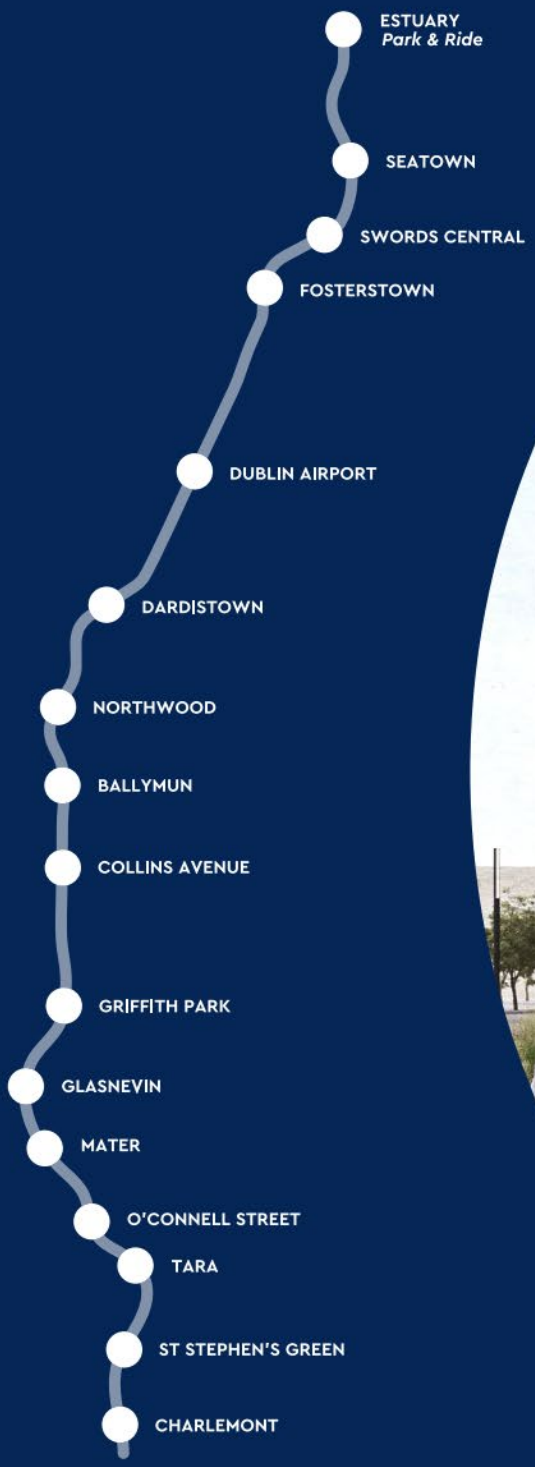

3 Background to the MetroLink Project

Contents

List of Abbreviations

Acronym	Meaning
ABP	An Bord Pleanála
BRT	Bus Rapid Transit
CO_2	Carbon Dioxide
CO_{2eq}	Carbon Dioxide equivalent (measure of Greenhouse gas emissions)
COVID-19	Corona Virus Disease
DART	Dublin Area Rapid Transit
DCU	Dublin City University
DTO	Dublin Transportation Office
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPR	Emerging Preferred Route
ERM	Eastern Regional Model
EU	European Union
FCC	Fingal County Council
GDA	Greater Dublin Area
GHG	Greenhouse Gases
GWh	Gigawatt Hours
LUG	LUAS Users Group
MCA	Multi Criteria Analysis
NDP	National Development Plan
NPF	National Planning Framework
NOX	Nitrogen Oxides
NSO	National Strategic Outcome
NTA	National Transport Authority
PM	Particulate Matter
PPHD	Passengers Per Hour Per Direction
PR	Preferred Route
QBC	Quality Bus Corridor
RPA	Railway Procurement Agency
TII	Transport Infrastructure Ireland
UN	United Nations

3. Need and Background for the Proposed Project

3.1 Introduction

This Chapter presents a review of the need for the MetroLink project (hereafter referred to as the proposed Project) in the context of the historical development of a proposed metro system for Dublin as supported by transport and planning policy since 2001.

The need for the proposed Project is discussed based on reference to the current challenges identified in relevant plans and policy documents and how these challenges would be met by the proposed Project. All policy documents referenced in this Chapter are publicly available documents and can be sourced from the documents authors. Alternatively, each of the documents cited below can be downloaded from the website www.MetroLink.ie/background information.

This Chapter is presented in two distinct sections which are as follows:

- **Need for the proposed Project:** A description of the need for the proposed Project; and
- **Background to the proposed Project:** The provision of context for the need for the proposed Project, in terms of describing the historical development of the project as supported by transport, planning and other policy.

3.2 Outline Project Description

The proposed Project will comprise a high-capacity, high-frequency, modern and efficient metro railway between Estuary Station and the Park and Ride Facility, north of Swords via Dublin Airport to Charlemont Station which lies south of Dublin City Centre. The proposed Project is 18.8km long from end to end.

The northern section of the proposed Project, between Estuary and Dublin Airport will be largely in cut, with sections on the surface or on embankment. The alignment then progresses into a 2.3km tunnel underneath Dublin Airport, which then comes back to the surface at Dardistown south of Dublin Airport. The alignment then crosses over the M50 before progressing into the City Tunnel which runs from Northwood to Charlemont over 9.4km.

16 new stations are proposed along the alignment with Estuary Station at surface level, four stations at Seatown, Swords Central, Fosterstown and Dardistown in retained cut and the remaining stations underground.

Other principal project elements include a proposed Park and Ride facility at Estuary, a viaduct over the Broadmeadow and Ward Rivers and a crossing over the M50 Motorway, an Operational Control Centre and Maintenance Depot at Dardistown. There will also be intervention shafts and intervention tunnels for safe egress and access to the tunnelled sections of the alignment at a number of locations.

The proposed Project has been designed to interchange with existing and future elements of the transport network. A full description of the proposed Project is provided in the following chapters of this Environmental Impact Assessment Report (EIAR):

- Chapter 4 (Description of the MetroLink Project);
- Chapter 5 (MetroLink Construction Phase); and
- Chapter 6 (MetroLink Operations & Maintenance).

3.3 The Need for the Project

3.3.1 Introduction

The proposed Project is the single biggest investment in transport infrastructure in the history of the State and is part of an integrated transport solution that also includes for BusConnects and Dart+ which

are all included under Project Ireland 2040. Together these projects will result in reliable, sustainable, affordable, integrated public transport that will support the economy, help Ireland meet its climate change targets in line with Climate Action Plan 2021 and make Dublin a more liveable and sustainable city. While MetroLink is a critical part of the proposed integrated transport system for the Greater Dublin Area, it is a standalone project that is not dependent on any other projects for its delivery or effective operation.

MetroLink will contribute significantly to the transformation of the lives of the 1.6 million people projected to live in the Dublin region by 2040 (CSO, 2020). The growing population and higher-density housing will create demand for a reliable, high-capacity, sustainable public transport system that helps Ireland meet its climate change commitments of reducing its greenhouse gas (GHG) emissions by 51% by 2030 and reaching net zero no later than the year 2050.

The need for the proposed Project has been established in every relevant transport study and policy document going as far back as A Platform for Change – An integrated transportation strategy for the Greater Dublin Area (GDA) 2000 to 2016 (Dublin Transportation Office (DTO) 2001). The requirement for the proposed Project is also supported in current policy from national to local level and is included the Transport Strategy for the GDA 2016-2035 (NTA, 2016), the Draft Transport Strategy for the Greater Dublin Area 2022-2042 (NTA, 2021), NDP 2018-2027 (Government of Ireland, 2018a) and the revised NDP 2021-2030 (Government of Ireland, 2020) as described in Section 3.6.2.1.10 of this Chapter.

3.3.2 Definition of the Challenges

Dublin and Ireland as a whole face a number of significant challenges moving into the future, most of which are associated with the very successful economy over the last few decades, particularly in the Dublin area. These challenges are becoming more significant as we face the need to transform to a carbon neutral economy. The relevant challenges are discussed here in order define the challenging conditions that are driving the need for the proposed Project. The challenges are discussed below under the following headings:

- Unsustainable Development;
- Greenhouse Gas Emissions;
- Air Quality;
- Noise; and
- Traffic Congestion.

3.3.2.1 Unsustainable Development

At a global level the human race faces an existential crisis due to potential impacts of climate change on the world's population and on the natural systems that support it. This crisis requires major changes to be made at every level of Irish society to introduce new systems that result in significant reductions in Greenhouse Gas Emissions (GHGs) to mitigate future climate impacts.

The CSO Environmental Indicators for 2021 identified that Ireland currently has the second highest carbon intensity per capita in the EU for 2019 at 12.1 tonnes per capita, compared to an EU average of 7.9 tonnes per capita. The transport sector was identified as the 2nd highest contributor to GHG emissions after agriculture, contributing 20% of total emissions.

A review of the National Spatial Strategy (DoECLG, 2002) to inform the development of the National Planning Framework (NPF) – Project Ireland 2040 was undertaken, and it identified that if current development patterns continued:

- There will continue to be sprawling growth patterns around and outside of our cities and larger towns. The OECD Environmental Performance Review 2021 (OECD 2021) identified that due to the relatively low population densities, road-based transport was the dominant mode of transport in Ireland. In response to this issue and the requirement to reduce GHG emissions in the future, the OECD flagged the importance of co-ordinating land-use and transport planning to promote compact growth.

- There would be stagnation of inner cities and lower density development outside these areas. This would result from the development patterns described above where low-density development continues to spread out from the urban areas, resulting in development being focused on greenfield sites around the existing urban area.
- There will be a degraded environment with the loss of farmland and valuable habitat to predominantly greenfield development and increased risk of groundwater pollution.
- There will be a greater distance between where people live and where people work. The growth patterns described above would result in a poorly connected population with people spending more time commuting to workplaces.
- There will be increased social disadvantage and inequality perpetuated by geographic location. Social inequalities are heightened in an area where there is limited public transport, resulting in isolation from job opportunities, shopping and leisure activities and even from social networks. This is because people who can afford to own a car have much greater access to critical personal and public support when compared to those depending on lower quality public transport. In this context it is important to note that the Measuring access to public transport in European Cities paper (EU Commission, 2015) identified Dublin as having the lowest share of "very high access" to public transport of the large urban centres studied at 38%.
- A continued lack of integrated transport and urban development planning, rather than a holistic approach addressing sustainability and compact urban design, thereby not allowing Ireland to achieve net zero carbon emissions by 2050.

Significant intervention is required to make the future transportation network more sustainable and to create a more sustainable and liveable environment.

3.3.2.2 Greenhouse Gas Emissions (GHG)

Between 1990 and 2020, transport related GHGs increased by 100% with road traffic emissions increasing by 103% (EPA,2021). In 2020, transportation is the second-highest producer of GHG emissions in Ireland, contributing to approximately 18% of Ireland's total (EPA,2021), and forecast to account for an even greater share unless additional measures are undertaken. The following recent trends have been identified in transport related GHG emissions:

- Transport emissions in Ireland peaked at 14.4 Mt CO_2eq in 2007 (EPA, 2021);
- Emissions then fell back to 10.9 Mt CO_2eq in 2012 due to the economic downturn (EPA,2021);
- Emissions have since increased again as the economy recovered, increasing to 12.2 Mt CO_2eq in 2018 (EPA, 2021);
- The COVID-19 pandemic resulted in a significant decline in transport related emissions due to the restrictions on movement imposed to constrain the spread of COVID-19. It is estimated that these reductions were approximately 16% in 2020 when compared to pre-COVID-19 levels (EPA,2021); and
- After COVID-19 restrictions were removed transport related GHG emissions have increased again by 18-19% from 2020-2022 (EPA,2022).

