

Appendix D: Sustainability Plan



MetroLink Sustainability Plan

September 2021

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Introduction

In 2019, Dublin was ranked as the 17th most congested city in the world and the 6th most congested in Europe, with each Dublin commuter spending approximately 28 minutes extra stuck in traffic each rush hour¹. The National Transport Authority (NTA) has been seeking a sustainable solution to this problem since 2014 when it first commissioned the Fingal/ North Dublin Transport Study. This demand for increased capacity has resulted in MetroLink's recognition as a key low-carbon, sustainable transport project in the National Development Plan 2018-2027 and Project Ireland 2040.

At the same time, global awareness of sustainable development, the climate emergency, economic and social equality, and the biodiversity crisis have increased significantly. In 2015, 196 countries, including Ireland, became a signatory of the legally binding Paris Agreement on Climate change and the United Nations developed the Sustainable Development Goals (UN SDGs). These overarching global policy objectives underpin Ireland's sustainable development policy and, in turn, Transport Infrastructure Ireland (TII)'s Sustainability Statement and Sustainability Implementation Plan – Our Future (SIP), endorsed at board level.

Purpose

TII's SIP requires all projects and operations to consider sustainability under six key principles to align with the national and global goals described in the introduction above. This Project Sustainability Plan presents MetroLink's approach to delivering sustainable development during design, construction, and operation of the metro system. Whilst this plan provides an overview of the sustainability benefits that MetroLink will deliver on completion; its primary focus is on how the project meets TII's SIP and how it can deliver sustainable outcomes during construction and operation.

The plan sets out the background and sustainability benefits MetroLink will bring. It then outlines the sustainability vision, key priority areas, targets and objectives MetroLink will set and use to measure progress during the delivery and operation of the new metro system.

¹ Tom Tom. *Dublin Traffic (as of 29th Nov 2020)*. Available at: https://www.tomtom.com/en_gb/traffic-index/dublin-traffic/

Irish Sustainability Policy Context

There is a range of international, national, regional and local sustainability policies, strategies and legislation, which have informed the case for pursuing sustainable development in Ireland. This has informed TII’s Sustainability Statement and its Sustainability Implementation Plan, as shown in Table 1. The policy context has been summarised in this section to provide some background and context to why MetroLink has produced this sustainability plan.

Table 1: MetroLink - Sustainability Policy Drivers

Strategic Policy		
	<p>United Nations Sustainable Development Goals (SDGs)</p> <p>The UN SDGs are a global call for action by all countries – developed and developing – to promote prosperity while protecting the planet. The goals were agreed to by UN member states in 2015 and reflect the economic, social and environmental dimensions of sustainable development. Not only will MetroLink contribute to the environmental goals of development but will also assist in social equity related matters but connecting communities to vital public services who previously have little access to them.</p>	 <p>European Green Deal</p> <p>This policy launched a new growth strategy for the EU that aims to improve the quality of life in the EU with a modern, resource-efficient, and competitive economy where there are no net emissions of greenhouse gases in 2050. As an electrified rail solution, MetroLink will contribute to the reduction of transport related emissions in Ireland.</p>
	<p>Project Ireland 2040 National Planning Framework</p> <p>The NPF is Ireland’s strategic planning framework and discusses strategic outcomes relevant to MetroLink, such as Sustainable Mobility, Compact Growth, Enhanced Regional Accessibility, High-Quality International Connectivity, and Transition to a Low-Carbon and Climate Resilient Society.</p>	 <p>The National Development Plan 2018-2027</p> <p>The NDP is Ireland’s €116bn investment plan which was released alongside the NPF. In particular, the NDP recognises the collective importance of a sustainable, integrated transport network, calling out projects such as MetroLink, DART Expansion and BusConnects.</p>
	<p>Climate Action and Low Carbon Development Bill 2020</p> <p>This Bill legally commits Ireland to achieving net zero emissions by 2050, with 5-year economy-wide carbon budgets which will place a ceiling on GHG emissions. This affirmation from the Government that sustainable projects will be crucial moving forward confirms the importance of sustainable mobility infrastructure projects such as MetroLink.</p>	 <p>Climate Action Plan 2019</p> <p>The CAP 2019 is the plan for tackling the climate crisis and de-carbonising the Irish economy. It focusses on reducing the number of people reliant on cars in their daily lives, with sustainable mobility projects such as MetroLink being categorised as Critical Infrastructure.</p>
	<p>Dublin City Development Plan 2016-2022</p> <p>This Plan sets out policies and objectives to guide how and where development will take place in the city over the lifetime of the Plan. It provides an integrated, coherent spatial framework to make sure the city is developed in an inclusive way which improves the quality of life for its citizens, whilst also being a more attractive place to visit and work.</p>	 <p>Fingal Development Plan 2017-2023</p> <p>This Plan sets out the policies and objectives for the development of the County over the Plan period. It seeks to develop and improve, in a sustainable manner, the social, economic, environmental and cultural assets of the County.</p>
TII Internal Policy		
	<p>TII’s Environmental Strategy</p> <p>This document outlines TII’s commitment to sustainability principles in the development and operation of the country’s national transport networks. Through its promotion of transport sustainability, it will endeavour to deliver MetroLink in a sustainable fashion.</p>	 <p>TII’s Sustainability Implementation Plan</p> <p>This document outlines TII’s commitment to rethink, reimagine and redesign their approaches to make sure sustainability is at the heart of everything they do to be the leading provider of sustainable transport infrastructure. The plan sets out an extensive roadmap that is forward looking and ambitious. It presents a set of actions that will deliver sustained positive impact for years to come.</p>

Project Ireland 2040² focuses on a shift away from carbon-intensive individual vehicles through investment in public transport for Dublin. Between 1990 and 2016, road transport increased by 145% in Ireland and transport-related greenhouse gas emissions increased by 139%³. MetroLink is key to reducing Ireland’s transport emissions by removing millions of car journeys from the road through its ability to carry large numbers of people is a significant factor in reducing the greenhouse gas emissions per person travelling. When operational, MetroLink will be powered by increasingly lower carbon electricity (e.g. sourcing electricity from renewable sources and/ or site level generation).

TII’s Environmental Strategy (February 2019⁴) “commits to strive to incorporate sustainability principles into the development and operation of the national road, light rail and metro networks; therefore, contributing to social wellbeing, supporting economic efficiency, and protecting, restoring and enhancing environmental systems for future generations.”

TII’s Statement of Strategy 2021-2025 (October 2020⁵) sets out the goals TII are aiming for and the strategic objectives that it hopes to achieve over the next five years. These goals include delivering national road, light railway, metro and Active Travel infrastructure, contributing to compact growth, sustainable mobility, enhanced regional accessibility and the transition to a low-carbon future; whose strategic objectives include delivering infrastructure supporting low-carbon transport systems and emission reductions. The goals and strategic objectives are aligned with those of the Department of Transport.

TII’s Sustainability Implementation Plan – Our Future (2021)⁶ 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.

As part of the work carried out in developing the Sustainability Implementation Plan, a detailed policy review was undertaken for policies, legislation and governmental aims that are relevant to the provision of sustainable transport solutions.

² Government of Ireland. *Project Ireland 2040. National Planning Framework*. Available at: <https://www.gov.ie/en/publication/774346-project-ireland-2040-national-planning-framework/>

³ Transport Infrastructure Ireland. MetroLink. Available at: <https://www.metrolink.ie/#/ClimateChange>

⁴ Transport Infrastructure Ireland (2019). *Environmental Strategy*. February 2019 Available at: <https://www.tii.ie/technical-services/environment/strategy/TII-Environmental-Strategy.pdf>

⁵ Transport Infrastructure Ireland (2020). *Statement of Strategy*. October 2020. Available at: [tii-statement-of-strategy-2021-2025-final.pdf](https://www.tii.ie/technical-services/environment/strategy/TII-Statement-of-Strategy-2021-2025-final.pdf)







⁶ Transport Infrastructure Ireland (2021). *Sustainability Implementation Plan – Our Future*. Available at: [xxxx](#)

TII's Sustainability Implementation Plan

TII has developed its Sustainability Implementation Plan (SIP), which describes how its sustainability principles will be embedded into all TII activities, including projects like MetroLink. The SIP articulates how TII's sustainability principles will be incorporated into the development and operation of Ireland's road and light rail networks, contributing to social wellbeing, supporting economic efficiency, and protecting, restoring and enhancing environmental systems for future generations.

The SIP is based on six key interlinked sustainability principles, highlighted in Table 2 below, which align with the UN SDG'S and the National Strategic Objectives of the National Planning Framework. These six principles are mandated across all areas of TII's business and projects and set MetroLink's approach to sustainable delivery.

Table 2: TII Sustainability Implementation Plan – Sustainability Principles

TII SIP	Sustainability Principle	Description
	Provide effective, efficient and equitable mobility	Enable compact urban growth and regional accessibility through networks and services that support more efficient journeys, more effective connectivity and increased accessibility.
	Enable safe and resilient networks and services	Enable safe, secure, accessible and inclusive travel through the provision of transport networks, systems and services that are resilient to future change.
	Collaborate for a holistic approach	Develop smart and sustainable assets and services through innovating and improving the planning, design, construction, operation and maintenance of the transport network, increasing collaboration and systems-thinking to seek mutual gains and mitigate negative externalities.
	Deliver end-to-end improvements	Deliver enhanced whole lifecycle value through impact and influence on stakeholders, partners and suppliers.
	Transition to net zero	Reduce the carbon impact of construction, operation and use of the transport network through responsible use of resources, reuse and repurposing, as well as driving the net-zero transition, while enabling customers to make more sustainable choices.
	Create total value for society	Maintain and enhance the balanced delivery of economic, environmental and social value through robust planning, rigorous appraisal and decisions that prioritise sustainability.

