and will support public information and education campaigns around this issue.





10. Walking, Accessibility and Public Realm



10. Walking, Accessibility and Public Realm

10.1 Introduction

Walking is an important mode of travel, accounting for 18% of trips to work and education in the GDA in 2016, and 13% of trips to work in Dublin. In addition, most people who travel are pedestrians for some part of their journey, and adequate provision for pedestrians is therefore a matter of general relevance. A high quality walking network should be safe, coherent, direct, attractive and comfortable. However, in both urban and rural areas, it is often not of a standard that meets the needs of all users.

The Design Manual for Urban Roads and Streets (DMURS) sets out, inter alia, how our road and street network should be designed in order to serve the needs of pedestrians. This chapter does not seek to repeat the principles of DMURS but to set out the relevant measures that will be implemented across the GDA by the NTA in conjunction with the local authorities over the period of the Transport Strategy.

10.2 The Message from the Covid-19 Pandemic

During the Covid-19 Pandemic, and in particular during the period of most severe restrictions on movement, people across the GDA were walking around their local areas in great

“A permeable district can contribute to a range of planning objectives related to design, social integration and transport.

Permeability can enhance the attractiveness of a neighbourhood through the provision of additional useable open space; can increase social interactions by facilitating more activity in the public realm, and can maximise the potential for walking and cycling to a range of services.”

Permeability: A Best Practice Guide, National Transport Authority, 2013

numbers and many were exploring parts of their towns, neighbourhoods and cities they may never have been before. There was a greater appreciation of the benefits of walking; of the need for high quality pedestrian infrastructure; of the deficiencies of the walking network; and a collective realisation of the need for streets to function as social spaces.

The NTA and local authorities implemented a large number of schemes to provide for this aspect of people’s needs across the GDA. Footpaths were widened; streets were pedestrianised; longer crossing times implemented; and outdoor dining spaces

created. Overall, in many places, a shift in emphasis from streets as thoroughfares to streets as places where people could move about on foot more easily and, moreover, stay longer, has occurred.



10.3 Maintenance

Pedestrian infrastructure is required to be maintained at an acceptable level of service at a minimum. Footpaths can experience significant wear and tear and damage over time from weather effects as well as from damage from vehicles. It is the intention that the condition of footpaths is maintained to a high standard across the GDA.

Measure WALK1 - Steady State Maintenance of Footpaths

Development Plans in the GDA will include objectives to maintain footpaths to a high standard across the GDA.

10.4 Improved Footpaths

Good quality footpaths should be of sufficient width to accommodate peak demand, and should be well finished with even surfaces and a legible palette of materials. Width should be in accordance with the predicted demand, and should be informed by high-level pedestrian network planning.

Footpaths are also places of congregation and recreation, and often accommodate a wide array of street furniture and other items such as bins, cycle parking, benches, planting and street lighting. When determining the required width it will be necessary to take account of, and plan for, the full spectrum of uses in order to provide adequately for all needs. Inappropriate

uses such as car parking, advertising boards and encroachment by unregulated outdoor seating, must also be controlled to ensure footpaths serve their primary functions adequately.

The requirements of rural footpaths are less complex than in urban areas. In many cases minimum provision may be adequate, and it may be sufficient to provide footpaths on one side of the road only. Such minimum provision should nevertheless form a coherent network of safe routes, with adequate lighting (where appropriate), reasonable width to allow for passing and good quality surfaces.

Measure WALK2 - Improved Footpaths

The NTA, in conjunction with local authorities, will implement footpath improvement schemes across the GDA where required throughout the period of the Transport Strategy in order to ensure that they are of sufficient width, adequately lit, serve both sides of the road in urban areas (in most cases) are of good quality surfacing and are free of unnecessary clutter.

10.5 Improved Junctions

While the provision of high quality footpaths is an essential component of a good walking network, it is most often the case that the manner in which junctions in urban areas are designed causes the most issues for pedestrians. Traditionally

designed to cater for the maximum throughput of motorised traffic, many junctions in urban areas are characterised by multiple vehicle lanes; wide entry and exit flares; lack of formalised crossings and slip lanes.

Many of these junctions require the operation of multiple traffic signal phases for a pedestrian to fully complete a crossing, potentially up to 8 movements to complete a diagonal crossing – footpath to slip lane island; slip lane island to median island; median island to slip road island; slip road island to footpath; and a similar arrangement to cross the second perpendicular carriageway.

These types of junctions are not conducive to the promotion and facilitation of walking and cycling, in particular for local trips, with the design of such junctions being too focused on maximising vehicle throughput rather than people throughput. It is essential that the NTA and local authorities continue to address these deficiencies and seek to rebalance the operation of many of these junctions to reflect the needs of the non-motorised modes. Actions that can be taken include the



creation of more compact junctions through the removal of slip lanes and/or the narrowing of carriageway entries / exits. The introduction of more single stage crossings can also be considered in addition to the potential inclusion of an “all movements” pedestrian phase, enabling parallel, perpendicular and diagonal pedestrian movement.

Measure WALK3 – Improved Junctions

The NTA, in conjunction with local authorities, will implement junction improvements across the GDA as follows:

- To enhance safety at junctions, a programme of “narrowing” junctions by reducing kerb-line radii will be undertaken as a means of managing vehicular speeds; and
- To enhance movement by pedestrians and cyclists, a programme of removal of slip lanes will be undertaken at appropriate locations, together with consideration of junction signalling changes to better balance the use of the junction between motorised and vulnerable modes.

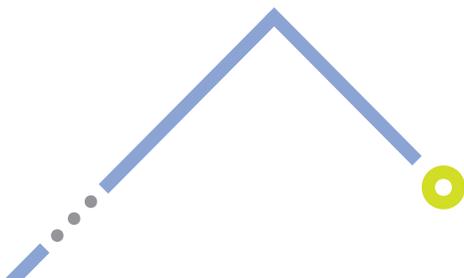
10.6 Pedestrian Crossings

The amount of time dedicated to pedestrian crossings at signalised junctions should take account of the full range of pedestrian speeds, people with disabilities, wheelchair users, and those with buggies or luggage must be sufficiently catered for. Furthermore, in urban areas the volume of waiting pedestrians at crossing points can give rise to crowding on footpaths, particularly in locations such as the environs of train stations or retail streets with high footfall. As such, the time spent waiting for the pedestrian phase may also need to be reduced.

Shorter waiting times for pedestrians can reduce crowding in waiting areas by avoiding the build-up of people, while longer crossing times allow greater numbers to cross in each phase, and can improve the crossing experience for all users. More green time for pedestrians may also discourage pedestrians from crossing busy roads while traffic is moving. While longer crossing times benefit pedestrians, the additional time allotted may be at the expense of traffic green time, and a balance is required to ensure the needs of all modes are met.

Measure WALK4 – Crossing Times

The NTA, with the cooperation of the local authorities, will address identified deficiencies in pedestrian crossing times at signalised junctions, in particular at locations where demand for pedestrian movements is likely to be high.



10.7 Additional Crossing Points

Junctions in the road and street network generate demand for pedestrian crossings. However, existing crossings are not always on pedestrian desire lines, and the requirements to maintain traffic flow can compromise the delivery of a street network that provides adequately for pedestrians. Specific land uses or trip generators, such as schools, bus stops and park entrances, also generate crossing demand that can be mid-block, i.e. not associated with junctions.

In order to provide a high quality walking environment, network planning is required to identify pedestrian desire lines. Where such desire lines interact with the traffic network, crossing facilities that support direct alignments are required. Care is required in the siting and design of mid-block crossings, as the absence of potential conflict with other traffic may affect drivers' perceptions of risk. In urban areas in particular, given the complexity of pedestrian movement, it is recommended that crossings be provided on all junction arms, wherever practicable.

Measure WALK5 - Crossing Points

The NTA, with the cooperation of the local authorities, will install additional pedestrian crossing points where requirements are identified.

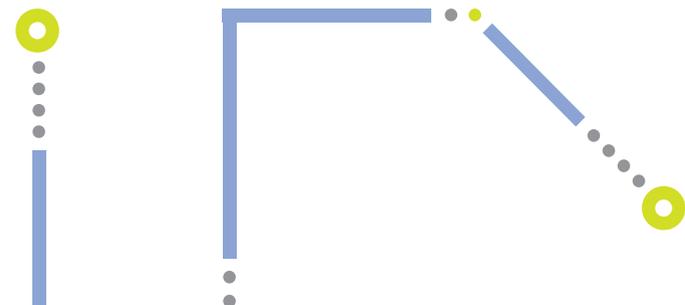
10.8 Wayfinding Information

While passengers on board public transport follow a pre-determined route, the trip to or from public transport stops and stations does not follow a set route. This applies equally to other walking trips, and legibility of urban areas is critical in promoting the shift to sustainable transport.

The built environment itself can be made legible through physical means, but additional measures may be required to support independent navigation. Wayfinding information includes infrastructure such as area maps and directional signage, but also incorporates other technical means such as audio assistance and journey planning apps.

Measure WALK6 - Wayfinding

The NTA, with the cooperation of the local authorities, will support the delivery of new, and the expansion and improvement of existing, wayfinding systems particularly in Dublin City Centre, Metropolitan centres and towns and villages across the GDA and their integration into journey planning apps.



10.9 Traffic-Free Streets and Pedestrianisation

When considering the change of use of a street from one where all modes have access, to one where access is more limited, consideration needs to be given to the new function which is being proposed for the street. There are a number of levels of modal restrictions that can be applied to a street, as follows:

- Removal of Private Car Traffic – the street functions as a public transport, walking and cycling route;
- Removal of all motorised traffic – the street functions as a walking and cycling route; and

- Removal of all modes except pedestrians – a fully pedestrianised street.

These options should be considered in the order above. In all cases, arrangements for goods delivery will require to be considered.

Change of use of a street which excludes all modes except pedestrians should only occur where it can be demonstrated that a safe, convenient and attractive alternative route for cyclists can be provided. Similar attention should be paid to the provision of alternative public transport routeings if applicable.

At all times the permitted uses of the street should be clearly understood by all users, and physical measures may be required to enforce the modal restrictions in place.

Trials and pilot pedestrianisation schemes could form part of the approach to implement such schemes.



Measure WALK7 - Pedestrianisation

The NTA will support local authorities in the provision of pedestrianised streets in town centres where there are benefits to transport and /or the local environment and/or the local economy.





10.10 Persons with Disabilities

The needs of persons with disabilities, including wheelchair users and those who are visually impaired, or those with reduced mobility, including those using buggies and older people are key requirements in designing our pedestrian environments. In addition, there are many people with reduced mobility generally. Many aspects affect them such as width, gradient and the presence or absence of dished kerbs, in addition to those issues which affect all users such as surface quality, the presence of signalised crossings and adequacy of crossing times.

Above all else, the presence of street clutter is an issue which affects walkers with visual impairments and persons with disabilities most seriously relative to other users. Excessive street clutter or the presence of parked vehicles on footpaths can prevent movement by wheelchairs and buggies and will present a particular hazard for visually impaired pedestrians.

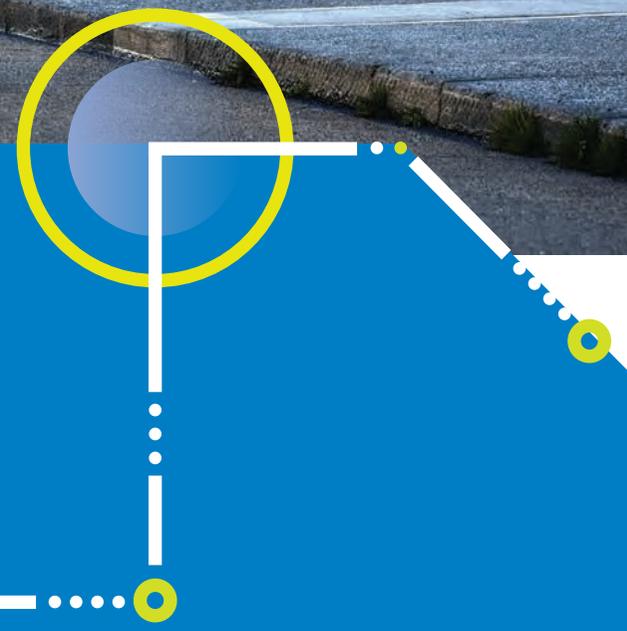
Measure WALK8 - Persons with Disabilities

Local authorities in the GDA and the NTA will take full account of people with disabilities and pedestrians with mobility impairments when delivering transport schemes which affect the pedestrian environment; and will implement improvements to existing facilities where appropriate and encourage the enforcement of the Road Traffic Laws in this regard.





11. Cycling and Personal Mobility Vehicles



11. Cycling and Personal Mobility Vehicles

11.1 Introduction

Since the publication of the prior transport strategy in 2016, cycling mode share has continued to grow steadily in line with trends evident since the mid-2000s. While the reasons for this growth are varied, cycling levels in the GDA and nationally are now higher than at any point in the past 30 years. The findings of the NTA / Sustrans Bike Life survey, conducted before the Covid-19 pandemic and available on the NTA website, illustrates clearly the prevailing patterns of cycling and attitudes of the public towards this mode and how it is served (see inset).

The notable growth and diversification in cycling in terms of the range of people cycling, their reasons for cycling, and bicycle type in the recent past requires a strong policy foundation and adequate funding to support the continuation of these trends.

Many challenges have emerged in providing the step-change in the quality of cycling infrastructure required to serve this growth. While there has been a number of high quality schemes delivered across the region, such as along sections of the canals and on some key radial routes, the requirement to deliver a coherent network linking origins and destinations and catering for trips within communities and to schools remains. The need to deliver this comprehensive network has become even more apparent during the Covid-19 pandemic.

“Nearly a quarter of adults cycle at least once a week in the Dublin metropolitan area, with 11% cycling five days a week or more.

“69% would find more cycle tracks along roads, physically separated from traffic and pedestrians useful to help them cycle more.

“84% of residents also support building more physically separated on-road cycle tracks, even when this would mean less space for other road traffic.

“Cycling in the Dublin area takes up to 60,000 cars off the roads each day.

“Cycling creates €258.5 million in economic benefits for the individual and society annually.”

“Bike Life, National Transport Authority and Sustrans, 2020”

Network Planning, Infrastructure Design, Cycle Parking and Bike Share Schemes are all key elements of a comprehensive, inclusive, cycle-friendly environment, and this chapter sets out the objectives of the NTA up to 2042 under these programme headings.



11.2 The Message from the Covid-19 Pandemic

During the period of most stringent restrictions on people's movements in spring and summer 2020, the numbers of people cycling increased significantly. Practically traffic-free roads and distance limits encouraged more people to move around their local area in a different way. Parents felt safe enough to bring their children cycling on main roads and people got to experience the city in a way they may not have before.

The NTA and the local authorities responded to this, and to the need to maintain social distancing as the economy reopened, by rolling out a large amount of temporary Covid Mobility schemes. In many cases, cycling projects which had been envisaged and planned for many years were realised very quickly under emergency arrangements – projects such as the Coastal Mobility Route in Dún Laoghaire-Rathdown and sections of the Liffey Cycle Route in Dublin City Centre.

As the pandemic ends and patterns of movement return towards pre-Covid ways, it is essential that the message given by the public is listened to and acted upon by the NTA and local authorities when it comes to cycling infrastructure. It is inevitable that not all temporary measures will be retained via the formal planning process but the change in mentality as to what is possible for cycling must be harnessed and built upon over the coming years to deliver the step-change in facilities that is being demanded.

Cycling



Bike Share

Scheme expansion and electrification



More Cycle Parking at
**Train Stations
and Bus Stops**

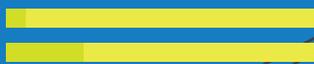
More
**On-Street
Cycle Parking**



Bike Mode Share 2016-2042



4% 2016
12% 2042



Bikes on all
Train Services



Updated Cycle
Design Guidance



Safer Routes
to School



**322km
Primary
Cycle Network**



**1,060km
Secondary
Cycle Network**



**954km
Greenway
Network**



**450,000
Additional Daily
Cycling Trips**



11.3 GDA Cycle Network

In 2013 the NTA published the Greater Dublin Area Cycle Network Plan. The purpose of the Plan was to guide investment in cycle infrastructure by the NTA and other related agencies, by developing a network of cycle routes for the GDA. The route network comprises Primary, Secondary, Feeder, Greenway and Inter-urban routes for the region, including dedicated town networks for all settlements.

While the 2013 Plan has provided a robust framework for such investment to date, evolutions in cycle policy, design guidance and urban form since its publication have prompted an update of the network. This review has ensured that the network proposed is fit for purpose, and takes account of the needs of the full spectrum of users and trip types. The revised GDA Cycle Network forms part of the Transport Strategy and is published in full alongside this report.

The revised network forms a key component of the overall transport network for the region. Covering the full GDA region, it sets out a comprehensive cycle network for development during the period of the Transport Strategy. Figure 11.1 comprises an excerpt from the network.

Measure CYC1 – GDA Cycle Network

It is the intention of the NTA and the local authorities to deliver a safe, comprehensive, attractive and legible cycle network in accordance with the updated Greater Dublin Area Cycle Network.

11.4 Cycle Infrastructure Design

The National Cycle Manual has guided the design of cycle infrastructure in the past decade. Any schemes funded by the NTA over this period were required to demonstrate consistency with the manual.

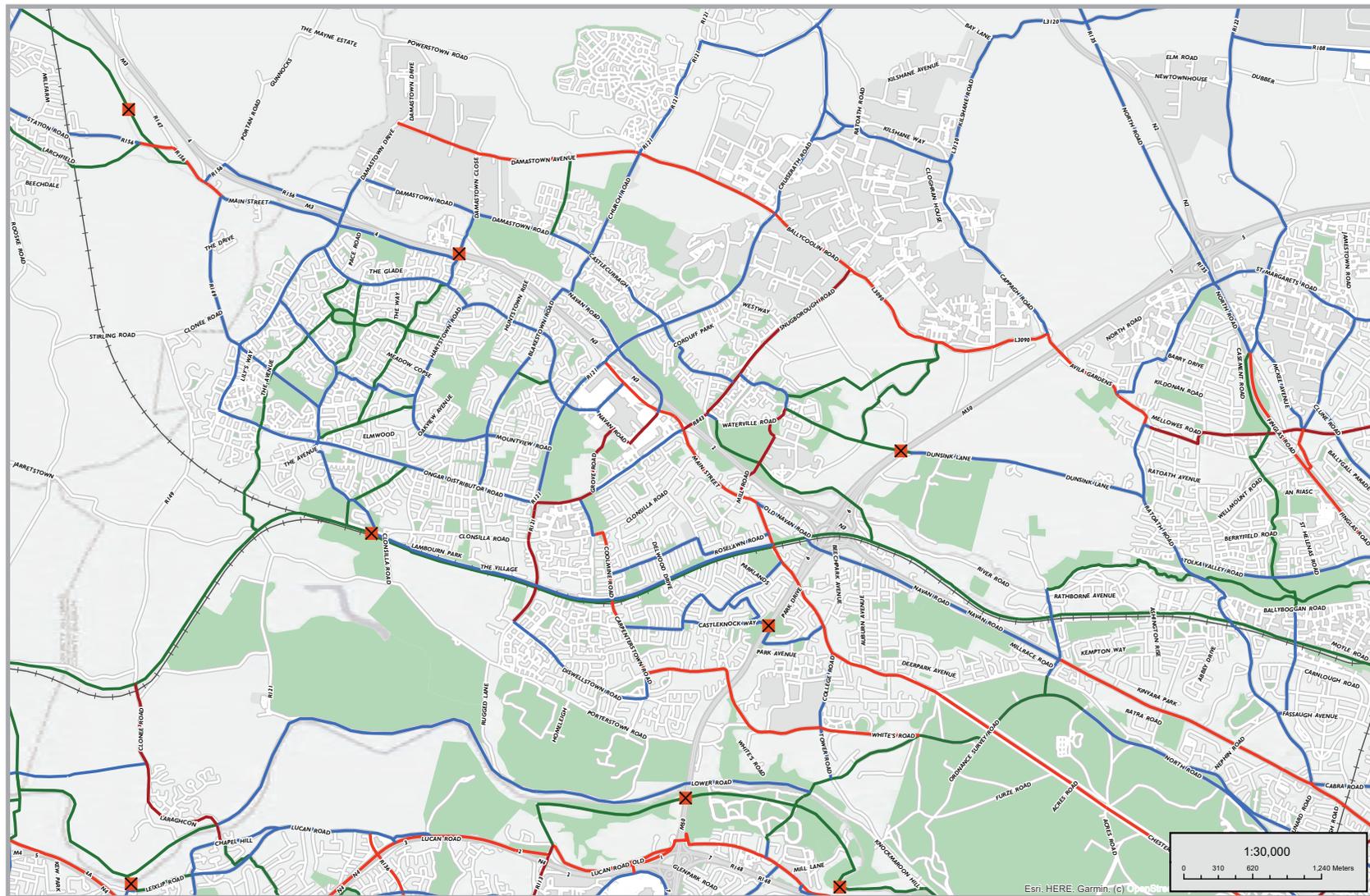
Design standards change over time, however, and new approaches emerge internationally and need to be examined as to their appropriateness in an Irish context. This can be seen in some of the cycle provision included in the BusConnects schemes. Additionally, as the community of cyclists grows and its range broadens, different needs also emerge. As more women and girls cycle, for example, personal security needs may become more pronounced, in particular on off-road greenways. There has also been notable growth in electric bikes, cargo bicycles and tricycles, multi-seat family cycles, plus hand cycles and adapted cycles catering for users with a range of mobility limitations.

All of these factors contribute to the manner in which cycle infrastructure is provided. As such, the NTA is in the process of reviewing and updating the National Cycle Manual to take account of these issues and developing international practice.

Measure CYC2 – Cycle Infrastructure Design

It is the intention of the NTA to ensure that cycle infrastructure in the GDA provides an appropriate quality of service to all users, through the implementation of the design guidance contained in the latest version of the National Cycle Manual.

Figure 11.1: Extract from the Updated GDA Cycle Network



11.5 Cycle Parking

The availability of cycle parking at the beginning and end of a journey can greatly influence the decision to choose to cycle. Destination cycle parking can be provided in a range of locations, including privately at workplaces, as public cycle parking in urban areas either on-street or in larger off-street facilities, or at other destinations such as cultural, leisure or recreational facilities. Where public cycle parking is provided it must cater for the full spectrum of cycles.

A public cycle parking strategy should also be included by local authorities in Development Plans and Local Area Plans in tandem with workplace parking standards and residential cycle parking standards. In urban areas, public cycle parking is often occupied by workers from the locality who may park on street for the full day if they lack workplace parking, or by local residents without dedicated parking at home. By promoting workplace and residential parking provision, the demand for on-street parking may reduce. Existing on-street stands can then serve their primary purpose of catering for shorter-term retail, leisure or business use.

In addition, the NTA will work with local authorities, transport operators and local authorities to address the need for sufficient cycle parking at rail stations, transport interchange locations and mobility hubs.

Measure CYC3 – Cycle Parking

It is the intention of the NTA to deliver, through the statutory planning process and liaison with relevant stakeholders, high quality cycle parking at origins and destinations, serving the full spectrum of cyclists including users of non-standard cycles.

Measure CYC4 – Cycle Parking Strategies

Local authorities will, as part of Development Plans and Local Area Plans, prepare public cycle parking strategies in order to ensure that there is sufficient short-stay cycle parking available on-street in city, town and village centres.



11.6 Bike Sharing

Bike sharing schemes have become key elements in the multi-modal transport environment, providing for ‘last mile’ journeys from public transport stops to workplaces and for a range of retail, leisure and recreational trips within urban areas. When planned correctly they can facilitate reduced reliance on the private car, contribute to increased use of public transport, and serve as a low-cost entry point to cycling for newer commuters and recreational cyclists.

Although there is no limit to the distance that can be travelled, bike sharing schemes generally work best when they cater for shorter journeys in urban areas. Station-based schemes require bikes to be docked to complete a journey, and dockless schemes usually cover a defined area in which bikes must be parked at the end of a trip. Larger schemes typically incur higher operational costs, and usage tends to be lower in areas of lower population density. The expansion of these schemes must take account of such constraints in order to provide optimal coverage.

There are three main strands to plans for bike sharing over the lifetime of this strategy – expansion of bike sharing schemes across the region, provision of electric bike sharing and interoperability between different schemes.

11.6.1 Expansion of Bike Share Schemes

The dublinbikes scheme was introduced by Dublin City Council in 2009 and has undergone a number of expansions since

its launch. Separately, a number of other bike share schemes have been introduced on a commercial basis in recent years, licensed by the relevant local authority and generally using dockless bikes which don’t require dedicated bike stations to be developed on street.

With over 30 million journeys taken on dublinbikes since the launch of the scheme and the success of other bike share schemes in the region, it is evident that there is a major role for bike sharing as part of the overall integrated transport system for the GDA. However, it is also clear that such schemes need to be well-planned, appropriately sized and affordable, while also being readily available and easy to use. It is also important that the region does not end up with a proliferation of individual and unconnected schemes, each vying for the same users, and with individual users potentially requiring to join multiple schemes to provide appropriate coverage to suit their needs.

Accordingly, the NTA will seek the development of a structured network of coordinated bike share schemes, appropriately serving key urban areas and operating on an integrated basis.

Measure CYC5 – Bike Share Scheme Expansion

The NTA, in collaboration with the local authorities, will seek the development of a structured network of coordinated bike share schemes, appropriately serving key urban areas and operating on an integrated basis.

11.6.2 Electrification of Bike Rental Schemes

The provision of electric bikes can attract new users to bike sharing schemes and can extend the overall reach of a scheme. They offer the benefits of lower effort and potentially longer distances. However, as noted earlier, bike share schemes work best when they cater for shorter journeys in urban areas, and the potential for further electrification should be considered in the context of the operational limits of a bike share scheme. However, more and more schemes internationally offer electric bike options as part of their offering and customers have embraced the new potential offered by electric bikes.

Accordingly, the NTA will support the provision of electric bike share schemes, appropriately integrated in the overall bike share scheme structure for the region.

Measure CYC6 – Bike Share Scheme Electrification

The NTA will support the provision of electric bike share schemes, appropriately integrated in the overall bike share scheme structure for the region.

11.6.3 Interoperability between Bike Share Schemes

The uncontrolled expansion of bike share schemes in an uncoordinated way is undesirable on several levels. Firstly, commercial realities mean that multiple schemes may focus



on particularly lucrative areas but omit coverage of other less viable areas. Secondly, a multitude of singular schemes operating across the region, means that a user may need to be a member of, and subscriber to, multiple schemes in order to cover the spectrum of trips that he or she may wish to make.

To address the latter point, achieving interoperability between different schemes is patently desirable from a customer perspective. The ability of a customer of Scheme A to be able to use the bikes of Scheme B when appropriate, extends the usefulness of the family of bike share schemes, and is a precursor to the concept of “mobility as a service”.

While this requires commercial and technical arrangements to be put in place between operators, the NTA intends to pursue a programme of interoperability between bike sharing schemes within the GDA.

Measure CYC7 - Interoperability between Bike Schemes

The NTA will seek to put in place interoperability arrangements between bike sharing schemes within the GDA such that the customer of one scheme is enabled to use the bikes of another scheme, and will explore the role of Next Generation Ticketing in this regard.

11.7 Bikes on Public Transport

Folding bikes are permitted on all public transport vehicles. At present, there is limited space for bringing standard bicycles on public transport. Only Inter-City trains permit bicycles on all services, and DART trains permit them during off-peak hours. Standard bikes are not permitted on Luas or metropolitan bus services.

In future, all new rail carriages will accommodate bicycles at all times in accordance with EU legislation. The NTA has already begun the procurement process for these carriages, which will commence entering service in the coming years. As such, all Irish Rail services using newly procured fleet, including new DART fleet, will accommodate a minimum of 4 bicycles per train, in addition to an unlimited number of folding bikes.

Luas, by virtue of its operating characteristics which include no storage space; a significant requirement for passengers standing at all times; the potential for sharp acceleration and



deceleration; and the need for emergency braking due to its un-segregated design, is unsuited for carriage of standard bicycles on board. Metropolitan bus services facilitate folding bicycles at all times.

Measure CYC8 – Bikes on Public Transport

The NTA will facilitate the carriage of standard bicycles on all newly acquired (during this strategy period) DART, Commuter and Intercity rail carriages operating in the Greater Dublin Area at all times.

11.8 Emerging Personal Mobility Modes

11.8.1 Electric Bikes

Electric bicycles or e-bikes are bicycles with an integrated electric motor used to assist propulsion. This means that they can extend the travel distance, or gradients traversed, well beyond the typical limits of a standard bicycle. They use rechargeable batteries and typically reach top speeds of 25km/h. E-bikes can be broken down into two broad categories, Pedelecs and S-Pedelecs.

Pedelecs are pedal-assisted e-bikes and are treated as bicycles under Irish law. S-pedelecs are fully mechanically propelled

vehicles which reach speeds well above 25 km/h and are treated like mopeds under Irish law. As such, the latter is dealt with in Chapter 14.

There is a significant opportunity for pedal-assisted E-Bikes to play a far greater role in the GDA's transport system, primarily by extending the range of "cycleable" trips to 10 km and beyond. There are challenges associated with E-bikes in terms of mixing vehicles of varying speeds and the desire for overtaking, as well as speed expectations of pedestrians and motorists –this point is linked to the requirement for enhanced cycle infrastructure. The NTA is of the view that this emerging trend will continue and that transport investment priorities will need to reflect the growth of pedal-assisted E-bikes.

Measure CYC9 – E-Bikes

The NTA and local authorities will take into account the growing use of pedal-assisted E-bikes, and the benefits they may bring, in planning and designing the transport network in the GDA.