The Climate Action and Low Carbon Development (Amendment) Act 2021 (Hereafter referred to as the 2021 Climate Act) commits Ireland to legally binding targets including a 51% reduction in GHG by 2030 (when compared to 2018 levels) and a net-zero GHG target by 2050. The purpose of the 2021 Climate Act is to provide for the approval of Climate Action Plans 'for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050'. The 2021 Climate Act also 'provide for carbon budgets and a sectoral emissions ceiling to apply to different sectors of the economy'.

A series of three 5-year carbon budgets have been proposed with annual reductions in GHG emissions required as follows:

- 2021 – 2025: Average 4.8% reduction per annum (295 CO_2eq average reduction);
- 2026 – 2030: Average 8.3% reduction per annum (200 CO_2eq); and
- 2031 – 2035: Average 3.5% reduction per annum (151 CO_2eq).

The first carbon budget took effect on 6 April 2022 following approval by the Houses of the Oireachtas.

The 2021 Climate Action Plan also sets out indicative GHG emission reduction targets for 2030 for each sector of the economy. For the transport sector, emission reductions of between 42 and 50% were proposed. It is intended that the Climate Action Plan 2022 will go further and set out specific emission ceilings for each sector.

The EPA (EPA,2022) predicts that with existing measures the transport sector would actually see an increase of 0.6% in GHG emissions from 2020 to 2030. This clearly identifies that significant additional measures are required to further reduce GHG emissions.

3.3.2.3 Air Quality

Poor air quality can cause short term health impacts arising from ailments such as headaches and breathing difficulties, or longer-term impacts causing chronic conditions such as asthma, reduced liver function and cardiovascular disease.

Healthy Environment, Healthy Lives: How the Environment Influences Health and Well-being in Europe (European Environment Agency, 2020a) estimates that in excess of 1,300 premature deaths occur in Ireland each year because of poor air quality.

Ireland is required under the National Emission Reduction Commitments (NEC) Directive (2016/2284/EU) to achieve reduced emissions for five important air pollutants: Nitrogen Oxides, non-methane volatile organic compounds (NMVOC), Sulphur Dioxide (SO_2) ammonia and fine particulate matter ($PM_{2.5}$).

A major source of Nitrogen oxide emissions is the transport network including private cars and elevated Nitrogen oxide levels are known to cause reductions in respiratory and cardiovascular health. Nitrogen oxide emissions in Ireland exceeded the emission ceiling of 65 kilotons (kt) in 2010 but has been compliant since then up to and including 2018. Irelands Environment - An Integrated Assessment 2020 (EPA, 2020) and Air Quality in Ireland 2020 (EPA, 2021) both identified the importance of reducing the contribution of the transport sector to nitrogen oxide emissions by promoting modal shift to public transport, along with walking and cycling.

Particulate matter ($PM_{2.5}$) emissions are also linked to the combustion of fuels from a number of different sectors including road transport. Fine particulate matter, $PM_{2.5}$, is associated with significant potential negative impacts on human health, including acute and chronic respiratory illnesses and cardiovascular disease.

Significant intervention is required to ensure that the transportation network in the future has lower emissions to air.

3.3.2.4 Noise

The EPA's Irelands Environment - An Integrated Assessment 2020 (EPA, 2020) has identified transport as the most widespread noise source in Ireland.

The Environmental Noise Guidelines for the European Region (WHO, 2018) identified that noise pollution in our towns and cities is increasing and that excessive noise, particularly arising from transport sources can have a negative impact on human health and wellbeing, adversely affecting sleep and cardiovascular and metabolic function.

The European Union's (EU's) Environmental Noise Directive (END; 2002/49/EC) deals with environmental noise from major transport infrastructure including roads, railways and airports (EC, 2002) and requires member states to generate strategic noise maps for major transport arteries and to prepare noise action plans to manage identified exceedances.

Following the preparation of noise maps by the relevant local authorities, they are required to consult with the public in the preparation of noise action plans for those areas where the noise thresholds for

Lden (55dB) and Lnight (50dB) are exceeded. These action plans are designed to manage transport noise issues and effects, including the prevention and reduction of environmental noise where necessary.

The Noise Action Plan for Dublin City (DCC, 2019) has identified that 22% of the population were exposed to night-time levels of Lden in excess of 50dB with traffic noise the dominant noise source. 51% of the population are being exposed to daytime Lden levels of greater than 55dB. Significant exceedances were identified along the alignment of the proposed Project, having particular regard to the R108, from Northwood to Ballymun. The Dublin City Development Plan 2016-2022 sets out policies and objectives to prevent, limit, eliminate, abate or reduce noise pollution. The policies and objectives deal with the management of noise impacts on residential and other sensitive receptors having regard to the control of future development and traffic management.

The Noise Action Plan for Fingal County (FCC, 2018) identified that 25.6% of the population had noise exposure levels above Lden 55dB from road traffic noise. It also identified that 18.8% of the population had noise exposure levels above Lnight 50dB. Significant exceedances are noted along the alignment of the proposed Project, specifically in the vicinity of the R132 and the M50 motorway. The Fingal Development Plan 2017 -2023 also outlines objectives to control noise emissions and their effect on sensitive receptors.

For both administrative areas, significant intervention is required in line with the objectives of the local authorities to ensure that the transportation network in the future has lower noise emissions.

3.3.2.5 Traffic Congestion

Ireland is outgrowing its current transportation infrastructure. In 2021, Dublin ranked as the 35th most congested city in the world (an improvement from 14th in 2018) (TomTom, 2021). A single Dublin commuter will, on average, spend over 213 hours a year stuck in traffic (28 extra minutes each rush hour). Economists estimate that, without intervention, congestion and lost time will cost the Irish economy over €2 billion per annum in 2033 (EFEU, 2017). For those with no other choice than to travel, either on the bus or in private vehicles, this lost time is simply the price one must pay to gain access to viable employment, education, healthcare, or other essential needs. This has further negative impact on public health and wellbeing.

This problem is forecast to worsen as Ireland's population continues to grow. At the last census in 2016, Ireland's population stood at just under 4.8 million, having grown by 3.8% since 2011. Dublin City's population grew 5.1% in the same period, while the Fingal County Council (FCC) area experienced a population growth of 8.0%, twice the national rate of growth.

Preliminary results from Census 2022 (CSO, 2022) identified that the national population has increased to over 5.1 million with the population in the Co. Dublin area increasing from 1.3 million in 2016 to 1.5 million in 2022. Census 2022 also identified the Fingal Co. Co. area as one of the fastest growing administrative areas since 2016 with an increase in population of 11% in the period.

Project Ireland 2040: NPF forecasts a 25% increase in the population in the Dublin area by 2040. The Dublin Metropolitan Area Strategic Plan envisages a population of 1.65 million in the metropolitan area by 2031, an increase of 250,000 (18%) from 2016.

Meanwhile, the GDA is facing a considerable housing challenge. House prices are rising, with average annual price growth from 2012 and 2019 ranging from 8.3% (Fingal) to 10.7% (Dublin City). Average wage growth over this period was only 1.3%, meaning that houses have become increasingly unaffordable, especially for first-time buyers. Along with other policy requirements, more houses need to be built to address a deficit of supply (which is keeping current prices high).

Significant intervention is required to ensure that the transportation network in the future has more capacity and at the same time is more sustainable.

3.3.2.5.1 MetroLink Corridor

The Swords, Dublin Airport, Dublin City Centre corridor is a major artery for the Irish economy and is becoming increasingly impacted by the trends identified above. Almost 8,000 workers currently commute from Swords to Dublin City Centre, but only 12% of those commuters use public transport (CSO, 2016).

An intervention on this corridor is necessary in order to achieve a change in transport patterns that reduces the reliance on private cars and increases significantly the modal shift to public transport. This would allow the opportunity for the transport network to be optimised by freeing up capacity for more efficient goods and service transport. The intervention must not only address the identified challenges that are experienced today but must also address potential future congestion and sustainable development challenges discussed in this Chapter.

Major road infrastructure investments have been made, including Dublin Port Tunnel, the widening of the M50 and M1 Motorways, and upgrades to the M1/M50 interchange. Critically, the opportunity for further road infrastructure solutions here are very limited. Accordingly, the Fingal/North Dublin Transport Study 2014 – 2015 (NTA, 2015) (detailed in Section 3.6.2.1.1) considered the strategic need for an enhanced and fully integrated public transport network in Fingal/North Dublin to address issues relating to and stemming from current and future congestion and associated urban development patterns.

3.3.2.5.2 Dublin Belfast Corridor

As outlined above the corridor of the proposed Project plays a critical role in the functioning of the national economy. The corridor facilitates the efficient functioning of two major international gateways (Dublin Port and Dublin Airport) and completes the economic link between Dublin and Belfast (which is part of the Belfast/Dublin Economic Corridor, that is flagged for protection in the NPF).

The efficiency of economic traffic movements along and around this corridor has implications for the entire island of Ireland. Improving the resilience of this corridor to future economic shocks is critical and it is this combination of the need to address economic development and, housing and land-use patterns as our population continues to increase, that elevates the requirement for intervention in this area. The intervention is required to make the transportation network more sustainable and to create a more sustainable and liveable environment.

3.3.2.5.3 Socioeconomic Costs

While the impact of congestion and the lost hours for commuters are significant, the inefficiency of the transportation system hides a lot of additional socioeconomic costs. The statistics quoted above only reference those willing to endure the peak traffic delays. However, the lack of reliable journey time has other more difficult to measure impacts. For example, system inefficiencies during peak hours can force many to commute at times that avoid the natural peak times. This is sometimes called "peak spreading" and has been identified by TII on the M50 between the hours of 6:00am and 8:00am and between 15:00 and 16:00 prior to the COVID-19 pandemic in the National Roads Network Indicator 2019 (TII 2020).

The occurrence of peak spreading can often have the effect of making the transportation system look like it is more efficient than it is and hides other costs. For example, peak spreading puts pressure on families, with one or more parent being absent from the home for longer periods. This leads to increased childcare demands and increased pressure on parents in the household, which can create a cycle of increased stress, reduced disposable income and reduced quality of life. On the other side, for those that can afford it, it also can generate the desire for multiple vehicles at home (with associated negative environmental and sustainability impacts). It follows that, an inefficient transportation system will generate other societal and economic inefficiencies, making an efficient, reliable and demand responsive transportation system crucial to a sustainable and resilient economy and society.

3.4 MetroLink Response to Challenges

The United Nations (UN) has published 17 Sustainable Development Goals that consider sustainability in its widest perspective. These Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges humankind faces, including poverty, inequality, climate change, environmental degradation, peace and justice. The UN Sustainable Development Goals have in turn, been reflected and considered in the NPF and in the development of Ireland's National Strategic Outcomes (NSOs). The NSO's that are relevant to the proposed Project are as follows:

- **Compact Growth:** From an urban development perspective, the NSO is to deliver a greater proportion of residential development within existing built-up areas of our cities, towns and villages and ensuring that, when it comes to choosing a home, there are viable attractive alternatives available to people. The focus will be on infill development supported by integrated transport systems and the promotion of regeneration and revitalisation of urban areas.
- **Sustainable Mobility:** The NSO is to provide a well-functioning, integrated public transport system that will enhance competitiveness, sustain economic progress and enable sustainable mobility choices for citizens. This NSO specifically highlights the importance of the proposed Project and other projects listed under the Transport Strategy for the GDA 2016-2035.
- **Enhanced Regional Accessibility:** The NSO is to improve accessibility between the five main cities and to the Northern and Western regions. This NSO also includes for the improved management of urban road space to allow improved access, by prioritizing cycling, buses and walking facilities.
- **High Quality International Connectivity:** The NSO is to enhance our international connectivity through investment and enhancement of airports and ports, including Dublin Airport and Dublin Port. In addition, the importance of the Dublin Belfast corridor is highlighted.
- **Enhanced Amenity and Heritage:** The NSO is to conserve, protect and enhance heritage sites, in addition to providing an improving walking and cycling network to enhance connectivity.
- **Transition to a Low Carbon and Climate Resilient Economy:** The NSO outlines that new energy systems and transmission grids will be required to support a more renewables focused energy generation system connecting the richest sources of that energy to the energy users. Furthermore, the NSO requires the development of the electricity grid to allow for the electrification of transport fleets.
- **Access to Quality Childcare, Education and Health Services:** The NSO outlines that good access to a range of education and health services is a defining characteristic of attractive, successful and competitive places. Compact growth in urban areas will enable accessible and effective provision of a range of educational and health services.
- **A Strong Economy Supported by Enterprise, Innovation and Skills:** The NSO is to create places that will foster enterprise and innovation and attract investment and talent. It will be achieved by leveraging on the existing potential of places by providing investment in world class infrastructure, in skills and talent to support economic competitiveness and enterprise growth.
- **Strengthened Rural Economies and Communities:** Rural areas are important in terms of ensuring sustainable economic growth while protecting communities and high-quality environments.
- **Sustainable Management of Water, Waste and other Environmental Resources:** Conserving and enhancing the quality of these resources is important whilst also enhancing the circular economy by creating beneficial uses from products previously considered as waste.