About MetroLink

Why is MetroLink Needed?

Dublin city centre has maintained its position as the pre-eminent location for jobs in Ireland. In the second half of 2018, the Central Statistics Office reported employment growth in the previous 24 consecutive quarters⁷. This trend is likely to continue as major technology companies continue to migrate to the area.

As employment opportunities grow, Dublin's population is expected to increase from 1.41 million in 2020 to 1.59 million by 2036⁸. This increases both the challenge and the urgency to move people around the city for jobs, education and leisure in a reliable, affordable and sustainable manner.

Fingal is the predominant area from which workers travel to Dublin city. Nearly 8,000 workers in Swords commute to Dublin city centre and public transport accounts for only 12% of these trips, with the remainder being undertaken by car. The average Dublin commuter, travelling by car, will spend over 213 hours a year stuck in traffic⁹. MetroLink will have the capacity to reduce 72% of these car trips, freeing up the road network, reducing congestion and journey times for everyone.

The Swords, Dublin Airport, Dublin City Centre corridor plays a critical role in the functioning of the national economy. It facilitates the efficient functioning of two major international gateways (Dublin Airport and Dublin Port) and completes the economic link between Dublin and Belfast. The efficiency of economic traffic movements along this corridor has implications for the entire nation.

MetroLink creates integration and connectivity between these transport hubs (Figure 1). Dublin Airport, as Ireland's main international gateway, handled 30.7 million passengers in 2019. Dublin Airport supports 117,300 jobs in the Irish economy, and 19,200 of these are employed directly at the airport and its environs⁹. However, there is no rail connection to get either passengers or employees to Dublin's biggest transport hub.

Under BusConnects, the Dublin Airport to Dublin City Centre route, will be upgraded to a high capacity bus system, with a maximum capacity of 4,500 passengers per direction per hour¹⁰. The Dublin Area Rapid Transit (DART+) Programme will create a full metropolitan area DART network for Dublin with all of the lines linked and connected¹¹, the aim is to increase peak-hour capacity from 26,000 to 52,000 per hour per direction by 2027/28¹². However, despite the increased capacity BusConnects and DART+ will provide, passenger demand is not expected to be met, therefore MetroLink is also needed.



Figure 1: MetroLink - Integrated Transport

⁷ Transport Infrastructure Ireland. MetroLink. Available at: <https://www.metrolink.ie/#/WhyDoesDublinNeedAMetro>

⁸ Central Statistics Office. *Regional Population Projections*. Available at:

<https://www.cso.ie/en/statistics/population/regionalpopulationprojections/>

⁹ Tom Tom. *Dublin Traffic (as of 29th Nov 2020)*. Available at: https://www.tomtom.com/en_gb/traffic-index/dublin-traffic/

¹⁰ National Transport Authority. *Fingal North Dublin Transport Study 2015*. Available at: https://www.nationaltransport.ie/wp-content/uploads/2014/12/Fingal_North_Dublin_Transport_Study_Final_June_2015.pdf

¹¹ National Development Plan 2018-2027. Project Ireland 2040. Available at:

<https://www.gov.ie/pdf/?file=https://assets.gov.ie/37937/12baa8fe0dcb43a78122fb316dc51277.pdf#page=null>

¹² DART+ Programme. Project Ireland 2040. Available at: <https://www.irishrail.ie/Admin/getmedia/e13a95f4-c0e9-43ee-883f-7181a96f07fe/DART-Plus-Brochure-17-08-2020-REV2-FA.pdf>



The National Transport Authority (NTA) published, and consulted upon, the ‘Transport Strategy for the Greater Dublin Area 2016-2035’¹³. This strategy sets out a vision of a sustainable international Gateway Region, with strong connectivity across the Greater Dublin area, nationally and worldwide. The strategy sets out the necessary transport provision to achieve the mode share target of a maximum of 45% of car-based work commuting established under “Smarter Travel – A Sustainable Transport Future”¹⁴.

Following the results of TII’s landmark report *Travelling in a Woman’s Shoes: Understanding Women’s Travel Needs in Ireland to Inform the Future of Sustainable Transport Policy and Design*.¹⁵ Metrolink will include design and operating features intended to better meet a broader range of customer travel needs.

Through a series of project appraisals, using the Common Appraisal Framework (covering economy, safety, integration, environment and accessibility) and consultation events, an “emerging preferred route” emerged, which eventually became MetroLink.

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¹³National Transport Authority. *Transport Strategy for the Greater Dublin Area 2016-2035*. Available at: https://www.nationaltransport.ie/wp-content/uploads/2016/08/Transport_Strategy_for_the_Greater_Dublin_Area_2016-2035.pdf

¹⁴ Department for Transport. *Smarter Travel – A Sustainable Transport Future. A New Transport Policy for Ireland 2009 – 2020* Available at: http://www.smartertravel.ie/sites/default/files/uploads/2012_12_27_Smarter_Travel_english_PN_WEB%5B1%5D.pdf

¹⁵ Transport Infrastructure Ireland. *Travelling in a Woman’s Shoes: Understanding Women’s Travel Needs in Ireland to Inform the Future of Sustainable Transport Policy and Design*. Available at: https://www.tii.ie/technical-services/research/TII-Travelling-in-a-Womans-Shoes-Report_Issue.pdf

What is MetroLink?

MetroLink is a high-capacity, high-frequency, modern and efficient metro rail line running from Swords to Charlemont, linking Dublin Airport, Irish Rail, DART, Dublin Bus and Luas services, creating fully integrated public transport system in the Greater Dublin Area.

As well as linking the major transport hubs, MetroLink will connect key destinations including Ballymun, the Mater Hospital, the Rotunda Hospital, Dublin City University and Trinity College Dublin, as shown in Figure 2.

MetroLink will transport around 53 million people per year in its initial years, cutting journey times from Swords to the city centre to 25 minutes⁹. The 19.4km route will commence construction in 2023 and will be operational by 2030.

MetroLink differs from DART and InterCity services operated by Iarnród Éireann and Luas services as it provides:

- A higher service frequency.
- Larger carriages designed to increase capacity.
- A fully segregated rail line from other road users including cars and pedestrians, achieved by operating mostly within tunnel under Dublin City, combined with surface or retained cut sections.
- Driverless vehicles automatically controlled from a remote location.



Figure 2: MetroLink route

There are 15 proposed stations, 11 of which will be underground. The other principal project elements include:

- Increased secure cycle at locations along the route
- Better pedestrian access around the new stations and interchanges
- A Park and Ride Facility for 3,000 vehicles next to Estuary Station
- A Maintenance depot at Dardistown, also housing the Operations Control Centre
- The 262m long Balheary viaduct, crossing the Broadmeadow and Ward Rivers
- A 100m long rail bridge crossing the M50

The strategic objectives for the public transport infrastructure intervention along Swords, Dublin Airport, Dublin City Centre Corridor are presented in Figure 3, below.



Figure 3: Objectives for Swords, Dublin Airport, Dublin City Centre Corridor public transport infrastructure intervention

Figure 4

provides some additional key facts on the project relating to route, passenger capacity, journey times and other statistics.

Figure 4: MetroLink Key Facts

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METROLINK

Integrating with the Wider Public Transport System



Enhanced Regional and International Connectivity



Benefit to Cost Ratio
REVISED
Range 1.4 → 2.5



- 8,000** Direct construction jobs per annum
- 2,750** Indirect supported jobs per annum during construction
- 300** Operations period staff 300 permanent staff during operations

Delivering Sustainable Mobility

Opening Year
53 Million Trips



Encouraging 146 Million*
Cycling Trips

1 Billion*
Fully Electrified
Carbon Neutral
Trips

Diverting
up to 200
Million* Car Trips
REVISED



Supporting
compact
growth

90
second

Peak
Frequencies

Automated
operations
enhancing
reliability
365 days



Create Connections to
127 Schools
3 Third Level Institutions
5 Hospitals

Enhanced
accessibility
for all

*Cumulative from opening year to 2050, depending on the potential future growth scenario.



What Sustainability Benefits will MetroLink Bring?

As a sustainable mass transit system, MetroLink intrinsically delivers the following benefits for Dublin and Ireland in line with TII’s Statement of Strategy and SIP. A summary of these is presented in Table 3.

Table 3: MetroLink benefits – environment, society and economy

Environment	Society	Economy
<ul style="list-style-type: none"> An electrified mass transport option offering a new, operationally carbon neutral, public transport choice for a range of users. This will help Ireland meeting its sustainability and GHG emissions goals. 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 and air quality. Opportunities for energy and material use efficiency through station and system design. GHG emission reductions through the displacement of existing car journeys. Metro trips typically emit seven times less CO₂ than the current equivalent car journey¹⁶. Opportunities for the protection and enhancement of biodiversity where feasible. 	<ul style="list-style-type: none"> 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. Provide a safe, reliable, comfortable, and faster trips between Fingal and Dublin and within the city. 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. 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 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. 	<ul style="list-style-type: none"> 2,750 people per year are expected to be employed during construction and around 300 permanent staff during operation. A trainee programme during operation will offer opportunities for upskilling. MetroLink will offer an affordable alternative to car ownership and use. MetroLink will improve connectivity between Dublin, Ireland, and the rest of the world, improving competitiveness due to less waste of time by providing regular, reliable and affordable travel to and from Dublin Airport. New transport connections will give business and property developers the confidence to invest in new areas and delivering regeneration. As a significant infrastructure project, MetroLink provides supply chain and employment opportunities to local businesses.