11.8.2 Electric Scooters

An electric scooter, or an e-scooter is similar to a two-wheeled manual scooter except it does not require any physical effort. It is propelled forward by an electric motor and is equipped with brakes. The e-scooter is rechargeable, and the electricity is stored on a battery within the scooter.

E-scooters are not currently legislated for use on public roads in Ireland, but upcoming legislation will seek to introduce a balance between encouraging uptake of scooters and other personal mobility vehicles while addressing user and public safety issues. Individually owned vehicles are already in use on Dublin streets, on footpaths, cycle tracks and lanes and on-road, and without specific speed limits.

E-scooters are highly transportable for the customer; various designs enable rapid folding and easy carriage, making their integration with public transport easier. Parking infrastructure can be relatively cheap to build and maintain and their small footprint means otherwise unused spaces could be used productively.

E-scooters present similar challenges to E-bikes in terms of the mixing of modes of different speeds, but also in terms of the ease with which they can navigate through the urban realm and potential conflicts with pedestrians. They present a unique high-risk in this regard as they are low visibility and operate silently and at high-speeds.

E-scooter trips may also be simply replacing cycling and walking trips, and in such a scenario they would not be contributing to reduced congestion or emissions. The NTA will respond as required to the legislation adopted in this area and will consider E-scooters as part of the implementation of the Transport Strategy.

Measure CYC10 - Electric Scooters

Subsequent to the enactment of national legislation, the NTA and local authorities will take into account the growing use of E-scooters and the benefits they may bring, in planning and designing the transport network in the GDA.

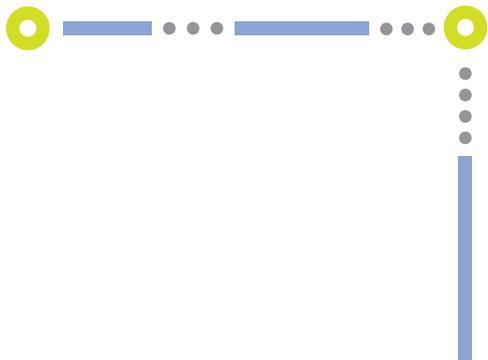


11.8.3 Other Emerging Personal Mobility Modes

Beyond e-scooters and e-bikes, there is a plethora of emerging personal mobility modes coming to market. Improved overall safety and footfall in newly pedestrianised areas have encouraged the uptake of micro-mobility modes such as Segways, Folding Scooters, Electric Skateboards and Quadricycles. As people continue to find new modes of personal mobility and as their legal status is clarified, the available infrastructure may also need to evolve to support these new mobility modes and how they are used.

Measure CYC11 – Other Emerging Personal Mobility Modes

The NTA, local authorities and Government will monitor emerging trends in personal mobility and respond accordingly in terms of legislation, regulation and infrastructure design.







12. Public Transport

12. Public Transport

12.1 Introduction

12.1.1 The Capacity Dimension

Public transport services operate on a spectrum based on their capacity. A conventional low frequency bus service, such as an hourly service to a regional town, carries a relatively small number of passengers compared to a high-capacity rail service such as Metro or DART. In between these two extremes, there are a wide range of other options, including;

- Standard Bus Service – single route every 15 minutes carrying less than 400 passengers per hour;
- High frequency Bus Services – combined routes every 1 ½ to 2 minutes supported by bus priority, carrying approximately 3,000 passengers per hour;
- Higher Capacity Bus Systems – using larger vehicles or other forms of higher capacity bus, carrying in excess of 3,000 passengers per hour;
- Standard Light Rail – every 3 to 4 minutes which can carry up to about 5,000 passengers per hour
- High Frequency Light Rail – every 2 minutes which can carry up to about 10,000 passengers per hour (assuming long length trams).

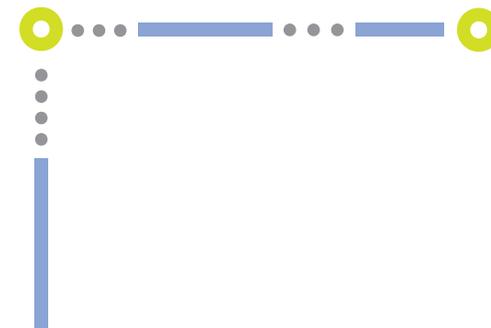
“Public transport is essential to a city of Dublin’s size and density, because there is simply not room for everyone’s car.

“The vast majority of public transport in Dublin is provided by buses and this will remain true, at minimum, for the next ten or more years, and will always be true to some extent.

“Even in cities like Paris, where almost everyone is within 800m of a metro station, enormous numbers of people travel by bus.

“As a result, a study of Dublin’s bus network is a study of most of the public transport in Dublin. It is also a study of what can be done soon.”

*Bus Connects Network Redesign Choices Report,
Jarrett Walker & Associates and NTA, 2017*



Understanding this concept is critical in understanding the approach of the NTA to the provision of public transport infrastructure and services over the lifetime of this strategy and beyond.

It should be noted that the above capacity bands are not rigid categories and that higher capacities can be provided where larger vehicles are used or higher frequencies can be obtained.

12.1.2 Message from the Covid-19 Pandemic

The period since March 2020 has been an extremely challenging one for public transport providers, operators, regulators and passengers globally. Demand for travel plummeted as lockdowns were enforced, and the only people travelling were primarily essential workers.

As society completes its reopening and as people return to public transport, the permanent changes in travel behaviour arising from the pandemic will emerge. The most important aspect of this, in terms of public transport passenger numbers and long-term strategic transport planning, will primarily be the increased numbers of people working from home. Remote education and online shopping will also have an impact, but the future of the “rush-hour” commute to work will be a major determinant in the level of capacity required to be provided by public transport.

In order to ensure that this Transport Strategy addresses the rapidly changing transport environment arising out of the pandemic, the NTA has developed an Alternative Future Demand Scenario, whereby the likely demand for future travel

has been adjusted to account for potential increases in working from home, remote learning and online shopping. Other areas such as a potential decrease in business travel together with an increase in shorter local trips have also been considered. The full details of this scenario are available in the “Alternative Future Scenario for Travel Demand” report available on the NTA website.

The NTA monitors public transport trends on an on-going basis and, combined with annual surveys, traffic counts and the CSO census, this comprises a comprehensive data source for ensuring that any changes in travel behaviour are captured regularly and can input into strategic planning decisions over the period up to 2042, including in the review of this Transport Strategy in 2028.

12.1.3 Overall Approach

The overall approach to public transport provision has been to put in place the appropriate public transport mode to address the transport demand on the relevant link.

Because of the dispersed pattern of land use development across the region, the bus system represents the appropriate public transport solution across much of the GDA, including within the Metropolitan area. Along key corridors with high level of demand, rail-based options have been identified and included within the Transport Strategy.

In a developing region, travel demand patterns don't remain static and will evolve over time. As the forecast population grows, the demand for travel from each part of the city and

region will change. For the light and heavy rail network, this growth will be addressed by increasing the frequency of services or the capacity of the vehicles, or both. In relation to the bus services, a similar approach will be taken where the response to demand growth will be to increase the frequency of service or to use larger bus vehicles or both.

For some of the BusConnects Core Bus Corridors, referenced later, the level of anticipated demand during the strategy period will be matched by using larger capacity vehicles and/or high frequencies. In the longer term, beyond 2042, the forecast demand on a limited number of these corridors may justify the provision of higher capacity modes, in particular light rail, on these routes.

In other words, during the lifetime of this strategy, current forecasts indicate that some bus corridors may need to transition along the public transport capacity spectrum towards a higher capacity bus system, primarily through the introduction of higher capacity vehicles and/or increased frequencies, with the potential for subsequent transition in the longer term, post 2042, to light rail provision.

The optimal arrangement along these particular corridors is to develop a reliable and attractive bus-based transport option to deliver early benefits in terms of mode share and reduced emissions and, as demand increases, introduce higher capacity services. This transition will allow appropriate matching of supply with growth in travel demand in a planned manner, corresponding to the emerging and likely forecast development patterns along each corridor.

12.1.4 The Public Transport Strategy

This chapter sets out the strategy for the implementation of an overall public transport system for the region. Central to that overall provision is the delivery of a comprehensive bus network in the short-term based on significantly enhanced levels of service supported by much greater on-street priority. In the short-term there are also a number of rail lines that will be pursued such as Metrolink and the DART+ programme.

Towards the medium and long term, a number of Luas lines which have been planned for many years, together with other rail projects, will be progressed according to forecast demand. During this period, those bus corridors where demand for travel exceeds that which can be served by high frequency bus services, will have their passenger carrying capabilities increased by transitioning to higher capacity bus systems which will be implemented on an incremental basis.

The alignments and details of proposed transport projects set out in this Chapter are indicative only and are subject to further development as the design and planning processes for individual projects progress.

Accordingly, some of the details of the individual proposals will be subject to amendment as this design development work is undertaken. The design and planning of individual projects will be carried out in accordance with prevailing legislation relating to environmental assessment and public consultation.

12.1.5 Public Transport Interchange

While the Transport Strategy includes various bus and rail schemes along certain corridors, it is the manner in which these schemes interconnect which forms the key strength of the network, as set out in Chapter 9. The Transport Strategy radically increases the potential for interchange across the GDA by providing for several additional high-frequency rail and bus services; connected by high-frequency orbital buses. This approach significantly reduces the time taken to travel where two public transport journeys are required and reduces the cost of the journey through revisions to the fare structure. As such, the options and choices available to people in the GDA to travel conveniently and cost-effectively by public transport are greatly increased.

12.1.6 Maintenance and Renewal

All public transport infrastructure deteriorates over time and needs replacing. Significant investment is required on an on-going basis to replace vehicles, shelters, information signage, station facilities etc. The NTA, with all of the transport operators, must ensure that the infrastructure and fleet is kept up-to-date and that the level of investment to maintain the steady state is available every year, in addition to the level of investment in new infrastructure.

Measure PT1 – Steady-State Maintenance of Public Transport

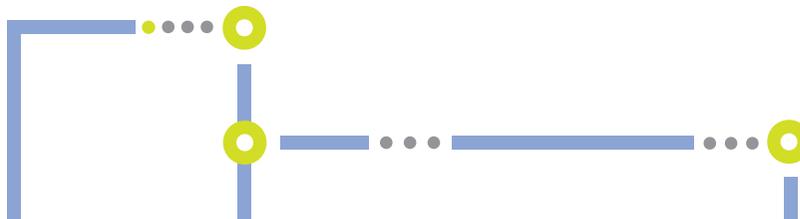
The NTA and transport operators will ensure that existing public transport infrastructure and fleet will be maintained at a high standard and renewed at the appropriate time.

12.1.7 Resilience of the Public Transport Network

Climate change effects have the potential to directly impact on public transport infrastructure. The European Commission’s “Technical Guidance on the Climate Proofing of Infrastructure in the period 2021-2027” provides an approach to ensuring that climate change mitigation and adaptation measures are integrated into the development of infrastructure projects. The NTA will incorporate all relevant measures into the implementation of the Transport Strategy.

Measure PT2 – Climate Proofing New Public Transport Infrastructure

The NTA will ensure that all new public transport infrastructure is proofed against the potential impacts arising from climate change.



The on-going operations of our bus and rail services can also be subject to significant disruptions and shocks. These include service disruptions caused by motorists crashing into level crossing or trams; adverse weather conditions; or road traffic collisions. As our reliance on mass transit as a means of addressing the climate crisis and to serve social and economic needs increases, there is a requirement to ensure that the public transport system is resilient and has the capacity to withstand shocks.

Linked to the previous measure, this is of particular relevance in a scenario where extreme weather events, such as flooding – in particular along the Dublin and Wicklow coastline – becomes more frequent. The NTA will, in conjunction with transport operators and Local Authorities, prepare a strategy for ensuring the public transport system is resilient and can withstand unexpected shocks. This strategy include examination of the following:

- Assessment of fleet requirements;
- Identification of alternative routeings for bus services in the event of road closures or rail line suspensions;
- Operational measures such as emergency roadspace reallocation; bus gates; or other bus priority on identified alternative routes;
- Changes to Road Traffic Law in order to deter red-light jumping at level crossings; and
- Assessment of the infrastructural requirements to protect coastal public transport infrastructure.

Measure PT3 – Resilience of the Public Transport Services

The NTA and transport operators will prepare a public transport resilience strategy for the GDA.



12.2 Bus

12.2.1 Introduction

The bus provides the backbone of the regional transport system and will continue to play this pivotal role into the future. The bus will also compliment the significant investment in the GDA rail network by extending the catchment of this system via feeder services and interchange. As such, the adaptability, flexibility and coverage that the bus network can provide means that this mode will always be to the forefront in planning for movement in our cities, towns, villages and rural areas.

In recent years, the NTA has begun a process of implementing a step-change in the quality of the overall bus system in the GDA, through the following programmes:

- BusConnects Dublin;
- Connecting Ireland; and
- Local Link.

Together these programmes, which are described in more detail in subsequent sections, are seeking to significantly improve the image of the bus by providing a radically enhanced level of service, with the objective of increasing the share of people using public transport. This is being achieved through improvements to bus infrastructure, bus fleet, passenger facilities and passenger information. This chapter sets out the objectives of the NTA up to 2042 under these programme headings.

12.2.2 BusConnects Dublin and Additional Investment

BusConnects Dublin was launched in 2017. It is a multi-faceted programme comprising the following elements:

- Core Bus Corridors (CBCs) providing approximately 230km of bus priority and approximately 200km of cycle routes;
- A New Dublin Area Bus Service Network;
- Next Generation Ticketing;
- New Bus Livery;
- New Bus Stops and Shelters;
- A Low / Zero Emissions Bus Fleet;
- New Park & Ride and Interchanges; and
- A Revised Fare Structure.

Some of these elements cut across all transport modes and have been dealt with in Chapter 9.

Core Bus Corridors

As part of the 2016-2035 Transport Strategy, indicative radial and orbital Core Bus Corridors were identified. Over the last 3 years, and with the input of the public at several stages of non-statutory public consultations, the NTA has sought to bring forward the development of the key radial corridors. In doing so, the NTA has refined and altered the proposals across these corridors and have endeavoured to design a new bus system

Bus



Bus Priority
on National Roads
leading to Dublin



100%
Zero Emissions Bus Fleet

Better Interchange
with DART and Luas

Expanded 24hr Bus Services



BusConnects
Higher Frequency and Higher Capacities

Connecting Ireland
New services linking towns, villages and rural areas across the region



that is both efficient and effective, while being cognisant of the needs of local communities.

As these projects progressed, it was decided to combine a number of corridors for the purposes of preparing planning applications. As such, in the early months of this strategy, it is intended to have submitted applications with An Bord Pleanála for 12 schemes as follows:

- Clongriffin to City Centre;
- Swords to City Centre;
- Ballymun/Finglas to City Centre;
- Blanchardstown to City Centre;
- Lucan to City Centre;
- Liffey Valley to City Centre;
- Tallaght/Clondalkin to City Centre;
- Kimmage to City Centre;
- Templeogue/Rathfarnham to City Centre;
- Bray to City Centre;
- Belfield/Blackrock to City Centre; and
- Ringsend to City Centre

These schemes are shown in Figure 12.1

Subject to obtaining statutory planning approvals, the NTA will proceed to construct these key bus arteries within the Dublin area. They will facilitate faster and more reliable bus journeys on the busiest bus corridors in the Dublin region, making the overall bus system more convenient and useful for more people. In addition, key elements of the Cycling Network Plan for the GDA will be delivered as part of these corridors.

Over the period of the strategy, the NTA will implement bus priority additional to that proposed under the current BusConnects Dublin programme. In particular, as demand for bus travel increases and the need for reliable journey times increases, the requirement for further priority on radial corridors will emerge. This may involve extending the current Core Bus Corridors or the identification of new radial corridors which may require priority.

The orbital bus routes proposed as part of the new service network (labelled N, S, W, and O) will also require a high degree of priority to be developed over the lifetime of the Transport Strategy. These routes are shown in Figure 12.2. Additional orbital services are also likely to be required to serve emerging development areas such as the City Edge Masterplan lands.

In providing for unimpeded bus journeys on these corridors, all forms of priority have been, and will be, considered. This includes bus lanes, bus gates, bus only road links and bus priority signalling.

Measure BUS1 – Core Bus Corridor Programme

Subject to receipt of statutory consents, it is the intention of the NTA to implement the 12 Core Bus Corridors as set out in the BusConnects Dublin programme.

Measure BUS2 – Additional Radial Core Bus Corridors

It is the intention of the NTA to evaluate the need for, and deliver, additional priority on radial corridors.

Measure BUS3 – Orbital Core Bus Corridors

It is the intention of the NTA to provide significant improvements to orbital bus services in the following ways:

1. Increased frequencies on the BusConnects orbital services; and
2. Providing bus priority measures at locations on the routes where delays to services are identified.

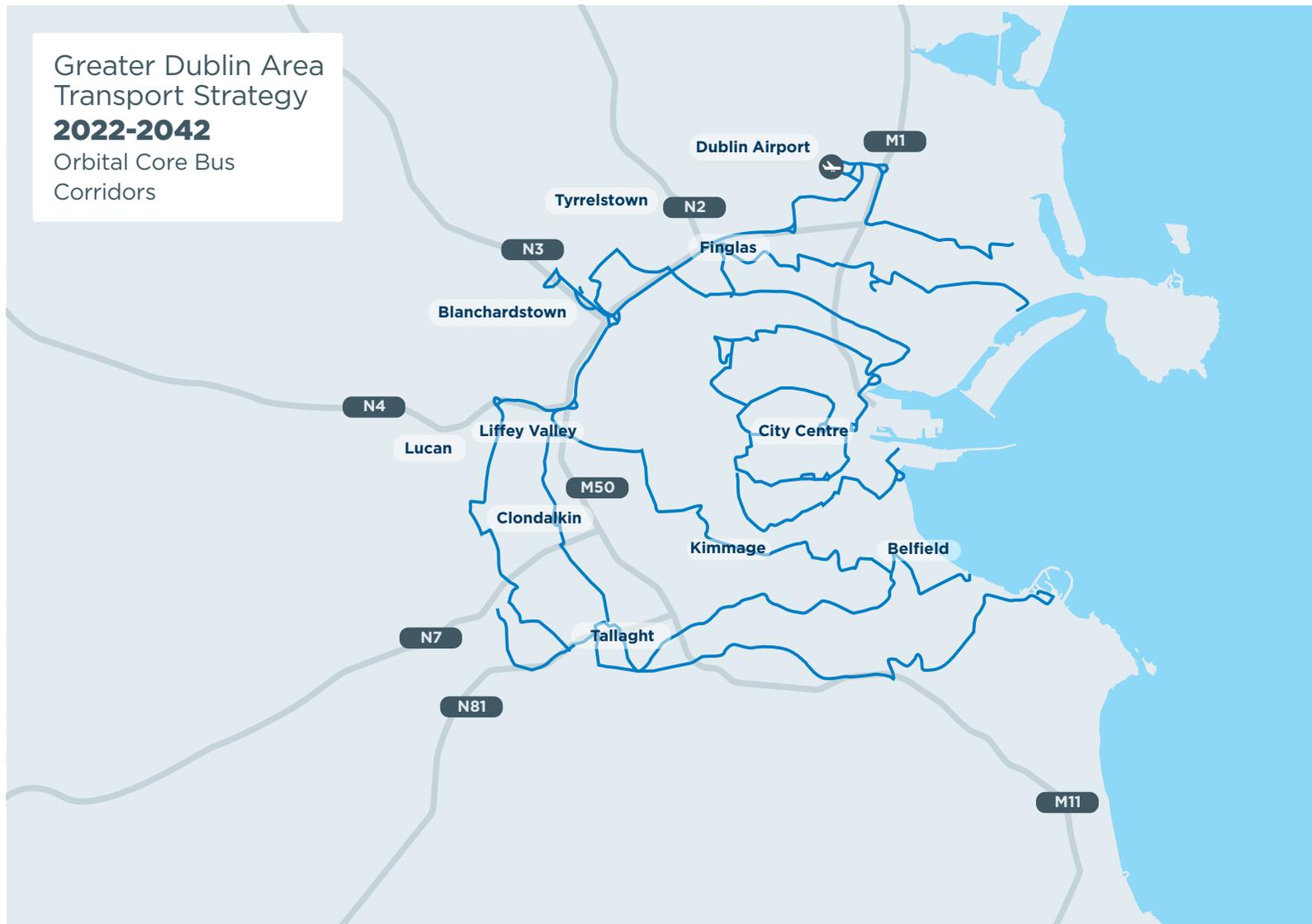


Figure 12.1: BusConnects Dublin Core Bus Corridors



1.	Clongriffin to City Centre
2.	Swords to City Centre
3.	Ballymun/Finglas to City Centre
4.	Blanchardstown to City Centre
5.	Lucan to City to Centre
6.	Liffey Valley to City Centre
7.	Tallaght/Clondalkin to City Centre
8.	Kimmage to City Centre
9.	Templeogue/Rathfarnham to City Centre
10.	Bray to City Centre
11.	Belfield/Blackrock to City Centre
12.	Ringsend to City Centre

Figure 12.2: Orbital Core Bus Corridors





New Dublin Area Bus Service Network

Following three rounds of public consultation which began in 2017, the NTA finalised and published the New Dublin Area Bus Network in September 2020. This new bus network plan is the final version emerging from the redesign process, informed by over 72,000 submissions received over three consultation periods.

Implementation of the new bus network has already commenced and, subject to Government funding, will continue on a phased basis over a number of years.

Under the plans, the network will be arranged on the basis of spines radiating from the city centre, supported by other services. The new routes will consist of:

- Spines - frequent routes made up of individual bus services timetabled to work together along a corridor. At the end of the corridor, the individual services branch off to serve different areas;
- Orbitals - services operating around the city. They provide connections between suburbs and town centres, without having to travel into the City Centre. They also provide connections to rail, Luas and other bus routes.
- Other City Bound Routes - services operating into Dublin City Centre. These services are not part of any spine and operate on their own timetable;
- Local Routes - services providing important connections within local areas, linking to local retail centres and to onward transport connections;

- Peak-Only Routes - services operating during the peak travel periods, generally weekday mornings and evenings, providing additional capacity along key bus corridors; and
- Express Routes - direct services from outer suburbs to the City Centre at peak commute hours, operating a limited stop service to get passengers to their destinations faster.

An extract from the New Dublin Area Bus Network is shown on Figure 12.3. Spines and branches are shown in red, Orbitals in light blue and Local Routes in purple.

In addition to the revised network of service, analysis during the preparation of this strategy, identified some locations where demand for bus services in 2042 would require routes additional to those set out in the network review. Accordingly, periodic reviews will be undertaken during the period of the Transport Strategy to evaluate the impacts of changing development and transport patterns, and to implement appropriate additions or adjustments to the overall bus system to accommodate the changing arrangements.

Measure BUS4 - New Dublin Area Bus Service Network

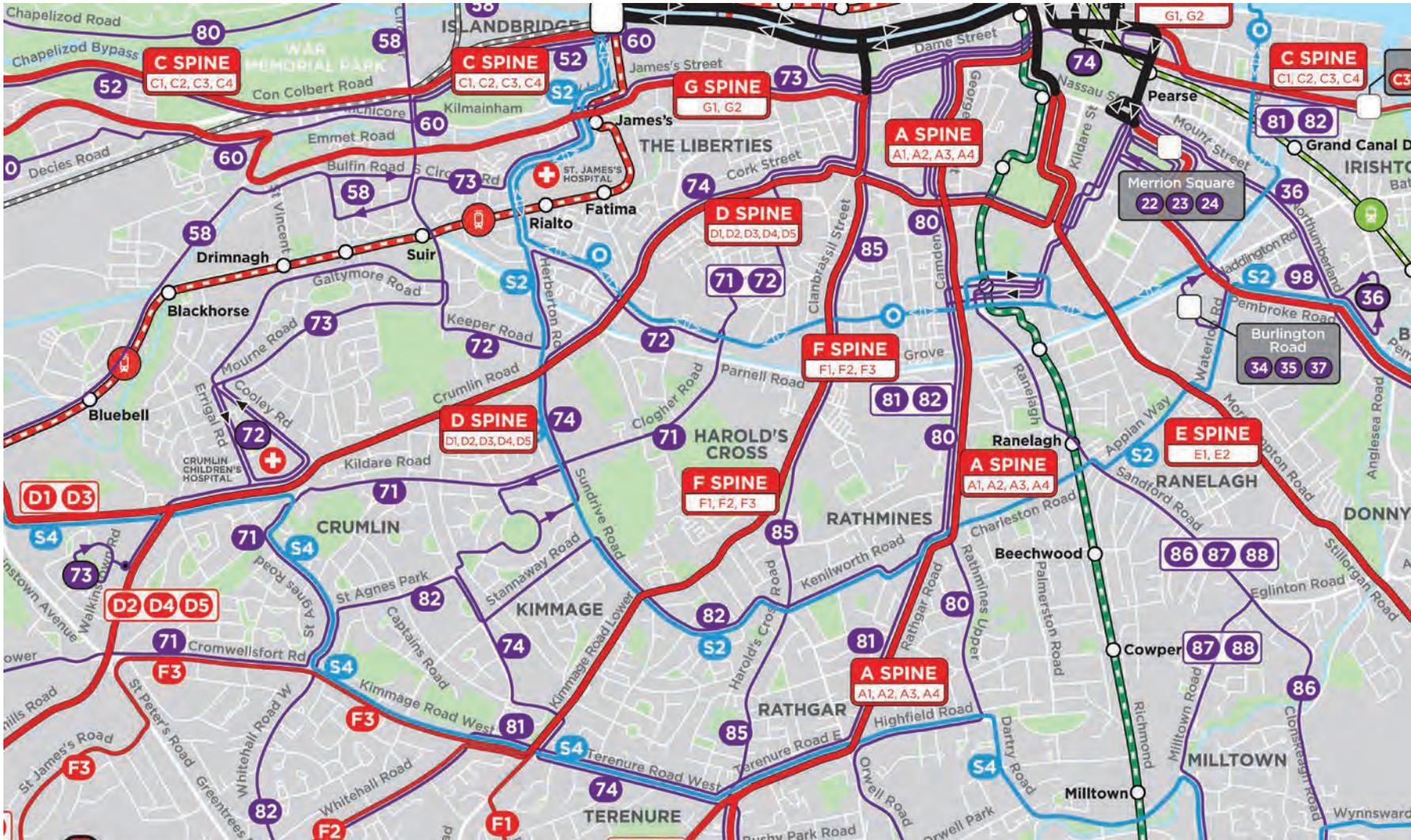
It is the intention of the NTA to deliver the new Dublin Area Bus Service Network starting in 2021 with a target completion date of 2024.

Measure BUS5 - Bus Service Network Monitoring and Review

It is the intention of the NTA to continually monitor the demand for bus services in the Dublin Area as part of the roll-out of the new service network and as part of the monitoring and periodic review of the Transport Strategy, and enhance or amend the service network as appropriate.



Figure 12.3: New Dublin Area Bus Service Network Extract



12.2.3 Higher Capacity Bus Fleet

As referenced in section 12.1.4, it is envisaged that some bus corridors will require increased capacity by transitioning to higher capacity bus systems as demand for travel on those corridors exceeds that which can be served by high frequency bus services.

Through this approach, these corridors will be provided with a further uplift on the capacity spectrum, with larger vehicles providing higher levels of passenger capacity. As an indicator of the potential of this approach, bi-articulated bus vehicles up to 25 metre long are in operation in various cities across the world, with vehicles having capacity for up to 200 passengers, compared to approximately 90-95 per vehicle in the current double-deck bus fleet.

The precise vehicle to be introduced will be determined at the appropriate time and the choice will take into account the operating environment including street widths; interactions with Luas; requirements for cyclists and pedestrians; and bus parking and layover considerations.

Measure BUS6 - Higher Capacity Bus Fleet

In the later phases of the Transport Strategy period, it is the intention of the NTA to introduce higher capacity bus vehicles onto select appropriate BusConnects corridors in order to increase passenger carrying capabilities in line with forecast demand.

12.2.4 Zero Emissions Buses

The transition to a zero emissions urban bus fleet for the State operated bus services has begun under BusConnects. Hybrid diesel-electric buses are now visible all across Dublin City and by the end of 2021 there will be a total of 219 of these low emission vehicles on the streets of the capital.

2022 will see the introduction of fully electric single and double deck fleet and the ongoing conversion of bus depots to charge and maintain the new vehicle types. Under the BusConnects Dublin programme, the full Dublin Area urban bus fleet will have transitioned to zero or low emission vehicles by 2030 and will have been converted to a full zero emission bus fleet by 2035.

In relation to the regional and intercity coach fleet, emerging technologies will be closely monitored with a view to their adoption during the lifetime of the strategy once they are deemed reliable and effective for longer-distance travel.

Measure BUS7 - Zero Emission Bus Fleet for Dublin

It is the intention of the NTA to deliver a fully low emission vehicle Bus Fleet for the Dublin Area by 2030 and a Zero Emission fleet by 2035.



Measure BUS8 – Regional and Intercity Coach Fleet

The NTA will monitor emerging fuel technologies for adoption into the regional and intercity services, in order that a low or zero emission coach fleet, in line with available vehicle types, for the GDA is achieved.

The graph shows how the transition to zero emission vehicles for the urban bus fleet in Dublin is currently planned to take place.

Figure 12.4: Transition to Zero Emissions Buses in Dublin



12.2.5 Bus Livery

Under the BusConnects Dublin programme, the exterior and interior of buses, known as the bus livery, will be standardised across different operators to give the bus system the feeling of a modern, integrated and effective public transport system. The requirement for the adoption of a uniform brand is set out in legislation.

Initially, the rollout of the new TFI livery will be focused on new buses and coaches entering the Public Service Obligation (PSO) fleet and on routes that are launching as part of the BusConnects new Dublin Area Bus Service Network, but it will eventually also be deployed nationwide.

Measure BUS9 – Bus Livery

It is the intention of the NTA to deliver a consistent livery to all PSO buses in the Greater Dublin Area.