A well-designed transport system like MetroLink that is integrated with land-use planning generates important economic, environmental, and societal benefits. Effective and efficient public transport provides people with mobility and access to employment, community resources, medical care, and recreational opportunities.

It will provide significant benefits not only to those who choose to use it, but also to other transport system users, by reducing the demand for scarce road space, and so creates the opportunity for the road transport system to achieve optimum levels of efficiency and effectiveness.

MetroLink will also provide a high-quality urban environment at station locations that will benefit the community as a whole by enhancing the urban realm directly and also by encouraging further high-

quality development which will stimulate the local economy. This will provide an opportunity for the development of a sustainable high quality urban environment along the alignment of the proposed Project.

3.4.1 Compact Growth

The OECD define a compact city as "dense and proximate patterns" and "urban areas linked by public transport systems". Their document entitled, Compact City Policies: A Comparative Assessment (OECD, 2012) outlined the multiple benefits of achieving compact growth and these are as follows:

Environmental Benefits

- Shorter intra-urban distances and less car dependency can help reduce energy consumption and GHG emissions;
- Compact Cities can conserve farmland and natural biodiversity around urban areas; and
- Compact cities create more opportunities for urban-rural linkages allowing for consumption of locally produced foods, lower food transport costs and reduced GHG emissions.

Economic Benefits

- Compact cities can increase the efficiency of infrastructure investment and reduce the cost of maintenance, particularly for linear systems such as rail lines and water supply;
- Compact cities give residents easier access to a diversity of local services and jobs; and
- High density combined with a diversity of functions can stimulate innovation and economic growth.

Social Benefits

- Shorter travel distances and public transport systems mean lower travel costs, facilitating mobility of low-income people; and
- The availability of local services and employment contributes to a better quality of life.

Compact growth enables more people to be located closer to employment and recreational opportunities, encouraging sustainable modes of transport and discouraging car dependence. This will have a positive transformational effect on society by encouraging economic development, focusing investment, building upon existing assets, reducing time spent commuting and providing good access to quality educational services, health services and jobs. It will also encourage active travel with walking and cycling to and from destinations including high-capacity transport nodes such as the proposed Project.

This is consistent with the NPF NSO 1, which identifies the need to carefully manage sustainable growth of compact cities, towns and villages. NSO 1 identifies that "all our urban settlements contain many potential development areas, that are suitable and capable of re-use to provide housing, jobs, amenities and services, but which need a streamlined and coordinated approach to their development, with investment in enabling infrastructure and supporting amenities, to realise their potential". Infrastructure includes the development of integrated transport to cater for these strategic areas.

Transport-Orientated Development: Assessing the Opportunity for Ireland (National Economic & Social Council, 2019) specifically highlights the proposed Project as an ideal catalyst to support compact growth patterns through transport orientated development (TOD). Furthermore, the Urban Development and Building Heights: Guidelines for Planning Authorities, (Department of Housing, Planning and Local Government, 2018) identifies MetroLink and other major public transport projects as key corridors along which development plans must be actively developed to bring about increased density and height of development on undeveloped or underdeveloped sites.

The benefits above will be achieved by the proposed Project along the Swords, Dublin Airport, City Centre Corridor as it will provide the high-capacity transport system that will support compact development. The Fingal/North Dublin study identified that a metro system was the only system that

could provide the required capacity to facilitate future demand along the corridor. The proposed Project will provide much higher transport capacity than a bus-based system would provide, thereby supporting a much more compact future urban area. This increased public transport capacity would support the development of much needed housing provision at a higher density, and this would allow the benefits of compact growth above to be realized, thereby mitigating some of the challenges identified above in Section 3.3.2.

The proposed Project directly supports the strategic plans of the local authorities along the route. FCC have developed its future housing and employment plans for Swords to encourage high density development in close proximity to MetroLink, largely on lands that are undeveloped or underutilised. In the Fingal Development Plan (2017-2023) and the draft Fingal Development Plan (2023–2029) a number of these areas have been specifically zoned as "Metro Economic Corridor" along the alignment of the proposed Project. It is important to note that the alignment of the proposed Project has altered since the publication of the Fingal Development Plan (2017-2023). However, the modified alignment is captured in the draft Fingal Development Plan (2023 – 2029). The principles of the "Metro Economic Corridor" zoning are to optimise the development potential of lands adjacent to the proposed MetroLink alignment and are still valid and critical to the achievement of compact growth.

The scope for compact growth and changes in the current development landscape will be further influenced by the proposed Project over time, with the proposed Project's catchment area at a 2.5km radius from each station being approximately 9,500 hectares. By creating a focal point at each station for compact growth planning and transport orientated developments, the proposed Project can support the development of vibrant, inclusive and resilient communities along its corridor. Future developments within the proposed Projects catchment should be based on the concept of compact, transport-oriented development, cutting back on the number of car parking spaces, and putting public transport at the core of their designs. This will provide a natural incentive to deliver sustainable housing projects.

3.4.2 Sustainable Mobility

NSO 8 of the NPF identifies that "The National Climate Policy Position establishes the national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050". The NPF sets out that achieving this transition to a low carbon and sustainable future will require a transformative change.

This is especially true for the provision of transport and in order to achieve this transformation, viable public and sustainable transport options need to be developed that provide reliable and cost-effective alternatives to private internal combustion engine powered vehicles.

The proposed Project is a sustainable mobility solution which supports the NPF vision. Fully electrified and capable of meeting the passenger demands in the initial years of 53 million and scaling to serve over 100 million passengers over time, all within the same project footprint.

Transport modelling undertaken for the proposed Project has identified the following significant benefits in terms of the uptake of public transport arising due to MetroLink:

- The proposed Project will divert 6.8 million car trips per annum in the early years and growing to 12 million per annum by 2045;
- On the northern section of the alignment, over the modelled years (2030, 2045 and 2060) there is estimated to be up to 45%-58% increase in public transport usage in trips to/from this area, resulting in an increase of between 11,000 and 22,000 public transport trips over a 12hr period. The modelling has also identified that the modal shift experienced along this section of the alignment would result in between 4,700 and 9,400 less car trips per day to and from the area; and
- Along the alignment from Northwood to Charlemont, the modelling data shows that there will be significant growth in public transport usage in trips to/from this area, resulting in an increase of 22,540 – 43,000 in public transport trips over the 12hr day. In terms of car trips there would be up to 11,200 to 14,200 car trips over the 12hr period removed from the roads in this area. The proposed Project will also encourage walking and cycling to and from the stations. There are

estimated to be 295,000 people within a 30-minute walk to MetroLink and a total of 790,000 people within a 30-minute cycle to the alignment of the proposed Project.

Users will need to travel from their home to the closest station and for the vast majority this will mean walking or cycling. Cycling will be supported by the inclusion of suitable bike storage facilities at the majority of stations. This should in turn promote an improvement in health for users who combine an active travel mode with using public transport.

While longer cycling and walking trips are anticipated to reduce, shorter trips are anticipated to increase. Demand modelling forecasts that the proposed project would generate 140,000 active trips per day (which includes approximately 20,000 by cycling).

The proposed Project will therefore encourage more people to avail of active transport, a combination of walking and cycling with the use of public transport, as part of their journey. Active transport has a key role to play in improving health and reducing health inequalities within the community.

3.4.3 Enhanced Regional Connectivity

The proposed Project is in many respects, the "missing link" in the public transport system. With the proposed Project, residents in Dublin will be able to complete a journey from most parts of the city to Swords and Dublin airport, using the proposed Project rather than relying on taxis, private cars or other modes of transport. These journeys will not only be faster but will also be more reliable and offer more flexibility in time of departure.

The proposed Project will facilitate, for the first time, the ability for anyone to complete a journey from their point of origin to Swords and Dublin Airport using existing rail, Luas and MetroLink services. In addition, travellers and commuters arriving on Iarnród Eireann services from all parts of Ireland will be able to access MetroLink via existing Luas services or existing rail services at Glasnevin and Tara Street Stations.

The proposed Project will improve the performance of the public transport and road networks in North Dublin, including the critical Dublin-Belfast trade corridor, and the supporting infrastructure for Dublin Port and Dublin Airport, leading to efficiency gains for productivity and the economy. By creating a new transport mode choice for passengers, the proposed Project will enhance regional and international connectivity and help optimise the transport network, to the benefit of the entire Irish economy.

Dublin Port which is Irelands primary port handles almost 50% of shipping trade to and from the Republic of Ireland (www.dublinport.ie/about-dublin-port). As such, ensuring unfettered access to that facility is critical to the functioning of wider economy. MetroLink will remove traffic from the key Dublin-Belfast trade corridor by providing an alternative for commuters accessing Dublin along this route. This will free up constrained road space for use by vehicles transporting goods to and from Dublin port, thereby improving access to the port.

Modal shift will also result in improved traffic flows on the M50 and M1 Motorways – Traffic modelling estimates for the 2045 AM Peak Hour, indicate that there will be decreases in traffic flow south of the Airport and along most of the radial routes into Dublin city and on the M50 Motorway. This will mean more road space for moving goods and services to the rest of Ireland. Post-Brexit, with the noted potential inefficiencies in trade and goods movement – any efficiencies that can be gained on the Irish road network will be very welcome. It will also free up road space which can be used for other key strategic public transport projects such as BusConnects.

3.4.4 Quality International Connectivity

To achieve the best economic performance, Irish ports and airports need to be served by an efficient and effective transportation network. The proposed Project will support the efficiency and growth of Dublin Port and Dublin Airport by creating an additional passenger access opportunity and allowing for optimisation of the surrounding road and public transport networks. Dublin Airport had 30.7m passengers (excluding transfers) in 2019 (last full year for which pre-COVID-19 passenger numbers are

available) and there are approximately 19,200 people employed within the larger airport campus. Dublin Airport is the largest airport by passenger numbers in Europe without a rail connection (pre- COVID-19).

Outbound passengers also experience significant impact due to unreliability of their journey time to the airport. TII analysis demonstrates that the M50 / M1 Motorway system adjacent to Dublin Airport can at times experience unstable traffic flow patterns or a complete breakdown of flow. In response to the consequential journey time uncertainty, many travellers to the airport will factor in a significant buffer time to ensure that they arrive at the airport in time. Of inbound passengers, over 60% used a car, van, or taxi to leave the airport – contributing to road network congestion. Without the proposed Project the use of private vehicles will grow as populations grow and more people fly. Modelling shows that the proposed Project will reduce private vehicle journeys to and from the airport by between 10,200 and 13,200 per 12-hour period. The proposed Project will improve international connectivity as tourists will be able to arrive at Dublin Airport and then access the rest of the rail network efficiently and effectively, confident in the time their journey will take and when they will arrive. Business travellers will be able to access Dublin City Centre more easily, increasing and improving the likelihood that international businesses will continue to make Ireland their European base of operations.