MetroLink and Covid-19

During the ongoing COVID-19 pandemic, public health advice concerning social distancing, as well as encouraging more people to work from home if possible, has resulted in a significant decline in the demand for commuter and business-related travel and in turn public transport use. There are differing views on how this will affect cities such as Dublin in the medium to long term. The World

¹⁶ Unife – the European Rail Industry. *Rail: The backbone of Sustainable Transport*. Available at: <https://sustainabledevelopment.un.org/content/documents/3761sandor.pdf>



Economic Forum for example, suggests that cities may remain as essential hubs for the pooling of human capital, innovation, the arts and other societal structures¹⁷.

Evidence from TII's road network showed that traffic flow on the road network returned to near-normal levels following lockdown events, meaning that the capacity constraints identified in various studies are likely to remain and therefore the sustainability benefits of delivering MetroLink are likely to remain relevant.

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¹⁷ Why global cities will flourish in a post-COVID future. Available at: <https://www.weforum.org/agenda/2020/08/future-of-cities-covid-19/>



How this Plan was Developed

Throughout MetroLink’s evolution, delivering outcomes that benefit the environment, people and the Irish economy have been carefully considered during concept, optioneering and now into the reference design. Figure 5, below, shows how this sustainability plan has evolved and the future steps for implementation of the plan.

Figure 5: The Development of the Project Sustainability Plan

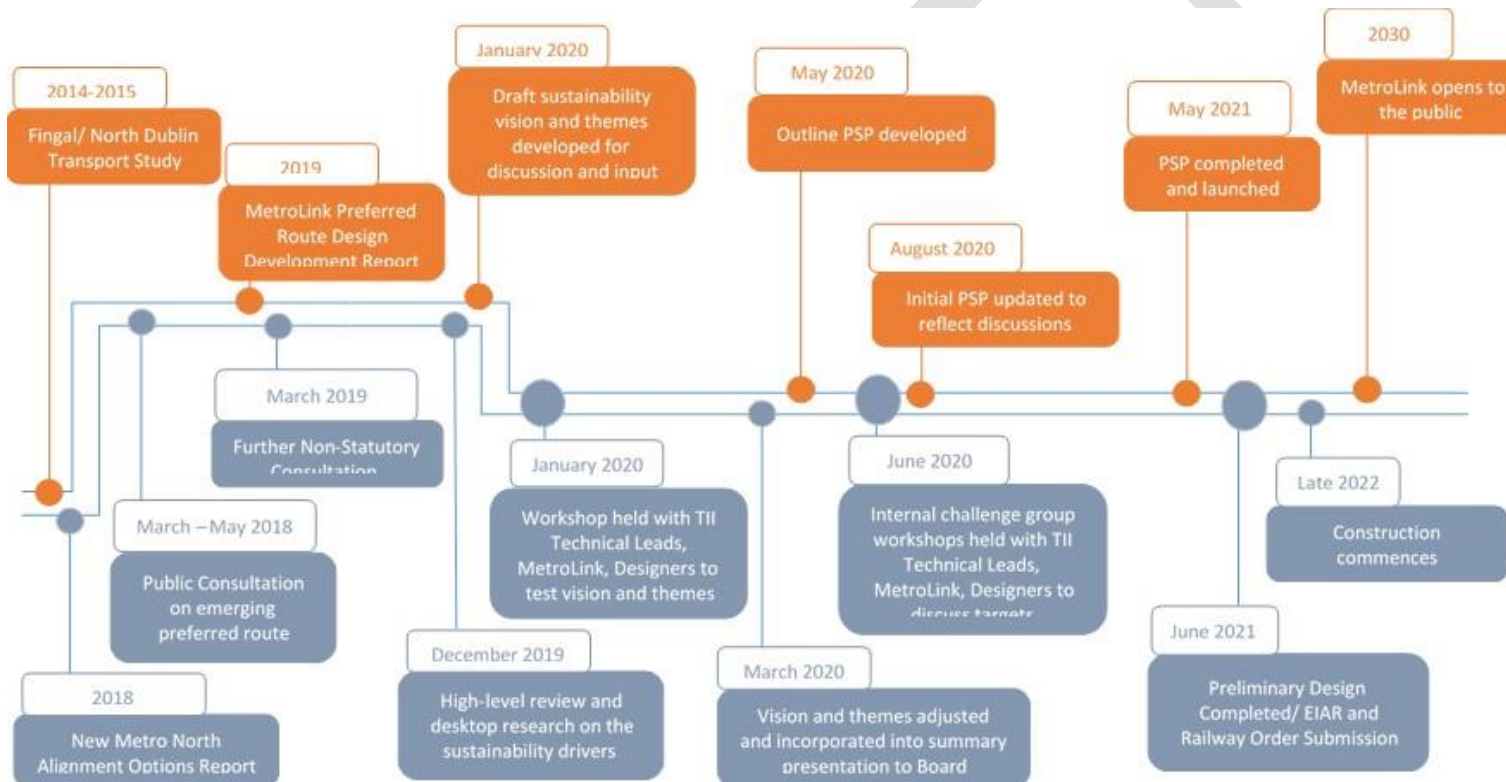




Figure 6, below, summarises how this plan was developed.



Figure 6: How the MetroLink Sustainability Plan has been developed

An initial scoping exercise was conducted to review the sustainability policy (outlined in Table 1) and TII’s Statement of Strategy and SIP to understand how the high-level objectives within these documents apply to MetroLink. A collaborative process of engagement involving a wide range of internal stakeholders, followed, to further explore and refine what the findings of the policy review meant for the sustainable delivery of the project.

This resulted in a draft sustainability vision and the identification of key priority areas, shown in the later sections of this plan. The emerging sustainability plan was then subject to a series of ‘challenge workshops’, which included a diverse cross-section of board and project members, to test how appropriate the vision was and what the key sustainability priority areas are.

For each of the relevant priority areas assessed during the challenge workshops the vision and priority areas were assessed against four ambition levels: ‘Compliant’, ‘Beyond Business as Usual’, ‘Emerging Leader’ and ‘World Class’. In setting MetroLink’s targets and objectives, a minimum target has been set of going beyond ‘Business as Usual’ and where economically and technically feasible MetroLink aspires to go beyond this. The thinking behind these levels of ambition are reflected in MetroLink’s objectives and targets, described below.

MetroLink Sustainability Vision










Sustainability for MetroLink means delivering and operating an efficient, low carbon and climate-resilient metro system, which better connects passengers as part of an integrated transport system, unlocks regeneration opportunities, drives international connectivity and enables compact growth for present and future generations, while also being designed to be responsive to future demand requirements.

MetroLink Priority Sustainability Areas

In developing the sustainability vision, MetroLink explored what are the priority sustainability areas, which it can directly deliver or reasonably influence in partnership with others throughout the project lifecycle.









Table 4 sets out the MetroLink sustainability priority areas identified during the development of this plan. They are mapped to TII's Sustainability Principles which are aligned to the UN Sustainable Development Goals and the National Strategic Outcomes¹⁸ to make sure that MetroLink will deliver against the key sustainability indicators.

Table 4: MetroLink's Sustainability Priority Areas

MetroLink Priority Areas	TII SIP – Sustainability Principles	MetroLink Sustainability Objective
EN1: Climate Change Mitigation and Adaptation	 Enable safe and resilient networks and services  Transition to net zero	Support Ireland's climate ambitions to achieve net zero by 2050. Improve energy efficiency and increase resilience to future climate change.
EN2: Materials and Resources	 Collaborate for a holistic approach  Deliver end-to-end improvements  Transition to net zero	Minimise the use of materials, natural resources and the production of waste.
EN3: Biodiversity	 Create total value for society	Enhance biodiversity and minimise pollution.
EN4: Heritage	 Create total value for society	Promote protection of and access to heritage.
CC1: Skills and Learning	 Collaborate for a holistic approach  Create total value for society	Provide opportunities to upskill, learn and develop in the construction and transport sector.

¹⁸ The proposed drivers have been mapped against the [National Strategic Outcomes](#) of the Project Ireland 2040 National Planning Framework, with the exception of Access to Quality Childcare, Education and Health Services, as this is not directly related to the delivery of MetroLink.



MetroLink Priority Areas	TII SIP – Sustainability Principles	MetroLink Sustainability Objective
CC2: Community and Engagement	<ul style="list-style-type: none">  Collaborate for a holistic approach  Deliver end-to-end improvements 	Broad and meaningful engagement and consultation with all stakeholders.
CC3: Safety	<ul style="list-style-type: none">  Enable safe and resilient networks and services 	Deliver and operate MetroLink safely, leading by example.
CC4: Health and Wellbeing	<ul style="list-style-type: none">  Deliver end-to-end improvements  Create total value for society 	Demonstrate and deliver health and wellbeing benefits.
SE1: Connectivity	<ul style="list-style-type: none">  Provide effective, efficient and equitable mobility 	Facilitate connectivity between MetroLink and other transport services and modes of transport.
	<ul style="list-style-type: none">  Provide effective, efficient and equitable mobility 	Deliver well designed stations using the principles of universal design, that are accessible to all, safe, comfortable, and attractive.
	<ul style="list-style-type: none">  Enable safe and resilient networks and services 	
SE2: Productivity	<ul style="list-style-type: none">  Enable safe and resilient networks and services  Collaborate for a holistic approach  Deliver end-to-end improvements 	Demonstrate increased productivity during construction and associated with the delivery of MetroLink.
SE3: Facilitating growth and planning for the future	<ul style="list-style-type: none">  Enable safe and resilient networks and services  Collaborate for a holistic approach 	<p>Collaborate with local planning and local and international businesses to deliver sustainable growth.</p> <p>Allow for future trends in growth within the designs and operations.</p>
SE4: SME and Local Spend	<ul style="list-style-type: none">  Create total value for society 	Encourage and include local and small and medium-sized companies to engage in tendering opportunities.