12.2.6 New Bus Stops and Shelters

Under BusConnects Dublin and Connecting Ireland (section 12.2.7) we will enhance bus stops in the Dublin region, with better route and fare information and with timetable information specific to each stop. All operators will adopt this style and the current assortment of poles at multi-operator stops will be removed. This new style has been specifically developed to be consistent with the new bus livery to provide

visual consistency. It has commenced rollout and will continue to be progressively installed in the coming years.

We will install more Real Time Passenger Information (RTPI) signs along the new bus corridors and elsewhere across the region, providing accurate next-bus arrival information.

Bus shelter provision will be significantly expanded as part of the BusConnects Dublin programme and Connecting Ireland (section 12.2.7). A large number of additional bus shelters will be provided in new locations, particularly where connecting services are being provided. The potential to incorporate urban design and environmentally beneficial features in new bus stops and shelters will be explored.

Measure BUS10 – New Bus Stops and Shelters

It is the intention of the NTA to continue to roll-out the program of bus stop and shelter provision, and to monitor potential for further expansion and upgrade during the lifetime of the strategy.

12.2.7 Regional Core Bus Corridors

In relation to bus travel originating outside the Metropolitan Area, it is an aim of the NTA to ensure that the reliability and efficiency of regional bus services is maximised. In order to do so, a degree of bus priority will be sought on the national routes where traffic congestion does or could cause delays to

bus/coach services, including on approaches to the M50 and the built-up area of the city. On certain corridors, the priority will then tie-in to that proposed as part of the BusConnects Dublin corridor programme and its expansion.

Seven regional bus corridors have been identified as forming part of the Core Bus Network. These are:

- **M1, via Dublin Port Tunnel**
 - Serving long distance bus routes from Belfast, Dundalk, Derry, Monaghan and Drogheda; and
 - Serving other regional bus routes from Balbriggan, Skerries and East Meath.
- **M2, via Finglas Road**
 - Serving regional bus from Ashbourne and Slane plus other locations to the north and north-west.
- **M3/N3, via Navan Road**
 - Serving regional bus from Cavan, Navan, Trim, Dunshaughlin, Kells; and
 - Serving longer distance bus from Donegal and the north west region.
- **M4/N4, via Chapelizod Bypass**
 - Serving longer distance bus from Galway, Mayo, Sligo and Midlands; and
 - Serving regional bus along M4 corridor.
- **M7/N7, via Long Mile Road**
 - Serving longer distance bus from Cork, Limerick, Waterford; and
 - Serves regional bus from Kildare, Laois and adjacent counties.
- **N81**
 - Serving longer distance bus from south-west Wicklow and east Carlow; and
 - Serving regional bus from Blessington and Baltinglass plus other locations.
- **M11/N11**
 - Serving longer distance bus from Wexford; and
 - Serving regional bus from Arklow, Wicklow and N11 corridor.

These Regional Core Bus Corridors are shown in Figure 12.5.

Measure BUS11 – Regional Core Bus Corridors

It is the intention of the NTA, in collaboration with TII and the relevant local authorities, to continue to provide enhanced levels of bus priority on the Regional Core Bus Corridors, in particular addressing sections where bus delays are caused, or will be caused in the future, by traffic congestion.

Figure 12.5: Regional Core Bus Corridors



Bus Priority in Towns and Villages

Many regional and long-distance bus services are subject to delay as they travel through towns and villages across the GDA. This has a negative impact on journey time reliability and on the attractiveness of the services as a whole. It is likely that there are opportunities for the delivery of bus priority in many of these urban areas, in the form of bus lanes, bus gates, traffic signalling or other similar arrangements, in particular where the settlement has alternatives for private car traffic such as distributor or relief roads. The NTA, with the local authorities will seek to provide such priority where traffic congestion is, or is likely to, delay bus movement. Such measures will fully take into account any policies and objectives related to the public realm and urban environment in these towns and villages.

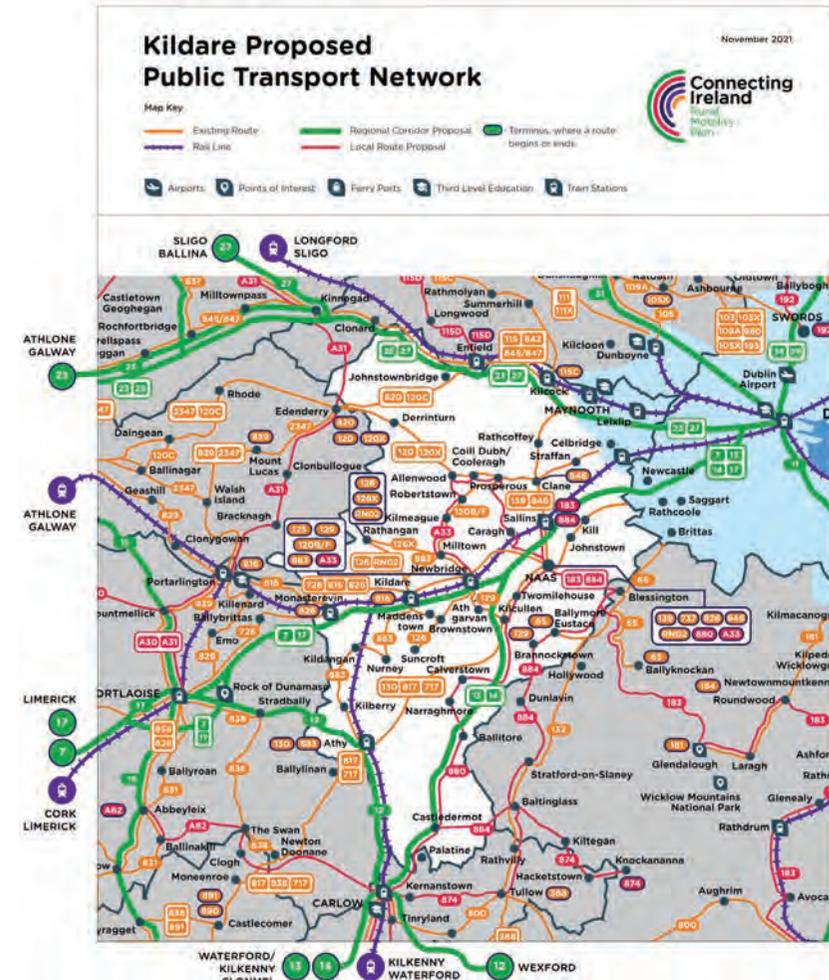
Measure BUS12 – Bus Priority in Towns and Villages

The NTA and local authorities will implement bus priority measures in towns and villages in the GDA in order to reduce delays to bus services.

12.2.8 Connecting Ireland and Further Investment

Connecting Ireland is the NTA’s programme to address the gaps in connections to local and regional centres in rural Ireland, to allow for the access to local services without the need for a car and to provide the option of more sustainable

transport across the region. It is proposed to finalise the network of services on a county-by county basis in consultation with local authorities and to undertake a full public consultation on the proposals commencing by early 2022.



Over the lifetime of the strategy, and in order to ensure that an effective alternative to the private car can be offered in rural parts of the GDA for all trip purposes, the NTA will undertake further service improvements after the initial rollout of Connecting Ireland has been completed, where demand is identified and / or where analysis of travel patterns shows a persistently high dependency on the private car. Over time, it is expected that the services provided under Connecting Ireland will grow and expand to address the need to transition a significant proportion car journeys to public transport in order to reduce greenhouse gas emissions.

Measure BUS13 – Connecting Ireland

It is the intention of the NTA to complete and implement the Connecting Ireland programme in the short term as a means of ensuring that the towns and villages of the GDA are well served by public transport.

Measure BUS14 – Regional and Rural Bus Services

The NTA will continue improving the public transport offer in rural parts of the GDA in order to meet existing and future travel demand and to reduce dependency on the private car for all trip purposes.

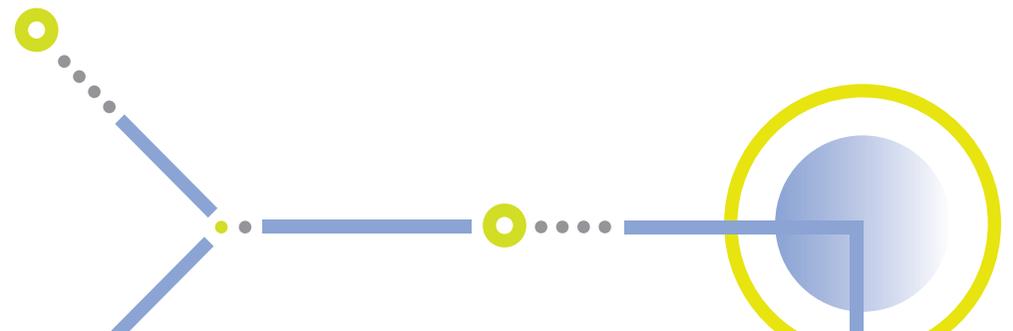
12.2.9 Local Link and Demand Responsive Services

For communities that are not in close proximity to the services operated by the main transport operators, or where more localised routes are required, Local Link can provide that public transport service. These services are managed via the NTA’s Local Link Offices, and provide scheduled routes to local communities as well as demand responsive services. Evening services are being developed to further meet the needs of the local community.

This measure will allow people who are not close to the services provided by the larger transport operators to access public transport and the services within their own community.

Measure BUS15 – Local Link and Demand Responsive Transport

It is the intention of the NTA to further develop the Local Link programme as a key element of the regional transport system, in order to ensure that rural areas are adequately served.



12.3 Light Rail

12.3.1 Introduction

Since the inclusion of a light rail network in the Dublin Transport Initiative Strategy in 1994, the reintroduction of tram services into Dublin has been a major element of successive plans and investment programmes for the regional transport system. The construction and expansion of the Luas Red and Green lines, which first opened in 2004, has been regarded as a major success characterised by enhanced connectivity; increased frequencies and capacities relative to bus; and significant positive impacts on their urban environments through which they pass.

Luas lines are significantly more cost-effective to deliver than underground Metro lines or Heavy Rail lines, the cost of which are only justifiable when the level of forecast transport demand in an area exceeds that which can be provided by one or more Luas lines. Furthermore, underground Metro lines function best in serving very high levels of demand, particularly where this occurs throughout the day in both directions such as that which would exist between a city centre and an Airport, while surface tram lines work better when providing high quality public transport connectivity in medium density settings.

As such, a network of multiple high-capacity lines incorporating bus and light rail is a more viable option in serving a city of the scale and density of Dublin in that a much wider population can be served directly with a high quality system than could feasibly be served with a more limited Metro network.



Another key benefit of this approach is that it can be delivered incrementally, both in terms of transitioning from bus to high-capacity bus and / or light rail along any corridor or, as has been the case on both the Red and Green lines in Dublin extensions have been added to the original lines as and when demand for travel justified them.

In developing this transport strategy, the NTA took all of these issues into account, and tested and appraised several options for high-capacity bus, on-street tram and Underground Metro in several locations in the GDA. In this Dublin context, analyses undertaken for this strategy determined that forecast demand for travel in advance of 2042 could only currently justify the level of investment required for an underground metro system in the Swords-Dublin Airport-City Centre corridor.

Light Rail



MetroLink

20,000
passengers per hour

Swords to City Centre in
25 minutes



Luas

Planning for
85km
of Additional Luas Lines

Luas
to Lucan, Bray,
Poolbeg and Finglas

Delivery of
30km
of New Luas Lines



Long Term Plan
to Serve Future
Development Areas



Better Interchange
with BusConnects and DART



290,000
additional daily
Light Rail passengers



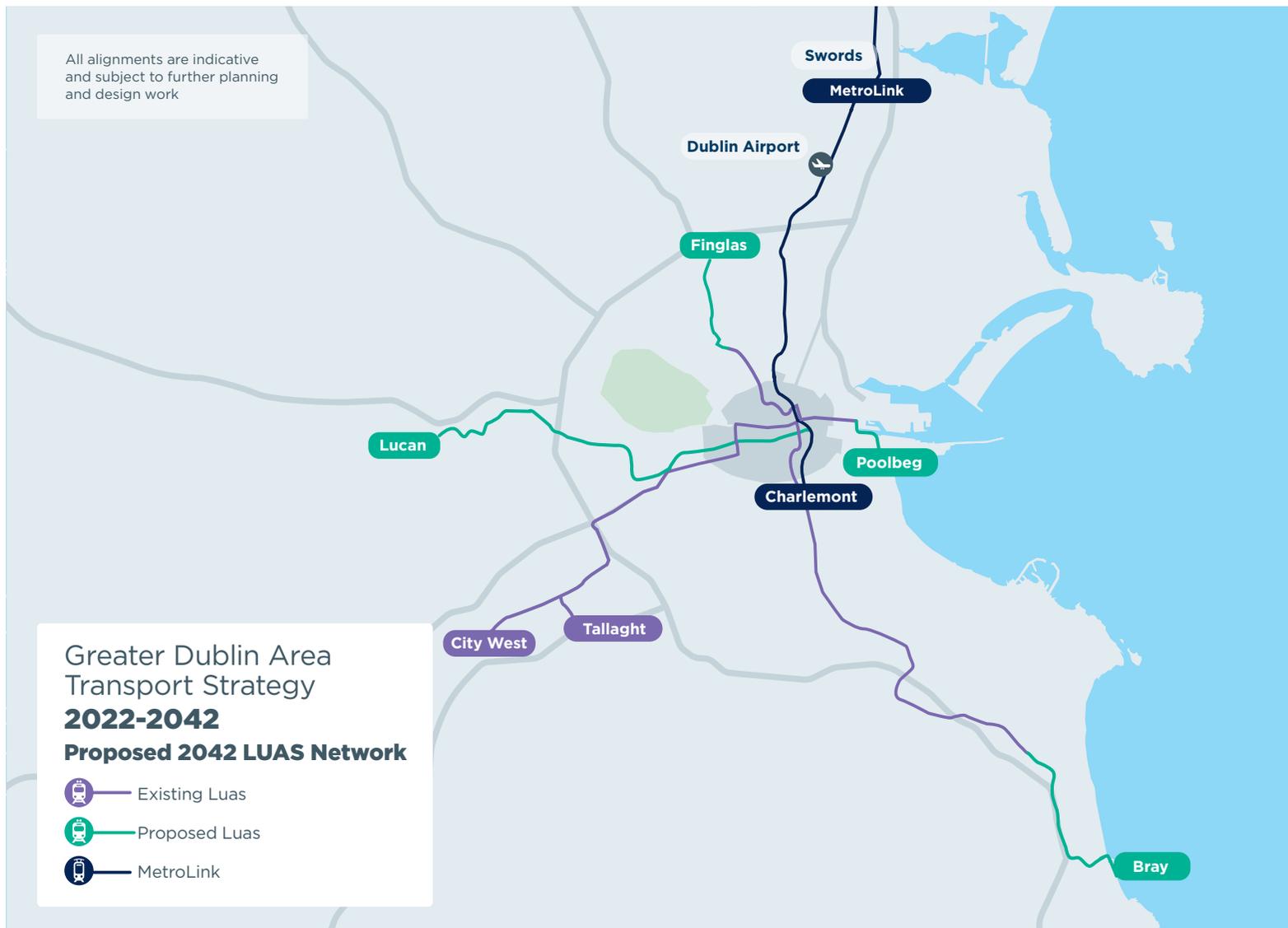
The strategy therefore proposes that demand on this corridor will be served in part by the provision of MetroLink. Given that the MetroLink infrastructure will be in place for many decades, the strategy seeks to ensure it is future-proofed so that it can be expanded if demand exceeds the current forecast

The analysis also indicated that there are a number of corridors where demand for travel post-2042 is likely to exceed that which can be served by bus and would likely require light rail lines to be developed.

As such, the Transport Strategy maintains the proposed Luas network from the 2016 Transport Strategy, complemented by the introduction of higher capacity bus vehicles as set out in section 12.2.3. The proposed 2042 Light Rail Network is shown in Figure 12.6. Additionally, the Transport Strategy includes a transport network for implementation post-2042 where further light rail lines are likely to be required (Figure 12.7).



Figure 12.6: Proposed 2042 Light Rail Network



12.3.2 Metrolink

In the Transport Strategy, the term Metro is used to describe a fully-segregated light rail system. It has a potential capacity significantly higher than Luas and can run at much greater speeds as there is no interaction with other transport modes. In order to provide this level of service, however, substantial sections of these systems are required to operate underground and are therefore more expensive than Luas.

The proposal to serve the northern suburbs of Dublin City, Swords and Dublin Airport by a direct rail line from the City Centre has been a long-standing objective of transport planning in Dublin. This is based on the forecast travel demand along this corridor. Swords had a population of just under 40,000 in 2016 and is planned to grow significantly. Dublin Airport is Ireland's main international gateway and, post-pandemic, is forecast to grow in terms of passenger numbers and employee numbers. Between the Airport and the South City Centre terminus, there are also major population centres such as Ballymun and Glasnevin, plus the North City Centre defined by its commercial, retail and cultural attractions.

The current Metrolink project has been identified as the most advantageous way to serve the critical levels of transport demand on this corridor. The Preferred Route for MetroLink, which runs from Estuary in North Dublin to its south city terminus at Charlemont was determined following the completion of a comprehensive route options assessment study, which was also informed by the outcome from two rounds of non-statutory public consultation.

MetroLink will provide key interchange with other transport modes at several locations including Dublin Airport, Glasnevin, Tara Street and Charlemont.

The south city terminus at Charlemont offers the optimal location for interchange with the Green Line in response to growing demand in the longer term and is an appropriate location to facilitate any potential future metro extensions to serve the south west, south or south east of the city region should sufficient demand arise.

MEASURE LRT1 - Metrolink

It is intended to seek planning consent for MetroLink in 2022 and, subject to receipt of approval, to proceed with the construction of the project.

12.3.3 Luas

As set out in section 12.1.3, in analysing forecast demand for travel as part of the strategy development work, it emerged that there will be a number of corridors where the level of demand for travel will grow to higher levels than can be catered for by bus at some point beyond 2042. In such cases these corridors will have their passenger carrying capabilities increased by transitioning to higher capacity Luas systems. As such the Luas network in the Transport Strategy can be categorised in the following manner:

1. Existing lines;
2. Lines to be delivered by 2042; and
3. Lines to be delivered after 2042.

In those cases where additional capacity along a bus corridor may be required, it is anticipated that the bus priority delivered under the BusConnects Core Bus Corridors will provide the basis of the higher capacity intervention, with combined services, including combined light rail/bus services, potentially operating on the particular corridor. However, in some cases alternative alignments may be identified following assessment studies.

This section therefore sets out the proposed light rail elements of the comprehensive public transport network for Dublin in 2042, and a suite of further light rail lines that will be planned and designed over the strategy period for delivery after 2042.

12.3.4 Finglas

The Green Line extension to Broombridge (Luas Cross City) was opened to passenger service in 2017. It has long been planned that this line would eventually be extended to serve travel demand from Finglas, inclusive of a potential park and ride facility at or close to its terminal stop. In recent years, the NTA with TII have sought to identify an Emerging Preferred Route for this project and details of this were published in 2020. It is the intention to complete detailed design and

planning over the coming years and to progress the scheme to construction.

Measure LRT2 - Luas Finglas

It is intended to extend the Luas Green Line northwards to Finglas, inclusive of a potential park and ride facility at or close to its terminal stop.

12.3.5 Lucan

Based on work carried out previously, and further subsequent analyses, the NTA is satisfied that sufficient demand for a light rail line from the city centre towards Lucan exists and that a project should be pursued to meet this demand.

The alignment and the locations to be served between Lucan and the City Centre have yet to be determined and will be subject to further assessment and analyses.

Measure LRT3 - Luas Lucan

It is intended to develop a light rail line from Lucan to the City Centre, supplementing and complementing the planned bus system, to serve the overall public transport needs in this area.

12.3.6 Bray and Environs

Based on work carried out previously, and further subsequent analyses, the NTA is satisfied that sufficient demand for the extension of the Luas Green Line from Bride's Glen to Bray exists and that a project should be pursued to meet this demand.

The alignment and the locations to be served between Bride's Glen and Bray have yet to be determined and will be subject to detailed design and planning work.

Measure LRT4 - Luas Bray

It is intended to extend the Luas Green Line southwards in order to serve the Bray and Environs area.

12.3.7 Poolbeg

The Poolbeg Strategic Development Zone (SDZ) and potential further growth in its environs will lead to increased demand for travel from this sector of the city. Analysis undertaken on the Transport Strategy indicates that this demand may be catered for by bus, cycling and walking up to 2042, however, depending on the scale and phasing of development, it may be necessary to consider delivering Luas to this area during the later periods of the Transport Strategy.

The alignment and locations to be served between the existing Red Line and Poolbeg have yet to be determined and will be subject to detailed design and planning work. Work undertaken to date in the regard will form a key input into this assessment.

Measure LRT5 - Luas Poolbeg

Subject to the assessment of forecast travel demand arising out of development patterns in the SDZ and its environs, it is intended to extend the Red line to Poolbeg.



12.3.8 Additional Luas Lines Post-2042

As referenced in sections 12.1.3 and 12.3.3, the analysis undertaken for the Transport Strategy indicates that a number of corridors in the GDA will, in the longer term, generate travel demand above that which can be catered for by higher capacity bus systems and are likely to require upgrading to light rail in the period after 2042.

The NTA is of the view that it is prudent to identify these corridors in this Transport Strategy in order to set out a longer-term framework for transport investment in the GDA and to ensure that planning and design work can commence during the strategy period.

The detailed alignments and locations to be served will be subject to these assessments. It is likely, however, that due to capacity constraints on the existing Luas lines, a reconfiguration of both lines will be required to meet additional demand arising from development in locations such as the Naas Road, Cherrywood, and sites to the west of the N/M11.

This network is shown in Figure 12.7.

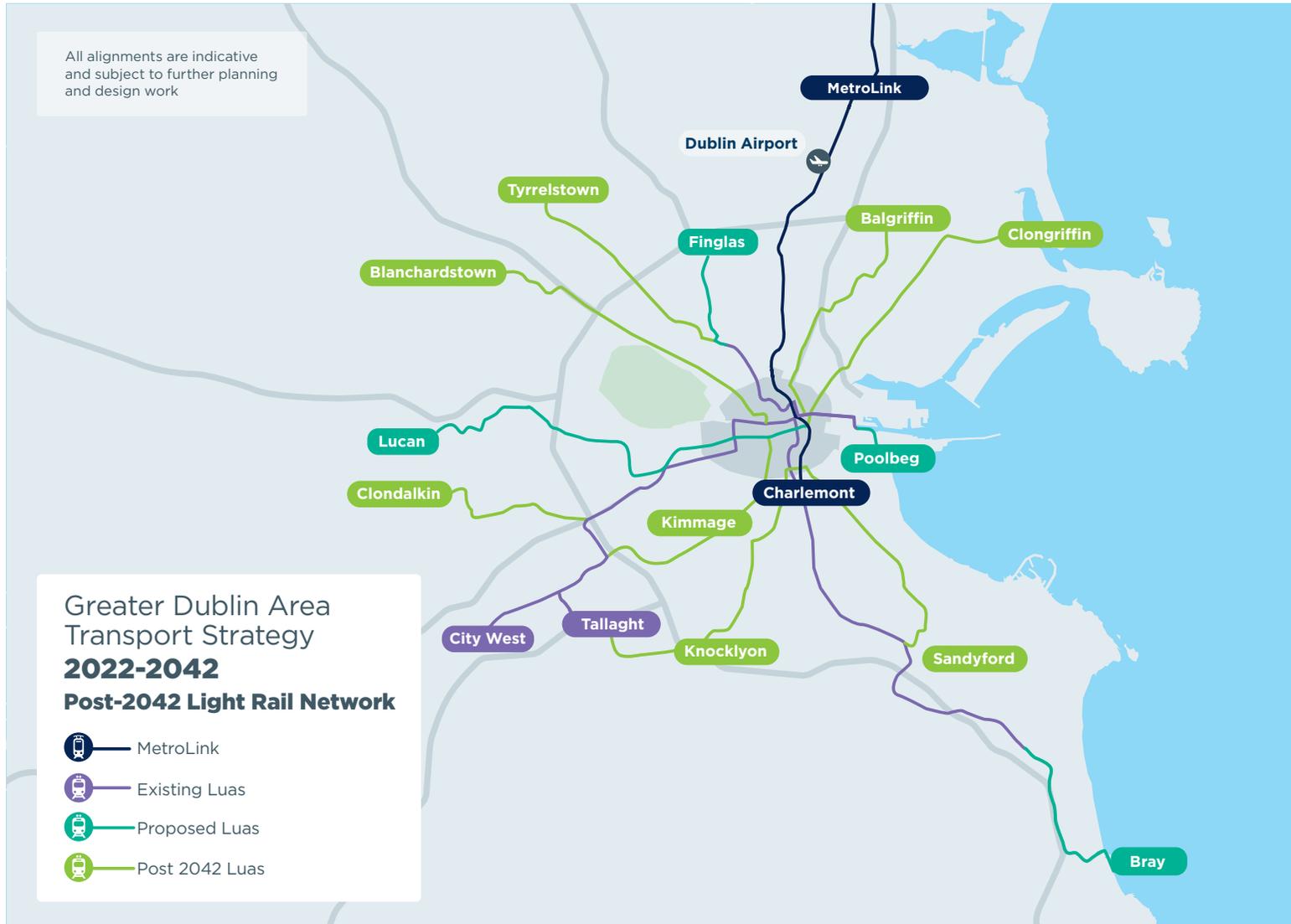


Measure LRT6 – Post-2042 Luas Lines

The NTA will undertake detailed appraisal, planning and design work for the following Luas lines, with a view to their delivery in the period after 2042:

1. City Centre to Clongriffin;
2. City Centre to Beaumont and Balgriffin;
3. Green Line Extension to Tyrrelstown;
4. City Centre to Blanchardstown;
5. Red Line Reconfiguration to provide the following lines:
 - a. Clondalkin-City Centre; and
 - b. Tallaght-Kimmage-City Centre.
6. Tallaght to City Centre via Knocklyon; and
7. Green Line Reconfiguration to provide the following lines:
 - a. City Centre to Bray via UCD and Sandyford; and
 - b. Sandyford to City Centre

Figure 12.7: Post-2042 Light Rail Network



12.3.9 Orbital Luas

The analysis undertaken for the Transport Strategy indicated that demand for orbital public transport in the Metropolitan area during the period of the strategy can be satisfactorily accommodated by bus. These requirements may change in line with land use planning and development patterns as they may emerge over the coming years. As such, the requirement for a higher capacity system will be monitored as part of the periodic review of the Transport Strategy, with a view to identifying and protecting alignments, as required, for delivery after 2042.

Measure LRT7 - Orbital Luas

During the latter half of the period of the Transport Strategy, and subject to assessment, it is intended to identify and protect an alignment or alignments for orbital light rail to meet increased demand in Metropolitan Dublin.

12.3.10 Luas Green Line Upgrade

The challenges associated with the upgrading of the Luas Green Line to a metro standard of service have led to the emergence of an alternative proposal which seeks to meet travel demand from south of Sandyford along a new light rail corridor which serves UCD post-2042. As such, the upgrading of the Green Line to metro standard is not required as part

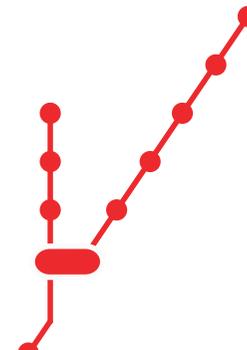
of this strategy. Instead, for this strategy period, the capacity and frequency on the current Green Line from Sandyford northwards to the city centre will be incrementally increased through the provision of additional tram fleet and services and associated turnback arrangements to meet forecast passenger demand.

Measure LRT8 - Luas Green Line

During the period of this strategy, it is intended to deliver significant additional capacity on the Luas Green Line through the provision of additional fleet and necessary infrastructure to meet forecast passenger demand.

12.3.11 New Light Rail Stops

In the delivery of light rail lines, the frequency of stops is a critical concern. Generally, Luas stops are more frequent than heavy rail or Metro stops but less frequent than bus stops. On the existing Red and Green Lines, there is limited potential for new stops. However, the NTA and TII will explore options for additional tram stops where demand for travel is identified.



Measure LRT9 – New Light Rail Stops

The NTA, in conjunction with TII, will monitor the changes in demand for travel on the Green and Red lines and consider the development of additional stops where sufficient passenger usage has been identified.

12.3.12 Enhanced Priority for Trams

The Luas, as an on-street system, is subject to interactions with other transport modes. This provides a challenge in achieving competitive and consistent journey times and reliability, in particular as trams travel through the city centre. This is most evident on the Red Line from Heuston to Connolly, where it traverses a number of important bus corridors and the core O’Connell Street bus and Luas corridor, as well as passing Busáras.

This issue leads to “bunching” of trams and ultimately the inefficient use of the available capacity. Often trams which have been subject to delay become overcrowded at peak hours while the next tram which arrives very soon after, is not close to capacity. It also makes it difficult to add capacity to these sections of the line.

The NTA view it as essential that high-capacity public transport services are given sufficient priority on the street network in order to achieve effective operations. This is of

increased importance as additional Luas lines are added into the transport environment as proposed in the Transport Strategy. This may require grade separation of some crossing movements, particularly in the City Centre.

Measure LRT10 – Enhance Priority for Trams

The NTA, in conjunction with TII and the local authorities, will explore how best to manage the road and street network to:

- ensure reliable and competitive journey times for Luas;
- maximise service efficiency; and
- enable capacity to expand in line with increase future demand.

12.3.13 Expanded Depots

As services expand, the need for depot space also increases. The extension of the Green Line to Finglas requires an extension to the depot facilities at Broombridge, while Metrolink will include a depot at at Dardistown, south of Dublin Airport. As service capacity increases are sought on the existing Green and Red lines, and as other lines are developed, the requirement for associated depot facilities will also be examined.