3.4.5 Transition to a Low Carbon and Climate-Resilient Society

Private vehicles are a significant contributor to Ireland's GHG emissions and providing an alternative to private vehicle-based journeys is a key benefit of the proposed Project. The proposed Project will aim to be a fully sustainable and carbon neutral public transport alternative (by the Design Year of 2050). The proposed Project, as a sustainable mobility option, will have a direct and long-lasting impact on Ireland's transition to a low carbon economy. From Opening Year through to 2055 it is anticipated to provide over 1 billion passenger trips.

Demand modelling suggests a diversion of 6.8 million private vehicle journeys per annum in the early years of operation and approximately 360 million car trips diverted by 2055). Accordingly, the proposed Project will support the reduction of GHG emissions which are critical to improving sustainability and transitioning to a low carbon society.

The proposed Project will be fully electrified, and it will be able to reduce its emissions footprint as Ireland moves increasingly to green energy production. While the proposed Project has a significant power requirement (estimated to be 23GWh per annum in its early years) the consideration of renewable energy solutions for the proposed Project will be undertaken in line with the project requirements to implement a whole-life Carbon Management Plan aligned to PAS 2080 to inform the design, build and operation of MetroLink.

Based on modelling undertaken for Chapter 17 (Climate) it is estimated that the modal shift resulting from the provision of MetroLink will result in a reduction in GHG emissions of between 9Kt and 11Kt in 2035 (Opening Year). This reduction is expected to increase to 45Kt by 2050 (Design Year).

3.4.6 Enhanced Amenity and Heritage

How society engages with its urban public realm and public spaces depends on how comfortable and safe the public feel when using them and on how easy services are to access. The proposed Project will improve access to these services and over time, enable enhancement of these services in the corridor area. Currently, the high volumes of traffic in North Dublin are negatively impacting on liveability and the ability to engage with the urban landscape in several ways:

- **Quality Public Realm:** Improvement in the physical quality of the public realm by provision of high-quality station architecture designed to ensure universal access, natural wayfinding, and passive surveillance. This is reinforced with well-designed hard and soft landscape. Station architecture and public realm design are fully integrated with the local environment and designed using high quality materials to provide an attractive environment resulting in a positive and comfortable passenger experience;

- **Noise:** Noise can affect the quality of life and can result in health impacts in some extreme cases as outlined in Section 3.3.2.4. The implementation of the proposed Project will result in a reduction in noise emissions along the proposed alignment in response to the modal shift;
- **Air Quality:** Nitrogen Oxides and $PM_{2.5}$ can have particularly harmful health impacts, as discussed in Section 3.3.2.3. Chapter 16 (Air Quality) has identified that the implementation of the proposed Project will result in reductions in all emissions to air due to modal shift resulting from the project. The project will result in reductions of between 11 and 14 tonnes NOx for the Opening Year (2035) and of between 3 and 51 tonnes NOx for the Design Year (2050). For PM_{10} reductions of between 0.65 and 1.48 tonnes PM_{10} for the Opening Year (2035) and of between 0.02 and 22 tonnes PM_{10} for the Design Year (2050) were modelled. Finally, reductions of between 0.38 and 0.85 tonnes $PM_{2.5}$ for the Opening Year (2035) and of between 0.01 and 12 tonnes $PM_{2.5}$ for the Design Year (2050) were identified;
- **Safety:** Accidents and the perception of accidents, especially involving pedestrians and cyclists can impact on people's willingness to engage with the public realm. Even minor accidents may deter people from walking or cycling to local amenities, especially for families with children; and
- **Accessibility:** Heavy traffic can make it harder to access services such as doctors' surgeries, schools, shops, etc. especially when roads need to be crossed. This can influence social inclusion within the community and particularly more vulnerable groups that may not have access to private vehicles.

The proposed Project will by way of modal shift and by taking significant volumes of passenger movement underground, support the transformation of the surface level urban environment, making it more attractive for people to engage with. People will be more likely to walk or cycle in the area, increasing health benefits, or to frequent shops or restaurants, increasing economic benefits. The increased mobility by walking or cycling will also help to tackle isolation by reducing the need to travel by car.

The stations will also attract a wide range of businesses keen to take advantage of the projected footfall. This will help to boost economic activity and generate an improvement to the urban public realm. This impact is demonstrated by a recent assessment undertaken by Transport for London. This found that improvements in publicly owned and managed areas of London (including the environs around transport hubs and stations) returned substantial benefits to all residents, both the users of the streets and the occupiers of the offices, shops and restaurants. Some of the key benefits identified in the study included:

- 4% per annum uplift in office rental values;
- 7.5% per annum uplift in retail rental values;
- 17% relative decline in vacancy rates; and
- 93% boost in walking behaviours.

The key drivers of these benefits identified were:

- Having an unpolluted environment;
- Distinctive green and comfortable space; and
- Adequate space for pedestrian movement.

The proposed Project stations will support opportunities to improve the urban environment, as will the associated reduction in vehicle numbers. The attractiveness of the urban environment is also a key determinant in where people choose to live. As the proposed Project improves this in North Dublin it will help to attract both people, amenities and businesses into the area, further encouraging compact growth, job opportunities and sustainable housing developments. Finally, the proposed Project will bring more people closer (in time rather than distance) to the various heritage assets in both Swords and Dublin City Centre.

3.4.7 Maximising Sustainability Gains

In recognition of the requirements for the transport sector to achieve sustainability gains as outlined in Chapter 4 (Description of the MetroLink Project) of this EIAR, TII have developed the Transport Infrastructure Ireland (TII)'s Sustainability Statement and this plan sets out TII's vision to lead in the

delivery and operation of sustainable transport, enabling its networks to drive inclusive growth, create job opportunities and enhance wellbeing of all persons, including vulnerable groups, strengthen resilience to climate change, maintain commitment to the environment and continuing to prioritise safety.

Sustainability was a critical driver in the development of the proposed Project, and it informed the design prepared for the project as described in Chapter 4 (Description of the MetroLink Project).

The proposed Project offers wide-reaching sustainability benefits to both Dublin and Ireland across Transport Infrastructure Ireland's three corporate sustainability themes (the environment, society and the economy) as per the Transport Infrastructure Ireland (TII)'s Sustainability Statement and Sustainability Implementation Plan – Our Future (SIP). A summary of these benefits is presented in Table 3.1.

Table 3.1: MetroLink Sustainability Gains - Environment, Society and Economy

Environment	Society	Economy
An electrified mass transport option offering a new, operationally carbon neutral, public transport choice for a range of users. This will help Ireland meet its sustainability and GHG emissions goals.	Promote an improvement in health for a range of users (including carers, children and older citizens) who combine an active travel mode (e.g., walking and cycling to and from stations) with using public transport.	4,300 people per year are expected to be employed during construction and over 300 permanent staff during operation.
An effective public transport system creates an opportunity to change the road user mix – which can lead to more efficient and effective use of the road network, reducing current congestion, improving journey times, air quality, and energy use.	Provide safe, reliable, comfortable, and faster trips between Fingal and Dublin and within the city.	A trainee programme during operation will offer opportunities for upskilling.
GHG emission reductions through the displacement of existing car journeys. Metro trips typically emit seven times less CO_2 than the current equivalent car journey.	Greater public transport choice and faster, safer and more reliable journey times providing easier access to jobs and services such as health services and education.	MetroLink will offer an affordable alternative to car ownership and use.
Opportunities for the protection and enhancement of biodiversity where feasible.	Trains are efficient on space within a city. Underground MetroLink trains will be capable of carrying 500 passengers at the comfortable loading parameter of four people per square metre.	MetroLink will improve connectivity between Dublin, Ireland, and the rest of the world, improving competitiveness due to less time-waste by providing regular, reliable and affordable travel to and from Dublin Airport.
	MetroLink is designed to scale up to meet future demand. Additional trains will be added to the fleet over the course of the first 25 years of operation.	New transport connections will give business and property developers the confidence to invest in new areas and to deliver regeneration.
		As a significant infrastructure project, MetroLink provides supply chain and employment opportunities to local businesses.

3.4.8 Strong Economy Supported by Enterprise Innovation and Skills

The proposed Project will help to stimulate economic activity, encourage innovation and growth in our national skills base. The proposed Project will support approximately 4,300 direct construction jobs for

each year of construction activity, as well as a further indirect supply chain and support related jobs each year. These jobs will range from apprentice levels to master trades people and will support education and skills development in areas of architecture, civil, electrical, mechanical and other engineering disciplines among many other areas. While Dublin and its surrounds will benefit from the increased jobs and spending activity, so too will regional suppliers, third party consultancies and specialist disciplines, training institutions, education institutions and more.

The scale and complexity of the proposed Project, the first of its kind in Ireland, as well as the construction duration (in excess of eight years), will promote skills development and enhancement, education and research in support of the project. Following construction, the proposed Project operations and maintenance will require over 300 permanent skilled jobs, offering further opportunities for continued training and skills development. The operations and maintenance phase will also require continued regional support for infrastructure maintenance activities over its useful life.

In addition, the proposed Project is anticipated to generate agglomeration impact benefits for existing and new businesses. This is in large part generated by improved productivity and reduced costs for businesses in the vicinity, facilitated by improved journey times on the proposed Project. When firms and businesses are located close to one another they benefit from the flow of ideas, staff members, and economies of scale. The proposed Project increases the proximity of more businesses to each other (in time, rather than distance), as well as staff to those businesses, and so is considered to increase the opportunities for agglomeration impacts. Agglomeration improves the effectiveness of production centres (Swords, Dublin Airport and Dublin City Centre) improves productivity and provides greater access to labour and product markets.

3.4.9 Access to Quality Childcare, Education and Health Services

The 2016 census data shows that there are over 300,000 people that would be within a 2km catchment area of the alignment (estimated to be 360,000 in 2030). Of this cohort 41,475 households within the proposed Project corridor have no access to a private vehicle. In addition, 35,792 people in the area have identified as having some form of disability. Furthermore, many people experience socioeconomic disadvantages due to various reasons. Lack of access to appropriate education, childcare, healthcare, economic opportunity, appropriate housing and so on. Also, there are those disadvantaged by injury or persistent ill-health. 2016 Census data show that over 65,000 people live in socially disadvantaged areas along the proposed Project corridor (15,000 live in areas considered to be significantly disadvantaged). Of the 65,000 people identified, 25,000 identify as being unable to work or unemployed, while 2,350 have no formal education. Some neighbourhoods have an average household income that is 40% lower than the Dublin average.

The proposed Project connects this population with five hospitals, 127 schools of which 48 are designated as Delivering Equality of Opportunity Schools and three third-level institutes. By providing a reliable and fast journey time, the proposed Project will also help families to access appropriate childcare to meet their needs. It will also alleviate the degree of childcare that may be required, giving more flexibility to passengers in terms of when they leave for work. While other public transport options also exist, the seamless movement that will be facilitated by the proposed Project's permanent and fixed nature and frequency will also improve accessibility. The improvement in reliability of journey time also contributes to the proposed Project's sustainability.

3.4.10 Strengthened Rural Economies and Communities

In helping to optimise the road and public transport network in North Dublin, the proposed Project will create enhanced access for people in rural communities to Dublin City Centre. The proposed Project will provide improved access for these rural communities to employment opportunities, healthcare provision, cultural and entertainment attractions and travel opportunities to further afield, through Dublin Airport and the broader public transport network. This will allow people to remain living in rural communities while benefiting from much improved access to all of the above-mentioned amenities.