Objectives and Targets

This section presents the objectives and targets that have been developed to support the delivery of MetroLink’s sustainability vision. They are broadly aligned to the three sustainability pillars of Environment, Society and Economic described in the TII SIP and Corporate Sustainability Strategy.

The objectives and targets apply to the design, construction and operation of MetroLink. An explanation of how they apply during each phase of the project is presented in this section and an indication of the relevant phase the targets are associated with is displayed in the Appendix. Example initiatives have been provided for each theme as an indication of the activities required to meet the targets.



EN1: Climate Change Adaptation and Mitigation

Objective

- Support Ireland’s climate ambitions to achieve net zero by 2050 and improve energy efficiency.
- Increase the resilience of MetroLink to future climate change.

Current Status (Design and Planning)

As part of the planning process, a carbon baseline for construction and operation has been established against which progress can be measured. The tool allows carbon hotspots to be identified and focussed on. It also allows differing grid electricity options to be modelled.

Preliminary studies have been conducted to identify the main risk of flooding from climate change and sustainable stormwater management systems have been included in the design.

MetroLink’s Ambitions

- Use TII’s Carbon Assessment Tool for Road and Light Rail Projects to identify and implement changes in design to reduce energy use in construction and operation and to select materials with lower embodied greenhouse gases.
- Capture the carbon hotspots and minimisation options in a PAS2080 aligned carbon management plan, which will be used by the construction contractor and operator to reduce emissions.
- Explore the purchase of certified low or zero carbon electricity for construction and operations and research the feasibility of offsetting any residual emissions.
- Set an example for Irish infrastructure projects by conducting further assessments of future climate change risks to operations and implement measures to mitigate these.

- Develop operational management plans that focus on further energy reduction and decarbonisation to include targets for the operational partner.

Targets

- Implement a whole-life Carbon Management Plan aligned to PAS2080 to inform the design, build and operation of MetroLink utilising TII's Carbon Assessment Tool.
- Achieve Net Zero for operational energy by opening year (2032), through energy efficiency, innovation, green power purchases and offsetting residual emissions - subject to further assessment of Ireland’s decarbonisation of the electricity grid.
- Deliver a 20% reduction in capital and embodied carbon against baseline.
- Achieve direct emission reduction for between 90% and 95% of the energy requirement for MetroLink operations from opening day, through renewable energy sources.
- Utilise certified and validated (assured) carbon offset products to balance the remaining energy usage carbon balance until the national grid achieves net zero.
- Integrate and maintain measures to manage construction and operational surface water and stormwater runoff, providing over 7,500m³ of attenuation.
- Undertake further Climate Change Risk Assessments during the procurement and detailed design stages for all major assets and implement measures to mitigate identified impacts.
- Maintain measures to support MetroLink’s resilience for a 1 in 1000-year flood event +40% for climate change.

Key example initiatives

- Implement efficient energy systems and power supply across all operations.
- 100% renewable energy through a combination of self-generation and procurement.
- Investigate certified offset schemes of residual emissions.
- Develop a route map and carbon plan to transition to Net Zero carbon.
- Conduct a focussed Climate Change Risk Assessment on the project and incorporate findings into further design steps.



EN2: Materials and Resources

Objective

- Minimise the use of materials, natural resources and the production of waste.

Current Status (Design and Planning)

The volumes and types of materials that will be needed to construct and operate MetroLink and have established a baseline for the EIAR. As a significant portion of the route is underground, construction of MetroLink is expected to generate large amounts of excavated material. A preliminary options assessment will be needed to demonstrate how and where materials could be managed to deliver the greatest sustainability benefit by applying circular economy principles.

Through evolving design, assessments of how MetroLink can reduce waste, increase the use of sustainable, lower carbon materials and seeking to follow best practice and use innovative products for this.

MetroLink's Ambitions

To deliver a resource efficient metro system, by:

- Identifying opportunities to reuse or recycle excavated and surplus materials within the project or make the materials available as a product to other projects, in accordance with relevant legislation.
- Requiring contractors to achieve targets for minimising waste, reusing and recycling materials and minimise water through contractual requirements and the construction Environmental Operating Plan.
- Considering environmental impact of materials in further design and procurement by undertaking life cycle assessments and specifying products will lower environmental footprints.

- Requiring operations to achieve high recycling rates with an aspiration to achieve zero waste directly to landfill.

Targets

- Implement a Waste Management Plan for Construction and Demolition Waste to facilitate a maximum of 5% construction and demolition waste (inert and non-hazardous) and operational waste by volume disposed in landfill.
- Undertake lifecycle assessments for major asset components and implement recommendations to influence the procurement of low carbon/ sustainable materials to achieve 40% reduction by volume of virgin materials.
- Procure materials for major asset components that have verified Environmental Product Declarations (EPD).
- Achieve a 20% reduction in mains water use during construction and 20% reduction during operation using rainwater harvesting, water re-use and efficiency systems and devices at all work sites, stations and buildings.
- Zero major pollution incidences during construction and operation and zero accidental or non-consented releases. Implement measures to monitor and report all pollution events and near misses.

Key example initiatives

- Local sourcing of materials (within <80 km), transported through low carbon logistics.
- Local waste management (<80 km) during construction and operation.
- Implement a trading mechanism for reuse of surplus materials.
- Specify >40% of materials by volume/ mass to be from low-carbon or sustainable sources.
- Embed sustainable procurement principles for all contracts that procure goods or service.
- Utilise BIM to develop asset inventory to facilitate end of life redeployment.
- Identify alternative procurement models, which support the circular economy through the lifecycle of MetroLink e.g. leasing or product takeback and remanufacturing.

Case Study – Sustainability at the Luas Broombridge Depot.

- Rainwater collection at the depot buildings will be used for irrigation.
- 80% of the water used for the train cleaning will be reused.
- Solar panels will be integrated either in the building's roof or in the parking canopies.



EN3: Biodiversity

Objective

- Protect and enhance biodiversity, achieve no net loss and minimise pollution.

Current Status (Design and Planning)

MetroLink has assessed, and is working towards, achieving a minimum of no net loss of biodiversity. To facilitate this, best practice and mitigation measures to protect areas of valuable and threatened species habitats have been identified through the environmental assessment process. Mitigation measures include further designing elements of MetroLink to avoid and minimise impacts and including biodiversity sensitive practices in the operational management plan. This will consider the long-term management of the metro to sustain plants and animals and contribute to biodiversity during its operation.

MetroLink's Ambitions

MetroLink will explore and implement the following measures to promote the delivery of a biodiverse metro system:

- Design to reduce impacts on biodiverse habitats and develop suitable planting and mitigation measures to promote biodiversity.
- Implement habitat improvements where feasible.
- Require contractors to manage their sites and activities to support biodiversity and no major pollution instances. All mitigation measures detailed in the Railway Order will be implemented.
- Re-establish biodiversity through native species planting and prevent the spread of invasive alien plant species.
- Monitoring the success of the measures implemented in the short and medium term.

Targets

- Achieve a minimum of no net loss of biodiversity.
- Protect areas of wildlife reserves/ protected habitats/ trees/ species and encourage recolonisation by implementing biodiversity sensitive design, and landscape management in the operational management plan and operations contracts.
- [Targets to be inserted from EIA ecology chapter mitigations when complete].
- Protect areas of valuable and threatened species habitats designated within the Natura 2000 protected areas network.
- [Target when EIA complete] to be included in operations contracts, which also include monitoring and reporting for biodiversity.

Key example initiatives

- No net loss – ecology impacts sufficiently mitigated or compensated.
- Green infrastructure is incorporated into design (e.g. green walls in stations).
- Implement biodiversity sensitive management practices in the operational management plan to maintain the no net loss target during operation.

EN4: Heritage

Objective

- Protect and improve access to heritage and cultural heritage along the MetroLink route.

Current Status (Design and Planning)

MetroLink has the potential to affect areas of heritage because of extensive excavation works, demolition of buildings, and construction of stations. Heritage conservation has been a key consideration throughout the design and construction of MetroLink and the potential impact of the project has been assessed. Ongoing measures are being considered to protect and restore historic and archaeological assets in situ.

MetroLink's Ambitions

MetroLink will deliver a metro system that is sympathetic to the local heritage setting, leaving archaeological effects in situ wherever possible. This will be achieved by:

- Identifying opportunities such as tree planting to minimise visual impact on heritage features such as Lissenhall Bridge.
- Restoring heritage features to prolong their lifespan e.g. the cast iron railings around Mater Park, housing the memorial for the Four Masters.
- Relocating the Wolfe Tone monument further into St Stephen's Green to retain its historic setting to allow greater and safer appreciation of the monument as a sculpture.
- Incorporating elements of culture and heritage in station and precinct design through plaques or murals.
- Establishing a heritage trail, like the audiobook telling the story of the archaeology discovered during construction of the Luas line.