12.4 DART+ and Rail

12.4.1 Introduction

The spine of the Dublin transport system has historically been provided by the heavy rail network, in particular by the east coast suburban line since its electrification in 1984. In 2019, 35.6 million journeys were undertaken on Dublin Commuter and DART services, up from 25.9 million in 2013. According to the NTA / Dublin City Council Canal Cordon Count in 2019, 17% of all trips into Dublin City Centre in the AM Peak were undertaken by Heavy Rail. As passenger numbers recover from the pandemic, and as further development occurs along heavy rail lines, it is anticipated that this mode will play an increasingly important role in the GDA transport system. The proposed 2042 DART and Commuter Rail shown in Figure 12.8 and the combined DART, Commuter Rail and Light Rail network is shown in Figure 12.9. The potential combined DART, Commuter Rail and Light Rail network post-2042 is shown in Figure 12.10.

12.4.2 DART+

The current electrified DART network is 50km long, extending from Malahide and Howth in the north to Greystones in the south. The DART+ Programme seeks to increase this electrified network to 150km, in order to facilitate increased train capacity to meet current and future demands which will be achieved through a modernisation of the existing railway corridors. It will also contribute to Ireland's transition to a low carbon and climate resilient society.

Rail



DART Services
on all lines into Dublin

DART Extension
to Kilcock, Naas and Wicklow



Over
100km
of new electrified rail lines



Deliver Rail Line to
Navan



8 New Train Stations



Delivering High Quality Rail to serve
Major Housing
Development Areas



**New MetroLink /
DART Interchanges**
at Glasnevin and Tara Street



65,000
additional daily
Rail passengers



Figure 12.8: Proposed 2042 DART and Commuter Rail Network

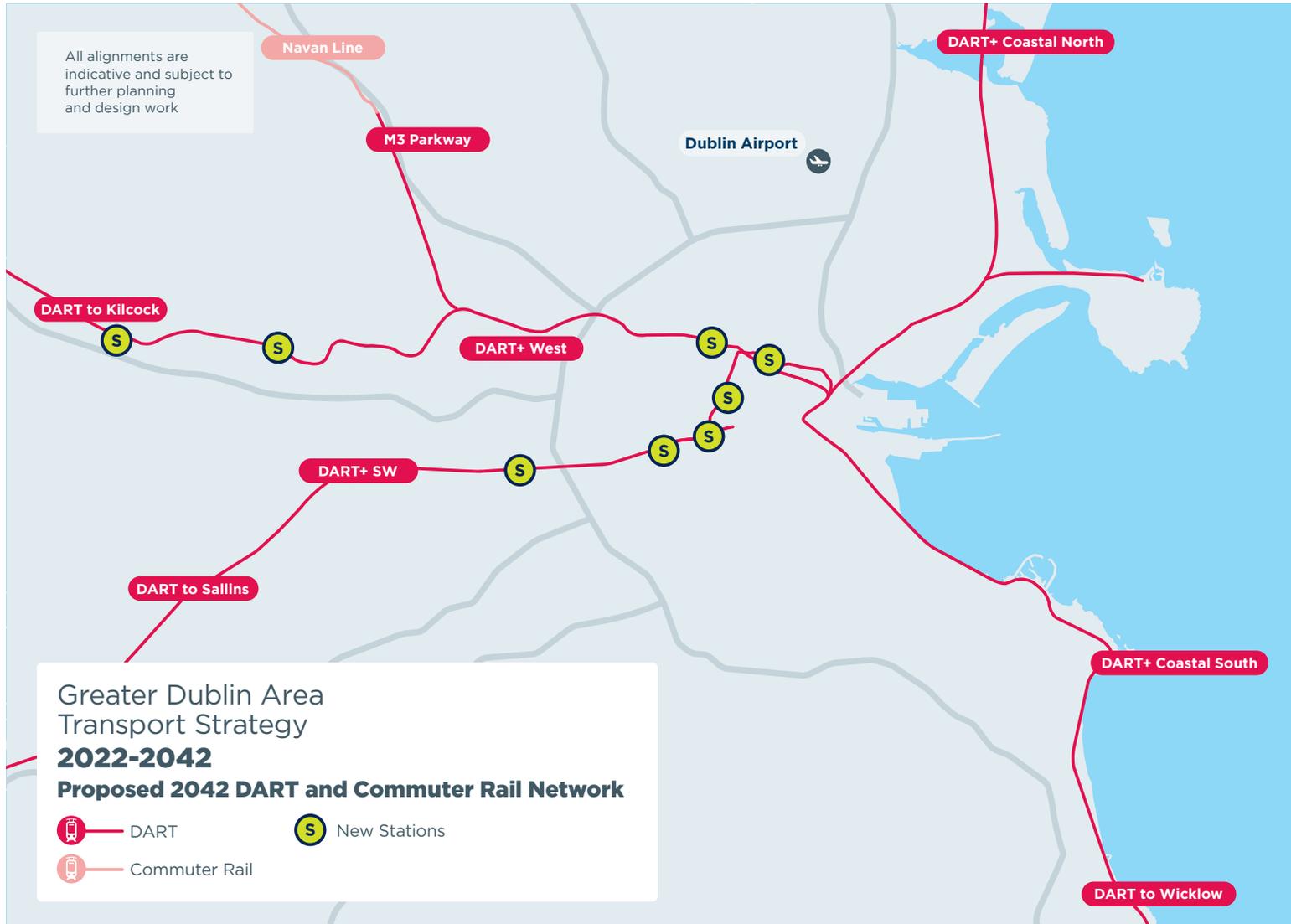


Figure 12.9: Proposed 2042 Combined Rail Network



Figure 12.10: Post-2042 Combined Rail Network



The DART+ Programme was launched in 2019 and, in addition to fleet expansion, comprises 4 main projects based on corridors as follows:

12.4.3 DART + West

DART+ West includes the following:

- Electrification of the Maynooth line from City Centre to Maynooth (40km approx.);
- City Centre enhancements at Connolly;
- Construction of a new DART depot facility west of Maynooth Station;
- Integration with a combined metro / rail station to be developed at Glasnevin under the MetroLink project to serve both the Maynooth Line and Kildare Line;
- Elimination of level crossings;
- Relocation of Docklands Station to integrate with Luas and better serve routes entering the City Centre; and
- New grade-separated pedestrian, cycle and vehicle crossings as required.

12.4.4 DART + South West

DART+ South West includes the following:

- Electrification of Kildare Line from Dublin Heuston to Hazelhatch-Celbridge;

- Widening of the railway corridor and completing four-tracking between Park West Station and Dublin Heuston; and
- Addressing constraints within the Phoenix Park tunnel to support increased frequency of trains.

12.4.5 DART+ Coastal North

DART+ Coastal North includes the following:

- Electrification and re-signalling from Malahide to Drogheda;
- Subject to modelling and assessment, station modifications to enhance train service capacity (Howth Junction, Clongriffin, Malahide & Drogheda); and
- Re-configuration and upgrading of existing rail depots at Drogheda & Fairview.

12.4.6 DART+ Coastal South

DART+ Coastal South includes the following:

- Elimination of level crossings to reduce rail/road conflict that limits train capacity;
- Provision of new grade-separated pedestrian, cycle and vehicle crossings as required;
- Subject to modelling and assessment, station modifications at Bray and Greystones to enhance train service capacity; and

12.4.7 Fleet Procurement

The DART+ Programme will be accompanied by a significant investment in rail carriages which will be required to serve these corridors. The new fleet will either be fully electric train sets or battery electric fleet which can operate in advance of full electrification, using terminal charging arrangements.

In addition, the train sets providing the Enterprise service between Dublin and Belfast will be replaced as part of a renewal programme for this service.

Measure RAIL1 - DART+

The DART+ Programme will be implemented, providing electrified services to Drogheda in the north and Maynooth plus Celbridge in the west, in addition to an enhanced level of service to Greystones. The programme will include additional fleet, aligned with higher passenger demand, and a higher frequency of service on all lines.

12.4.8 DART+ Tunnel

“The DART+ Tunnel project is an updated version of DART Underground which received planning consent in 2010. This scheme was not brought forward at that time, primarily due to funding constraints and also due to the potential to utilise the Phoenix Park Tunnel for passenger service.

Since then, the Phoenix Park Tunnel link has been brought into operational service, providing connectivity from the Kildare line to the city centre stations of Connolly, Tara and Pearse. In addition, the NTA and Irish Rail have reviewed the tunnel project in order to further optimise its potential and ensure that its progress would deliver the maximum benefits for transport in the city-region.

The NTA are satisfied that, in the longer term, the requirement for an additional heavy rail line through Dublin City Centre will arise. As such, an alignment for the DART+ Tunnel will be preserved and protected to allow its future delivery subsequent to the strategy period. However, the timing of implementation of the DART+ Tunnel will be reassessed as part of the periodic reviews of the Transport Strategy and its implementation can be brought forward if required by emerging transport patterns.

Measure RAIL2 - DART+ Tunnel

An alignment for the DART+ Tunnel will be preserved and protected to allow its future delivery subsequent to the strategy period, but subject to periodic review to determine whether earlier implementation is required by emerging transport patterns.

12.4.9 Further Extension of DART

Forecast demand for travel, when considered in tandem with the need to reduce transport emissions, has shown that, over the

lifetime of the Transport Strategy, there will be a requirement to extend the DART+ programme to key locations in the GDA. An extension of the DART service on the Kildare Line to Naas / Sallins will provide additional capacity to this area, including to the planned regional Park & Ride site in this vicinity.

Given its location within the Dublin Metropolitan Area and the associated potential for growth, it is considered that it will be necessary in the future to extend some DART services to commence and terminate at Kilcock.

On the South-East Line, the extension of electrified services to Wicklow town would provide a significant enhancement of rail service to this county town, which will alleviate some of the road congestion pressures along this overall transport corridor.

As part of the development process for these projects, the potential for further extension of electrified services on these lines may be considered and may be brought forward for implementation. Accordingly, the proposed terminal points of the DART network may be further broadened as part of the design development process.

Measure RAIL3 - DART Extension

The NTA and Irish Rail will, over the lifetime of the Strategy, extend the DART to deliver electrified rail services to the following towns:

- Sallins / Naas;
- Kilcock; and
- Wicklow



12.4.10 Navan Rail Line

Navan is the administrative centre and largest urban centre in County Meath and has experienced rapid population growth over the last two decades, with its population increasing by 20% between 2006 and 2016 alone, contributing to a projected population for Meath of up to 250,000 by 2040.

A significant proportion of the county's population, particularly along the N3/M3 corridor, travel to and from Dublin City each day for employment and education purposes. Currently, those travel choices are largely limited to car and bus, with some interchange to rail possible at Dunboyne/Pace.

Having regard to the commuting patterns from this area and analysis work undertaken for rail provision along this corridor, it is proposed to extend the rail system from the M3 Parkway terminus station (just west of Dunboyne) to Navan town, serving Dunshaughlin and Kilmessan along its route.

Measure RAIL4 - Navan Rail Line

The existing rail network in the GDA will be extended by the provision of a new rail line from the M3 Parkway terminus station (just west of Dunboyne) to Navan town, serving Dunshaughlin and Kilmessan along its route.

12.4.11 Regional and Intercity Services

The NTA will support the delivery of improved regional and intercity services to enhance connectivity within and to the GDA. The improvement of frequency and capacity of services will help to promote public transport usage between settlements within the GDA. The NTA will continue to work with Irish Rail to make improvements to services within the region.

As part of these improvements, the NTA, in conjunction with Irish Rail, will undertake an assessment of the need for further infrastructural enhancements on the Northern Line to facilitate the combination of intercity and commuter services on this line.

Measure RAIL 5 - Regional and Intercity Services

The NTA will continue to work with Irish Rail to improve regional and intercity services which will benefit connectivity within and to the GDA.

12.4.12 New Rail Stations

As the commuter rail network is electrified under DART+, the benefits in terms of improved and more uniform train speeds and frequencies along these lines can facilitate additional stops. As such, high levels of public transport accessibility can be spread to locations which currently accrue little gains from the presence of a rail corridor. Similarly, as development patterns

evolve within Dublin and in regional towns, there may be merit in considering moving stations to capture new demand, in particular if demand at the existing location is low or access is constrained.

The provision of a new station at Woodbrook, north of Bray, is well advanced and will be delivered in the short-term. Similarly, as development commences at the Clonburris SDZ and demand for travel emerges, Kishoge station will be opened to passenger use. New stations are also planned for Heuston West, Cabra, Glasnevin and Kylemore. In addition to these, a number of stations will be provided which will serve strategic Park and Ride sites, including west of Sallins and west of Louisa Bridge.

Measure RAIL6 - New Rail Stations

The NTA, in conjunction with Irish Rail, will develop new rail stations at Cabra, Glasnevin, Heuston West, Kylemore, Woodbrook, west of Sallins, west of Louisa Bridge and west of Maynooth. Kishoge station will also open in the short term as development of the Clonburris SDZ is realised. Other stations will be considered where development patterns support such provision.

12.4.13 Upgrades to Existing Stations

The maintenance of train stations in terms of general upkeep is a factor in people's choice to use this mode of travel. This can relate to lifts (dealt with under Inclusion), escalators, passenger information signs and literature; toilets; bins and litter; as well as the overall upkeep in terms of visual attractiveness. Many stations in the GDA are in need of investment in order to make them more comfortable for passengers and more attractive. The NTA and Irish Rail will continue to invest in rail station buildings and supporting infrastructure.

In addition, a major upgrade of Tara Station will be undertaken to facilitate enhanced interchange between MetroLink and the DART network.

12.4.14 National Train Control Centre

The development of a new control centre for the national rail network was an objective of the previous transport strategy, as the existing traffic control centre was approaching the limit of its capacity with systems and equipment nearing the end of their useful lives. This project commenced construction in 2020 with the building element intended to be completed in 2022, and the control centre forecast to be fully operational in 2025.

Measure RAIL7 - Station Upgrades

The NTA, in conjunction with Irish Rail, will upgrade, refurbish and maintain train stations across the GDA to ensure that they are of an appropriate standard and provide a good quality experience for passengers.

Measure RAIL8 – National Train Control Centre

The NTA and Irish Rail plan to complete the National Train Control Centre in 2025.

12.4.15 Passenger Information

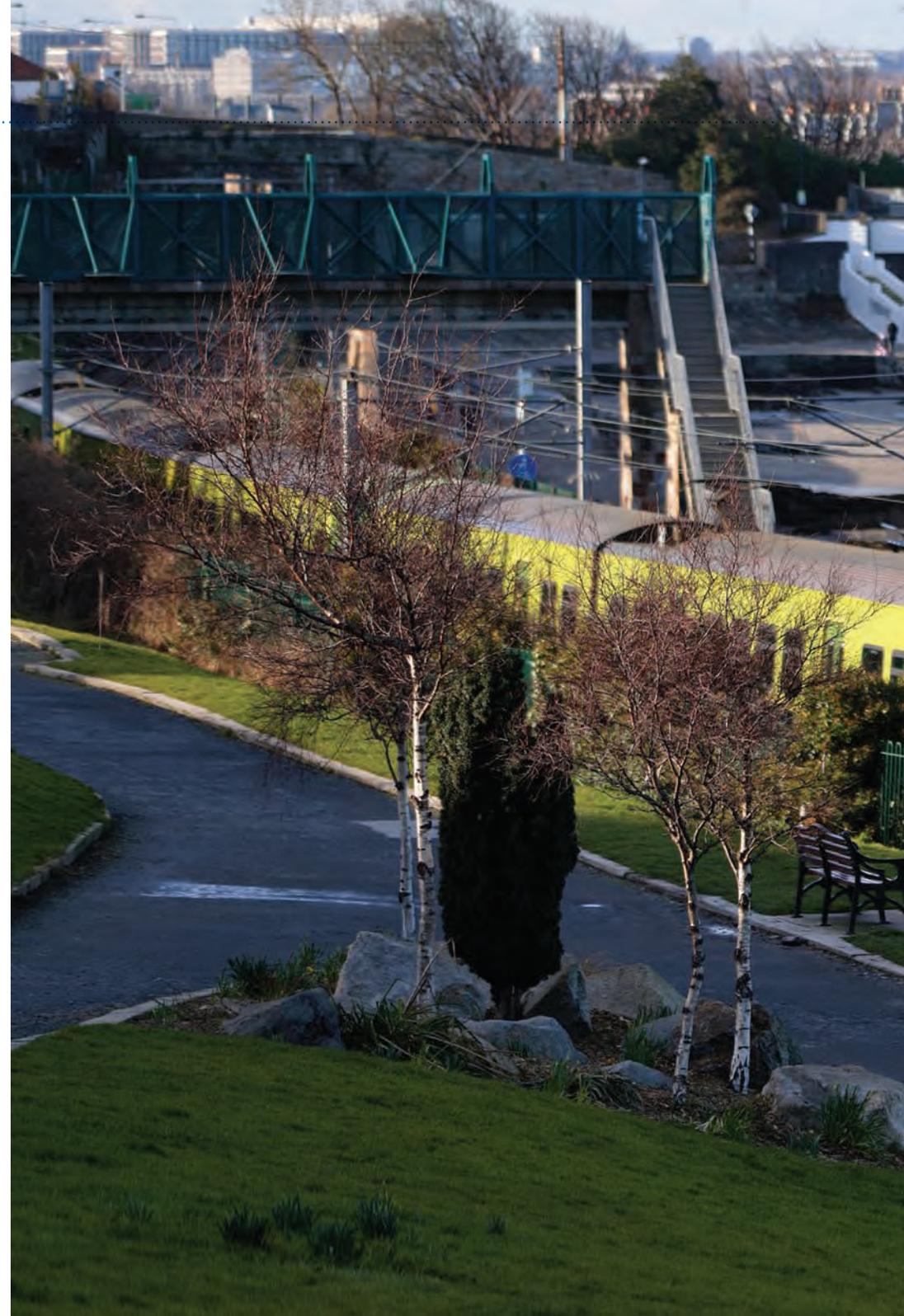
The provision of clear and concise information to transport users is a critical component of a successful transport system. Accurate and reliable information, such as train arrival / departure times and next stop announcements all form part of the required information for train users. Substantial investment will be undertaken to upgrade and better integrate the various information systems related to the heavy rail services.

12.4.16 Improved Security

Similar to the light rail network, anti-social behaviour can be an issue both on DART, Regional and Intercity rail services, and at stations. There are a number of measures that the NTA, Irish Rail and other government agencies can deliver in order to mitigate this issue.

Measure RAIL9 – Security of Rail System

The NTA, in conjunction with Irish Rail and An Garda Síochána, will implement enhanced security measures on the rail network as appropriate, including CCTV, and increased numbers of security personnel when and where appropriate.







13. Roads

13. Roads

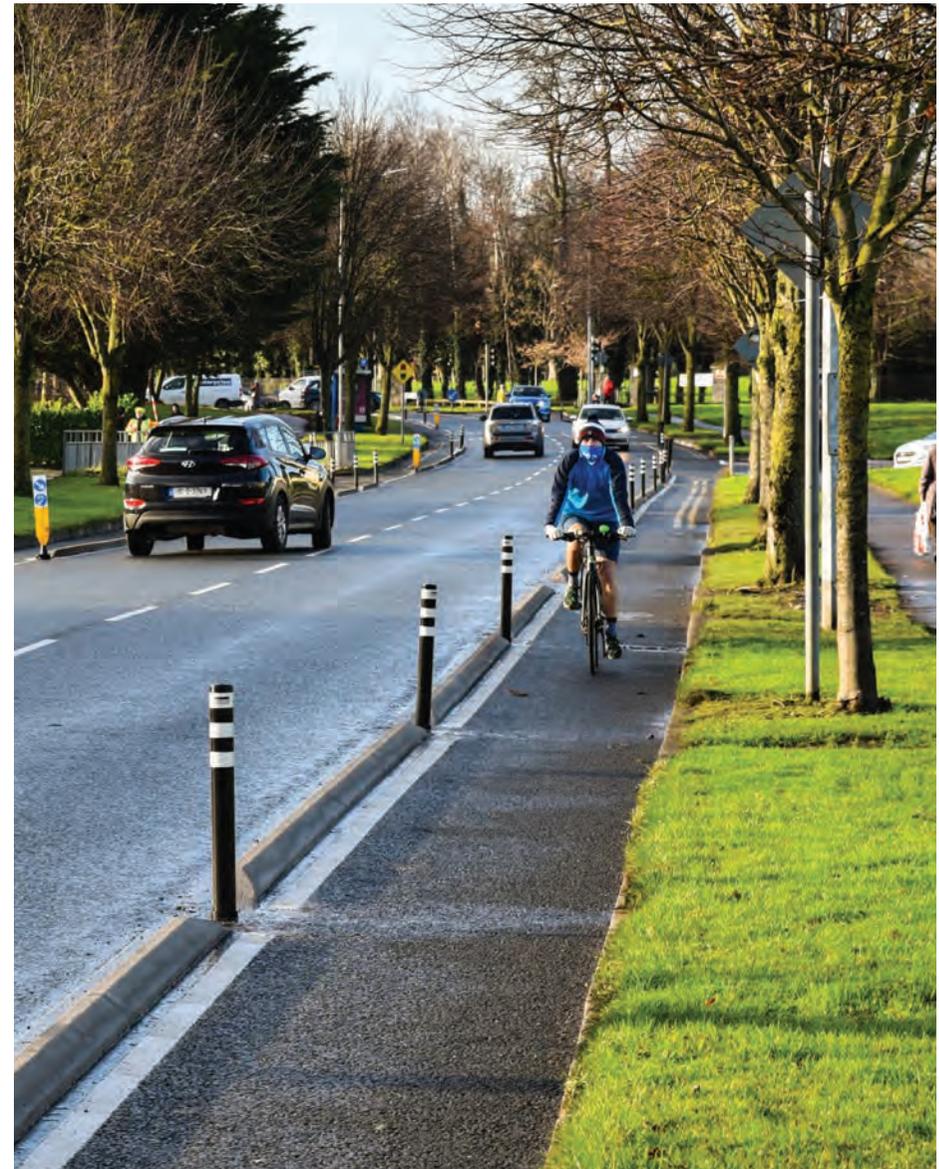
13.1 Introduction

Roads form the main transport arteries across the State and provide the corridors by which not just car movement, but public transport (buses, taxis and some sections of Luas), cycling, walking and freight movement operates. As such they are a critical part of an effective and sustainable transport system.

The Greater Dublin Area has a large network of national, regional and local roads and streets, which includes not only the roads themselves but also bridges and a tunnel, cycle facilities, footpaths, signposting and markings, traffic signals and sophisticated traffic and transport management systems.

A key focus of the Transport Strategy is the provision of safe, resilient road transport routes and liveable streets within the context of the need to support sustainable development principles and legislative commitments to decarbonise the transport sector in Ireland.

The first priority for road investment will be the expenditure required to maintain, renew, manage and operate that extensive infrastructure. It is also proposed to undertake a limited number of new projects, details of which are set out in the following sections.



13.2 Principles for Road Development

Given that national transport policy seeks a reduction in the growth in car travel and an increase in the use of public transport, cycling and walking, it is important that certain principles are reflected in the development of individual road projects within the GDA. Accordingly, it is intended that road development in the GDA will be undertaken in accordance with the following principles:

Measure ROAD1 – Principles of Road Development

1. That there will be no significant increase in capacity for private car trips on radial roads within the Metropolitan Area, except where re-alignments or junction changes are necessary for safety reasons;
2. Provision will be made for steady state investment in the GDA's road network;
3. That a proposed road scheme will only proceed where it has been satisfactorily demonstrated that **(a)** alternative solutions, such as public transport provision, traffic management and/or demand management measures, cannot effectively address the circumstances prompting the proposed road scheme *or*

(b) that these alternative solutions are not applicable or appropriate in the particular circumstances

4. That road schemes, other than a motorway or protected road, will be designed will be designed to provide safe and appropriate arrangements to facilitate walking, cycling and public transport provision, including as applicable, the delivery of walking and cycling facilities off line where this is considered to be a more attractive solution for these modes;
5. That where a road scheme comprises an urban bypass, measures must be proposed and implemented to reallocate road space within the bypassed area to sustainable transport and/or public realm improvements;
6. That the travel demand or the development needs giving rise to the road proposal are in accordance with regional and national policies related to transport, land use and development planning; and
7. That the development of the road scheme does not diminish in any significant way the expected beneficial outcomes of the Transport Strategy.

Road



Protect the Strategic Function of
Motorways and National Roads



Reallocation of Roadspace
to Sustainable Modes



N2
Upgrade

N/M11
Upgrade

Deliver
N3-N4
Link



Delivery
of Southern Port Access Route



Online Improvements
for Orbital Traffic



Improved Resilience
for National Road Network



13.3 National Roads

There is a clear need to minimise the impacts of increased congestion on the national road network and keep these vital national transport arteries operating satisfactorily at all times in so far as practicable. To facilitate the delivery of the National Planning Frameworks NSO2 (Enhanced Regional Accessibility) and NSO6 (High-Quality International Connectivity) within the GDA, improving the resilience and safety of the national road network in order to maintain its reliability and functionality will be critical. The approach taken will be to extend the life and optimise the use of the existing network and, where appropriate, minimise the need to build new infrastructure.

13.3.1 National Roads Requirements

With the above in mind, the requirements for the GDA national road network are set out below. These are complementary to the Section 28 Spatial Planning and National Roads Guidelines for Planning Authorities (2012):

Measure ROAD2 - National Roads Requirements

1. The primary function of national roads is to cater for strategic traffic and this function must be protected;

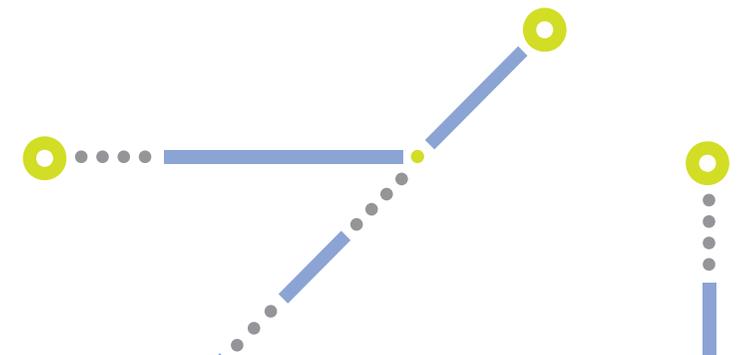
2. Strategic traffic, in the context of national roads, is primarily comprised of inter-urban and inter-regional traffic. This includes vehicles involved in the transportation of goods and products, especially those travelling to and from the main ports and airports, both freight and passenger related. It also includes cars, buses and other public service vehicles which contribute to national and regional economic development;
3. Within the GDA, the asset value, reliability and functionality of the national road network will be protected and maintained;
4. Secondary local functions should not be encouraged, or planned for, on national roads in the GDA;
5. National roads are not to be developed or planned, to support the continued urban expansion through the zoning of residential land uses adjacent to or within national road corridors;
6. Secondary local function traffic on national roads can be accommodated insofar as it does not impact on the primary function, which is to cater for strategic traffic;
7. If secondary functions impact on the primary function of national roads, then demand management measures should be considered to mitigate this impact;

8. Network resilience will be delivered by enhancing Motorway Operation Services within the GDA, as appropriate; and
9. The primary functions of the Dublin Tunnel will be maintained and protected. These functions are to facilitate the movement of goods vehicles between Dublin Port and the national road network and to facilitate access to the City Centre for public transport service vehicles, whilst also facilitating the 'strategic' movement of goods to and from Dublin City Centre, subject to appropriate vehicle size and time restrictions. It is also essential that the structural integrity of the Tunnel from incompatible over ground development is ensured.

13.3.2 National Roads Projects

During the period of the Strategy it is intended to further manage, develop and enhance the national road network including the delivery of the following projects:

- Improvements to the Lissenhall junction on the M1, supporting the delivery of a Metrolink Park and Ride facility at this location;
- N2 Slane Bypass and associated public realm and sustainable transport enhancements in Slane Village;
- N2 Upgrade from the M2 Rath Roundabout to Kilmoon Cross to address safety issues;
- Junction enhancements and lane layout changes, including bus lane provision, to enhance safety, legibility and bus priority along the N3 between Junction 1 and Junction 4;
- Improvements to junctions 5, 6 and 7 on the M4 in order to address queuing onto the mainline and associated traffic safety issues plus the provision of bus priority between Junctions 5 and 7;
- The removal of all direct uncontrolled accesses onto the N7 between the M50 and Naas, in accordance with the EU Guidelines for the Development of the Trans-European Transport network and the implementation of measures to facilitate efficient bus operations;
- Safety, alignment and bus priority enhancements to the N81;
- The provision of bus priority on the N/M11 corridor and the implementation of measures which protect the capacity of the mainline for strategic traffic;
- Various enhancements and measures to protect the strategic function of the M50 for the efficient movement of people and freight; and
- Various projects and schemes to protect the steady-state condition of the national road network and to improve safety.





Measure ROAD3 – National Roads Projects

It is the intention of the NTA and TII to deliver the national road schemes listed in the Transport Strategy, subject to their appraisal against national and regional policies and objectives.

13.3.3 Eastern Bypass

The Eastern Bypass scheme would comprise an extension of the M50 from the Dublin Tunnel to Sandyford completing a full orbital motorway around Dublin. Dating back many decades, updated assessment work, taking account of current transport policies, has identified that the scheme is no longer required to be developed. Accordingly, it is not intended to progress this project as part of this Transport Strategy.

Subject to the retention of a corridor reservation for the South Port Access Route (detailed later), the lands reserved for this scheme in the Dublin City Development Plan, Poolbeg Strategic Development Zone Planning Scheme and Dún Laoghaire Rathdown County Development Plan can be released for development. In relation to the southern section, the NTA is of the view that the lands reserved in the Dún Laoghaire Rathdown County Development Plan for this scheme from the Stillorgan Road to Sandyford should be reserved, pending the outcome of an assessment for its potential use as a transport corridor accommodating sustainable transport modes.