Furthermore, the MetroLink project will integrate two major Iarnród Éireann lines: the western commuter line from Sligo/Maynooth to Dublin, and the south-western commuter line from Newbridge/Hazelhatch

to Grand Canal Dock, converging at the Glasnevin interchange station. These new connections will allow for improved access to the key trip attractors of Dublin City Centre and Dublin Airport from more distant rural areas via the enhanced public transport network. In addition, a Park and Ride facility will also be provided at the most northernly station, Estuary, so as to facilitate access to Dublin City Centre and Dublin Airport via MetroLink. This will ensure that rural communities from the north and northeast will be able to access these key trip attractors without driving further south towards and into the city.

3.4.11 Overall Need for the Project

Three major public transport projects proposed under the Transport Strategy for the GDA 2016-2035 (NTA, 2016), namely MetroLink, BusConnects and DART+ have been developed as independent standalone projects. However, these projects (together with the existing transport network and other public transport projects) are designed to provide a fully integrated transport system that will support the Irish economy while helping Ireland reduce its carbon emissions and contribute in the transition towards a climate neutral economy by 2050.

MetroLink will make Dublin a more liveable and sustainable city and is critical to the overall transport strategy for Dublin for the following reasons:

- MetroLink is the only public transport option to meet the future predicted passenger number requirements for the Swords to Dublin City Centre corridor;
- MetroLink provides capacity far in excess of any other public transport option and will facilitate compact sustainable growth along the alignment to a level not possible with other transport options;
- MetroLink will provide a frequent and reliable public transport alternative to the private car and it is predicted will achieve significant modal shift to public transport along this corridor;
- The predicted reduction in private car use along the corridor will improve the environment significantly by reducing emissions to air and noise associated with the existing traffic congestion;
- The proposed Project will provide a key transport link which will enhance International and Regional connectivity through Dublin City and Dublin Airport;
- The proposed Project will generate agglomeration impact benefits for the economy. This will be driven by improved productivity and reduced costs for businesses; and
- The enhanced public transport options will allow enhanced access for passengers in the surrounding communities and in rural areas further afield to access childcare, educational and medical facilities.

3.5 The Effects of COVID-19

During the COVID-19 pandemic, public health advice concerning social distancing, as well as encouraging more people to work from home, resulted in a significant decline in the demand for commuter and business-related travel and in turn public transport use.

However, as of September 9 2021, existing public transport networks returned to full capacity following the successful implementation of public health measures to manage COVID-19 such as the vaccination programme.

TII has observed that the road network returned to near-normal levels (approximately 80%) very quickly following lockdown events – meaning the capacity constraints and challenges identified at the beginning of this Chapter are likely to persist after COVID-19 – unless the proposed Project and other key elements of an integrated public transport network are developed.

Work from home trends may be expected to become more prevalent in those industries where it is possible, with some spending more days working from home than in the office. The business case for the proposed Project has had regard to potential for lower patronage due to hybrid working and the analysis undertaken in that report still strongly supports the provision of MetroLink project.

It should be noted however, that figures published by the Central Statistics Office, have identified that Dublin public transport usage at the end of May 2022 (for week 21) continues to increase with 2,611,242

passenger journeys per week on bus services, compared to 2,938,021 passenger journeys per week for the same week in 2019. These are the highest levels of public transport usage since March 2020 with growth trends continuing.

3.6 Background to the Proposed Project

The need for the proposed Project has been set out above and this need has been recognised in transport and planning policy documents since 2001 up to present day. This section of the chapter is structured in chronological order in order to present the project development and policy and strategy support for earlier revisions of MetroLink and the proposed Project itself.

3.6.1 Old Metro North (2001 – 2011)

3.6.1.1 Policy Support for Old Metro North

3.6.1.1.1 Dublin Transportation Office - A Platform for Change

The need for a metro system in Dublin was first identified in A Platform for Change – An integrated transportation strategy for the GDA 2000 to 2016 published by the Dublin Transportation Office (DTO) (now the National Transport Authority (NTA)) (DTO 2001). This was an integrated multi-modal transportation strategy for the GDA (including, what were at the time, the administrative areas of Dublin Corporation/City, Fingal County Council, South Dublin County Council, Dún Laoghaire Rathdown County Council, Kildare County Council, Meath County Council and Wicklow County Council). The strategy included a Vision Statement for the GDA (GDA) which was as follows:

- A City and Region which embraces the principles of sustainability;
- Encompassing a leading European City, proud of its heritage and looking to the future;
- Having at its heart the National Capital, seat of government and national centres of excellence;
- A strong, competitive, dynamic and sustainable Region; and
- A Living City and Region, on a human scale, accessible to all and providing a good quality of life for its citizens.' (DTO 2001, p.1).

The public transport element of the strategy included proposals for the development of a segregated light rail network (metro system).

The metro system identified in the strategy included a number of proposed schemes including a route from Swords to Shanganagh (North of Bray) via Dublin City Centre, and an orbital line which spurred off the Swords to Shanganagh route at Finglas via Blanchardstown and Clondalkin to Tallaght, and a line from Tallaght to the south city centre via Kimmage.

The strategy supported the provision of a segregated rail system in order to allow for longer trains operating at higher speeds and a higher frequency than existing systems such as the Luas in order to provide a higher passenger capacity public transport option serving a larger population. It was proposed to be a mixture of underground and at-grade track sections.

3.6.1.1.2 Transport 21

In November 2005, the infrastructure investment programme 'Transport 21' was announced with the aim of greatly expanding Ireland's transport network.

In order to achieve this aim, a range of proposed projects were identified, including two metro projects for Dublin; Metro North and Metro West, although these two proposed metro projects were more limited than the overall metro system that had been proposed in A Platform for Change. Metro West was an orbital metro system proposed to run from Tallaght to Dardistown via Clondalkin, Liffey Valley and Blanchardstown. Metro North was proposed to run from St Stephen's Green and potentially serving Dublin City University (DCU), Ballymun and Dublin Airport before terminating at Belinstown, north of Swords.

3.6.1.1.3 National Development Plan (NDP) 2007 – 2013 Transforming Ireland – A Better Quality of Life for All

The National Development Plan 2007-2013 (Government of Ireland, 2007) supports the Transport 21 investment programme. This plan was widely consulted on and reflects policies agreed and consulted on under the Towards 2016 Ten-Year Framework Social Partnership Agreement 2006-2015 (Government of Ireland, 2006). It identified the proposed Metro North project as a key project in the maintenance of economic competitiveness for Dublin and important to allow the city to enhance its position as Ireland's International Gateway.

3.6.1.1.4 Smarter Travel – A Sustainable Transport Future: A New Transport Policy for Ireland 2009-2020

Smarter Travel - A Sustainable Travel Future 2009-2020 (Department of Transport 2009) set out a broad vision for the future and established a national transport vision and objectives. The main objectives focused on reducing dependency on private cars by increasing use of public transport and encouraging walking and cycling. The policy contained a target to reduce the proportion of commuting journeys to work made by car from 65% to 45%. This transport policy document identified Metro North as a key project as part of an integrated transportation strategy for the GDA. Metro North was proposed as a metro system running from Swords to St Stephen's Green.

3.6.1.1.5 The Regional Planning Guidelines (RPGs)

The Regional Planning Guidelines (RPGs) is a policy document which aimed to direct the future growth of the GDA over the medium to long term by providing a strategic framework for planning and development up to 2022. The document set out key physical infrastructure needs for the GDA to ensure that the integrated delivery of the settlement and economic strategy can be achieved. The RPG's outline a number of measures to ensure that the provision of public transport is integrated with land use planning and these measures as relevant to a metro system are as follows:

- Providing a focus on providing new development in sustainable compact urban areas served by high capacity and well-developed public transport systems;
- Integration of both systems and services across different public transport networks;
- Promotion of higher densities for employment uses around public transport nodes;
- Protection of identified and future possible public transport corridors;

Strategic Policy PIP1 of the RPGs outlined that future investment in transport in the GDA is needed in order to:

- Provide an efficient, effective and sustainable means of moving people and goods for business, family and leisure purposes which minimises the environmental impact and the social and economic cost to users;
- Allow for the development of a land use strategy that supports sustainable development; and
- Supports growth and efficiencies in economic activity for both the GDA and in Ireland.

Under this strategy the RPGs listed a number of strategically important infrastructure projects including Metro North that require investment in order to meet the above-mentioned strategic policy. Metro North was specifically referenced as having a role to 'provide opportunities to develop new integrated economic development areas or regenerate existing sites and to broaden sectoral business opportunities at strategic locations', taking advantage of the potential for quick and efficient public transport connectivity between Swords, Dublin Airport and the City Centre.

3.6.1.2 Development of Metro North

During the development of the Metro North project prior to the announcement of Transport 21 a number of fundamentally different system concepts were examined and rejected in favour of the metro concept. The options assessed were as follows. (Refer to Chapter 7 (Consideration of the Alternatives) for further details):

- **Iarnród Éireann Link:** An option was considered that provided a link to the airport from the existing Iarnród Éireann network;
- **"Pre-Metro":** A Pre-Metro would be similar in concept to the existing Luas with a high degree of unsegregated street running;
- **Fully Automated Metro:** A fully automated metro system was assessed;
- **Maglev** During the feasibility study for the Metro North scheme, RPA were invited to consider a magnetically levitated guided system (Maglev) by a manufacturer of these systems; and
- **Metro North:** The preferred option was a fully segregated Metro system along the busiest sections of the route between the city centre and Swords and has a limited number of road crossings in the outer suburban areas north of Swords.

Once a decision was made to progress with the Metro North option, a route selection process was undertaken to identify a preferred route for Metro North. Further alternatives analysis was also undertaken to identify the following (Refer to Chapter 7 (Consideration of the Alternatives) for further details):

- Proposed stop locations;
- Access and design including the proposed Metro West interchange;
- Detailed horizontal and vertical track alignment between stops;
- Location of crossovers and turn backs between tracks;
- Location and design of Park and Ride car parks; and
- Depot location and design.

This analysis led to the identification of a metro system that would serve an 18km corridor from Belinstown in the north of County Dublin to St Stephen's Green in the city centre via Dublin Airport. The proposed Metro North project was a light rail system running under full signal control on a segregated alignment between St Stephen's Green and Fosterstown stops and running on a line-of-sight basis, at grade, in underpasses or on elevated sections between Fosterstown and Belinstown. It was proposed that the Metro North project would run in a mix of bored and cut and cover tunnels beneath the city and in bored tunnels beneath Dublin Airport. The preferred option was then brought forward through the Railway Order process, with the required documentation submitted including an Environmental Impact Statement.

3.6.1.3 Metro North Railway Order

In October 2010, Metro North was granted a Railway Order by An Bord Pleanála ('the Board') (Reference PL06F.NA0003). The Railway Order is cited as Railway (Metro North – Belinstown to St Stephen's Green) Order 2010. The Board approved the Railway Order with the exception of the following elements, which were not approved:

- The originally proposed depot and ancillary facilities (including a stop) at Belinstown;
- The proposed line and stop at Lissenhall; and
- The stop at Seatown.

In response, a subsequent Railway Order application was lodged for the proposed depot relocated to a site at Dardistown (Reference PL06F.NA0007). This additional Railway Order was granted in 2011, referred to as Railway (Metro North Dardistown Depot and Spoil Management Strategy) Order 2011.

3.6.1.4 Metro North Project Deferral

The Infrastructure and Capital Investment 2012 – 2016; Medium Term Infrastructure Framework (DPER, 2011) laid out a plan to defer a number of major infrastructural projects including the Metro North project in order to achieve fiscal consolidation required due to the economic downturn.

3.6.2 MetroLink/New Metro North Project (2015-Present)

Despite the decision not to proceed with "Old Metro North", the need for a metro type rail system extending from Dublin City Centre to a location north of Dublin Airport was still supported by government transport and planning policy as outlined below.