Targets

- Develop and implement an ongoing heritage monitoring strategy.
- Implement and maintain measures to retain historic setting of heritage features.
- Maintain measures to minimise visual impact on heritage features through detailed landscape design and the operational management plan.
- Station and/ or train designs to incorporate elements of local and national art, culture and heritage.

Key example initiatives

- Enhance areas of local heritage and historic assets through sustainable restoration.
- Promote awareness and enable interaction with areas of local heritage and historic assets to service users/ surrounding community.

Case Study – Heritage

Construction of the station in St Stephen's Green will require the Wolfe Tone monument to be relocated further into the park. This will retain the monument's historic setting and allow greater and safer appreciation of the monument as a sculpture. The existing railings and footpath floor finishes will be preserved, and the station box will be deep enough to guarantee the relocation of trees above, integrating the station with the park setting.





CC1: Skills and Learning

Objective

- Provide opportunities to upskill, learn and develop in the construction and transport sector through the delivery of MetroLink.

Current Status (Design and Planning)

MetroLink is seeking to develop a skills and learning programme that reflects industry skills requirements, local demographics, the need for a balanced (e.g. gender, culture, age, race) workforce across all fields, regulatory drivers and wider government priorities around skills, employment, diversity and business growth in the construction and transportation sector. This is best achieved by collaboration and MetroLink is identifying partners to help deliver this.

These will be translated into contractual requirements across MetroLink, encouraging contractors to participate in programmes relevant to their activities.

MetroLink's Ambitions

MetroLink will develop the following opportunities to provide skills and learning to the construction workforce and the supply chain by:

- Increasing capability and capacity of the workforce, supporting project delivery through collaboration to address skills shortages and lower productivity in the construction sector.
- Mitigating skills shortages and gaps through training.
- Developing intellectual capital through upskilling local workers.
- Increasing collaboration and innovation with industry partners.
- Developing and supporting a diverse and inclusive workforce.

Targets

- Fund, develop and implement an Apprenticeship and Trainee Programme, incorporating outreach programme with local schools, colleges and universities.
- Apprentices to account for 5% of workforce across design, construction, and operation.
- Incorporate skills and learning targets into MetroLink's construction contracts and measure and report progress monthly.
- Provide an inclusive approach to recruitment, staff training and rotas to build community relationships and foster a sense of safety (including staff training on gender-sensitive approaches to dealing with sexual harassment and assault at work and on the network).
- Develop and implement a programme of community engagement to raise awareness of sustainability topics linked to the design, construction and operation of MetroLink.
- Encourage collaboration and co-creation to identify challenges and design solutions.

Key example initiatives

- Facilitate multidisciplinary workshops (including client, designers, technical, specialists, transport users with different needs and contractor), encouraging collaboration and co-creation to identify challenges and design solutions in delivering MetroLink.
- Explore the merits of establishing a skills academy for rail and light rail.
- Deliver Apprenticeship and Trainee Programme covering a wide range of technical disciplines.
- Defined career pathways delivered and supported by the project in construction and operation.



CC2: Community and Engagement

Objective

- MetroLink will engage with all stakeholders throughout each stage of the project lifecycle to keep them informed of progress.

Current Status (Design and Planning)

The emerging design has been informed by ongoing public consultation with engagement of a wide range of user groups. A stakeholder and community engagement plan have been developed which has guided the frequency and means of communication.

Extensive non statutory public consultation has taken place on the Emerging Preferred Route which ran from 22nd March to 11th May 2018, and the Preferred Route which ran from 26th March to 21st May 2019, with over 8,000 submissions received from members of the public and other interested stakeholders.

MetroLink's Ambitions

MetroLink will achieve progress in this priority area by:

- Regularly reviewing and updating MetroLink's stakeholder and community engagement plans throughout construction and operation, ensuring we seek out a range of voices and experiences.
- Actively maintaining partnerships and design focus groups established with the community.
- Communicating in a timely and open manner, using various channels including social media, during construction and operation to make our community aware of future changes that may affect them.
- Reporting MetroLink's sustainability performance annual online to promote transparency and demonstrate MetroLink's progress.

Targets

- Develop and maintain a stakeholder and community engagement plan, including centralised complaint reporting line, minimum standards for resolution and a programme of virtual and face to face events during design, construction and operation.
- Provide a dedicated helpline and social media channels (e.g. Twitter, LinkedIn, Facebook and emerging platforms) for the community before construction starts.
- Develop and implement a programme of community engagement to raise awareness of sustainability topics linked to the design, construction and operation of MetroLink.
- Minimise the probability of impacts due to flooding and power outages through back-up systems and controls.
- Work with partners to improve user perceptions of safety getting to and using MetroLink.

Key example initiatives

- Public information boards displaying key design features.
- Ongoing communication with affected stakeholders through a range of media.
- Delivery of virtual consultations with use of virtual /augmented reality to present visualisations of build.
- Implement mechanism for users to provide feedback on operational service.
- Continue programme of school visits/ talks covering topics including respect for each other and ways to support women and girls to feel safe on public transport, design features of MetroLink specifically for kids, range of jobs in transport.
- Maintain long-term partnerships with local communities and key stakeholders such as universities, schools, hospitals along the route, women's safety organisations. Public information boards displaying key environmental information regarding the operation of the scheme.
- Communications hubs at key strategic locations (e.g. main station sites) across Dublin.
- Dedicated phone and social media channels for the project to facilitate engagement and ongoing dialogue with the local community.
- Ongoing engagement and contingency planning with other transport agencies to maintain level of service during disruptive events e.g. mass power outage and flooding.



CC3: Safety

Objective

- Deliver and operate MetroLink safely, leading by example and innovative practices.

Current Status (Design and Planning)

MetroLink is a significant infrastructure project in Ireland and involves complex engineering and construction techniques. MetroLink can build on the safe delivery of infrastructure projects by TII and lead by example, considering safety in design and through the procurement of MetroLink's contractors.

How society engages with its public transport systems depends on how pleasant and safe they feel when using MetroLink including getting to and from MetroLink. Safety is central to our universal design approach with measures to prevent anti-social behaviour and clear lines of sight in stations with fewer corners, so people can see who is coming towards them. MetroLink knows that perceptions of safety apply to the entire journey including access to park and ride facilities, connecting services and the walk or ride home, making strong partnerships with local government, surrounding businesses and services important in tackling safety concerns about safety.

MetroLink's Ambitions

MetroLink's commitment to safely deliver includes:

- Embedding a culture that makes sure that everyone on the project returns home safely at the end of their shift.
- Using safety in design to deliver a metro system that is safe to construct and offers safety benefits to everyone that uses it.
- Incentivise contractors to deliver safety benefits to construction workers.

- Develop and publish safety metrics and key learnings for MetroLink during construction and operation.

Targets

- Facilitate ongoing engagement with key stakeholders (e.g. DFB/ Gardai) to deliver a metro system that is safe for all.
- Use a universal design approach to design out safety issues in the construction and operational phases of MetroLink.
- Establish a culture of everyone home safe at the end of their shift.
- Develop and include targets for the safe construction of MetroLink.
- Implement and maintain an inclusive operational emergency response action plan.
- Implement and maintain measures to reduce antisocial behaviour, including provision of real time CCTV and appropriate lighting.

Key example initiatives

- Conduct gender safety audits (including for Park and Ride Facilities).
- Universal design to consider how different users perceive a safe travel environment.
- Learnings incorporated from other infrastructure projects delivered around the world.
- Conduct gender safety audits (including for Park and Ride Facilities).
- Design for children and elderly people on the network.
- Contractors to focus on lowering leading safety metrics (e.g. near misses) rather than actual incidents.
- Focus on delivering toolbox talks and awareness raising.
- Regular publication of case studies and innovation on safer construction activities
- Promotion of a no blame culture where near misses are raised, and improvements made.



CC4: Health and Wellbeing

Objective

- MetroLink will demonstrate and deliver health and wellbeing benefits through construction and operation.

Current Status (Design and Planning)

MetroLink can deliver health and wellbeing benefits by providing active travel options for a wide range of people in the broader Fingal and Dublin areas. Using public transport will enable users to include walking and cycling in their commute and reduce commuting times and associated stress. Modal shift has the potential to reduce air pollution health risks.

However, the construction of MetroLink needs to be sensitive to the impacts on the communities that may be affected by the works, recognising the potential effects of land purchase, construction and disruption of MetroLink's sites on the health and wellbeing of the surrounding neighbours. MetroLink has undertaken extensive assessments as part of the EIAR process to understand the potential impacts of noise, air quality and traffic on the communities involved and mitigation measures are in development, which will be implemented through a Construction Environmental Management Plan.

MetroLink's Ambitions

To deliver the health and wellbeing benefits of MetroLink and prevent unwanted effects during construction will:

- Collaborate with other agencies to provide sources of help and assistance to those directly affected by the MetroLink route.
- Require contractors to consider the impacts on the community through the careful management of noise, dust and emissions from construction, including monitoring where necessary.
- Minimise construction traffic using approved routes, consolidating deliveries and using consolidation centres where practicable.

- Encourage contractors to implement programmes to monitor and educate the workforce on long term health and wellbeing issues.
- Use tools such as the Eastern Regional Transport Model Health Appraisal Tool to calculate the benefits of changes in physical activity levels and absenteeism resulting from more walking and cycling.
- Promote a strong health and wellbeing culture within the project, with buy in from construction partners.