Measure ROAD4 - Lands Reserved for the Eastern Bypass

The NTA will undertake an assessment of the potential for the southern section of the former Eastern Bypass corridor reservation - as provided for in the Dún Laoghaire Rathdown County Development Plan - to be used as a transport corridor accommodating sustainable transport modes. Pending completion of this assessment the existing reservation should be retained.

Measure ROAD5 - Southern Port Access Route

Dublin City Council, with the support of TII and the NTA, and with the cooperation of Dublin Port will deliver a new public road which links from the national road network at the Dublin Tunnel to serve the south port lands and adjoining areas. A reservation for such development should be included in the Dublin City Development Plan prior to the removal of the Eastern Bypass reservation.

13.3.4 Access to Dublin Port

As set out in section 10.3, it is a requirement of the NTA, TII and other agencies to facilitate the efficient and sustainable operations of Dublin Port. One of the key issues relating to the port is the difficulty in accessing the south port estate from the national road network, in particular the connection to the Dublin Tunnel. It is proposed to address this by means of the delivery of the Southern Port Access Route, a new public road extending from the national road network at the M50 Dublin Tunnel to serve the south port lands and adjoining areas.

13.3.5 Leinster Orbital Route

The Leinster Orbital Route comprises an orbital road proposal extending from Drogheda to the Naas/Newbridge area with intermediate links to Navan and other towns. Given the above road principles and Government policy related to reducing transport's contribution to emissions, this project will not be progressed in its existing form. Instead it is proposed to provide online, or mainly online, improvements to the existing road network to cater for orbital demand along these corridors.

Measure ROAD6 - Catering for Orbital Movement in Leinster

TII and the local authorities will deliver online improvements to existing road carriageways, and localised schemes on national and regional roads, to cater for orbital traffic movement, where issues related to the safety and capacity of the network have been identified.



13.4 National Road Network Resilience

The M50 corridor provides for strategic traffic distribution throughout the GDA for private, freight and public transport vehicles.

In particular, the Dublin Tunnel section of the M50 provides a dedicated access route for freight traffic to Dublin Port and area as well as being a significant corridor for public transport to/from the city centre and a connection with other transport modes including Luas and DART.

Given the critical contribution that motorways make to the overall transportation network, major traffic incidents requiring a motorway closure can cause widespread traffic congestion which can quickly impact a significant part of the GDA. Accordingly, it is important that an appropriate level of resilience is provided for such critical infrastructure.

13.4.1 M50 Motorway Resilience

While arrangements are in place to deal with unplanned closures of the M50 due to incidents such as road traffic collisions, there is a lack of adequate resilience along the section of the M50 between Junctions 6 and 7. In addition, there is a need to have clearer designated routes available in the event of a closure of the Dublin Tunnel, given its strategic significance in Dublin's transport system.

To address these issues, it is intended to develop an appropriate road link between the N3 and N4 national roads, which can provide a satisfactory alternative in the event of issues arising on the M50 between Junctions 6 and 7, in addition to providing potential additional public transport linkages.

In relation to the Dublin Tunnel, it is intended that a route on the existing road network will be identified and designated which will provide surface connectivity for HGV traffic from the M50/M1 Junction to Dublin Port and its surrounding area in the event of a prolonged closure of the Dublin Tunnel. This surface route will be the Dublin Tunnel Emergency Diversion Route. Provision for use of this route will require that existing bye laws related to the Bus lanes and HGV Cordon be reviewed and amended if necessary. Operational arrangements will be developed to activate this Emergency Diversion Route, including measures to ensure that the route has sufficient available capacity to operate satisfactorily during periods of HGV diversion.

Measure ROAD7 - Dublin Tunnel Emergency Diversion Route

It is intended that a route on the existing road network will be identified and designated which will provide surface connectivity for HGV traffic from the M50/M1 Junction to Dublin Port and its surrounding area in the event of an emergency or prolonged closure of the Dublin Tunnel.

Measure ROAD8 – Emergency Diversion Routes

The NTA, in collaboration with TII and the relevant local authorities, will seek the development and construction of an appropriate road link between the N3 and N4 national roads, which can provide a satisfactory alternative in the event of incidents arising on the M50 between Junctions 6 and 7, in addition to providing potential additional public transport linkages.



13.5 Regional and Local Roads

Regional and local roads make up the vast majority of the road network in the Greater Dublin Area. In relation to the elements of this network outside urban areas, and in accordance with any associated measures set out in previous chapters, it is intended to implement the following measure to guide the development of regional and local roads in the GDA.

Measure ROAD9 – Regional and Local Roads Policy

1. Implement necessary upgrades to the regional and local road network in line with the Principles of Road Development set out above;
2. Enhance orbital movement between the N3, the N4 and N7 national roads, by the widening of existing roads and/or the development of new road links, for the purpose of providing resilience to the operation of the M50 and incorporating provision for sustainable transport; and
3. Where part of a sustainable mobility plan, to develop orbital roads around town centres, accompanied by and facilitating enhanced public transport, cycling and pedestrian facilities in the relevant centre;

4. Develop appropriate road links to service development areas, including the provision of public transport (where required) and active travel facilities;
5. Enhance pedestrian and cycle safety through the provision of safer road junctions, improved pedestrian crossing facilities and the incorporation of appropriate cycle measures including signalised crossings where necessary; and
6. Implement various junction improvements, realignments and local reconfigurations on the regional and local road network to address safety deficiencies and/or support integrated transport proposals catering for all road users

Given that many of the proposed road schemes are relatively small and localised it is not intended to establish an exhaustive list of such schemes for development over the period of the Transport Strategy. Instead, it is intended that each road scheme is developed in accordance with the principles of road development set out at the beginning of this chapter and in accordance with the general objectives of this strategy.

It is recommended that confirmation of consistency with the Transport Strategy is obtained from the NTA in advance of a road authority seeking development consent for a particular road scheme. Exchequer grants should only be provided for road schemes which are in accordance with the principles set out above.

13.6 Urban Roads and Streets

Within urban areas, the function of roads extends beyond transport and movement to serve economic, social and environmental needs. Compact, denser, more interconnected layouts, particularly where served by good quality bus or rail services, will help to consolidate cities, towns and villages making them viable for reliable public transport and amenable to higher rates of walking and cycling.

Place-making focuses on the interaction between people and the urban environment and achieving a high quality of life, sense of place and belonging. Planning and urban design play a central role in realising quality places. Well-designed streets, which make up a key element of the public realm, can create connected physical, social and transport networks that promote real alternatives to car journeys, namely walking, cycling or public transport. High quality, integrated street design can be effective in cost and efficiency by managing traffic speeds and through fostering a greater understanding between users of all transport modes.

Measure ROAD10 – Urban Roads and Streets

The implementation of the Transport Strategy will support and facilitate a place based approach to urban roads and streets, based on the measures in Chapter 14.





14. Traffic Management and Travel Options

14. Traffic Management and Travel Options

14.1 Introduction

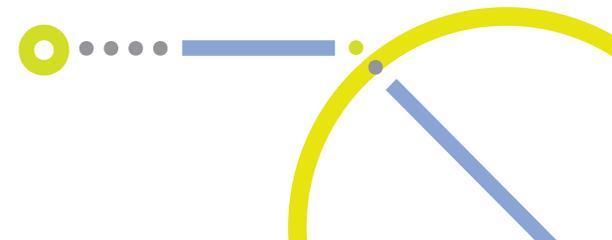
The preceding chapters have set out an ambitious vision for the supply of public transport, walking and cycling infrastructure and a broad range of integration measures. These measures, even when combined, will not be sufficient to reduce emissions from transport in the GDA to the extent required under national policy. They are a necessity in terms of supplying the infrastructure and services required to meet demand, but they must be augmented by measures which seek to manage the manner in which traffic can move around the region, and by measures which seek to directly influence people's travel behaviour. This chapter sets out those measures which will apply at the regional level in the GDA and which will be implemented by the NTA, TII and the local authorities in accordance with current Government policy.

The main objective of Traffic Management is to ensure that the regional transport system continues to operate in an efficient manner, i.e., that the movement of people by public transport, walking and cycling, and the movement of goods, is not adversely affected by private car traffic, and that the impacts of traffic congestion can be minimised. Measures which confer an advantage on sustainable modes can help meet this objective. Many of these are set out in the Walking, Cycling and Bus sections of the strategy, but those aimed specifically at managing private vehicular traffic are included here.

“The desire for safe, attractive and vibrant streets is reflected in a range of existing transport, planning and environmental policies and objectives. These policies and objectives address how neighbourhoods, villages and towns are created and protected. They relate not only to road safety and civil engineering, but also to town planning, urban design, architecture, landscape architecture and conservation.

“More significantly, they bear directly on broad societal issues, ranging from economic development, employment, tourism and recreation, through health, crime and security and onto education, social inclusion, energy efficiency and climate change.”

Design Manual for Urban Roads and Streets, Government of Ireland, 2013



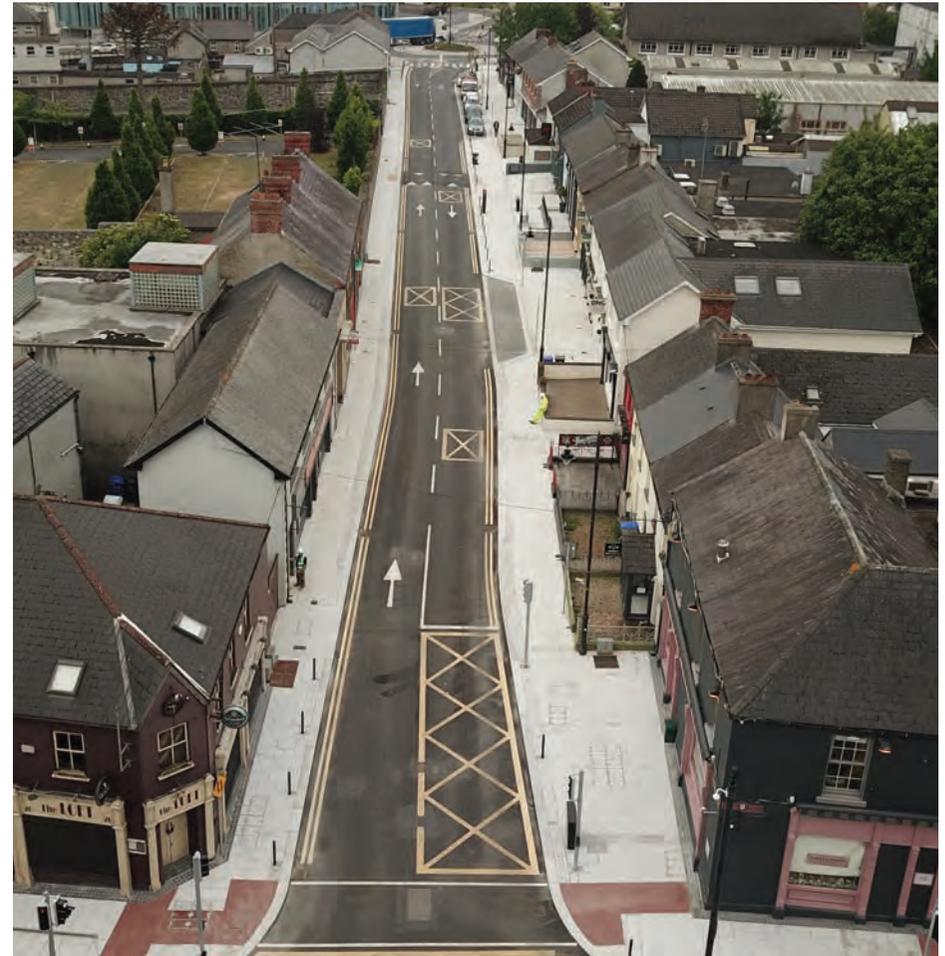
This chapter sets out a broad range of measures that aim to manage the transport supply network in a way which places sustainable modes at the top of the road user hierarchy (as set out in Figure 8.4), and which seek to rebalance the cost of travel (in its broadest sense) towards these modes.

14.2 Management of Dublin City Centre

Dublin City Centre is the location with the greatest intensity and mix of activities in the country. There is no other place in the region which contains a concentration of business, housing, retail, culture, heritage, and nightlife at the scale of the City Centre.

It is also the location with potentially the greatest level of conflict and contest over public space, including the road and street network. Every mode of travel needs to be accommodated in some form in order to ensure that the needs of residents, businesses, workers and visitors are met. These needs, however, must be balanced in a way that favours sustainable mobility and the transition to a zero-carbon transport system, and the level of accommodation of each mode will not be equal on every road and street.

Recovery from the Covid-19 pandemic is also paramount when setting out a pathway to a zero-carbon city centre transport environment. It is clear from the evidence over many decades that the economic well-being of Dublin has been decoupled from the need for car access. As the city centre's economy has



expanded and as the number of jobs has grown significantly, the numbers travelling in by private car has fallen. In 2019 approximately 46,000 cars entered the city in the morning peak period, compared to 59,000 in 2008. The corresponding figures for the total number of people entering the city are

217,000 and 199,000. In other words, fewer cars but more people working, shopping and going to education, supporting an expanding economy. As such, the post-Covid City Centre must be one in which sustainable transport is to the fore.

Based on the range of policies and objectives in this Transport Strategy and on those of the Dublin City Development Plan, the NTA will continue to implement measures, in collaboration with Dublin City Council, which deliver the capacity and quality of public transport and the cycling network required to serve the City Centre, and manage goods deliveries and taxis in a manner which serves the needs of all users of the city centre road network. The agencies will also deliver together the high quality public realm that will enhance the attractiveness and liveability of the city centre.

Measure TM1 - Management of Dublin City Centre

The NTA and Dublin City Council, in collaboration, will deliver the public transport, cycling and walking networks, and public realm that are required to serve an expanding City Centre and to facilitate a post-Covid recovery based on sustainable transport.

The NTA and Dublin City Council will also ensure that the delivery of goods to city centre businesses and the operation of taxis are managed to the benefit of all users of the city centre.

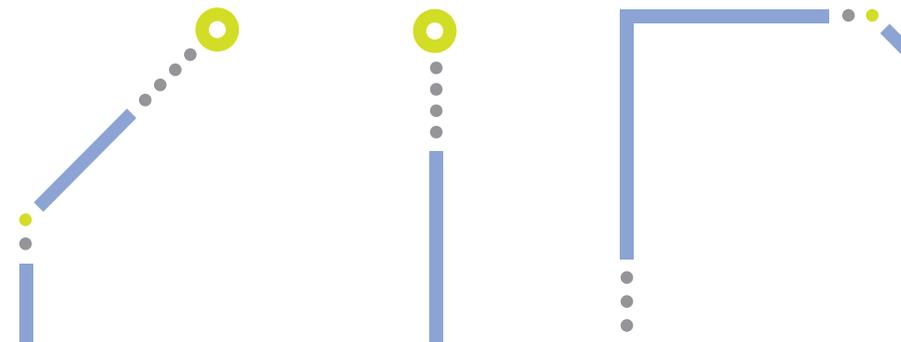
14.3 Management of Urban Centres in the GDA

As the towns and urban settlements in the GDA grow, there will be need to ensure that the transport environment and public realm as developed in a way that favours sustainable mobility and the transition to a zero-carbon transport system

Measure TM2 - Management of Urban Centres

The NTA and relevant local authorities, in collaboration, will deliver the public transport, cycling and walking networks, and public realm that are required to serve local centres, and to facilitate a post-Covid recovery based on sustainable transport.

The NTA and local authorities will also ensure that the delivery of goods to urban centre businesses and the operation of taxis are managed to the benefit of all users of these areas.



14.4 Reduced Speed Limits

The reduction of speed limits in urban areas has the potential to make the use of the streets by other modes safer. Streets with lower speed limits encourage the use of sustainable modes, in particular for the most vulnerable road users and their parents or carers.

Measure TM3 – Reduced Speed Limits

In accordance with speed limit policies to be determined by each local authority following consultation with the NTA, the reduction of speed limits to 30 kph on urban roads and streets will be supported.

Reduced speed limits of 30kph have been implemented on many roads throughout Dublin City and in various locations across the GDA. This is a key traffic management measure for the promotion of place-making plus walking and cycling.

14.5 Variable Speed Limits

A variable speed limit is a dynamic speed restriction on a given stretch of road. The speed limit changes according to the current environmental and traffic conditions and is displayed on an electronic traffic sign. This helps avoid stop-start driving behaviour and reduces disruptions along the strategic road

network. TII are currently progressing plans for variable speed limits on the M50, subject to legislative updates.

Over the period of the strategy, assessments will be carried out to identify other roads or sections of road where the implementation of Variable Speed Limits will enhance the operation or safety of the relevant road link.

Measure TM4 – Variable Speed Limits

Variable Speed Limits will be considered for implementation on appropriate sections of the strategic road network as a means of reducing turbulence, improving traffic flow and enhancing safety.

14.6 Low-Traffic Neighbourhoods

Low traffic neighbourhoods comprise groups of residential streets, bordered by distributor roads, where “through” motor vehicle traffic is either discouraged or removed entirely. There are a number of measures that can be implemented to create such a neighbourhood, including modal filters (similar to a filtered permeability approach set out in section 8.7); no entry signs; or turning bans. In all cases, residents can still drive to their house and deliveries can still be made, but through movement is either prohibitively inconvenient or simply not permitted.

Measure TM5 – Low-Traffic Neighbourhoods

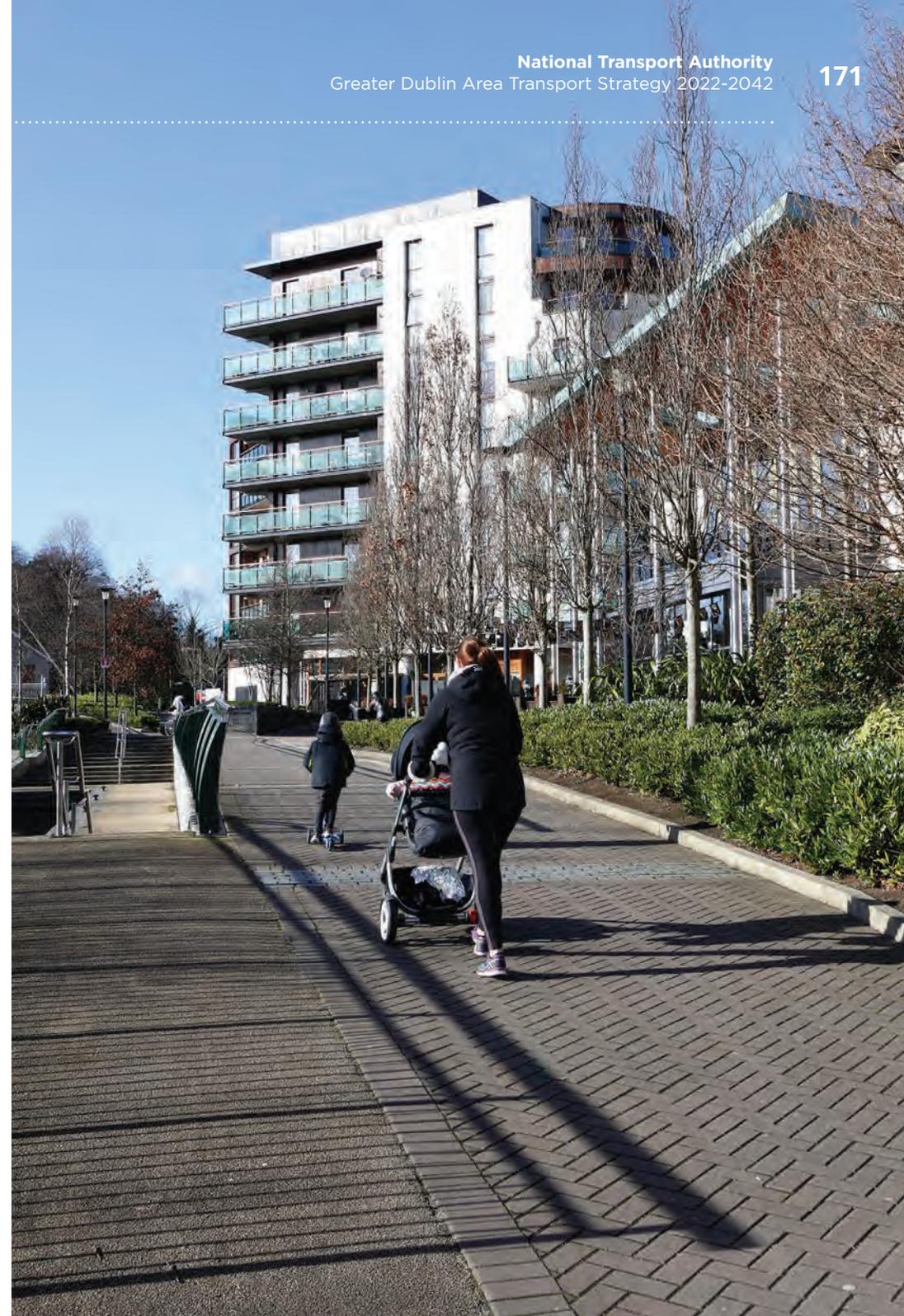
The NTA will support local authorities seeking to implement Low-Traffic Neighbourhoods in urban areas across the region.

14.7 Car-Free Zones

Car-free zones have the potential to confer advantage to sustainable modes of transport, and to reprioritise the use of, and enhance, public space. Car-free zones can be implemented on a small or large scale, for instance at a city block level or at a wider neighbourhood level, while still maintaining access for those who live in the area or for essential services and facilitating public transport. They can also be implemented at various times of the day or days of the week, in particular in a trial phase which allows the strengths and weaknesses of the proposals to be understood.

Measure TM6 – Car Free Zones

The NTA will support local authorities seeking to provide car free zones in urban areas where there are benefits to transport, traffic and/or the local economy.



14.8 Home Zones

A Home Zone is street or group of streets designed to meet the needs of pedestrians, cyclists, children and residents and where the dominance of the car is reduced. The concept is that the space is shared between all users, rather than one user mode having priority, and vehicular through-traffic is removed. Speeds are reduced through design, where streets are narrow, and curves/bends in the road are designed into the plan rather than requiring retrofitting of ramps for example at a later stage.

Measure TM7 – Home Zones

The NTA will support local authorities seeking to provide home zones in residential areas as appropriate.

14.9 Safe Routes to School

The Safe Routes to School programme was established in early 2021 and is operated by the An Taisce Green-Schools Programme in partnership with the NTA and the local authorities, supported by the Department of Transport and the Department of Education. The Safe Routes to School Programme is designed to encourage as many pupils and students as possible in primary and post-primary schools to walk and cycle. It has three aims:

- To accelerate the delivery of walking and cycling infrastructure on key access routes to schools;
- To provide “front of school” treatments which will enhance access to school grounds;
- To expand the amount of bike parking available at schools.

This programme has already delivered significant improvements to front-of-school environments through physical measures to prevent inappropriate and dangerous drop-off, parking and idling by motorists, and through new road markings and signage which clearly mark out the stretch of road as one in which there may be increased pedestrian and cycle activity, in particular by young children. In some cases, “School Streets” have been implemented whereby vehicular traffic is restricted during school opening and closing times.

Measure TM8 – Safe Routes to School

The Safe Routes to School programme will be rolled out and expanded over the period of the Transport Strategy in a collaborative manner by An Taisce, NTA, the local authorities, supported by the Departments of Transport and Education.



14.10 Car Sharing

Car sharing schemes have the potential to reduce the demand for private car ownership and thereby reduce reliance on the private car for all journeys. These can include workplace based car-pooling schemes whereby colleagues share vehicles; those related to multi-unit residential developments; as well as public car sharing schemes or clubs which anyone can join, subject to conditions.

Measure TM9 – Car Sharing

The NTA will support the local authorities, workplaces and other relevant agencies and companies in the implementation of car sharing initiatives, in particular as part of new housing developments.



Car sharing schemes can also play a significant role in reducing the requirement for car parking spaces associated with new residential development.

14.11 Car Parking

The provision of car parking at origin and destination is a key determinant of the likelihood of someone using a car. Over a number of years, and a number of development plan periods, local authorities in the GDA have moved to providing parking standards as maxima rather than the traditional minima, based in part on the recommendations of the NTA.

Today, the developments planned for the public transport network, the growth of cycling, and emergence of shared mobility could feasibly facilitate reduced car ownership rates across the GDA and an associated reduced demand for car parking.

In general, the most restrictive parking standard would apply in Dublin City Centre, where accessibility levels to destinations by non-car modes is at its highest and where the highest development densities are applied. Restrictive parking standards would also apply in key towns in the region and suburban centres where the public transport system offers an alternative to the car and where walking and cycling are viable transport options.

The least restrictive standards would apply in the most peripheral locations, where (insofar as residential development and commercial development can be justified), the lowest densities would apply.

14.11.1 Car-Free Residential Development

At locations served by a range of high-quality public transport services and within convenient cycling distance of Dublin City Centre, the NTA recommends that residential development proposals consider providing zero parking spaces (excluding parking for persons with disabilities). This will apply primarily to developments within 6km of Dublin City Centre or at major rail interchanges.

In providing for car-free developments, the two key considerations will be the level of mobility that can be offered to future residents by the transport network in terms of public transport and the provision of high-quality cycle infrastructure, and the potential for adverse effects of overspill parking on neighbouring residential roads and streets.

Measure TM10 – Car Free Residential Developments

The NTA will support local authorities in assessing the potential for, and delivery of car-free residential developments in locations close to Dublin City Centre and at major rail-based interchanges / Mobility Hubs.

14.11.2 Car Parking Standards

The manner in which car parking is considered, in conjunction with other planning policies, can have a critical influence on:

- Car ownership / car usage;
- Mode choice, for a range of journey purposes;
- Residential development densities in cities and towns;
- Development layouts which achieve permeability for walking and cycling, enabling non-car accessibility at the local level;
- Car-based congestion; and
- The achievement of higher levels of public transport service provision.

Given the critical influence which the provision of parking can have on the above and more generally on the management of transport demand, it is recommended that parking standards are expressed as maximum values, to which degrees of constraint can then be applied by planning authorities, in the process of determining the most appropriate level of parking provision.

The approach taken to parking standards by local authorities in the GDA should seek to do the following:

- Set the lowest level of provision for the most accessible areas and offer more flexibility where public transport connectivity is less comprehensive;



- Take into account the availability of amenities / services at the local level and accessibility to major town centres, reducing the need to travel by car;
- Reflect the options open to new development areas to design in sustainable travel from the outset; and
- Recognise differences between central and less central areas, such as differences in trip distances, which can sometimes reduce opportunities for walking and cycling.

Residential Car Parking Standards

Table 14.1 sets out the proposed residential parking standards by location for the GDA, which the NTA recommends is incorporated into all Development Plans

Measure TM11 – Residential Parking Standards

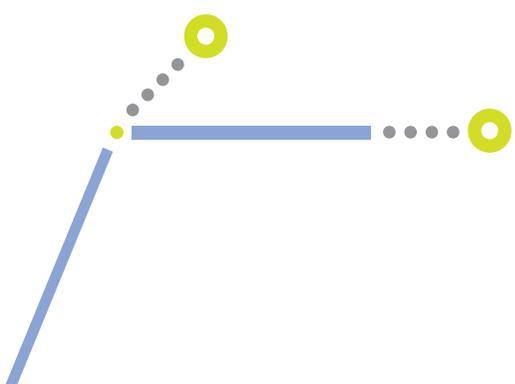
It is recommended that local authorities incorporate maximum residential parking standards into their Development Plans guided by the provisions set out in Table 14.1.

Figure 14.1: Proposed Maximum Residential Parking Standards

Location	Maximum Parking Provision
Central Dublin (Inside Canals and including Docklands)	Zero to 0.5 spaces per unit
Locations Between the M50 and Canals	Zero to 1.5 space per unit
Locations Between the Metropolitan Boundary and the M50	Up to 1.5 space per unit
Hinterland Towns	Up to 2 spaces per unit
Small Settlements / Areas with low Accessibility levels	Subject to local assessment

Destination Car Parking Standards

The provision of regional standards for the various destination uses for each part of the GDA would be too complex an issue to address satisfactorily in the Transport Strategy. Instead, the measures below will be used by local authorities when devising their parking standards.



The NTA is also supportive of an approach that caps car parking on an area-wide basis in locations where the highest intensity of development occurs, or in areas that have high levels of accessibility by public transport, walking or cycling.

Measure TM12 – Destination Parking Standards

It is the intention of the NTA to develop guidance on maximum car parking standards for different land-uses and locations, in association with local authorities.

Measure TM13 – Dublin City Centre Parking Standards

It is recommended that the Dublin City Development Plan incorporate a policy which states that proposals for commercial development in Dublin City Centre will seek to provide zero parking, other than those spaces that may be required for persons with disabilities.

Measure TM14 – Parking at Major Interchanges and Mobility Hubs

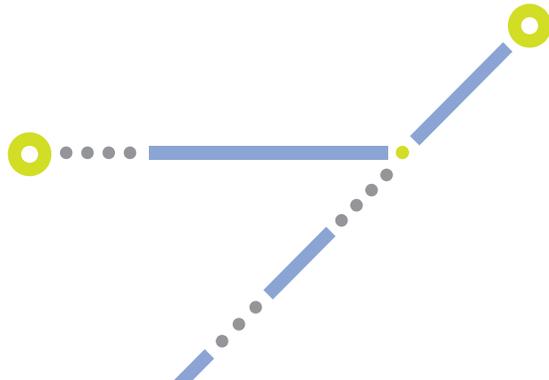
Proposals for major employment development close to major interchanges or Mobility Hubs, which seek to provide car parking, should provide evidence as to why their proposed development cannot operate without car parking.