3.6.2.1 Policy Support for New Metro North

3.6.2.1.1 Fingal / North Dublin Transport Study 2015

To prepare for the Transport Strategy for the Greater Dublin Area 2016-2035, the NTA commissioned a number of expert reports. The Fingal/North Dublin Transport Study (the Study) was prepared "to identify the optimum long term public transport solution to connect Dublin City Centre, Dublin Airport and Swords". The solution had to address a forecasted 42% increase in travel demand between 2015 and 2033, driven by population growth in Swords and passenger and employment growth at Dublin Airport.

The Study identified Swords and Dublin Airport as a combined cluster with activity in aviation infrastructure and airport related services, as well as transport and logistics. Future opportunities in the areas of high-tech manufacturing, high-value services, science and technology are encouraged within the cluster.

Demand Forecast

The Study was predicated on trip demand in the AM peak (07:00 to 10:00) increasing by 9,327, from 21,923 in 2011 to 31,160 in 2033 if nothing was done, as forecast by the NTA's DA Multimodal Model. That would result in average speeds dropping by 19% in the peak hour (08:00 to 09:00) without the addition of a new high quality transport mode in the corridor. The study noted that even if the highest capacity bus system was implemented, its maximum capacity would be in the region of 4,500 passengers per direction per hour which would not meet the expected demand in the area and thus both a comprehensive new bus network and a rail solution would be needed.

The NTA's Strategic Transport Model was used to establish the latent demand for a dedicated high capacity and high frequency public transport service in the study area. A test was carried out in which a notional high-capacity public transport scheme was coded into the 2033 Eastern Regional model. This test was used to establish indicative peak hour public transport flows in the vicinity of the Swords Road Quality Bus Corridor (QBC). The test results reveal that a notional high quality public transport service in addition to the existing bus network could generate southbound passenger demands of up to 6,600 passengers south of Dublin Airport and 10,250 passengers in the vicinity of Dorset Street in 2033.

Appraisal of Options

As part of the Study the appraisal of the proposed scheme underwent a two-stage appraisal.

- Stage 1 was concerned with identifying the strategic context for future development within the study area. In response to this demand, a list of 25 potential public transport schemes was identified for the area. Each of these was developed to a conceptual level and appraised, with a shortlist of six potential schemes for future development recommended; and
- Stage 2 provided an opportunity for further development of the analysis of each of the six shortlisted schemes to enable a more detailed appraisal. The technical and operational feasibility, environmental impact and cost of each scheme was developed, and detailed transport modelling was undertaken to understand how each scheme might respond to future travel demand within the study area. The outcome of Stage 2 is the identification of one preferred public transport scheme for future development within the study area.

As part of Stage 2, all technically feasible options were subject to detailed appraisal in accordance with the Department of Transport's Guidelines on a Common Appraisal Framework (CAF) for Transport Projects and Programmes published by the Department of Transport (June 2009).

Outcomes and Recommendations

The Study concluded that in Dublin's restricted city centre road environment, bus solutions would not provide capacity for more than 4,500pphd. Accordingly, greater segregation and bigger vehicles were required to deliver the additional capacity of 6,000pphd. Heavy rail options were technically difficult and constrained by the need to share existing rail corridors, which did not have sufficient capacity to deliver a significant number of additional services.

From the various options that were taken through the stage 2 appraisal process, LR7 (Optimised Metro North) with a design capacity of 9,900pphd was selected as the preferred solution, offering the best opportunity to meet the forecasted increases in travel demand in the corridor from Swords to the City Centre via Dublin Airport and Ballymun. It was anticipated that the scheme would operate at 63% of its design capacity in an Opening Year of 2033 with potential to absorb significant further growth.

The report concluded by confirming LR7 "represents the best medium and long-term public transport solution for the Greater Dublin Area".

3.6.2.1.2 Building on Recovery: Infrastructure and Capital Investment 2016-2021

Building on Recovery: Infrastructure and Capital Investment 2016-2021 was published in 2015 by the Department of Public Expenditure and Reform (DPER 2015) and provided a framework for infrastructure investment in Ireland up to 2021 as the economy recovered from the economic downturn. The Plan was intended to:

- Enable economic growth through targeted investment in key public infrastructure;
- Improve the delivery of services to communities; and
- Maximise the benefits of support by providing Exchequer investment throughout the country.

The Plan named the new metro in Dublin as the single largest project to be delivered.

3.6.2.1.3 Transport Strategy for the Greater Dublin Area 2016-2035

The Fingal/North Dublin Transport Study's recommendations were adopted by the NTA in the Transport Strategy for the GDA 2016-2035 (the Strategy). The Strategy 'provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades' (NTA 2016, p.5). All development plans within the GDA are required to be consistent with it.

The Strategy contains an integrated transport strategy outlining a suite of infrastructure investment and transport services and integration projects with investment in bus, light rail, metro, and heavy rail as core elements.

During the development of the Strategy, LR7 (Optimised Metro North), the preferred public transport solution for the corridor from Swords to the City Centre as identified in the Fingal North Dublin Transport Study, was renamed New Metro North (NMN). NMN is one of a number of Light Rail Infrastructure projects that were proposed to be delivered within the lifetime of the Strategy. The Strategy defines NMN as a high speed, high capacity, high frequency public transport link from Dublin City Centre to Dublin Airport and Swords, with the city centre section underground. The Strategy proposed the upgrade of the existing Luas Green Line to Metro standard, through the extension of NMN southwards, via a tunnel, enabling the through running of Metro trams from Swords to Bride's Glen.

The strategy identifies New Metro North (NMN) as a light rail infrastructure project intended to:

"Provide a high-speed, high-capacity, high-frequency public transport link from the city centre to Dublin Airport and Swords. New Metro North will serve a large number of significant destinations, including Ballymun, Dublin City University and the Mater Hospital, and will interchange with other rail and bus services in the vicinity of Drumcondra, O'Connell Street and St Stephen's Green".

The Strategy also notes that the Luas Line from St Stephen's Green to Bride's Glen had seen significant passenger growth over the previous years. To accommodate a continuation of that growth in advance of Metro South, the capacity of the Green Line would need to be increased by transitioning to 50+ metre Luas trams as part of the Luas Green Line Capacity Enhancement project. A significant further uplift in demand capacity would be required to cater for the longer-term usage forecasts.

3.6.2.1.4 Draft Greater Dublin Area Transport Strategy 2022-2042

The Draft Greater Dublin Area Transport Strategy 2022-2042 (NTA 2021b) (hereafter described as the Draft GDATS) was published for consultation in November 2021. The overall aim of the 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".

A key focus of the strategy is to enable increased use of other transport modes to meet environmental, economic and social objectives related to emissions, congestion and car dependency.

The Strategy sets four objectives, as follows:

- An Enhanced Natural and Built Environment;
- Connected Communities and Better Quality of Life;
- A Strong Sustainable Economy; and
- An Inclusive Transport System.

The Draft GDATS sets out the necessary transport provision, for the period up to 2042, to achieve the above objectives for the region.

The proposed Project is an essential major programme identified in the Draft Transport Strategy. Section 4.3.1 of the GDATS specifically relates to the proposed Project.

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 delivery of the proposed Project is highlighted under Section 12.3 Light Rail, where, running from Estuary to Charlemont, with potential separate future enhancements south from Charlemont, and further supported by the following measures:

- **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.
- **Measure LRT11 – Additional Depot Facilities:** It is intended to provide additional depot facilities as required to cater for an expanded light rail network.

The Draft GDATS anticipates that as sustainable transport modes and catchment areas increase over time, the following measure will be applicable to ensure the users/passengers can interchange more easily:

- **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.

The relationship between the proposed Project and the existing station at Tara is set out in the Draft GDATS as follows:

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

The Draft GDATS identifies future improvements to the national road network, that would support the proposed Project:

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.*

Section 9 of the Draft GDATS sets out the Park and Ride strategy for the region, including the proposed Park and Ride for Lissenhall.

3.6.2.1.5 Dublin City Development Plan (2016-2022)

The proposed MetroLink project is supported by a number of land-use and transport policies and objectives within the City Development Plan, including specifically 'Policy MT4', which seeks 'to promote and facilitate the provision of Metro, all heavy elements of the DART Expansion Programme including DART Underground (rail interconnector), the electrification of existing lines, the expansion of Luas, and improvements to the bus network in order to achieve strategic transport objectives' (DCC 2016, p.123).

Furthermore, policies which support the MetroLink project are as follows:

- MT5: To work with the relevant transport providers, agencies and stakeholders to facilitate the integration of active travel (walking, cycling etc.) with public transport, thereby making it easier for people to access and use the public transport system.
- MT6: To work with Iarnród Eireann, the NTA, Transport Infrastructure Ireland (TII) and other operators to progress a coordinated approach to improving the rail network, integrated with other transport modes to ensure maximum public benefit, and promoting sustainable transport and improved connectivity.

On the basis of the policies listed above and others, DCC has defined objectives in the City Development Plan which support MetroLink as a whole and have regard to specific elements of the proposed Project and these are as follows:

- MTO3 To promote "Park and Ride" services at suitable locations in cooperation with neighbouring local authorities.
- MT05: To facilitate and support measures proposed by transport agencies to enhance capacity on existing public transport lines and services, to provide/improve interchange facilities and provide new infrastructure.
- MT07: To promote and seek the development of a new commuter rail station at Cross Guns bridge serving the existing rail line infrastructure.

Dublin City Development Plan 2022-2028 Pre-Draft Plan Public Consultation Strategic Issues Paper (DCC, 2021) identified the importance of continued enhancement of the public transport network in line with the National Transport Authority's 2035 vision. MetroLink is highlighted as a project that can increase "shared mobility" and "micro mobility" options. This will assist in addressing climate change through the reduction in carbon emissions from transport and it will take pressure off the existing transport networks by reducing car commuting, freeing up space for pedestrians and for those with mobility issues. It will also free up road space for important transport requirements that cannot be met by public transport, such as providing deliveries to commercial and retail locations.

3.6.2.1.6 Draft Dublin City Development Plan 2022 – 2028

The Draft Dublin City Development Plan 2022 – 2028 (Draft DCDP) was published in November 2021.

The Draft Development Plan's core strategy promotes 'compact growth'. This involves the best use of land to deliver housing, integrated transport and community infrastructure to enable long term, sustainable economic growth through healthy placemaking. 'This plan encourages higher-density development along public transport routes (i.e. Transit Oriented Development), a method of planning development around a main transport link. Adopting this approach recognises the opportunities presented by MetroLink, Luas and DART+ proposals, as well as the existing and planned bus improvements under BusConnects.'

The plan reinforces the role of transport policy in minimising the need to travel and promoting modal shift to more sustainable and active modes of transport such as public transport, walking and cycling.

The Draft Plan also directly supports the delivery of MetroLink as outlined:

- SMT20: Key Sustainable Transport Projects: 'To support the expeditious delivery of key sustainable transport projects including MetroLink BusConnects, DART+ and Luas expansion programme so as to provide an integrated public transport network with efficient interchange between transport modes, serving the existing and future needs of the city and region'.

The Draft Plan identifies a number of Strategic Development Regeneration Areas. These include Ballymun and the North East Inner City, which interact with the proposed Project. In both locations the proposed Project forms a key element to support regeneration.

The zoning objectives through which the proposed project passes continue to apply in the Draft DCDP, although there are some changes to descriptions.

3.6.2.1.7 Fingal Development Plan (2017-2023)

In the Development Plan, the local authority has also included a "Metro Economic Corridor" zoning that will maximise the development potential of lands adjacent to the proposed MetroLink alignment. At Lissenhall for example a strategic land bank has been provided to provide for the development of a vibrant attractive and well-connected mixed use urban area in response to the proposed Project alignment. The County Development Plan has identified that the proposed Project will facilitate the optimum development of Swords and the local authority will seek to maximise these opportunities. To this end the County Development Plan includes the following objectives:

- Actively promote and support the early development of the indicative route for new Metro North linking Swords with Dublin Airport and Dublin City Centre;
- Support TII and the NTA in developing a revised design of the proposed new Metro North that addresses the needs of the Swords, Dublin Airport, Dublin City Centre corridor, environmental sensitivities and securing permission from An Bord Pleanála;
- Support TII and the NTA in a possible future extension of the proposed new Metro North finishing point to connect with the Northern Line in Donabate, with a view to securing permission from An Bord Pleanála;
- Ensure that the indicative route for new Metro North and its stops are kept free from development. Require that all development alongside the route of the indicative route for New Metro North includes permeability for pedestrians, cyclists and public transport so as to maximise its accessibility; and
- Allow high-density development along the indicative route for new Metro North corridor, in accordance with the land-use plans of the Council.