Targets

- Design for children and elderly people on the network.
- Establish noise and vibration baseline and implement and monitor mitigation measures in the noise and vibration management plan to reduce impacts during construction and operation.
- Establish an air quality baseline and dust management plan for construction in consultation with others.
- Appraise and implement a programme, in partnership with other transport agencies, to help and support those directly affected by the construction of MetroLink.
- Deliver a Scheme Traffic Management Plan that mitigates the impacts of construction traffic on the communities MetroLink works in.
- Include initiatives for worker health and wellbeing in contracts.

Key example initiatives

- Initiatives promoting the wellbeing of the workforce and operational staff.
- Public information boards and sources of displaying wellbeing benefits and links to public health services (e.g. mental health).
- Provide a responsive and sympathetic construction helpline for the works.
- Partner with other public health bodies in the areas MetroLink works in to promote health and wellbeing.
- Develop a culture of respect and care of the local community, especially in sensitive areas (e.g. hospitals and residential care centres).
- Active monitoring of noise impacts during the operational phase to pick up where wear and team becomes an issue before it impacts our neighbours.
- Consider where MetroLink can provide additional benefits through universal design.

Case Study – Air Quality

Demand modelling suggests that MetroLink will divert 6.8 million car trips per annum in the early years and growing to 12 million per annum by 2045. This offers an opportunity for a reduction in congestion and harmful emissions, improving Dublin's air quality.



SE1: Connectivity

Objectives

- Facilitate connectivity between MetroLink and other transport services and modes of transport.
- Deliver well designed stations using the principles of universal design, that are accessible to all, safe, comfortable, and attractive.

Current Status (Design and Planning)

MetroLink will promote public transport usage by leveraging connectivity and interchange capabilities through:

- Route alignment creates a fully integrated public transport system in the Greater Dublin Area by connecting with two major Iarnród Éireann commuter lines, buses, DART, Intercity and Luas services. Park and ride helps car users to access public transport.
- Links to major transport hubs, such as Dublin Airport, connect key destinations including Ballymun, the Mater Hospital, the Rotunda Hospital, Dublin City University and Trinity College Dublin.
- Providing access to all the attractions and social opportunities of Dublin, reducing the need to use cars.
- Universal Design to allow greater mobility for people with disabilities and carers with prams and therefore better access for underrepresented groups of users.

MetroLink's Ambitions

By linking Swords to the city centre and increasing the frequency of services, the Project is expected to facilitate a greater modal shift to rail from car.

Future infrastructure needs are incorporated into design, including for station/bus access and car parking areas to support changing transport

mode options and technology (i.e. electric vehicles, autonomous vehicles, e-scooters and / or car-sharing modes).

The following actions will be investigated to implement and monitor connectivity improvements:

- The immediate public realm at stations will be designed and constructed to be safe and attractive to users.
- Contribute to active travel through creating improved pedestrian and cycle networks.
- Ongoing collaboration with other transport agencies to maintain level of service during construction.

Targets

- Design for ease of interchangeability at integrated stations with Dart/ IE etc.
- Maintain a minimum of 700 or 23% EV charging points at park and ride and maintain provision to increase this during operation.
- Implement and maintain a minimum of 1700 cycle parking stands (for approximately 3400 cycles) at stations along the MetroLink route.
- Implement and maintain provision of electronic and connectivity services on all trains and at stations (including charging points and free high-speed Wi-Fi).

Key example initiatives

- Integrate timetables and ticketing across transport operators to allow seamless interchange between transport modes.
- Undertake travel surveys for first 5 years of operation to estimate actual modal shift.
- Commitment to a passenger panel with regular satisfaction surveys and published results.
- Deliver carriage loading technology to measure crowding and display carriage loading data to passengers.



SE2: Productivity

Objective

- Demonstrate high productivity during delivery and operation of MetroLink.

Current Status (Design and Planning)

MetroLink will provide a substantial increase in capacity for Dublin's public transport network. Users will experience reduced journey times and improved reliability. MetroLink differs from the DART and Luas services by running a higher level of service frequency. There will also be larger carriages designed to increase capacity. These factors are expected to deliver productivity gains once MetroLink is running.

As a significant infrastructure project, MetroLink has an opportunity to demonstrate productivity gains in construction through robust project and programme management.

MetroLink's Ambitions

MetroLink anticipates increasing productivity throughout the project lifecycle by:

- Adopting a robust project and programme management and governance approach that carefully monitors costs and delivery dates.
- Benchmarking and measuring MetroLink against other infrastructure projects in Ireland and comparable metro projects around the world.
- Using socio-economic data and analysis methods to assess and report on the productivity benefits of MetroLink to Fingal and Dublin once operational.
- Promote technological innovation by adopting emerging technology and data to provide productivity gains.

Targets

- Research and develop a methodology for assessing and reporting productivity gains associated with the delivery of MetroLink.
- Establish a construction productivity benchmark for MetroLink and demonstrate gains against this benchmark monthly.
- Identify innovative technologies and practices that provide value for money and additional benefits to MetroLink users.

Key example initiatives

- Monitor and report productivity of Dublin transport network.
- Maintain partnerships with planning authorities, local businesses and international businesses to drive productivity within Dublin and nationally.
- Demonstrate matching of capacity to flexibility delivers required productivity levels.

Case Study – Reduced Journey times / Dublin Airport

In 2019 Dublin airport had 30.7 million passengers. Outbound passengers experience significant unreliability in their journey time to the airport, over 40% spent longer than 1 hour. MetroLink will reduce the time from the airport to Dublin city centre to 20 minutes, allowing passengers efficient access to the rail network and allowing them to be confident in the time their journey will take.



SE3: Facilitating shared growth and planning for the future

Objective

- Collaborate with local planning and local, national and international businesses to deliver growth.
- Allow for future trends in growth within the designs and operations

Current Status (Design and Planning)

Partnerships with local planning authorities make sure MetroLink’s design complements local area plan requirements, facilitating local growth. Future changes to Dublin’s demographics have been incorporated into design through passenger and growth modelling. To support this, Fingal County Council has rezoned 390 hectares of land as the “Metro Economic Corridor”. MetroLink notes the importance of understanding who directly benefits from new public infrastructure and services, ensuring resources and benefits are distributed.

The MetroLink project is designed to provide capacity for the projected demand out to 2060, the automated nature of the system will allow for increases in demand by reducing headways and increasing the frequency of service. The vehicles are required to be a minimum length of 64m. All station elements including platforms, vertical transport, passenger areas, technical accommodation and plant sizing is space-proofed to accommodate additional demand on the system over time.

MetroLink’s Ambitions

MetroLink will work closely with local planning authorities to integrate and align the metro with future growth predictions and deliver Compact Growth, this includes:

- Integrating flexibility into the design and operation of MetroLink so that future expansion and demand can be cost effectively and sustainably delivered e.g. future connections to the Green Line.
- Working flexibility with other developers and projects to integrate access to MetroLink into the public realm of other developments.
- Integrating flexibility into the infrastructure to cater for changes in technology and usage patterns e.g. the forecasted uptake in electrical vehicles.
- Safeguard public space for best practice local placemaking.

Targets

- Investigate and incorporate future growth trends into MetroLink’s design and operations to facilitate future expansion based on quantified data from equivalent metro systems.
- Space proofing during design to allow for expansion of the metro system.
- Collaborate with local planning authorities and developers to fully recognise the socio-economic benefits of MetroLink.

Key example initiatives

- Maintain partnerships with local planning authorities, local businesses and international businesses and community organisation to facilitate shared growth.
- Provision of adaptive rolling stock to reflect demand (e.g. flexible service to cater for periodic increases in user demand).
- Monitoring potential risks and opportunities for MetroLink beyond its opening.
- Urban regeneration for local businesses.
- Ongoing collaborative management of surrounding areas to maximise accessibility during operation.

Case Study – Train Automation

MetroLink will be fully automated. This means starting and stopping, operation of doors and handling of emergencies will be automatically controlled without any on-train staff. Trains will be able to travel at shorter intervals of one another, 90 second peak frequencies are possible.

To save energy, the automatic system will optimise acceleration, traction and braking. Temporarily parked trains will be able to switch off non-essential systems and equipment.



SE4: SME and Local Spend

Objective

- Encourage and include local and small and medium-sized (SME) and local businesses to engage in tendering opportunities.

Current Status (Design and Planning)

Increased employment during the construction of MetroLink will have a direct positive impact on the local and regional economy. MetroLink will create opportunities for local and SME businesses during construction and operation.

MetroLink's Ambitions

A significant project like MetroLink can deliver economic benefits to SMEs and local businesses, which will in turn benefit residents and the Irish economy. MetroLink will facilitate these benefits by:

- Developing a sustainable procurement strategy to include local and SME businesses in procurement of services and materials where possible.
- Encouraging contractors to source staff locally and consider and include underrepresented groups in the workforce.
- Investing in local business and innovation where appropriate.

Targets

- Implement and review on an annual basis a sustainable procurement strategy aligned with TII procurement policies and incorporates the national policy *Social Considerations in Public Procurement*.
- Incorporate sustainability requirements into all tenders to consider local and SME businesses and local employment.
- Develop sustainable practice evaluation criteria within tender requirements (e.g. renewable energy generation and sourcing materials to support the circular economy).
- Use meet the buyer events to promote opportunities to supply MetroLink.
- Identify opportunities to engage with local and SME businesses in station facilities and in the public realm areas surrounding stations.

Key example initiatives

- Local and SME involvement is a key factor in procurement of services, employment, and products/ materials where possible.
- Engage with local and SME companies through meet the buyer events and other initiatives.
- Collaboration with local business support groups to help local and SME businesses overcome barriers to participating in tenders.
- Identifying innovation and investment opportunities that benefit MetroLink.