Measure TM15 – Public Sector Parking in Dublin City Centre

It is the intention of the NTA to seek the development of a programme of public sector car-parking reduction and removal from all office locations in Dublin City Centre.

Measure TM16 – Parking at Out-Of-Town Retail Developments

The NTA will, in conjunction with local authorities, assess the need for the introduction of parking charges at out-of-town retail centres in order to reduce the impact of car traffic on these locations and their local communities and will seek the implementation of the outcomes of that assessment.



14.11.3 On-Street Parking

The availability of cheap or free on-street parking can encourage the use of the private car over sustainable modes. In town centres, parking charges should be set at a rate which deters commuter or long-stay parking but facilitates shoppers and visitors who will use them for a short period and contribute to the local economy.

On-street parking can also have a significant opportunity cost in terms of using up valuable street space for the storage of vehicles which could be used for public transport and cycle priority, or as pedestrian space. As such, and based on measures implemented to date, the NTA would encourage local authorities to review on-street parking in urban areas with a view to its reallocation to other modes; or the use of parking charges to ensure spaces are turned over regularly rather than being used by commuters.

Measure TM17 – On-Street Parking

The NTA will support local authorities in seeking to reduce the level of free or cheaply available on-street parking with a view to the reallocation of the roadspace to sustainable modes, and/or the implementation of charging regimes which facilitates motorists contributing to the local economy.

14.12 Electric Vehicles

The previous sections of the strategy have set out the vast array of transport supply and transport demand measures that are proposed to be implemented up to 2040 with the aim of reducing car dependency by providing alternative modes and managing car use in order to meet a range of strategy objectives, including climate change targets. There will still be a demand for car use, and in places this demand will remain high relative to today. As such, there will be an imperative to convert the private car fleet to non-polluting vehicles.

While many of the measures required to achieve this conversion are outside the remit of this Transport Strategy and will rest with Government, there are a number of measures that the NTA and local authorities will implement. As such, the Development Plans in the GDA will need to reflect these objectives.

The provision of electric vehicle fast-charging points at appropriate locations will play a key role in encouraging the continued trend in the purchase and use of electric vehicles. The widespread availability of electric vehicle charging points can mitigate the concern regarding electric vehicle range and therefore encourage the greater uptake of this type of vehicle. However, care is required in the implementation of charging infrastructure at origin, to ensure that it does not encroach on footpaths or otherwise compromise the free movement of pedestrians, cyclists and buses.

The provision of designated electric vehicle parking at both origin and destination helps to confer advantage to those who choose to use these vehicles. It also provides visibility to this technology and can play a role in encouraging their uptake.

The promotion of electric cars, however, should not detract from the core requirement of transport planning in the city region, which is to create a more sustainable transport system by enabling more people to use public transport, walking and cycling.

Measure TM18 – Electric Cars

The NTA, TII and local authorities will facilitate the conversion of the private car fleet to electric in the following ways:

- Providing public charging points at key destinations such as public car parks, Park and Ride facilities, on-street in town centres, and public parks;
- Ensuring that where car parking is proposed as part of new residential developments, provision is made for all spaces to be dedicated over time to electric cars with provision for charging infrastructure built-in from the outset;
- Providing significantly expanded electric car charging facilities at service stations on the road network, particularly the national road network; and
- Ensuring that charging infrastructure does not encroach on footpaths or otherwise compromise the free movement of pedestrians, cyclists and public transport.

14.13 Motorcycles and Mopeds

Motorcycles and Mopeds (including S-Pedelecs, as referred to in section 11.8.1) are an established form of transport in the GDA and have a role to play in reducing the impact of traffic, in particular in urban areas insofar as they take up less space in terms of parking and storage. On the road, they are regarded as a private motorised vehicle which takes up less space than a car, but as they are required by law to drive and queue within general traffic and operate at similar speeds to cars, they still require significant roadspace. The traditional motorcycle or moped does not fall into the category of public transport because they are individual, or into the definition of sustainable transport as they run on petrol engines and therefore produce emissions. As such, there is no policy basis upon which the NTA would seek to promote their use as an alternative to the private car. The advantages of smaller traditional mopeds in terms of space and reducing impact on the urban environment is acknowledged.

Measure TM19 - Motorcycles and Mopeds

The NTA acknowledges the role of motorcycles and mopeds in road transport and will work with other agencies and local authorities to ensure that these vehicles are facilitated as part of the transport network.

Motorcycle Parking

There is currently a shortage of dedicated motorcycle parking in Dublin City Centre and other settlements in the GDA, and at other destinations such as public transport stops and stations. This has resulted in motorcycles being parked illegally on footpaths, in car parking spaces, at dedicated (pedal) cycle parking or in other residual urban spaces such as on-street hatching. Dedicated parking has benefits not only for motorcyclists but also for other street users as it minimises street clutter and encroachment into both the footpath and vehicular carriageway arising from poorly parked motorcycles. In general, roads authorities should seek to provide on-street motorcycle parking on the vehicular carriageway, e.g. in repurposed car parking spaces, rather than on footpaths or in pedestrian areas. All motorcycle parking locations, regardless of the presence of dedicated racks or rails, should undergo an accessibility audit to ensure compliance with Universal Design principles.

Measure TM20 – Motorcycle Parking

The NTA will support local authorities in the provision of dedicated public motorcycle parking in the interests of improving the urban environment for all street users.

14.14 Connected and Autonomous Vehicles

Connected and autonomous vehicles are an emerging and potentially significant change to road transport. The term connected vehicles refers to vehicles that can communicate with each other; with infrastructure; and with the wider system of other road users and networks through data sharing.

Autonomous vehicles use automated driver-assistance systems such as Radar/LiDAR, ultrasound, and in-vehicle cameras, along with other on-board and roadside sensors and a whole set of state-of-the-art technologies to deliver self-driving vehicles capable of operating without any driver input.

The Department of Transport recently undertook a public consultation process in order to inform a new cross-Government national strategy. The NTA will seek to utilise and encourage appropriate emerging technologies as they relate to public transport, reducing reliance on private car use or supporting walking and cycling.

Measure TM21 – Connected and Autonomous Vehicles

The NTA will work with the Department of Transport and local authorities to take into account new emerging technology such as connected and autonomous vehicles and the benefits they may bring, in planning and designing the transport network in the GDA.



15. Freight, Delivery and Servicing

15. Freight, Delivery and Servicing

15.1 Introduction

The National Planning Framework growth projections and the associated demand for new homes; continued economic growth and opportunities; as well as the provision of community infrastructure such as schools, will all combine to result in the increased need for freight movement in the GDA. There will also be a greater level of delivery and servicing activity and waste management.

While presenting challenges in terms of safety, congestion, air and noise pollution, the clustering of activities, allied to an improvement in the strategic transport infrastructure offers the possibility of innovative approaches to mitigate the impact of freight activity and reconcile with demand / demand patterns and operational requirements associated with other modes and journey purposes.

The following sections set out key areas of consideration for freight movement and goods delivery.

15.2 Freight Strategy

Regional Policy Objective 8.5 of the EMRA RSES supports the preparation of a strategy for freight transport in collaboration with the relevant transport agencies and the other Assemblies. From a climate change perspective, this should contribute to

the acceleration of the decarbonisation of the freight sector, integrate smart technologies in logistics management and reinforce the important role that the strategic rail and road (including TEN-T) network play in efficiently moving freight. However, given the types of vehicles, their large size and the long distance nature of many of their operations, it is important to acknowledge the challenges faced by the decarbonisation of road freight transport.



The NTA supports the development of such a strategy in recognition of the need to reduce the carbon-intensity of freight movements and be cognisant of the inter-regional nature of freight movements, driven in particular by the scale and strategic importance of Dublin Port and Dublin Airport, along with the high centration of logistics and industrial activity within the GDA. It is a key objective of the National Planning Framework under National Strategic Objectives: NSO2 - Enhanced Regional Accessibility and NSO6 - High Quality International Connectivity and also the RSES to safeguard and improve access to Dublin Port and Dublin Airport, as two primary national gateways.

Measure FREIGHT1 - Strategy for Sustainable Freight Distribution

It is the intention of the NTA, in collaboration with other authorities, including TII and Irish Rail, and stakeholders to prepare a Strategy for Sustainable Freight Distribution for the Greater Dublin Area - to inter alia, support the decarbonisation of the freight sector, to seek to further integrate smart technologies in logistics management and to reinforce the important role that the strategic road and rail network play in the efficient movement of freight.

15.3 Planning Policy and the Location & Management of Freight Intensive Development

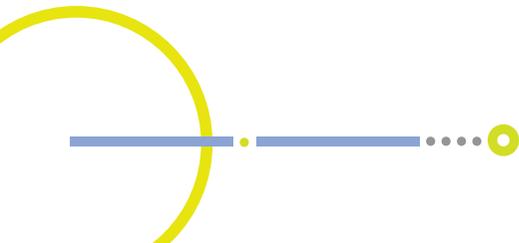
Underpinning the Strategy's measures relating to freight, delivery and servicing, there is an associated requirement by planning authorities in the GDA for the clear identification in development plans, of appropriate locations for freight intensive developments, and the implementation of Distribution and Servicing Plans for such developments as part of the planning process.

Measure FREIGHT2 - Planning Policy and Freight

It is recommended that local authorities in the GDA, with the input of the NTA and TII, identify appropriate locations for freight-intensive developments in their Development Plans.

15.4 Heavy Goods Vehicles

HGVs play an integral role in the movement of goods throughout the Greater Dublin Area and at a national level. HGV movement can have significant impacts on the overall volume of traffic, noise, air pollution and the safety of other road users, particularly within urban areas.



The implementation of designated ‘lorry routes’ on strategic radial and orbital roads would assist in optimising the usage of available road capacity, and mitigate delays and conflict with other modes.

In addition, seeking to regulate delivery times and as far as practicable, limiting them to off-peak periods would contribute to off-setting traffic congestion within urban areas. This could also bring additional benefits to freight operators in terms of reductions on travel times and operating costs.

HGV management proposals may include the following:

- Implementation of a HGV management plan within the Metropolitan Area to ensure that these routes retain sufficient capacity to fulfil their strategic functions, including freight movement. The manner of implementation, enforcement, access routes and extent of the scheme will be determined at a later stage between TII, the NTA, stakeholders from the freight industry and local authorities;
- Provision for the continuation of the current Dublin City Heavy Goods Vehicle Management Strategy and for its further expansion to other vehicle types, potentially with an expanded exclusion area;
- Ensure that the Dublin Tunnel continues to perform its primary function of providing access to Dublin Port for freight traffic;
- Assessment of the potential for, and, if appropriate, introduction of similar HGV management measures in other major town centres in the GDA;

- Support for goods vehicle parking facilities at on-line motorway service areas and other appropriate locations within the GDA in accordance with relevant planning policies and guidelines; and
- Provision for appropriate Mobility management planning at key freight intensive locations such as Dublin Port, Dublin Airport and Dublin City Centre.

Measure FREIGHT 3 - HGV Management

Consideration will be given to identifying specific HGV routes and / or time restrictions for deliveries, to improve the efficiency of while minimising the impact of HGV movements .

15.5 Rail Freight

The potential for the use of rail and associated inter modality with road based freight movement will be examined as part of the Transport Strategy’s implementation. This will take into consideration Irish Rail’s Rail Freight 2040 Strategy which examines opportunities for the expansion of rail freight volumes across the Irish Rail network over the next 20 years.

The Rail Freight Strategy proposes a series of interventions under five investment pillars that look to support this goal:

- Enhancing connections with seaports;
- Developing a network of inland ports
- Addressing rolling stock requirements;
- Network developments; and
- Policy initiative

Measure FREIGHT4 - Rail Freight

The NTA will support Irish Rail in the implementation of the outcomes of the Rail Freight 2040 Strategy.

15.6 Construction Logistics Centres

Shared construction and logistics centres (CLCs) are a recent trend in European cities projected to experience significant increases in population and construction activity in future years.

CLCs are typically set-up near strategic development areas on sites adjacent to the strategic road or rail network to minimise travelling distances for construction materials. Developers are often required to sign up to shared CLCs as part of the development management process.

Trips to and from construction sites are reduced as HGVs with less than 80% occupancy are held until fully occupied and trips to construction sites are controlled using a booking system. The levels of development anticipated within the Strategy period across a number of key growth area within the Metropolitan Area would appear to justify the need for a number of CLCs.

15.7 Delivery and Servicing

The expected growth in commercial, and goods trip intensive development over the Transport Strategy period will lead to an increase in delivery and servicing needs.

Personal delivery and waste management services also expected to increase substantially arising from changes in the retail sector and as the population increases.

Objectives to manage this increase in delivery and servicing include:

- Examination of the case for urban or micro-consolidation centres within the GDA, particularly within Dublin City Centre and other major town centres, to reduce the number of last-mile trips being made by larger goods vehicles - for example, examining the case for small electric vans delivering to restaurants and shops;
- Examining the case for increased use of cargo bikes for delivery in Dublin City Centre and other towns in the GDA

- Examining the feasibility of out-of-hours delivery and servicing through the use of low-noise vehicles like Electric Vehicles (EVs) and the imposition of planning conditions where appropriate;
- Examining the feasibility of using smaller and non-motorised vehicles for delivery and servicing to reduce noise and air pollution and enable more street space to be given to pedestrians and cyclists;
- Minimising empty return trips by taking inspiration from innovative practices such as the Utrecht Cargohopper and Gothenburg's Stadleveransen city delivery system; and
- Supporting the placement of local 'Click and Collect' facilities at rail stations, new residential developments and Park and Ride facilities, to reduce the amount of individual personal deliveries to workplaces and homes where the recipient is often absent.

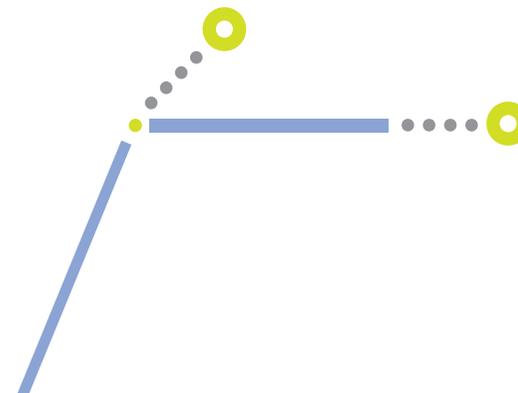
Measure FREIGHT5 - Consolidation Centres

It is the intention of the NTA, in collaboration with local authorities, to examine the feasibility of consolidation centres and break bulk facilities, to facilitate smaller vehicle delivering to Dublin City Centre and other major town centres.

Measure FREIGHT6 - Environmental Measures for Freight

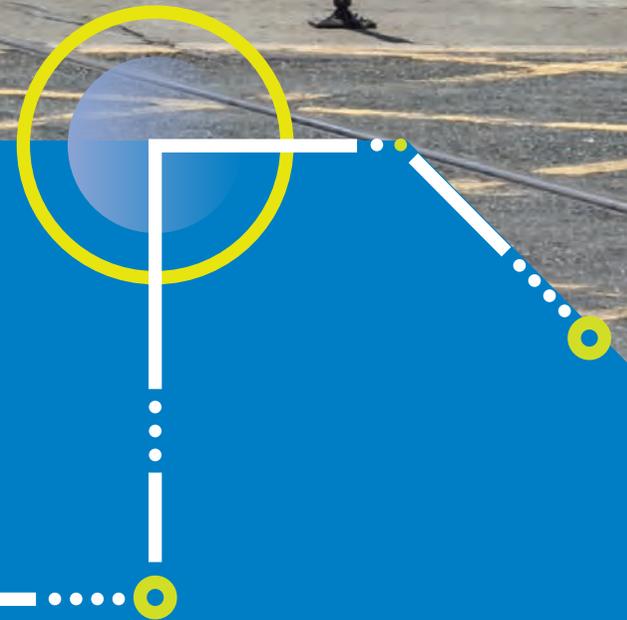
It is the intention of the NTA, in collaboration with other authorities, to:

- Seek the reduction of the amount of 'last mile trips' being made by motorised vehicles;
- Facilitate the transition to zero-emission delivery vehicles such as cargo bikes and electric vehicles; and
- Support local 'Click and Collect' facilities where appropriate to minimise trips to individual homes and workplaces.





16. Climate Action Management



16. Climate Action Management

16.1 Introduction

The Strategy aims to provide an effective and sustainable transport system across the region and to accommodate future travel growth in a managed and balanced way. Increased public transport provision, coupled with enhanced cycling and walking facilities in the urban areas, will enable a transition to more sustainable travel modes for many people in addition to providing the means to cater for much of the increased travel demand. However, without complementary demand management measures the full benefits of the Strategy will not be achieved.

In addition, there is now a legislative requirement that public bodies must take account of the Climate Action Plan and Low Carbon Development (Amendment) Act 2021 in the performance of their functions. Specifically in relation to greenhouse gas emissions, the Act requires a total reduction of 51% in such emissions over the period to 2030, relative to a baseline of 2018. While that overall target has not yet been disaggregated into sectoral targets, it is understood that the transport sector will be required to achieve this 51% reduction in full.

As identified in Section 4.2, this is a very significant and challenging target, which will require fundamental changes in the area of transport over the next decade. Central to those

“Effective Transport Demand Management measures will be needed to respond to the increasing mobility needs of the growing population and economies of the five cities, while continuing to manage congestion, reduce greenhouse gas emissions, improve air quality and improve the urban environment.

Taking decisive and rapid action to address these issues will be a major challenge, but the benefits for our cities’ residents and visitors are huge – cleaner air, a sustainable use of the world’s scarce resources, more connected and healthier communities and liveable vibrant cities.”

Five Cities Demand Management Study, Recommendations Report, Government of Ireland, 2021

changes will be the need to increase the proportion of travel by sustainable modes and reduce the level of usage of Internal Combustion Engine (ICE) powered vehicles.

Achieving such a rate of reduction in the GDA is even more challenging as the 2018 baseline figure reflects an already high mode share for sustainable modes compared to the rest

of Ireland and the fact that trips in the GDA, in particularly Metropolitan Dublin, even when undertaken by car, are comparatively shorter and therefore emit less CO₂.

While the provision of new and additional transport infrastructure and transport services will encourage and deliver increased movement by sustainable modes, such provision will be insufficient on its own to achieve the level of emissions reduction required by 2030. Accordingly, additional demand management measures will need to be put in place to complement the additional transport provision and achieve the overall 51% reduction goal. The following sections set out the additional measures that will need to be adopted.

16.2 2030 Climate Change Target

Ireland's total greenhouse gas emissions in 2018 were approximately 60.9 MtCO₂eq (mega tonnes CO₂ equivalent). The transport sector accounted for 20% of this amount, approximately 12.2 MtCO₂eq. On a national basis the 51% reduction target will require transport emissions to be reduced to an overall level of 6 MtCO₂eq by 2030.

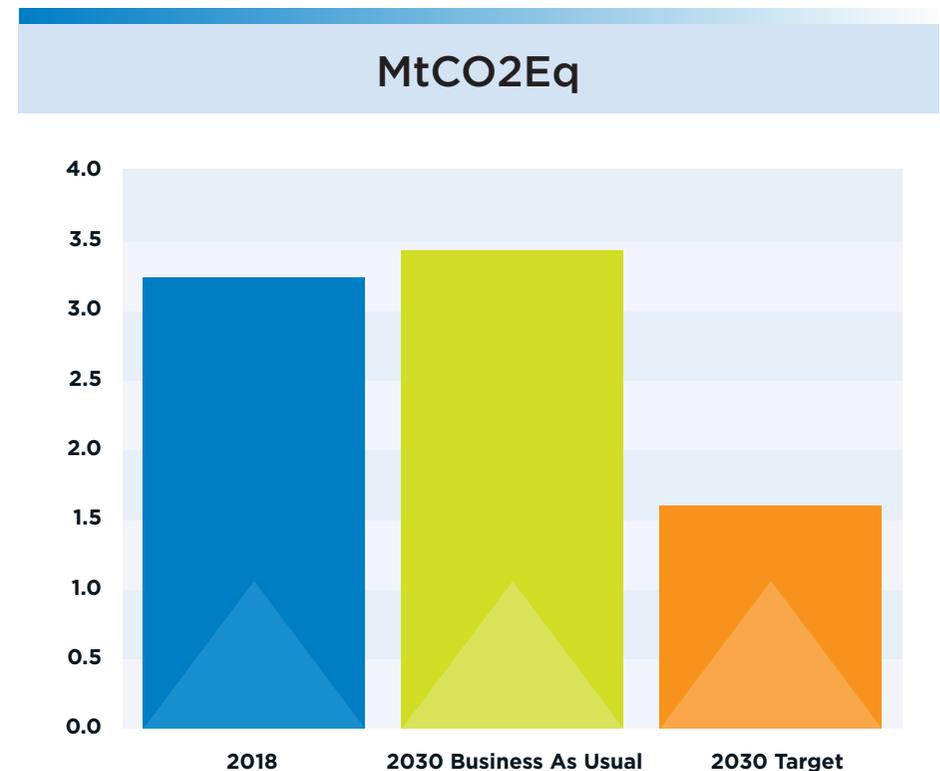
Within the overall national figure for transport, the 2018 emissions total for travel within the GDA has been estimated by the NTA to be 3.2 MtCO₂eq.

It is worth noting that in the absence of mitigation measures, and assuming current patterns continue, the level of greenhouse gas emissions for the GDA would increase to

approximately 3.4 MtCO₂eq by 2030, reflecting population and employment increases in the region over that period.

Applying the 51% reduction to the 2018 emissions figure for the GDA, establishes the 2030 target for the GDA as being 1.6 MtCO₂eq. This is shown in Figure 16.1.

Figure 16.1: GDA Emissions Target



16.3 Electrification and Bio-Fuels

One of the main policies to reduce greenhouse gas emissions in the transport sector is the transition away from fossil fuel powered vehicles to electric vehicles. At a national level, the Government's Climate Action Plan 2019 sets out the intention to increase the number of electric vehicles in the State to 936,000 vehicles by 2030 comprised of:

- 840,000 passenger cars;
- 95,000 electric vans and trucks; and
- 1,200 electric buses.

This is an ambitious level of transition to electric vehicles and will contribute substantially to reducing greenhouse gas emissions.

The Climate Action Plan 2019 also sets out a policy to increase the volume of biofuels used in the road transport sector as a blended fuel for petrol and diesel powered vehicles. It proposes a 10% blend penetration rate in petrol and 12% penetration in diesel by 2030. It is understood that a further increase in the Biofuels Obligation rate above 20% is under consideration as part of a forthcoming update to the Climate Action Plan. That higher level has been assumed to be in place by 2030.

16.4 Initial Emissions Assessments

The NTA's Regional Modelling System has been used to calculate the level of greenhouse gas emissions' reduction under various scenarios.

As identified earlier, the overall target required to be achieved in 2030 is an overall emissions level of 1.6 MtCO₂eq. across the GDA, reduced from a "business as usual" forecast level of 3.4 MtCO₂eq.

An assessment has been undertaken of the forecast emissions level in 2030, taking account of the additional transport infrastructure and transport services set out in the Transport Strategy proposals, in addition to the vehicle electrification and increased use of bio-fuels proposals. This assessment forecasts that with all of these elements in place, the likely emissions outturn for the GDA in 2030 will be approximately 2.0 MtCO₂eq.

While this package of measures does deliver a very significant level of decrease in greenhouse gas emissions, it does not fully achieve the required 51% reduction target – a further reduction in the order of 0.4 MtCO₂eq is needed to reach the prescribed threshold.

To deliver the additional reduction, further measures to decrease the usage of petrol/diesel powered vehicles are required.

16.5 Addressing the Deficit

To address the shortfall to achieving the overall target, a set of core demand management measures (the “Core Measures”) were identified for assessment in combination with three alternative overall demand management approaches, being:

- Approach 1 – Increased fuel prices;
- Approach 2 – Additional electrification (including hydrogen vehicles), and
- Approach 3 – Congestion charging / low emission zones plus road pricing / tolling.

The “Core Measures” included in each approach assessment comprised:

- Reduction of free workplace parking in urban areas;
- Putting in place increased parking charges in urban areas;
- Adjustment of traffic signal timings across the metropolitan area to better facilitate movement by sustainable modes; and
- Commitment to provide sufficient passenger capacity on public transport services to absorb increased transference.

Each of the three approaches was then considered, with the Core Measures included in each case, to establish how that approach would address the deficit to fully achieve the 51% reduction target.

16.5.1 Approach 1 – Fuel Price Increases

Approach 1 is focussed on altering the cost of vehicle operation, being petrol/diesel vehicles.

An assessment was undertaken to establish the level of fuel price change that would be necessary to achieve the required additional emissions reductions under this approach. That assessment identified that a significant increase would be necessary to achieve the required decrease in the usage of petrol/diesel powered vehicles, albeit that such increase could be spread out over a number of years.

However, fuel pricing is a national issue rather than a regional matter and could only be implemented by Government. In addition, this issue is likely to be separately considered under the Climate Action Plan reviews and the carbon budgets envisaged under the Climate Action Plan and Low Carbon Development (Amendment) Act 2021.

16.5.2 Approach 2 – Additional Electrification

A second approach to the full achievement of the emissions’ target is through additional electrification. Under this approach, an accelerated level of transition to electrically powered vehicles would be incentivised such that the increased take-up such vehicles provides the required additional emissions reductions.

It was noted in section 16.5.1. that the target level of electrification is already very ambitious, in particular for cars. Accordingly, it is likely that this approach would require an increased electrification of other vehicle types.

Heavy Goods Vehicles make up a high component of the residual emissions in 2030 following the implementation of the planned strategy elements by that date plus the electrification and bio-fuels arrangements set out in the Climate Action Plan 2019. It comprises about 50% of the residual emissions, at 1.1 MtCO₂eq.

While battery operation of HGVs over long distances is not currently a viable solution, given range limitations, hydrogen powered HGVs do represent a technically feasible solution. Hydrogen powered vehicles use a fuel cell powered by hydrogen to operate the vehicle electrically. But a key downside to the operation of such vehicles is the high costs currently associated with hydrogen fuel.

Assessment work undertaken has identified that a transition of about one third of the HGV fleet to electrified use, probably using hydrogen fuel cells, would achieve the necessary additional emissions' reduction.

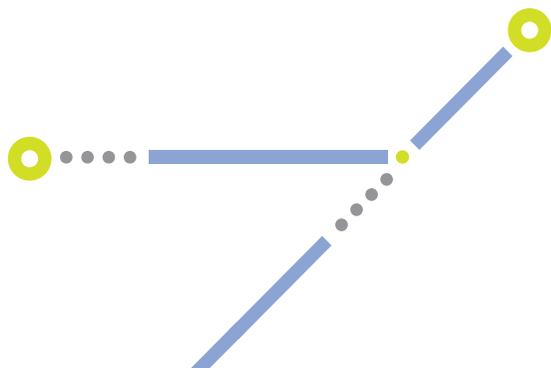
However, hydrogen power is an embryonic technology for HGV use and it is too early to rely upon the successful advancement of this propulsion technology for widespread use in order to reach the emissions target.



16.5.3 Approach 3 – Congestion / low emission zones plus road pricing / tolling

Under this approach there are a number of different fiscally based arrangements that could be put in place to reduce the level of car travel and promote a greater transference to sustainable modes. These include congestion charging, low emission zone (or zones), tolling and/or road pricing.

Various configurations and combinations of these options are feasible to achieve the required additional emissions reduction target.



One potential scenario would be the implementation of a low emission zone or a congestion charge zone inside the M50, coupled with additional tolling points on the M50 and on the national road approach routes to the City, combined with through traffic restrictions in Dublin City centre. With charging levels appropriately set, such a configuration can achieve the required additional emissions reduction.

However, this is only one permutation from the multiple potential configurations. Accordingly, the exact arrangements in respect of such an approach will require detailed evaluation at the implementation stage, which will need to assess different alternatives to appropriately select and calibrate the final configuration

16.6 Other Factors

While the earlier sections of this chapter focus on the need to achieve the vehicle emissions' target, there are additional reasons for the implementation of certain demand management measures. For instance, the conversion of all vehicles to electric vehicles would fully achieve the climate change objectives in transport, but would do nothing to reduce congestion. If car use continued unabated, traffic congestion would still persist and worsen, resulting in a diminished quality of life for many commuters struggling through long commutes in congested traffic conditions.

In addition, there is a need to ensure that the national road network can appropriately perform its primary role of catering for strategic traffic, in particular vehicles involved in

the transportation of goods and products, public transport vehicles, and other usage which contributes to national and regional economic development. This means that the level of usage by non-strategic traffic needs to be controlled of these elements of the overall road network to preserve its core functionality.

Ensuring that urban centres are people focussed and not vehicle focussed is an objective of national, regional and local planning policies. This means that management of vehicle numbers, in particular car numbers, is essential in those areas to support the place-making ambitions set out in various policies and plans. Linked to this is the need to improve air quality in urban centres in advance of achieving full vehicle electrification, which may require measures such as the implementation of low emission zones.

Accordingly, there are numerous factors, additional to the greenhouse gas reduction targets, supporting, and requiring, management of the level of car use in order to deliver on other objectives.

16.7 Final 2030 Emissions Assessment

The implementation of the Transport Strategy elements intended for delivered by 2030, coupled with the planned vehicle electrification and increased use of bio-fuel set out in the Climate Action Plan 2019, will see transport emissions in the GDA decrease from a “business as usual” figure of

3.4 MtCO₂eq in 2030 to 2.0 MtCO₂eq, also in 2030. This represents a reduction of 45% from the 2018 GDA emissions total of 3.2 MtCO₂eq.

Additional measures are required to further reduce emissions to meet the 51% reduction target of 1.6 MtCO₂eq. A number of alternative approaches, as set out above, are available to achieve this supplemental reduction.

It is acknowledged that Approach 1 (increased fuel price) and Approach 2 (additional electrification) are national policy issues rather than regional matters. It is likely that general carbon pricing policy will see increased fuel costs of some level over the coming years to reflect the overall objective of reducing fossil fuel use.