The delivery of the proposed MetroLink scheme is also identified within a number of land-use and transport policy and objectives within the Fingal Development Plan, including the section on Strategic Policy, where it states that the Development Plan will 'seek the development of a high quality public transport system throughout the County and linking to adjoining counties, including the development of

the indicative route for New Metro North and Light Rail Corridor, improvements to railway infrastructure including the DART Expansion Programme, Quality Bus Corridors (QBCs) and BRT systems, together with enhanced facilities for walking and cycling considered as key' (FCC 2017, p.10).

3.6.2.1.8 Draft Fingal Development Plan 2023-2029

The published draft Plan under the heading 'Public Transport' recognises the role of transportation policy in addressing climate change. The draft Plan highlights the need to shift towards sustainable transport modes, it aims to facilitate this through designing the county's built environment to prioritise more sustainable travel options and promotion of the most carbon efficient modes.

Policy CMP1 is:

To support the decarbonisation of motorised transport and facilitate modal shift to walking, cycling and public transport and taking account of National and Regional policy and guidance, while supporting an efficient and effective transport system.

Strategic key projects such as MetroLink will facilitate Fingal's vision for sustainable mobility and the transformative potential on travel from the dominance of the car to public transport.

Policy CMP18 is to:

Support the provision of a high-quality public transportation system that is accessible to all to serve the needs of the County and to enable a significant shift from car-based travel to public transport.

Objective CMO22 of the draft Plan sets out the key enabling public transport infrastructure and outlines that the Council will:

Support the delivery of key sustainable transport projects including MetroLink, BusConnects, DART+ and Luas expansion programme so as to provide an integrated public transport network with efficient interchange between transport modes to serve needs of the County and the mid-east region in collaboration with the NTA, TII and Irish Rail and other relevant stakeholders.

Objective CMO23 further sets out support for the Proposed Scheme and states that the Council will:

Support NTA and other stakeholders in implementing the NTA Strategy including MetroLink, BusConnects, DART +, Luas and the GDA Cycle Network.'

Policy CMP26 sets out the importance of strategic connections for Fingal as set out in National and Regional policy objectives and states that the Council will:

Support the economic competitiveness of the County through the protection and enhancement of international and regional accessibility and inter-urban connectivity in accordance with policy objectives of the NPF and RSES for the region.

Finally, Policy CMP28 fully supports the MetroLink project as its aim is to:

Promote and facilitate the development of MetroLink, connecting Swords to the Airport and on to the City Centre.

3.6.2.1.9 National Development Plan (NDP) 2018-2027

The purpose of the NDP (published in February 2018) was to ensure that public investment is targeted towards projects that will fulfil the objectives of the National Planning Framework (NPF). The NDP is directing investment towards large-scale public transport infrastructure.

The Plan emphasises issues of integration and accessibility. It recognises that public transport functions best when it is properly integrated. Different modes of transport should not compete, but rather they

should complement each other in order to make public transport more useful as a whole and becomes more attractive to promote modal shift. When people can interchange from one mode of transport to another seamlessly, with timetables and ticketing fully integrated, public transport is opened up to all sectors of society.

Within the NDP, the proposed Project is specifically identified as one of the three Major National Infrastructure Projects for appraisal and delivery that aligns with NSO4 of the NPF. In line with the NDP, the proposed Project would be integrated with other major transport systems, including Iarnród Éireann lines, Dublin Airport, DART, and Luas.

3.6.2.1.10 National Development Plan 2021-2030

A review of the NDP was originally planned for 2022 but this was brought forward in an effort to stimulate the economy and bring about an 'Infrastructure-led recovery' and 'green recovery' in the wake of COVID-19. The revised NDP 2021-2030 was adopted in October 2021 (Government of Ireland, 2021a). The NDP under Section 4.1 (National Strategic Outcomes) sets out '*This National Development Plan will incorporate a total public investment of €165 billion over the period 2021-2030.*'

Under the heading 'Major Investments' the NDP sets out that '*This NDP will be the largest and greenest ever delivered in Ireland, with a particular focus on supporting the largest public housing programme in the history of the state*.'

The NDP outlines the importance of promoting a shift towards sustainable accessibility-based mobility systems, requiring '*significant expansions to public transport options, including capacity enhancements on current assets and the creation of new public transport links through programmes such as MetroLink.'*

The NDP sets out a programme of investment that includes indicative Exchequer allocations. Light rail/Metro is specifically identified as one of the five 'Strategic Investment Priorities' that aligns with NSO4 (Sustainable Mobility) of the NPF. The NDP further outlines under the heading 'Sustainable Mobility' that; *'The National Planning Framework (NPF) recognises the importance of significant investment in sustainable mobility (active travel and public transport' networks if the NPF population growth targets are to be achieved. Investing in high quality sustainable mobility will improve citizens' quality of life, support our transition to a low-carbon society and enhance our economic competitiveness.'*

It is noted that the explanatory text under each National Strategic Outcome (NSO) within the National Planning Framework has not been fully replicated within the revised NDP. Appendix A3.1 sets out the changes in the explanatory wording of each applicable NSO between the NPF and the revised NDP.

In summary, it is considered that the revised NDP brings up to date the explanatory text associated with the NSOs under the NPF. The enactment of the Climate Action and Low Carbon Development (Amendment) Act 2021 has placed greater emphasis on tackling climate change and utilising government policy as a means to bring about a climate neutral society and economy. The Proposed Project will provide the infrastructure required to deliver sustainable public transport that will assist in the drive towards a carbon / climate neutral future for Ireland.

3.6.2.1.11 National Planning Framework (Project Ireland 2040)

The National Planning Framework (NPF) (Government of Ireland, 2018b), published in June 2018, is the Government's strategic framework to guide development and investment to enhance the wellbeing and quality of life of Irish people. The NPF, together with the National Development Plan (NDP) 2018-2027 (Government of Ireland, 2018a), was adopted in May 2018 and comprises Project Ireland 2040 - one vision for one country.

With housing and transport so inextricably linked, the National Development Plan 2018-2027 directs investment towards large scale public transport infrastructure in areas where compact growth is targeted. Public transport functions best when it is properly integrated with land use and community needs. There is work underway throughout the country to advance the development of integrated and

sustainable transport networks including the plans for the Dublin area (outlined in the Transport Strategy for the GDA 2016-2035, NTA 2016) and other large urban areas such as Cork and Galway.

The NPF outlines ten Strategic Outcomes, prioritising enhanced regional accessibility and sustainable mobility. It recognises the need to progressively electrify transport systems in order to move away from the current polluting and carbon intensive systems. The goal is that by 2040 our cities and towns will enjoy a cleaner, quieter environment free of combustion engine driven transport systems. The NPF proposes an environmentally sustainable public transport system that enables economic growth and meets significant increases in travel demand. The NPF establishes ten National Strategic Outcomes (NSO), as follows:

- Compact growth;
- Enhanced regional accessibility;
- Strengthened rural economies and communities;
- Sustainable mobility
- Strong economy supported by enterprise, innovation and skills;
- High-quality international connectivity;
- Enhanced amenity and heritage;
- Transition to a low carbon and climate resilient society;
- Sustainable management of water and other environmental resources; and
- Access to quality childcare, education and health services.

In addition to these NSOs and their supporting actions, the NPF sets the strategic context for the growth of Dublin to the year 2040. The NPF specifically references MetroLink as one of the key future growth enablers for Dublin City to improve transport mobility via strategic infrastructure as outlined below:

- 'Delivering the key rail projects set out in the Transport Strategy for the GDA including MetroLink, DART Expansion and the Luas Green Line link to MetroLink' (NPF p. 37; Government of Ireland, 2018b); and
- 'Improving access to Dublin Airport, to include improved public transport access, connections from the road network from the west and north and in the longer term, consideration of heavy rail access to facilitate direct services from the national rail network in the context of potential future electrification' (NPF p. 37; Government of Ireland, 2018b).

3.6.2.1.12 Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019 - 2031

The RSES represents the regional tier for planning policy and provides a vision; a spatial plan and investment framework to shape future development of the Eastern and Midland Region to the year 2031.

In the RSES, the policy responses are set out as Regional Policy Objectives (RPOs). Those RPOs that relate to Growth Strategy and People and Place that refer to the proposed Project are as follows:

RPO4.2: 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. water supply, wastewater, transport, broadband) is available to match projected demand for services and that the assimilative capacity of the receiving environment is not exceeded'. (Regional Spatial Economic Strategy 2019, p.51).

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.

The RSES incorporates the Dublin Metropolitan Area Strategic Plan which identifies the strategic planning and investment framework to enable growth. The Dublin MASP is aligned with the Regional Strategic Outcomes in the RSES to allow integrated transport and land use.

To achieve the vision, the MASP sets Guiding Principles, which directly support the proposed Project:

Dublin as a Global Gateway – In recognition of the international role of Dublin, to support and facilitate the continued growth of Dublin Airport and Dublin Port, to protect and improve existing access and support related access improvements.

Compact sustainable growth and accelerated housing delivery – To promote sustainable consolidated growth of the Metropolitan Area, including brownfield and infill development, to achieve a target to 50% of all new homes within or contiguous to the built-up area of Dublin City and suburbs, and at least 30% in other settlements. To support a steady supply of sites and to accelerate housing supply, in order to achieve higher densities in urban built up areas, supported by improved services and public transport.

Integrated Transport and Land use – To focus growth along existing and proposed high quality public transport corridors and nodes on the expanding public transport network and to support the delivery and integration of 'BusConnects', DART expansion and Luas extension programmes, and Metro Link, while maintaining the capacity and safety of strategic transport networks.

Increased employment density in the right places – To plan for increased employment densities within Dublin City and suburbs and at other sustainable locations near high quality public transport nodes, near third level institutes and existing employment hubs, and to relocate less intensive employment uses outside the M50 ring and existing built-up areas.

Alignment of growth with enabling infrastructure – To promote quality infrastructure provision and capacity improvement, in tandem with new development and aligned with national projects and improvements in water and waste water, sustainable energy, waste management and resource efficiency.

The MASP seeks to target and concentrate growth along corridors in the region. One of the corridors selected is the 'MetroLink – Luas' corridor:

'The development of the proposed MetroLink project, subject to appraisal and delivery post 2027, will unlock significant long-term capacity in Swords-Lissenhall and in South Fingal - Dublin Airport, subject to the protection of airport capacity and accessibility. Proposed upgrades to the existing Luas Green line will support development in the south county at Sandyford, Cherrywood and Ballyogan.' (Regional Spatial Economic Strategy 2019-2031, p. 102).

The MASP identifies significant growth in the corridor for Swords. In the short to medium term in Swords, the strategy explicitly supports "*sequential development of strategic residential sites within Swords and development of Oldtown-Mooretown lands"* and *"Airport related, commercial facilities and employment linked to development of MetroLink*". In the medium to long-term in Swords, the strategy explicitly supports *"new mixed-use urban district on the northern side of Swords linked to delivery of MetroLink"* and the *"Development of high-tech research and development employment within a campus setting at Lissenhall East"*.

A number of RPOs on the MASP are relevant to the proposed Project:

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. (Regional Spatial Economic Strategy 2019, p.107).

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. (Regional Spatial Economic Strategy 2019, p.107).