Delivery

Implementation

This sustainability plan will be supported by various implementation measures, specific sustainability topic strategies and procurement requirements for contractors and operators. This is necessary as the responsibility for ensuring sustainability outcomes extends beyond TII and the MetroLink design team.

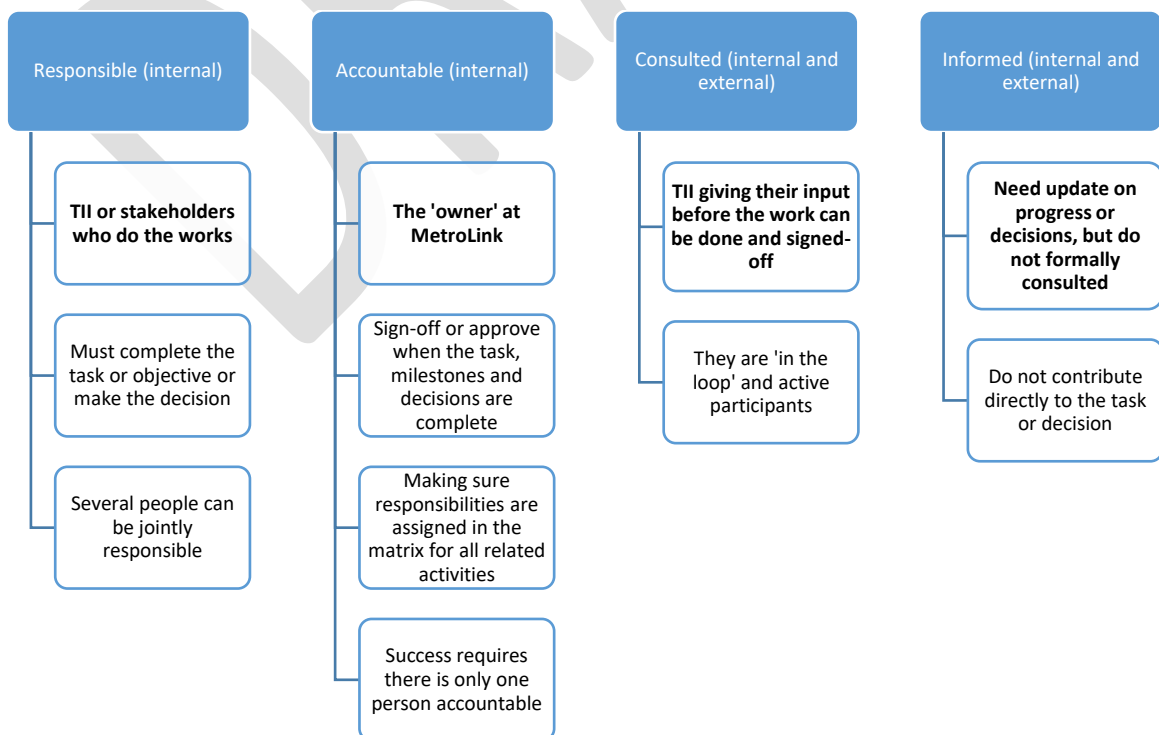
Sustainability commitments and minimum standards will be picked up in a series of requirements documents that will be instructed during contractor and operator procurement. This will ensure that sustainability is integrated across the team and becomes a shared responsibility, whether it relates to the ownership of targets, or promotion of MetroLink benefits and outcomes. In addition, MetroLink will assess whether infrastructure sustainability frameworks and rating systems such as CEEQUAL or LEED will provide value for delivery of this plan.

Monitoring

For this plan to be successful, with sustainability fully integrated into the design, build and operation of MetroLink, a framework to monitor the implementation of the priority areas, objectives and targets will be developed.

MetroLink will adopt a RACI matrix (Figure 7), providing a simple, effective means for defining and documenting project roles and responsibilities, whether these sit with TII, designers, contractors or operators individually or in collaboration between various parties. Having clear visibility of who is Responsible, who is Accountable, who needs to be Consulted, and who must be kept Informed will support implementation of this sustainability plan.

Figure 7: Project Sustainability Plan RACI matrix



The RACI matrix will be used to map the tasks, milestones and decision-making processes underpinning the design, build and operation of MetroLink.

Delivering compliance

This sustainability plan will be integrated into the MetroLink Environmental Operation plan and associated management system, which is illustrated in Figure 8. This sustainability plan will have clear intervention points into the E&SMS, which will include the sustainability targets.

Figure 8: MetroLink Environmental and Sustainability Management System

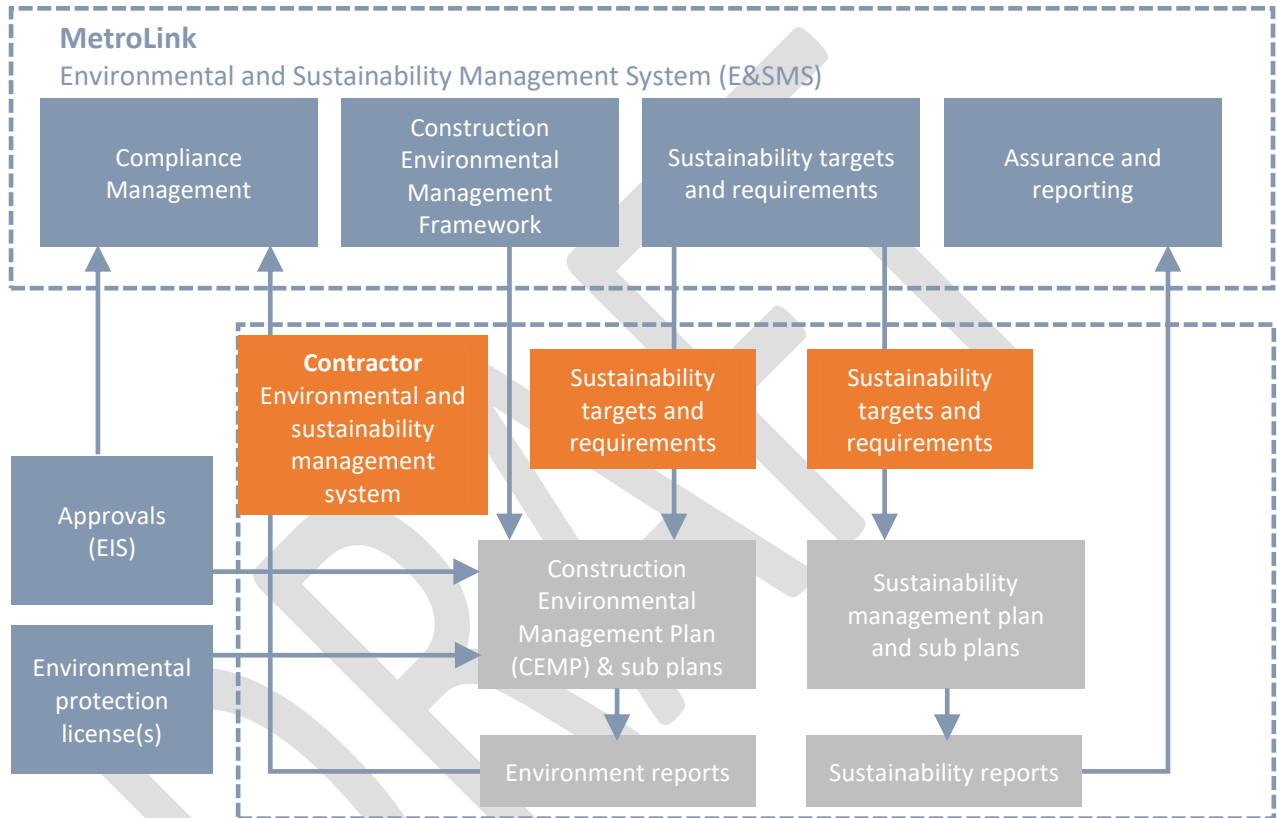


Figure 8 illustrates the relationship between the MetroLink E&SMS framework and Contractor's E&SMS, which includes the cascading of sustainability targets through procurement in employer's sustainability requirements, which in turn the Contractor will cascade to their supply chain. The supply chain will be required to report progress against the sustainability targets detailed in this sustainability plan to the Contractor, who will combine this with their own progress as part of the overall sustainability reporting to MetroLink.

The Construction Environment Operating Plan will capture the construction environmental requirements emerging from the EIAR, the Railway Order (including details of planning conditions) and this sustainability plan.

In addition, employer's sustainability requirements will capture governance and design requirements as well as social sustainability initiatives required by this sustainability plan and contract requirements.



Governance

MetroLink is committed to embedding good governance in all processes of the project and providing the resources required to ensure effective implementation of those practices.

Governance will be undertaken by a panel of representatives selected from NTA, TII, the MetroLink Project Board, internal MetroLink Staff and selected external stakeholders where appropriate.

Review

This sustainability plan is a 'live' document, implemented throughout the design, build and into the operation of MetroLink. The sustainability plan will be 'owned' by the MetroLink project team and reviewed and refreshed at appropriate points during the project lifecycle, for example project milestones or completion of lifecycle stages or significant events e.g. changes to external policy or performance issues/ improvements.



Communication and Reporting

To support this sustainability plan, a Target Delivery Tracker (TDT) will be developed as a framework mechanism to track sustainability performance throughout the evolving design process (i.e. from reference design through detailed design to the 'as built' designs), build and operation and support evidencing of progress towards to fulfilling the MetroLink sustainability targets.