In relation to additional electrification (Approach 2), the already planned level of electrification by 2030 is highly ambitious and the potential to further ramp this up is limited. Accordingly, most of the remaining emissions reduction target will fall to be achieved by the types of demand management measures set out under Approach 3.

However, there are various permutations of such proposals available and further detailed assessment will be required to establish and calibrate the optimal framework. That assessment work to develop the optimal framework will be undertaken at an early point in the lifetime of the Strategy, and will take account of policies set out in updates to the Climate Action Plan 2019 and derived from the carbon budgets to be established under the Climate Action Plan and Low Carbon Development (Amendment) Act 2021.

MEASURE CLIMATE1

Additional demand management measures to achieve the GDA transport emissions target for 2030 will be implemented. The NTA will undertake a detailed assessment to establish the optimal framework of demand management measures, which is likely to include parking restraint, zonal charging, additional tolling / road pricing and/or further vehicle electrification.

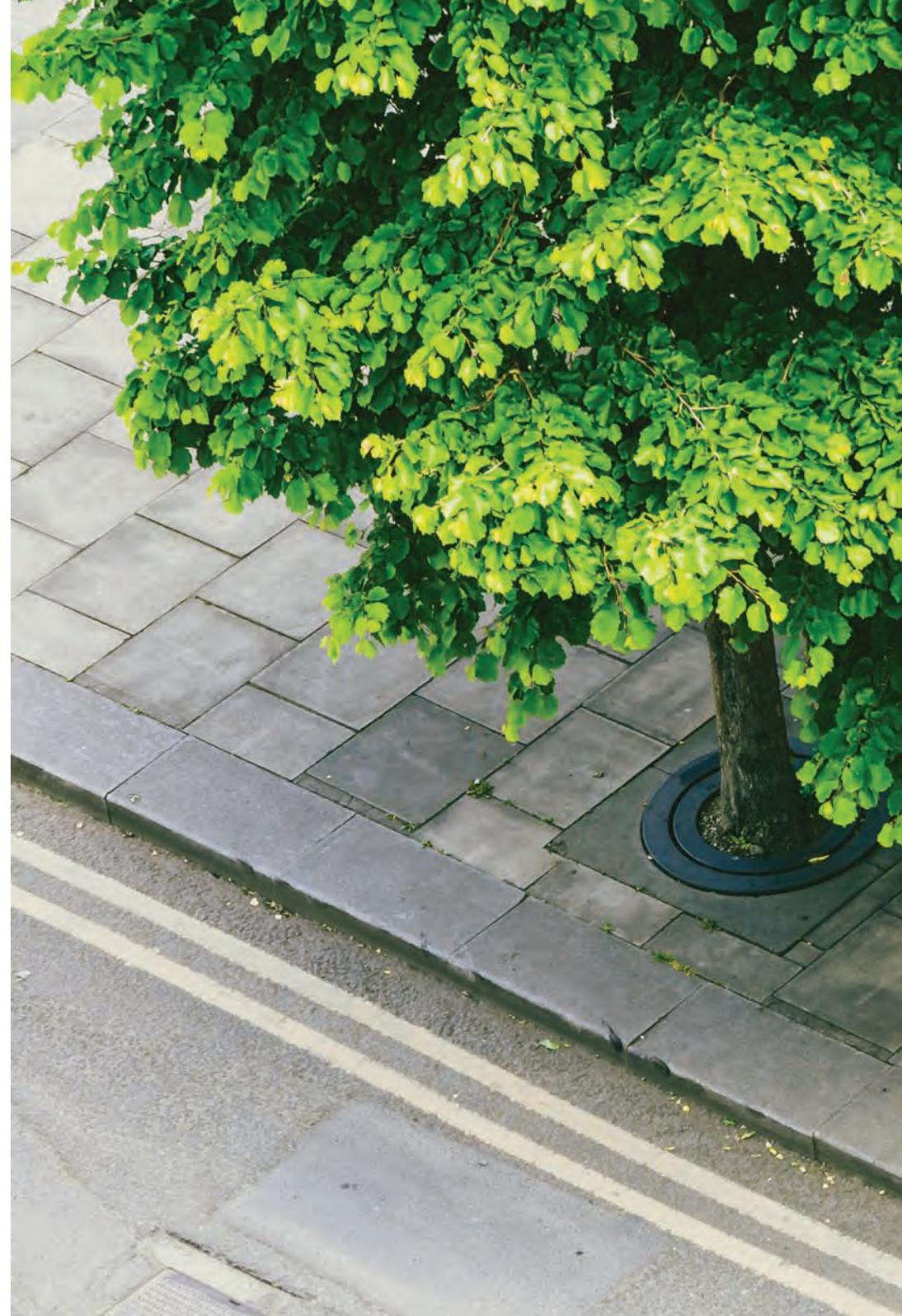
16.8 Emissions Levels in 2042

Emissions targets are clearly established for 2030 under the provisions of the Climate Action Plan and Low Carbon Development (Amendment) Act 2021. That Act also sets out the objective to achieve a “climate neutral economy by no later than the end of the year 2050”. Accordingly, while no specific targets are set for 2042, the final year of this strategy, it is intended that emissions will continue on a downwards trajectory between 2030 to 2050.

The continued electrification of the transport fleet and the implementation of the remaining elements of this strategy will further reduce greenhouse gas emissions within the GDA. Assessment work carried out has indicated that greenhouse gas emissions from transport in the GDA will reduce to below 1 MtCO₂eq by 2042.

MEASURE CLIMATE2

Through the implementation of the full measures set out in this strategy, in combination with the plans and programmes of Government, the NTA will contribute to a reduction in CO₂ emissions from transport in the GDA to below 1 MtCO₂eq by 2042.







17. Strategy Outcomes

17. Strategy Outcomes

17.1 Introduction

The Transport Strategy has been analysed and tested using the NTA's Strategic Transport Model for the Eastern Region – the ERM. A large number of model runs were undertaken in an iterative manner throughout the strategy development process and then in its appraisal. The suite of runs used in the appraisal towards the end of the strategy development process comprises an appropriate representation of the Transport Strategy in modelling terms, in that the measures tested reflect those set out in the strategy report. Full details of the modelling process, including the other tests that were undertaken, are set out in a separate Modelling report.

The Transport Strategy has also been subject to a Strategic Environmental Assessment and Appropriate Assessment.

These analyses and assessments were carried out in accordance with the strategy objectives set out in Chapter 5 and the strategic environmental objectives. The combination of these assessments is reported in this section according to each objective.

The impact of the strategy is measured against 2016 primarily. This is the last year for which comprehensive Census travel data is available. There are a number of indicators for which a comparison against a 2042 scenario without the strategy is more appropriate and these have been set out accordingly.

17.2 How the Strategy Contributes to an Enhanced Natural and Built Environment

17.2.1 Consolidated Development

The Transport Strategy sets out a number of policies and objectives that directly benefit the policy of development consolidation. Chapter 8 contains a number of planning principles which the NTA will endeavour to ensure are incorporated into Development Plans and other planning policy documents, and are applied to development proposals, via our role as a prescribed body for planning matters.

The proposed transport network is focussed on facilitating the development of brownfield land primarily, while serving a number of major strategic medium density greenfield developments, which are contiguous to the built-up area of Dublin.

The Transport Strategy therefore facilitates the growth and development of the GDA in a manner which reduces urban sprawl; land take; damage to habitats; protects biodiversity; and avoids potential adverse effects on protected sites.

17.2.2 Public Realm and Placemaking

In terms of contributing to a better built environment, the measures outlined in Chapters 8, 10 and 14 in particular place a great emphasis on the creation of people-centred urban areas – the transformation of streets as thoroughfares into places people wish to congregate and where movement on foot and by bicycle is safer and more convenient.

The development of the walking and cycling network, as well as the development of high-quality public transport across the GDA would foster the development of Dublin’s urban villages and other towns, as well as maintaining and enhancing the role of Dublin City Centre. This placemaking approach would contribute to an enhanced urban environment.

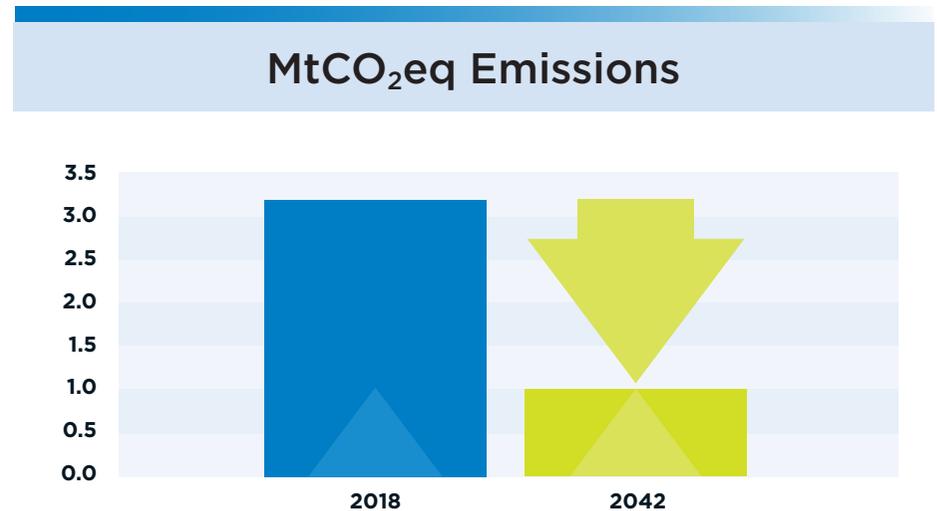
17.2.3 Reduced Impacts of Traffic

Linked to the previous point, the reorientation of transport and land use planning away from the facilitation of the private car may contribute to this environmental objective by reducing the dominance of this mode across the settlements of the GDA. This would lead to improved air quality; greater roadspace reallocation to sustainable modes, and the improvement of the visual environment by reducing the effects of cars parked – both on-street and in off-street car parks – which can dominate urban environments.

17.2.4 Carbon Emissions

The Transport Strategy, in combination with other Government policies and programmes is forecast to lead to a reduction in carbon emissions from transport in the GDA from 3.2 MtCO₂eq in 2018 to c.1.0 MtCO₂eq in 2042 (Figure 17.1)

Figure 17.1: GDA Transport Emissions 2018 and 2042



17.2.5 Air Quality

The Transport Strategy, in combination with other Government policies and programmes is forecast to lead to a significant reduction in air polluting emissions compared to 2016. (Table 17.1).

Table 17.1: Air-polluting Emissions 2016 and 2042 (Kg)

	NO _x	NO ₂	PM10	PM2.5
2016	7,182,430	2,234,190	537,350	357,300
2042 With Strategy	1,217,850	259,640	445,270	247,590
Reduction	-83%	-88%	-17%	-31%

17.2.6 Noise

The Transport Strategy leads to a significant reduction in the use of the private car for trips for all purposes (see following section). This is forecast to reduce the numbers of people exposed to unacceptable noise levels from traffic, in particular within urban areas.

The number of goods vehicles travelling in the GDA is expected to increase as a result of growth over the period of the strategy. While this may lead to some localised impacts in terms of increased noise, it is forecast – in line with policies and objectives related to the management of Heavy Goods Vehicles – that these adverse effects would arise primarily on the national and strategic road network, rather than on local roads and as such, would not lead to a significant increase in the population exposure to high noise levels.

The electrification of the public transport fleet, in addition to the private car fleet and light commercial goods vehicles, is likely to lead to reductions in noise as electric vehicles are generally quieter than those using ICEs.

Overall the Transport Strategy, in combination with other Government policies and developing technologies, is forecast to lead to a reduction in the numbers of people in the GDA being exposed to high noise levels from transport.

17.2.7 Mode Share

24 Hour Period

The Transport Strategy is forecast to lead to a significant reduction in car mode share for the GDA from 57.7% in 2016 to 48.6% in 2042 for all trip purposes throughout the day. The Cycling mode share for all trips over the 24 hour period is forecast to increase from 3.7% in 2016 to 11.5% in 2042. (Figure 17.2)

In Metropolitan Dublin, the mode share for car is forecast to fall from 52.4% to 41.9% for the 24hr period, with public transport forecast to increase to 19.7% and cycling to 14.1%. (Figure 17.3)

The numbers using public transport in the GDA over a 24 hour period increase by 39%, leading to a mode share increase from 14.6% to 17.5%. In the Metropolitan Area, these figures are 17.0% and 19.7% respectively.

Figure 17.2: 24Hr Mode Share for the GDA 2016 and 2042

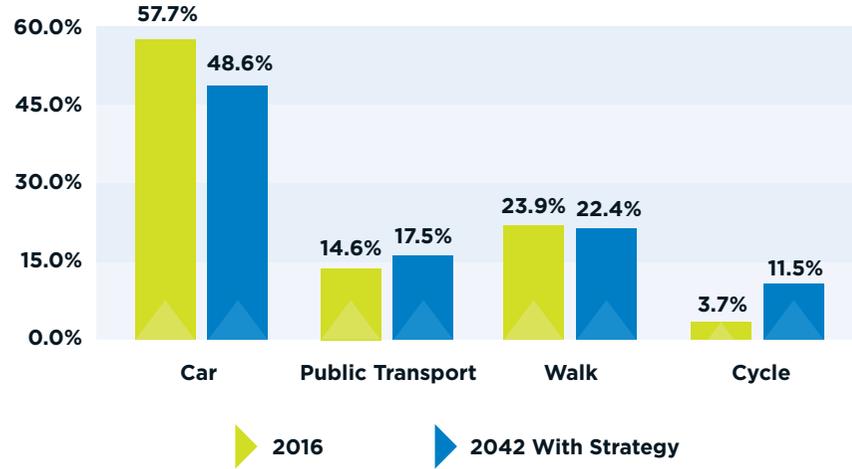
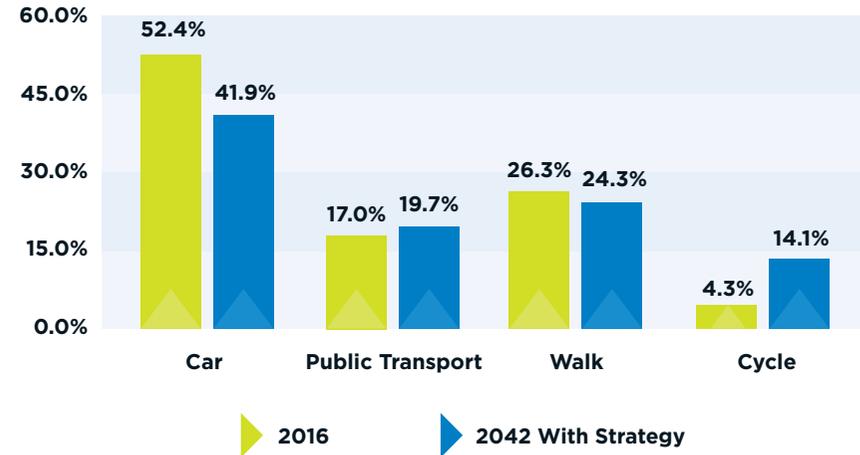


Figure 17.3: 24Hr Mode Share for Metropolitan Dublin 2016 and 2042





AM Peak Period

In the AM Peak Period (7-10am) the mode share for car is forecast to drop from 54.8% to 43.8% in the GDA, with increases in public transport and cycling. (Figure 17.4).

In Metropolitan Dublin in the AM Peak Period, the mode share for car is forecast to drop from 47.9% to 36%, while the Cycling mode share is forecast to increase from 4.4% in 2016 to 15.0% in 2042. (Figure 17.5)

Figure 17.4: AM Peak Period Mode Share for the GDA 2016 and 2042

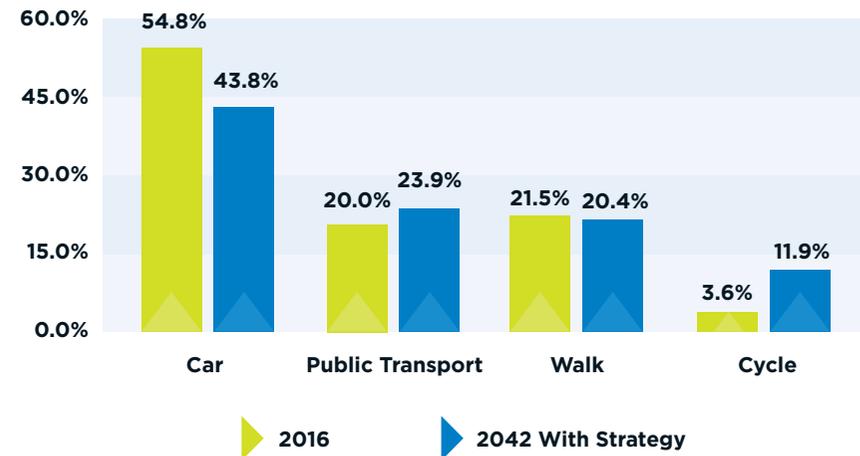
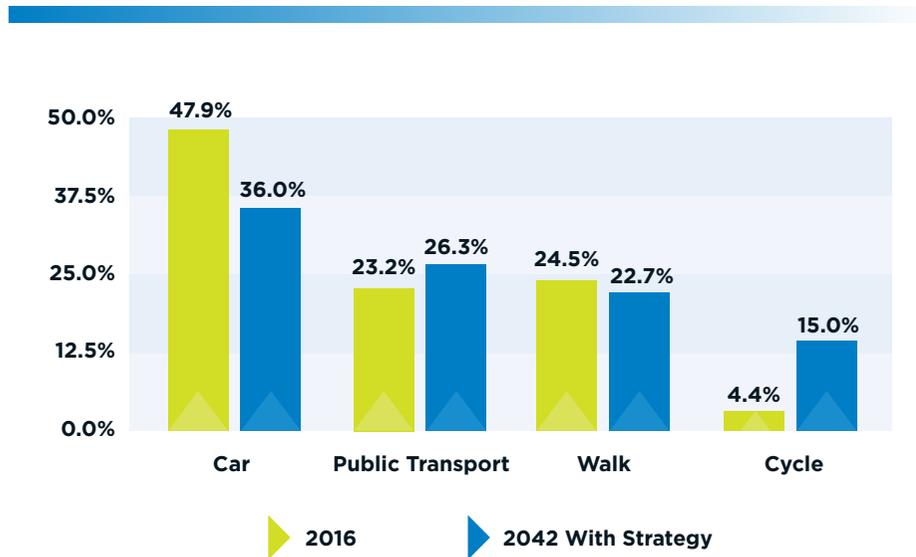


Figure 17.5: AM Peak Period Mode Share for Metropolitan Dublin 2016 and 2042



17.2.8 Vehicle Kilometres

The Transport Strategy is forecast to lead to an 18% reduction in the number of vehicle-kilometres travelled to work compared to 2016 and an 8% reduction for business trips. These are shown in Table 17.2. Vehicle kilometres travelled is forecast to reduce by 10% for all trips including commercial vehicles, Heavy Goods Vehicles and Taxis in 2042 with the strategy in place compared to without the strategy.

Table 17.2: 2042 Forecast Vehicle Kilometres Travelled by Select Trip Purposes - 24 Hour Period

Trip Type	2016	2042 With Strategy	% Change
Business	4,764,000	4,368,000	-8%
Commute	8,533,000	6,958,000	-18%

17.3 How the Strategy Leads to More Connected Communities and Better Quality of Life

17.3.1 Walking and Cycling

The Transport Strategy, in combination with the plans and programmes of national government and the local authorities will contribute to a step change in the approach to providing for pedestrians and cyclists and contribute to a much enhanced quality of life.

The reorientation of the transport network towards these modes, as set out in chapters 8, 10, 11 and 14 will ensure that people in the GDA will be provided with a walking and cycling environment which will greatly enhance their accessibility to services such as schools, health facilities, shops etc. at the neighbourhood and district level, promoting greater use of

these modes. Walking and cycling are, by their nature, more sociable modes of travel – people meet and interact more often – and by having a realistic choice to use these active modes over motorised modes contributes to a healthier lifestyle.

For school travel, better walking and cycling facilities will help address childhood obesity by providing exercise at the start and end of the school day.

Overall, the implementation of the transport strategy’s approach to these modes will help knit communities closer together; and will contribute to a better quality of life.

17.3.2 High Quality Public Transport Coverage

The level of public transport service on offer to an individual and the quality of that service is a major factor in that person’s quality of life. The Transport Strategy sets out a wide range of public transport measures which, in combination, would provide the people of the GDA with a significantly enhanced quality of life in this regard, in the following ways:

- Reduced waiting times for public transport due to greater coverage of high frequency services;
- Faster commutes by rail and by bus due to infrastructural improvements;
- Better reliability and associated reduced travel stress; and
- Reduced rural isolation as a result of increased coverage and frequency of services.

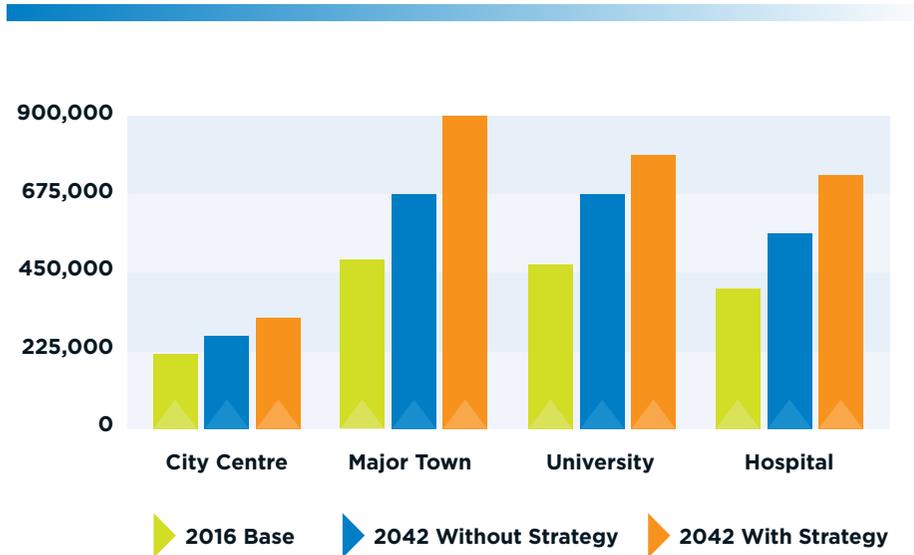
17.3.3 Travel Time to Major Destinations

With the Transport Strategy in place in 2042, the number of people living within 30 minutes journey time to major destinations in the AM Peak increases significantly. 31% more residents of the GDA will be able to reach the City Centre in that time by public transport compared to a 2042 scenario without the transport strategy in place, and 45% more will be within 30 minutes of a major hospital. (Table 17.3 and Figure 17.6)

Table 17.3: Number of People within 30 Minutes Travel Time of Major Destinations by Public Transport

Destination	2016	2042 Without Strategy	2042 With Strategy	% Change vs 2016	% Change vs without 2016
City Centre	214,891	274,899	316,035	47%	15%
Major Town	504,422	676,742	895,880	77%	32%
University	468,349	677,554	792,486	69%	17%
Hospital	408,610	572,253	737,066	80%	29%

Figure 17.6: Number of People within 30 Minutes Travel Time of Major Destinations by Public Transport – 2016, 2042 Without Strategy and 2042 With Strategy



17.3.4 Safety

The implementation of the Transport Strategy is forecast to save 86 lives over its appraisal period and 333 serious casualties when compared to a scenario without the Transport Strategy, using available transport modelling and appraisal

methods. For this indicator, the appraisal period is 30 years beyond the strategy end-year of 2042.

This reduction in casualties is due primarily to a reduction in car use, but does not fully take into account the enhanced safety impacts of better cycling and walking infrastructure at the local level across urban areas. In this regard, it is anticipated that the implementation of the Transport Strategy will have a significant impact, not only on the numbers of collisions and injuries, but on the perception of safety among vulnerable road users.

In terms of cycling and walking modes specifically, the roll-out of segregated cycle routes on all the main corridors and elsewhere across the GDA, as well as the greenway network, will make this mode significantly safer and more accessible to people of all ages and cycling abilities. Additionally, improvements to the pedestrian environment, including better crossing facilities and footpaths, are likely to reduce accidents.

The Transport Strategy sets out a number of measures which will seek to ensure that the transport system is safe from a personal security point of view. This relates to security on-board public transport as well as ensuring that walking routes are safe at night with lighting, CCTV etc., as well as ensuring that people can get home safely throughout the night by expanding the amount of late night services including those operating 24hr a day.

17.4 How the Strategy Contributes to a Strong and Sustainable Economy

17.4.1 Fostering Economic Activity

The transport system is a critical factor in the economic health of city regions. It is essential that all trip purposes at all times are facilitated in an efficient manner as almost every journey has an economic value. While the focus can often be on the peak hour commute to work, the Transport Strategy ensures that all-day business travel; goods movement; off-peak and weekend trips to retail; trips for recreation and leisure etc. are all catered for.

By proposing a comprehensive and integrated transport network that serves all trip purposes by all modes at all times of the day, the Transport Strategy ensures that the value of the maximum range of activities will be harnessed and that the economic costs of congestion and suppressed demand due to inconvenience are reduced.

Furthermore, by providing for a step change in the capacity of the transport system, the Transport Strategy facilitates the more efficient concentration of growth into the City Centre and major centres of economic activity in the GDA. This agglomeration benefit comprises a virtuous circle whereby greater access by sustainable modes increases the potential for investment in our centres. This investment creates greater demand for movement and improvements to the transport system, which when delivered increases investment in turn.

17.4.2 Business Trips

The Transport Strategy is forecast to facilitate a greater level of business travel, and a much greater amount of this travel is forecast to be undertaken by sustainable transport, with these modes accounting for 38% of business trips in 2042 with the strategy in place, compared to 26% in 2016. However there will be a slight increase in journey time effecting businesses still dependent on the car.

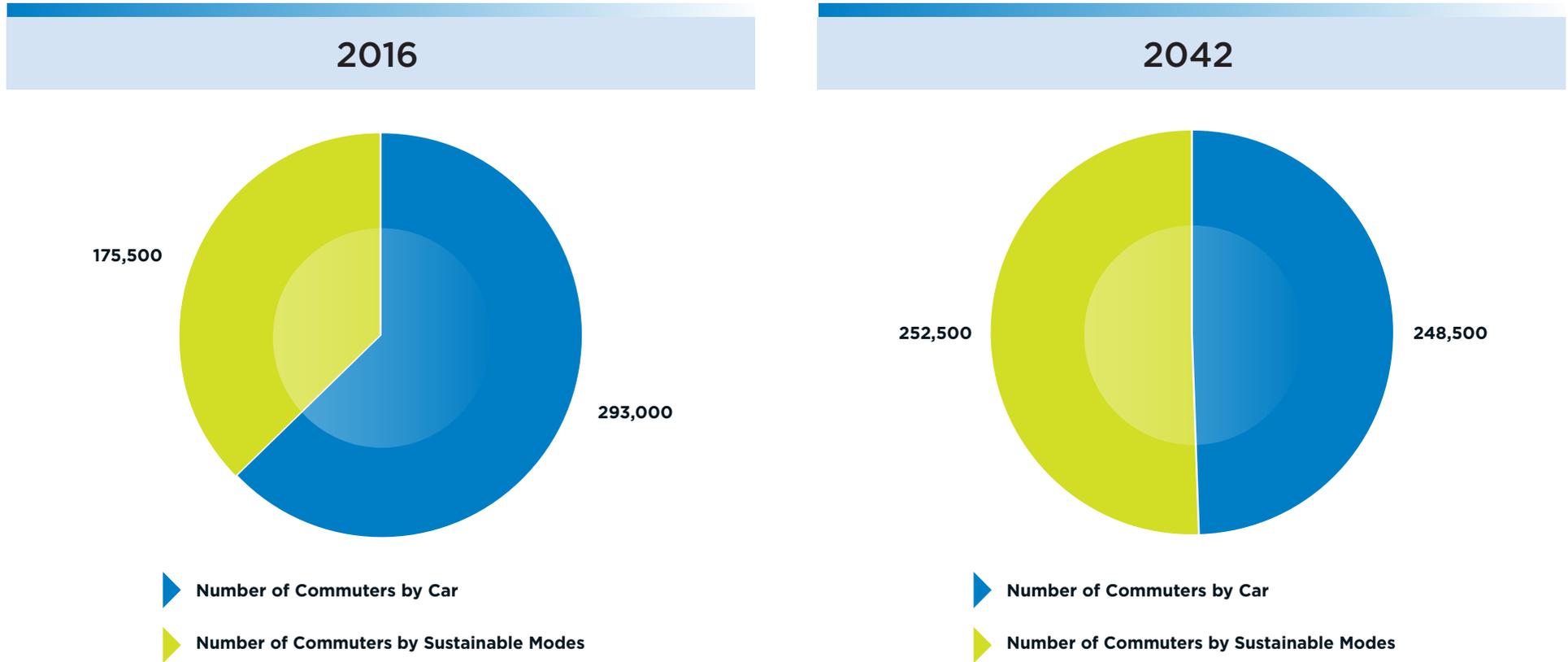
17.4.3 Trips to Work

The transport system proposed in the Transport Strategy facilitates a far more sustainable pattern of commuting and is likely to remove a significant number of people out of congested networks onto free-flowing public transport and cycling networks, in particular in Metropolitan Dublin and the larger urban centres of the GDA.

For those outside the main centres, the reach of high-quality public transport into the GDA and Leinster will be much expanded under the Transport Strategy, including via Park and Ride, facilitating greater numbers of commuters to reduce their use of the private car if they are travelling into Dublin or other major centres.

Within the built-up area of Dublin, not only will the main radial corridors be enhanced, but the development of a proper, coherent and integrated network of high quality services will offer people an attractive alternative to the private car for a wide range of commuter trips to all areas and make that trip more attractive. The forecast shift from car to sustainable modes from 2016 to 2042 is shown in Figure 17.7.