RPO 5.6: The development of future employment lands in the Dublin Metropolitan Area shall follow a sequential approach, with a focus on the re-intensification of employment lands within the M50 and at

selected strategic development areas and provision of appropriate employment densities in tandem with the provision of high-quality public transport corridors.

The MASP sets out a list of key transport infrastructure investments in the metropolitan area as supported by national policy:

- New stations to provide interchanges with bus, Luas and Metro network including at Kishoge, Heuston West, Cabra, Glasnevin, Pelletstown and Woodbrook;
- Complete construction of MetroLink from Swords to Sandyford and consider underground extensions to other locations from Charlemont; and
- Luas Green Line Capacity Enhancement in advance of MetroLink.

These investments are reiterated in Chapter 8 (Consultation) on the theme of connectivity. Chapter 8 also identifies the potential for strategic park and ride:

'RPO 8.14: The RSES supports delivery of the strategic park and ride projects set out in Table 8.5 subject to the outcome of appropriate environmental assessment and the outcome of the planning process. (Regional Spatial Economic Strategy 2019, p.193).

The locations for 'New and Enhanced Park and Ride' in the region, as set out in Table 8.5 includes Swords.

The proposed Project is also identified for its importance in enhancing access to Dublin Airport.

RPO 8.18: Improved access to Dublin Airport is supported, including MetroLink and improved bus services as part of BusConnects, connections from the road network from the west and north. Improve cycle access to Dublin Airport and surrounding employment locations. Support appropriate levels of car parking and car hire parking.

3.6.2.1.13 South Fingal Transport Study

The South Fingal Transport Study, (FCC 2019) was a study of the transport network in the South Fingal area leading to recommendations for key transport infrastructure and land use development. The objective of this study was as follows:

"To carry out a comprehensive feasibility study of the South Fingal area to produce a strategic 'vision' and overall strategy for the proper planning and sustainable development of the study area, based on a sustainable transport and smarter travel approach, planning for all transport modes and needs, whilst also being reflective of road network capacity and modal split assumptions. This will be carried out within two years of adoption of the (Fingal) Development Plan and will be used to inform the preparation of statutory Local Area Plans and Masterplans in the area. The preparation of the study will include implementation recommendations and will involve: Consultation with key statutory stakeholders including TII and the NTA, public consultation and engagement with relevant statutory bodies."

Recommendations arising from the study include the following which are relevant to MetroLink:

- The Swords Western Distributor Road will form a crucial link from northwest Swords to the future Estuary MetroLink station and Park and Ride. From Oldtown-Mooretown to Estuary the road alignment should consider similar design principles as set out in the LAP/Masterplans. Its southern extension to Brackenstown Road/Ward River Valley should be considered as a pedestrian and cycling only route;
- Encourage higher density mixed use developments adjacent to the MetroLink stations with improved connectivity for pedestrians and cyclists and provide a controlled level of access to future developments along the R132 Swords Road;
- The Brackenstown Road and Forest Road cycle schemes should ultimately continue uninterrupted around the Swords Pavilions to the MetroLink;
- The Barrysparks Masterplan should ensure pedestrian and cycling permeability is maximised between the residential areas around the Feltrim Hall area and MetroLink in the design of its street

network. The network should be designed to provide an uninterrupted direct link to the proposed Brackenstown cycle scheme; and
- In the longer term both MetroLink and BusConnects are likely to be required to serve a future demand of 55mppa (55 million passengers per annum at Dublin Airport), particularly if it is assumed that growth in car-based travel to the Airport is constrained by parking policy and/or road network capacity.

3.6.2.1.14 Climate Action and Low Carbon Development (Amendment) Act 2021

The Act commits Ireland to a climate resilient and carbon neutral economy by 2050, with 5-year economy wide carbon budgets which will place a ceiling on GHG emissions. This legislation affirms the Government commitment to sustainable mobility infrastructure projects such as MetroLink projects moving forward.

3.6.2.1.15 Climate Action Plan 2021

The Climate Action Plan 2021 sets out at a national level how Ireland is to halve its emissions by 2030 (51% reduction) and reach net zero no later than 2050 (Government of Ireland, 2021b). The Climate Action Plan is a road map to delivering Irelands climate ambition. There are 475 actions identified that extend to all sectors of the economy aiming to transform Ireland into a low carbon nation over the next three decades. In regard to modal shift the Climate Action Plan 2021 sets out that:

'The proposed pathway in transport is focused on accelerating the electrification of road transport, the use of biofuels, and a modal shift to transport modes with lower energy consumption (e.g., public and active transport)'.

The Plan emphasises the need for a "modal shift" from the private car to a more sustainable form of transport and enhancing active travel networks. A key goal of the plan is to provide citizens with reliable and realistic sustainable transport options.

One of the actions identified to achieve the above-mentioned modal shift is to "commence delivery of MetroLink".

3.6.2.2 Development of MetroLink/ New Metro North Project

3.6.2.2.1 Green Line Tie-in Study (TII 2018a)

Though providing for the future connection of NMN to an upgraded Luas Green Line, the GDA Transport Strategy did not determine the precise location at which NMN would connect to the Luas Green Line. To determine the optimum location for this connection, the NTA commissioned the Green Line Tie-in Study.

The objective of this Luas Green Line Tie-in Study (LGLTS) was to identify the preferred location for the future tie-in of NMN to the existing Luas Green Line. In April 2016, Transport Infrastructure Ireland (TII), using an internal multi-disciplinary team, commenced a two-stage appraisal in order to identify the preferred tie-in point for the NMN with the Luas Green Line. A preliminary appraisal using multi-criteria analysis (MCA) against the criteria of Economy, Environment and Integration was carried out on identified options. The preliminary appraisal identified a shortlist of four possible tie-in options, for more detailed appraisal (Stage 2). During the Stage 2 appraisal, designs for the four shortlisted options were further developed to a sufficient level of detail which enabled a more detailed MCA to be carried out on the options, against the criteria of Economy, Environment, Accessibility and Social Inclusion, and Integration. (Refer to Chapter 7 (Consideration of the Alternatives) for further details).

The LGLTS identified Charlemont as the preferred location for the connection of NMN to the Luas Green Line.

3.6.2.3 NMN Alignment Options Report

In 2016 a Route Corridor and Preferred Route Selection study commenced. The New Metro North Alignment Options Report (TII 2018) presented the process and outputs of the assessment to identify an emerging preferred route for the NMN.

The report assessed a combination of approximately 60 potential routes for the rail service from Dublin City Centre to Swords. Following an initial assessment of those routes, 10 end-to-end routes were subjected to a full multi-criteria analysis which included transport demand, and Cost Benefit Analysis (CBA).

Of the 10 routes assessed, Route 9 was identified as the Emerging Preferred Route. for the following reasons:

- The EPR compares most favourably to other options as overall it best serves demand along the corridor, providing interchange with other public transport modes and thereby generating the most positive economic return on investment of public funds;
- The route provides interchange with commuter rail services, at Tara (existing) and Whitworth (new) stations, which facilitates ease of transfer for rail passengers travelling to the city centre or Dublin Airport;
- The route integrates comparably better with current planning policy, supporting and facilitating land use development envisaged within the relevant development plans and local area plans along the corridor from Dublin City Centre to Swords. It takes due cognisance of other constraints afforded protection by planning policy and integrates well into the existing public realm, with tunnelling utilised in sensitive areas to limit intrusion;
- The EPR also serves key trip attractors, employment centres and provides significant interchange opportunities and the forecast patronage is among the highest of the options considered; and
- As its route is segregated from other transport modes over its entire length, it offers better journey time reliability as there is no interference from congestion on other transport networks. The high patronage numbers together with the certainty on journey time achievable contribute to the positive economic return, and as a result the EPR has one of the highest benefit to cost ratios of the options considered.

3.6.2.4 2018 Emerging Preferred Route.

The 2018 Emerging Preferred Route for NNM was determined following the conclusion of the NMN Alignment Options study and the Green Line Tie-in Study summarised above. The overall route for NMN was extended consistent with the objectives of the Strategy to include for its connection to the Luas Green Line at Charlemont (Option 4) as per the LGLTS (2018). In addition, the upgrade of the Luas Green Line to metro standard was included as part of the NMM Emerging Preferred Route enabling through running metro services from Estuary to Sandyford as envisioned in the Strategy.

In advance of a non-statutory public consultation on the EPR, the scheme was rebranded "MetroLink" and public consultation on the EPR took place in March 2018. During the public consultation there was significant public opposition to the upgrade of the Luas Green Line to Metro Standard. The main focus of the opposition to these plans was centred around the significant disruption to existing Green Line services during its upgrade. There was also significant opposition to some of the infrastructure proposed for the upgraded Luas Green Line.

Arising from the public consultation a review was undertaken to identify other options to enhance capacity on the Luas Green Line, without causing the level of service disruption that would result from the upgrade of the line to metro standard. This review was undertaken as part of the Luas Green Line Capacity Enhancement project which identified potential to provide additional passenger capacity on the line up to 2046, after which demand (11,000ppdh) would exceed capacity on the line.

The need therefore to upgrade the line to metro standard was not immediate and could therefore be delivered as part of a separate future metro project in or around 2046 when the potential for additional capacity due to the Luas Green Line Capacity Enhancement was exhausted. Furthermore, in advance of

this date, it would be possible to undertake additional analysis to identify any alternatives that could provide the required public transport capacity on that transport corridor.

In making this decision NTA/TII were conscious that whilst a significant cohort of stakeholders along the Luas Green Line corridor would welcome this change, other stakeholders not immediately affected by the infrastructure works, but reliant on the line for community from other areas would not welcome the postponement of the upgrade to metro standard.

The upgrade of the Luas Green Line to metro standard was therefore removed from the MetroLink scheme with provision for its future connection at the preferred tie-in location preserved through the continuance of the MetroLink tunnel south of Charlemont station.

3.6.2.5 MetroLink Preferred Route (2019 onwards)

The preferred route for MetroLink was published in 2019. The preferred route incorporates changes arising based on further design development and further assessment of alternatives arising out of consideration of the public feedback received on the 2018, Emerging Preferred Route. Significant changes included the termination of the route just south of Charlemont Station, a change from Twin Bore tunnel to Single Bore configuration, the replacement of the R132 elevated section to cut and cover running on the eastern verge of the R132. The preferred route also provided for a change of rolling stock from light rail vehicles (Luas Type vehicles) to Light metro vehicle and then introduction of automated trains to Grade of Automation 4 (GoA4). Refer to Chapter 7 (Consideration of the Alternatives) for details of alternatives assessed during this stage of design development.

3.7 Glossary

Term	Meaning
Alignment	MetroLink Route. Alignment refers to the three-dimensional (3D) route of the railway, considering both the horizontal and vertical alignment.
At Grade	At ground level
Decarbonisation	Phasing out of carbon dioxide emissions from the use of fossil fuels
Fully Automated	Starting and stopping, operation of doors is all fully automated without any on-train staff.
Light Rail	A form of passenger urban rail transit characterized by a combination of tram and rapid transit features.
Maglev	A system of train transportation that uses two sets of magnets: one set to repel and push the train up off the track, and another set to move the elevated train ahead, taking advantage of the lack of friction
Metro North	One of the two Metro projects (from St Stephen's Green and potentially serving Dublin City University (DCU), Ballymun and Dublin Airport before terminating at Belinstown, north of Swords) proposed in the infrastructure investment programme 'Transport 21', later changed to MetroLink
Metro West	One of the two Metro projects (from Tallaght to Dardistown via Clondalkin, Liffey Valley and Blanchardstown) proposed in the infrastructure investment programme 'Transport 21'
MetroLink	Proposed project of Dublin metro line
Proposed Project	The MetroLink project.
Railway Order application	An application for approval under section 43 of the Transport (Railway Infrastructure) Act 2001.

3.8 References

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