As part of the commitment to deliver the MetroLink sustainability targets, designers, contractors and operators will be required to raise awareness of this sustainability plan to their staff and supply chains, and provide role-specific training to them, so they are understand how delivering their role on MetroLink will support achieving the sustainability targets.






Appendix: MetroLink Sustainability Targets

MetroLink Theme	Priority Areas	Targets	Design	Build	Operation
Environment	 Climate Change Mitigation and Adaptation	<ul style="list-style-type: none"> Implement a whole-life Carbon Management Plan aligned to PAS2080 to inform the design, build and operation of MetroLink utilising TII's Carbon Assessment Tool. 	●	●	●
		<ul style="list-style-type: none"> Achieve Net Zero for operational energy by opening year (2032), through energy efficiency, innovation, green power purchase and offsetting residual emissions – subject to further assessment of Ireland's decarbonisation of the electricity grid. 	●	●	●
		<ul style="list-style-type: none"> Deliver a 20% reduction in capital and embodied carbon against baseline. 	●	●	
		<ul style="list-style-type: none"> Achieve direct emission reduction for between 90% and 95% of the energy requirement for MetroLink operations from opening day, through renewable energy sources. 	●	●	●
		<ul style="list-style-type: none"> Utilise certified and validated (assured) carbon offset products to balance the remaining energy usage carbon balance until the national grid achieves net zero. 	●		●
		<ul style="list-style-type: none"> Integrate and maintain measures to manage construction and operational surface water and stormwater runoff, providing over 7,500m³ of attenuation. 	●	●	●
		<ul style="list-style-type: none"> Undertake further Climate Change Risk Assessments during the procurement and detailed design stages for all major assets and implement measures to mitigate identified impacts. 	●	●	●
	<ul style="list-style-type: none"> Maintain measures to support MetroLink's resilience for a 1 in 1000-year flood event +40% for climate change. 	●	●	●	
	 Materials and Resources	<ul style="list-style-type: none"> Implement a Waste Management Plan for Construction and Demolition Waste to facilitate a maximum of 5% construction and demolition waste (inert and non-hazardous) and operational waste by volume disposed in landfill. 	●	●	●
		<ul style="list-style-type: none"> Undertake lifecycle assessments for major asset components and implement recommendations to influence the procurement of low carbon/ sustainable materials to achieve 40% reduction by volume of virgin materials. 	●	●	●
		<ul style="list-style-type: none"> Procure materials for major asset components that have verified Environmental Product Declarations (EPD). 	●	●	●
		<ul style="list-style-type: none"> Achieve a 20% reduction in mains water use during construction and 20% during operation using rainwater harvesting, water re-use and efficiency systems and devices at all work sites, stations and buildings. 	●	●	●
		<ul style="list-style-type: none"> Zero major pollution incidences during construction and operation and zero accidental or non-consented releases. Implement measures to monitor and report all pollution events and near misses. 		●	●
		<ul style="list-style-type: none"> Achieve a minimum of no net loss of biodiversity. 	●	●	●
		<ul style="list-style-type: none"> Protect areas of wildlife reserves/ protected habitats/ trees/ species and encourage recolonisation by implementing biodiversity sensitive design, and landscape management in the operational management plan and 	●	●	●



<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;"></div> <div style="margin-bottom: 20px;"></div> <div style="margin-bottom: 20px;"></div> <div></div> </div>	Biodiversity	<ul style="list-style-type: none"> operations contracts. [Target to be inserted from EIAR ecology chapter mitigations when complete]. Protect areas of valuable and threatened species habitats designated within the Natura 2000 protected areas network. [Target when EIAR complete] to be included in operations contracts, which also include monitoring and reporting for biodiversity. 	●	●	●		
	Heritage	<ul style="list-style-type: none"> Develop and implement an ongoing heritage monitoring strategy. Implement and maintain measures to retain historic setting of heritage features. Maintain measures to minimise visual impact on heritage features through detailed landscape design and the operational management plan. Station and/ or train designs to incorporate elements of local and national art, culture and heritage. 	●	●	●		
	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;"></div> <div></div> </div>	Skills and Learning	<ul style="list-style-type: none"> Fund, develop and implement an Apprenticeship and Trainee Programme, incorporating outreach programme with local schools, colleges and universities. Apprentices to account for 5% of workforce across design, construction, and operation. Incorporate skills and learning targets into MetroLink's construction contracts and measure and report progress monthly. Provide an inclusive approach to recruitment, staff training and rotas to build community relationships and foster a sense of safety (including staff training on gender-sensitive approaches to dealing with sexual harassment and assault at work and on the network). Develop and implement a programme of community engagement to raise awareness of sustainability topics linked to the design, construction and operation of MetroLink. Encourage collaboration and co-creation to identify challenges and design solutions. 	●	●	●	
		Community and Engagement	<ul style="list-style-type: none"> Develop and maintain stakeholder and community engagement plan, including centralised complaint reporting line, minimum standards for resolution and a programme of virtual and face to face events during design and operation. Provide a dedicated helpline and social media channels (e.g. Twitter, LinkedIn, Facebook and emerging platforms) for the community before construction starts. Develop and implement a programme of community engagement to raise awareness of sustainability topics linked to the design, construction and operation of MetroLink. Minimise the probability of impacts due to flooding and power outages through back-up systems and controls. 	●	●	●	
		Community Commitment			●	●	●



 Safety	<ul style="list-style-type: none"> • Work with partners to improve user perceptions of safety getting to and using MetroLink. 	●	●	●	
	<ul style="list-style-type: none"> • Facilitate ongoing engagement with key stakeholders (e.g. DFB/ Gardai) to deliver a metro system that is safe for all. 	●	●	●	
	<ul style="list-style-type: none"> • Use a universal design approach to design out safety issues in the construction and operational phases of MetroLink. 	●	●	●	
	<ul style="list-style-type: none"> • Establish a culture of everyone home safe at the end of their shift. 		●	●	
	<ul style="list-style-type: none"> • Develop and include targets for the safe construction of MetroLink. 		●		
	<ul style="list-style-type: none"> • Implement and maintain an inclusive operational emergency response action plan. 		●	●	
	<ul style="list-style-type: none"> • Implement and maintain measures to reduce antisocial behaviour, including provision of real time CCTV and appropriate lighting. 	●		●	
	 Health and Wellbeing	<ul style="list-style-type: none"> • Design for children and elderly people on the network. 	●		●
		<ul style="list-style-type: none"> • Establish noise and vibration baseline and implement and monitor mitigation measures in the noise and vibration management plan to reduce impacts during construction and operation. 		●	●
		<ul style="list-style-type: none"> • Establish an air quality baseline and dust management plan for construction in consultation with others. 		●	
		<ul style="list-style-type: none"> • Appraise and implement a programme, in partnership with other transport agencies, to help and support those directly affected by the construction of MetroLink. 	●	●	
		<ul style="list-style-type: none"> • Deliver a Scheme Traffic Management Plan that mitigates the impacts of construction traffic on the communities MetroLink works in. 	●	●	
<ul style="list-style-type: none"> • Include initiatives for worker and community health and wellbeing in contracts. 		●	●	●	
Socio- Economic  Connectivity	<ul style="list-style-type: none"> • Design for ease of interchangeability at integrated stations with Dart/ IE etc. 	●	●	●	
	<ul style="list-style-type: none"> • Maintain a minimum of 700 or 23% EV charging points at park and ride and maintain provision to increase this during operation. 	●	●	●	
	<ul style="list-style-type: none"> • Implement and maintain a minimum of 1700 cycle parking stands (for approximately 3400 cycles) at stations along the MetroLink route. 	●	●	●	
	<ul style="list-style-type: none"> • Implement and maintain provision of electronic and connectivity services on all trains and at stations (including charging points and free high-speed Wi-Fi). 	●		●	
	<ul style="list-style-type: none"> • Research and develop a methodology for assessing and reporting productivity gains associated with the delivery of MetroLink. 	●		●	
	<ul style="list-style-type: none"> • Establish a construction productivity benchmark for MetroLink and demonstrate gains against this benchmark monthly. 	●		●	



 Productivity	<ul style="list-style-type: none"> Identify innovative technologies and practices that provide value for money and additional benefits to MetroLink users. 	●	●	●
 Facilitating growth/ planning for the future	<ul style="list-style-type: none"> Investigate and incorporate future growth trends into MetroLink’s design and operations to facilitate future expansion based on quantified data from equivalent metro systems. 	●		●
 Facilitating growth/ planning for the future	<ul style="list-style-type: none"> Space proofing during design to allow for expansion of the metro system. 	●	●	●
 SME and Local spend	<ul style="list-style-type: none"> Implement and review on an annual basis a sustainable procurement strategy aligned with TII’s procurement policies and incorporates the national policy Social Considerations in Public Procurement. 	●	●	●
 SME and Local spend	<ul style="list-style-type: none"> Incorporate sustainability requirements into all tenders to consider local and SME businesses and local employment. 	●	●	●
 SME and Local spend	<ul style="list-style-type: none"> Develop sustainable practice evaluation criteria within tender requirements (e.g. renewable energy generation and sourcing materials to support the circular economy). 	●	●	●
 SME and Local spend	<ul style="list-style-type: none"> Use meet the buyer events to promote opportunities to supply MetroLink. 		●	●
 SME and Local spend	<ul style="list-style-type: none"> Identify opportunities to engage with local and SME businesses in station facilities and in the public realm areas surrounding stations. 			●