Figure 17.7: Trips to Work 2016 and 2042 With Strategy AM Peak



17.4.4 Goods Vehicles

While the modelling is focussed on movement of people, there are a number of outputs related to goods vehicles and freight movement generally.

The Transport Strategy is forecast to facilitate more than double the amount of goods vehicles trips in 2042 compared to 2016. There is an increase of approximately 7 minutes in the average journey time for goods vehicles over that period. This indicator should be read in conjunction with the significant improvements in indicators for other trip purposes, and in particular in the context of the traffic management measures required to meet Climate Change targets.

The Transport Strategy sets out an ambitious programme of engagement between all of the major freight stakeholders and provides for the development of a freight strategy which will aim to deliver significant improvements to this sector, taking full account of emerging challenges such as Brexit and the recovery from Covid-19.

17.4.5 Travel to Dublin Port

The Transport Strategy facilitates more than double the amount of vehicles accessing Dublin Port in the AM Peak compared to 2016. While the travel time increases, this clearly demonstrates that the strategy protects the strategic function of Dublin Port by ensuring that the radical interventions required across the GDA to meet climate change targets, do not adversely affect the movement of essential goods traffic to and from Dublin Port.

17.4.6 Travel to Dublin Airport

The overall number of people that access Dublin Airport increases by 66% in 2042 with the strategy in place compared to 2016. The numbers travelling by public transport is forecast to almost triple to over 16,000 in the same period. It should also be noted that the number of car trips reduces significantly with the strategy in place in 2042 compared to a scenario without the strategy, with an associated increase in public transport. This clearly demonstrates the manner in which the measures proposed in the strategy, such as MetroLink and the Core Bus Corridors, protect and foster the growth of this strategic national asset. Similar outcomes arise for the AM Peak period. See Figure 17.8.

Travel time to Dublin Airport by car decreases by 13% in the AM Peak as a result of the Transport Strategy and by 21% by Public Transport compared to a scenario without the strategy in place in 2042. This primarily reflects the impact of Metrolink and the Core Bus Corridors. As more people use bus and light rail, the reduced numbers travelling by car also benefit from reduced congestion. While the time travelled by car increases relative to 2016, this must be viewed in the context of the significant shift to sustainable modes that the strategy enables.

Figure 17.8: Total Trips to Dublin Airport 2016 and 2042 by Mode 24hr

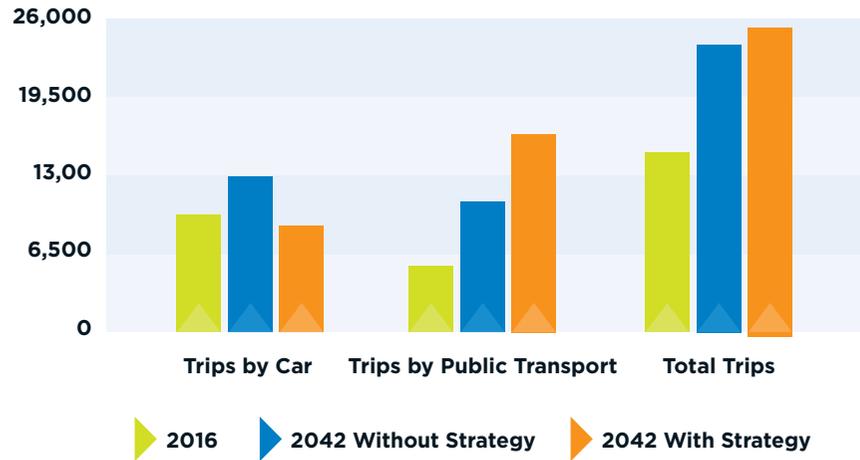


Figure 17.9: Average Journey Time to Dublin Airport 2042 AM Peak



17.5 How the Strategy Fosters an Inclusive Transport System

17.5.1 Equality

The Transport Strategy places great emphasis on inclusion and equality and it will be subject to a full Equality Impact Assessment prior to finalisation.

Chapter 9 sets out a statutory framework committing the NTA and all other agencies in the GDA to the implementation of measures to ensure the transport system meets the needs of all members of society, and to advertising and education campaigns which seek to inform people of specific needs of others.

In terms of the transport system itself, the Transport Strategy commits the NTA and transport operators to the delivery of stations, stops, vehicles and passenger information and signage that meet the highest standards required in this regard.

As such, the Transport Strategy, within its statutory remit, commits all actors in this area to develop an inclusive transport system, building on the work done to date.

17.5.2 Access to Jobs

The Transport Strategy is forecast to increase the numbers of jobs accessible to people living in the GDA by 30 minutes public transport journey time by 5%.

This, coupled with the improvements to the walking and cycling environment, demonstrates the manner in which the Transport Strategy will make it easier for people to access the workplace by sustainable modes without the need to own a car. Disadvantaged Areas.

17.5.3 Access to Jobs for those Living in Disadvantaged Areas

The Transport Strategy is forecast to increase the numbers of jobs accessible to people living in Disadvantaged Areas in the GDA by 30 minutes public transport journey time by 57%.

Car ownership rates are significantly lower in disadvantaged areas and as such, this is an important metric which demonstrates the impact of the strategy in facilitating access to the labour market for those with limited travel options.

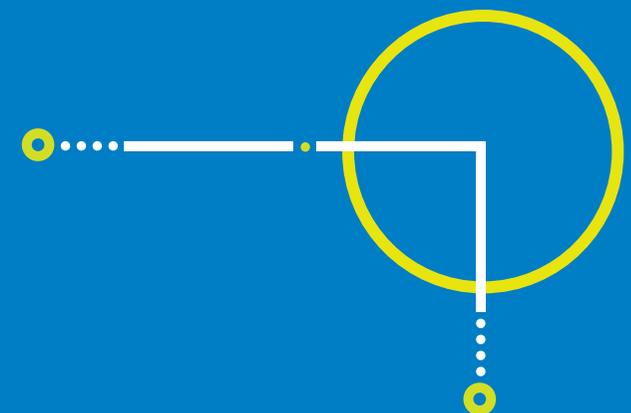
17.5.4 Accessibility to High Frequency Public Transport

The number of people forecast to be living within a 800m catchment of a rail, light rail or high frequency bus service will grow by 182% between 2016 and 2042 with the strategy in place.

17.5.5 Promoting Culture and the Night-Time Economy

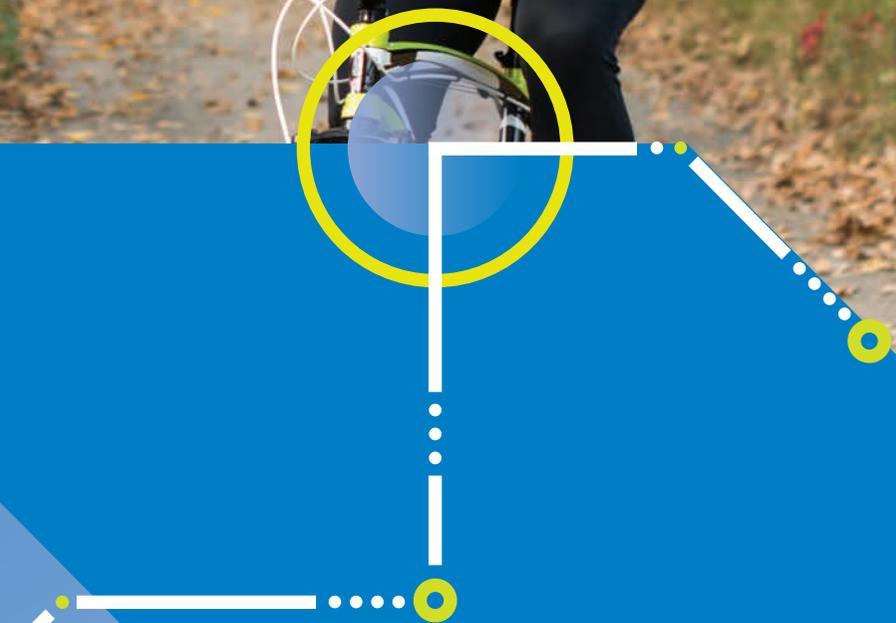
The implementation of the Transport Strategy will contribute significantly to the promotion of the cultural, hospitality and night-time economy of the GDA.

By providing high-quality public transport services on a 24hr basis in Metropolitan Dublin; by improving the level of service offered by the SPSV sector; and by improving connectivity to the urban centres and rural areas by public transport, these parts of the economy – which operate primarily outside of the traditional transport peak hours – would benefit significantly.





18. Environmental Assessment



18. Environmental Assessment

18.1 Introduction

Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) have both been undertaken alongside the preparation of the Strategy. All recommendations arising from the SEA and AA processes have been integrated into the Strategy. Many of these recommendations have been set out in the SEA Environmental Report; however, some of the more strategic recommendations are detailed below. Compliance with these measures will facilitate environmental protection and management.

18.2 Regulatory Framework for Environmental Protection and Management

In implementing this Strategy, the Authority will cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management and will ensure that plans, programmes and projects comply with EU Directives – including the Habitats Directive (92/43/EEC), the Birds Directive (2009/147/EC), the Environmental Impact

Assessment Directive (2011/92/EU, as amended by 2014/52/EC) and the Strategic Environmental Assessment Directive (2001/42/EC) – and relevant transposing Regulations.

18.3 Lower-level Decision Making

Lower levels of decision making and environmental assessment should consider the environmental sensitivities identified in Section 4 of the SEA Environmental Report, including the following:

- Special Areas of Conservation and Special Protection Areas;
- Features of the landscape that provide linkages/connectivity to designated sites (e.g. watercourses and areas of semi-natural habitat, such as linear woodlands);
- Salmonid Waters;
- Shellfish Waters;
- Freshwater Pearl Mussel catchments;
- Nature Reserves;
- Natural Heritage Areas and proposed Natural Heritage Areas;

- Areas likely to contain a habitat listed in Annex 1 of the Habitats Directive;
- Entries to the Record of Monuments and Places and Zones of Archaeological Potential;
- Entries to the Record of Protected Structures;
- Un-designated sites of importance to wintering or breeding bird species of conservation concern;
- Architectural Conservation Areas; and
- Relevant landscape designations.

18.4 Corridor and Route Selection Process

The following Corridor and Route Selection Process will be undertaken for relevant new infrastructure:

Stage 1 – Route Corridor Identification, Evaluation and Selection

- Environmental constraints (including those identified in Section 4 of the SEA Environmental Report) and opportunities (such as existing linear infrastructure) will assist in the identification of possible route corridor options;
- Potentially feasible corridors within which infrastructure could be accommodated will be identified and these corridors assessed. The selection of the preferred route corridor will avoid constraints and meet opportunities to the optimum extent, as advised by relevant specialists; and
- In addition to the constraints identified above, site-specific field data may be required to identify the most appropriate corridors.



Stage 2 – Route Identification, Evaluation and Selection

- Potentially feasible routes within the preferred corridor will be identified and assessed. The selection of preferred routes will avoid constraints and meet opportunities to the optimum extent, as advised by relevant specialists, taking into account project level information and potential mitigation measures that are readily achievable;
- In addition to the constraints identified above, site-specific field data may be required to identify the most appropriate routes; and
- In addition to environmental considerations, the identification of route corridors and the refinement of the route lines is likely to be informed by other considerations.

18.5 Appropriate Assessment

All projects and plans arising from this Strategy will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and subsequent Appropriate Assessment where necessary, that:

- The Plan or project will not give rise to adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or
- The Plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or
- The Plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

18.5.1 Protection of Natura 2000 Sites

No projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Strategy (either individually or in combination with other plans or projects) .

18.6 Climate Change, Emissions and Energy

As identified in the SEA Environmental Report that accompanies this Strategy, the Strategy facilitates sustainable mobility and associated positive effects, including those relating to:

- Reductions in greenhouse gas emissions and associated achievement of legally binding targets;
- Reductions in emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
- Reductions in consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and
- Energy security.

In implementing the Strategy, the Authority will support relevant provisions contained in the National Energy and Climate Plan, the Climate Adaptation Strategies of planning authorities within the Greater Dublin Area, the Climate Action Plan (2019), National Climate Change Adaptation Framework (2018), the National Mitigation Plan (2017) and the Department of Transport’s Sectoral Adaptation Plan for Transport Infrastructure, which builds on the 2017 “Adaptation Planning – Developing Resilience to Climate Change in the Irish Transport Sector”.

Cognisant of the imperative to reduce emissions, the Authority will seek to ensure primacy for transport options that provide for unit reductions in carbon emissions. This can most effectively be done by promoting public transport, walking and cycling, and by actively seeking to reduce car use in circumstances where alternative options are available.

During the preparation and/or review of policies and plans relating to climate change, carbon emissions and energy usage, the Authority will seek to integrate Strategy objectives, as appropriate.

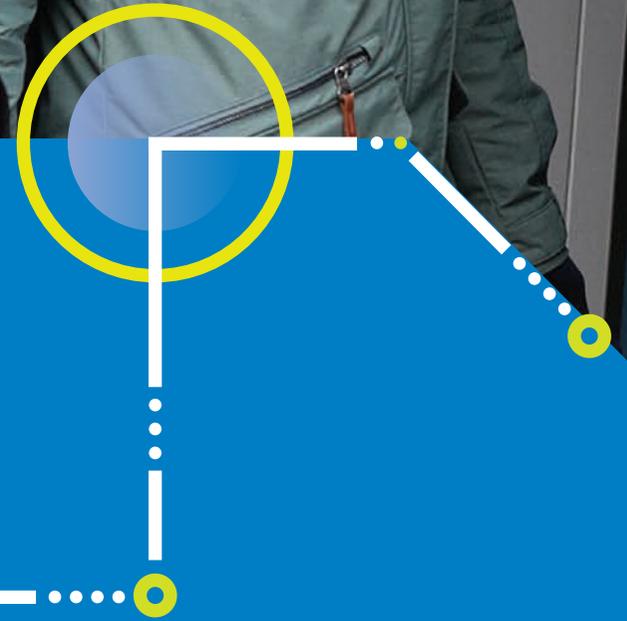
18.7 Other SEA Recommendations

In implementing the Strategy, the Authority will ensure that the measures included in Table 9.3 of the SEA Environmental Report are complied with.





19. Next Steps



19. Next Steps

19.1 Phasing

The pace of implementation of the Transport Strategy will be indicated by the level of available funding. While the planning process for schemes can be lengthy and complex, it is the budgetary environment which primarily determines the rate at which strategic infrastructure projects can be delivered. As such, the phasing of this strategy has been fully aligned with the National Development Plan 2021-30.

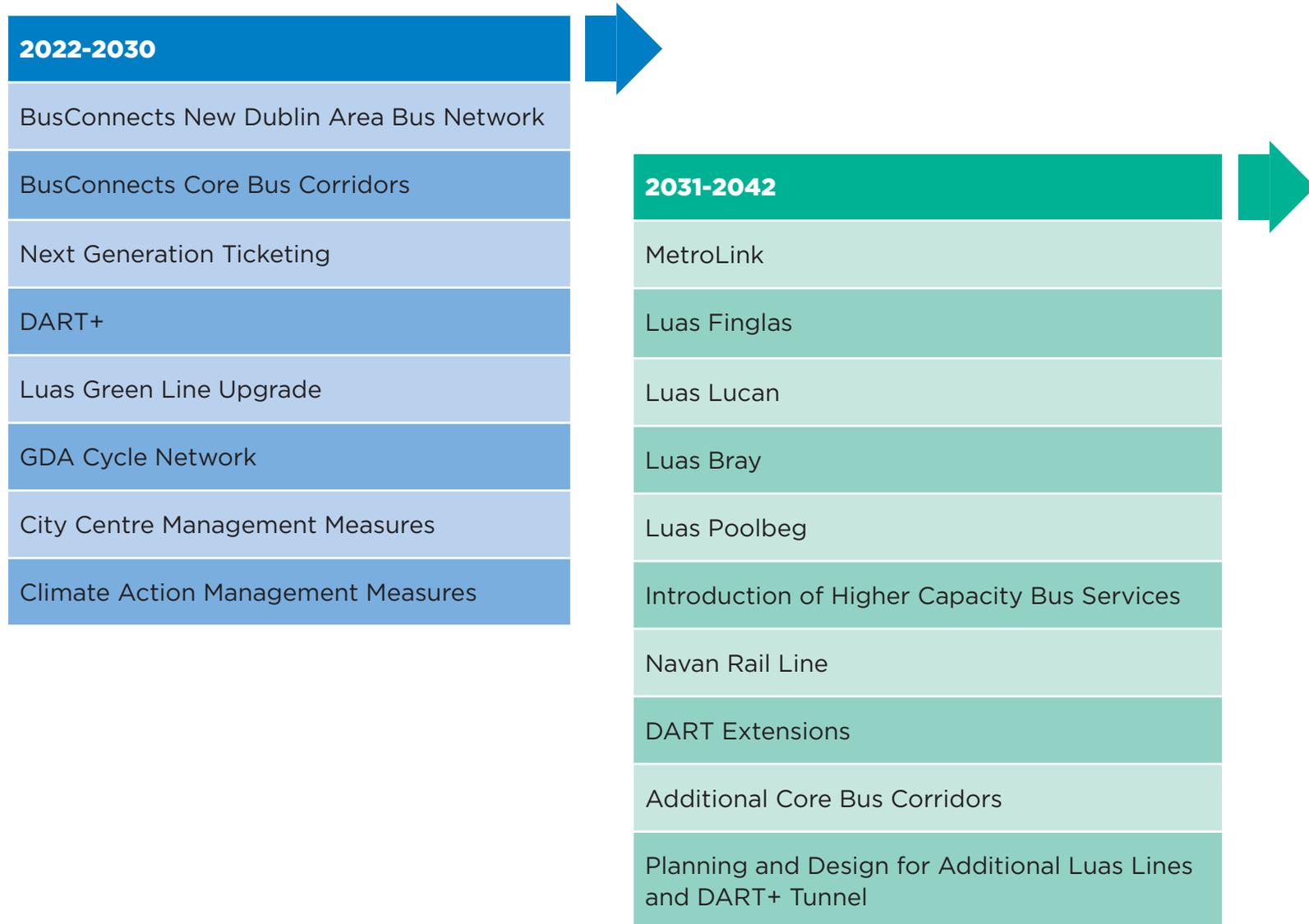
The overall capital cost of the proposals set out in the Transport Strategy is in the order of €25 billion in current prices. Spread over the twenty year period of the strategy, this investment will deliver the public transport infrastructure, cycling network, roads, park & ride provision and the various other elements required to provide an effective, efficient and sustainable transport system for the region.

It is the intention of the NTA to deliver the Transport Strategy in accordance with the high-level phasing shown in Figure 19.1. The planning and design stage of major projects takes several years and it is worth noting that significant progress has been made in the design and planning for MetroLink, the DART+ Programme, the BusConnects Core Bus Corridors and Luas Finglas. The implementation of the BusConnects New Dublin Area Bus Network has commenced and significant resources have now been allocated to the delivery of the GDA Cycle Network Plan across the local authorities.

Figure 19.1 divides the period of the Transport Strategy into two time bands – the first up to 2030, aligning with the current National Development Plan, and the second period from 2031 to 2042. It sets out the completion or implementation dates for various projects, divided into the two time periods.



Figure 19.1 Strategy Phasing



19.2 Monitoring

19.2.1 Introduction

To ensure that the policies and proposals of the Strategy are being implemented in a coordinated, effective and timely manner, it is essential that a robust monitoring programme is put in place. This section details the measures and indicators which will be used to undertake this task.

Monitoring can demonstrate the positive effects facilitated by the Transport Strategy including those relating to improving sustainable transport and meeting our climate change obligations as they relate to transport. Likewise, monitoring can enable, at an early stage, the identification of unforeseen adverse effects which will allow the NTA to undertake appropriate remedial action if required.

19.2.2 Objectives and Indicators

Monitoring is based around the collation of available indicators which allow quantitative and qualitative measures of trends and progress over time relating to the achievement of the Strategy Objectives as set out in Chapter 5. Monitoring is an ongoing process and the programme will allow for flexibility and the further refinement of indicators.

19.2.3 Sources

Measurements for indicators generally come from existing sources. Existing sources include those maintained by the NTA, TII, Central Statistics Office and other relevant authorities including the Eastern and Midlands Regional Assembly, and

local authorities. It may be necessary to expand some of these data sources to ensure that they are appropriate to fully assess the identified indicators and to ensure that they can be provided in a timely manner to allow for interim reporting.

Examples of sources for monitoring the strategy include:

- CSO Census of Population;
- CSO National Household Travel Survey;
- NTA Annual Bus and Rail Statistics;
- NTA/Dublin City Council Annual Canal Cordon Count;
- Annual Local Authority Traffic Counts;
- Transport Infrastructure Ireland National Roads Network Indicators; and
- Environmental Protection Agency Environmental Indicators Reports.

The NTA will continue its liaison and cooperation with the CSO on the methods and frequency of data collection to ensure that information is obtained in a timely and meaningful manner.

19.2.4 Reporting

A Monitoring Report which assesses the implementation of the Strategy against the strategy objectives will be prepared by 2025 in advance of the review of the Strategy. This document will be prepared in parallel to the Monitoring Report prepared for the Strategic Environmental Assessment.

19.3 Considerations for the Review of the RSES

19.3.1 Introduction

This Transport Strategy seeks to provide a transport system which greatly enhances the quality of life for residents, workers and visitors to the GDA, as well as meeting our climate change obligations. The land use policies and assumptions used are set out in the current RSES. The RSES is required to be reviewed periodically, and the next iteration will be required to address the recent updates to National climate change policy. In addition, as set out in legislation, the RSES must be consistent with the Transport Strategy, offering an opportunity to further align the policy direction and integration of land use and transport planning.

This section aims to set out potential considerations for such a review and is based on the following:

- Reducing the need to travel;
- Ensuring that investment in transport infrastructure and services is optimised to serve sustainable development; and
- Prioritising low-carbon modes.

While significant progress has been made in recent years in improving the relationship between land use planning and transport planning, there are still many instances in which transport has not been a central consideration in, for example,



the decision to zone lands for residential or employment uses. At present, there are houses being built in locations in the GDA which present significant challenges to serve by public transport; are beyond reasonable walking and cycling distances of many services; and, as such, residents will be more likely to use the private car than those living in dwellings elsewhere.

This section sets out one potential pathway towards land use patterns which avoid such development and towards a more consolidated and urbanised future for the GDA which would contribute to Ireland meeting its climate change targets as they relate to transport emissions; and in which less time and resources are expended on travel between homes and workplaces; retail and other uses.

19.3.2 Challenges for Consolidation

In the current RSES, a target of 50% of future population growth is to be located within Dublin City and suburbs. Outside of these locations, significant growth is provided for in regional growth centres, key large towns, smaller settlements and rural areas. Similar policies apply for other land uses such as employment and retail.

As such, there are zoned undeveloped lands across the GDA which are in locations that are not served by high quality public transport; and where walking and cycling for purposes such as commuting to work, college or retail are more challenging than in larger centres or Dublin City and Suburbs. Furthermore, even within Dublin City and Suburbs, there are some zoned areas that are sub-optimal in transport terms.

19.3.3 Public Transport Orientated Development

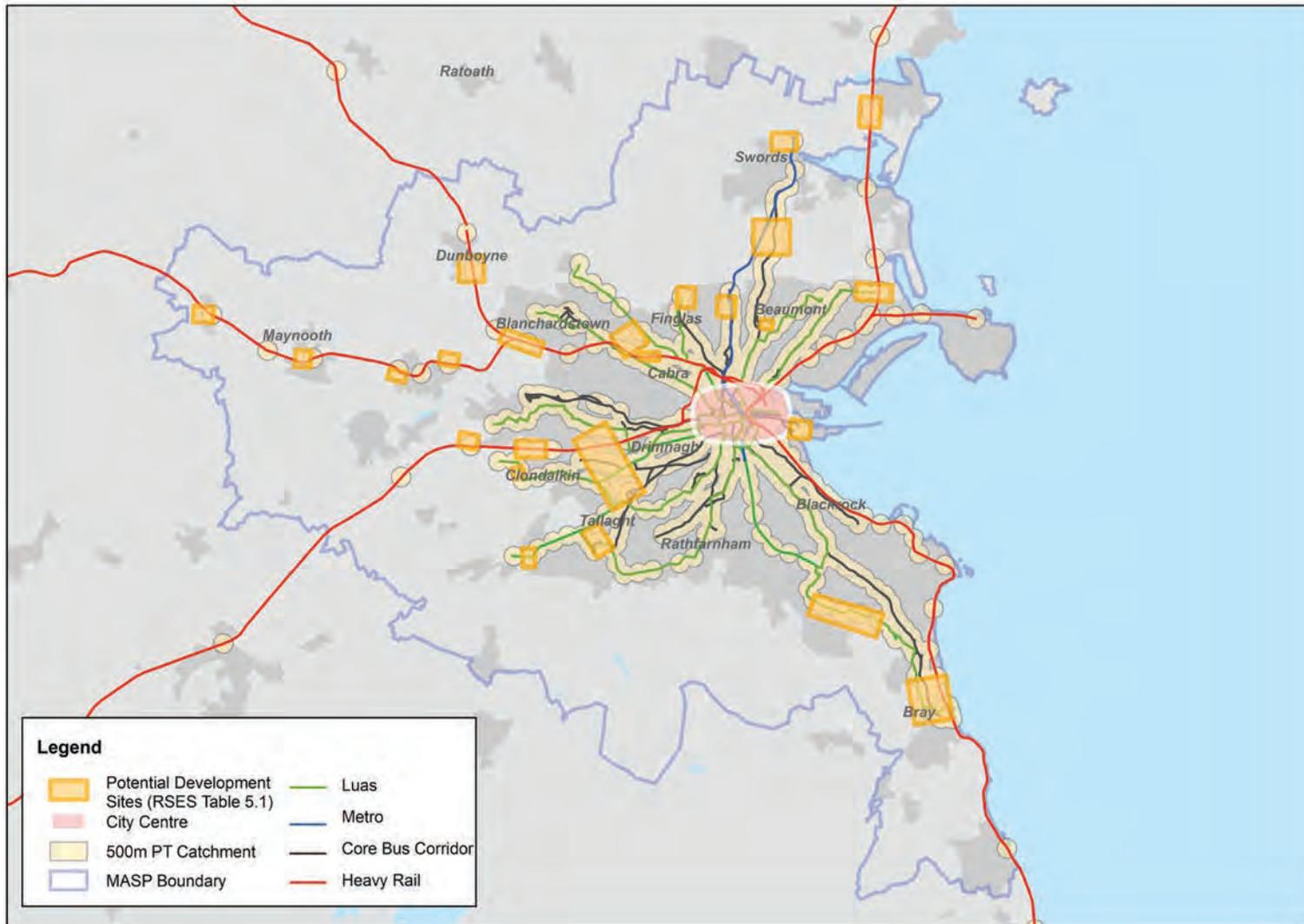
In examining the potential for reframing land use policy in the GDA, the NTA carried out an analysis of land use development potential based on accessibility to the core public transport network proposed for the Metropolitan area in 2042. The analysis used the general areas set out in Table 5.1 of the RSES to identify large scale areas with potential to grow, and within the catchment of the proposed Strategy public transport network. (It is noted that potential growth areas also exist outside the Metropolitan area, but this has not been included in the analysis at this stage). The potential transport orientated growth locations within the Metropolitan Area is illustrated in Figure 19.1.

19.3.4 Appropriate Locations for Development

Based on the above map, it is evident that in order to ensure that land use development complements investment in transport and acts as an enabler of the actions required to address climate change, further management of peripheral development is required. As such, and in accordance with the Planning and Development Act, the NTA will recommend that the Eastern and Midland Regional Assembly, in the preparation of the next Regional Spatial and Economic Strategy, and the local authorities, in preparing their subsequent statutory plans, seek greater levels of development consolidation in the following ways:

- A greater emphasis on development in Dublin City Centre at a significantly higher density;
- Provision for the review of existing zonings for residential

Figure 19.2: Potential Future Growth Locations in the Metropolitan Area



and employment development with a view to ensuring development takes place within the 1km walking catchment of an existing or committed future public transport service;

- Policies which ensure that residential developments, other than single rural dwellings, will occur within walking or cycling distance of existing or planned future primary (2km) and secondary schools (3km);
- Policies which ensure that school developments will take place within walking and cycling distance of its population catchment;
- A review of the potential for high intensity residential, employment and mixed use development at key locations within Metropolitan Dublin, where it has been identified that the existing land uses comprise an under-utilisation; and
- Restrictions on the development of peripheral sites zoned for employment to low-intensity uses only which demonstrate low dependency on the use of the private car.

19.3.5 Potential Mechanisms for Delivery

To assist in the delivery of integrated land use and transport planning in a manner which will assist in the move towards a low carbon region, the NTA recommends that Government and planning authorities review the full spectrum of legislation.

Guidance, policies and plans which affect the development of land in the GDA and identify and implement necessary reforms.

This Transport Strategy has set out a major transport investment programme, the benefits of which can only be realised if it is accompanied by complementary land use patterns up to 2042 and beyond. The NTA will contribute to this reform to ensure that the statutory environment in which Exchequer funding for the Transport Strategy is brought forward is appropriate and that transport planning and land use planning are fully integrated.

19.3.6 Conclusion

This section sets out an approach that could be taken to further the integration of land use planning and transport planning in the GDA as well as ensuring that our climate change obligations with regard to transport are met. This will form the basis for the NTA's engagement with the EMRA in the preparation of the next RSES and with Government on the review of the NPF, as well as a framework for how the NTA will interact with Local Authorities in relation to new Development Plans and Local Area Plans.

Changes to the planning system and legislative framework may be required to deliver this, and the NTA will cooperate with all relevant agencies in this regard.





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