METROLINK

Integrated Transport. Integrated Life.

MetroLink Oral Hearing Opening Statement

February 19th 2024

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

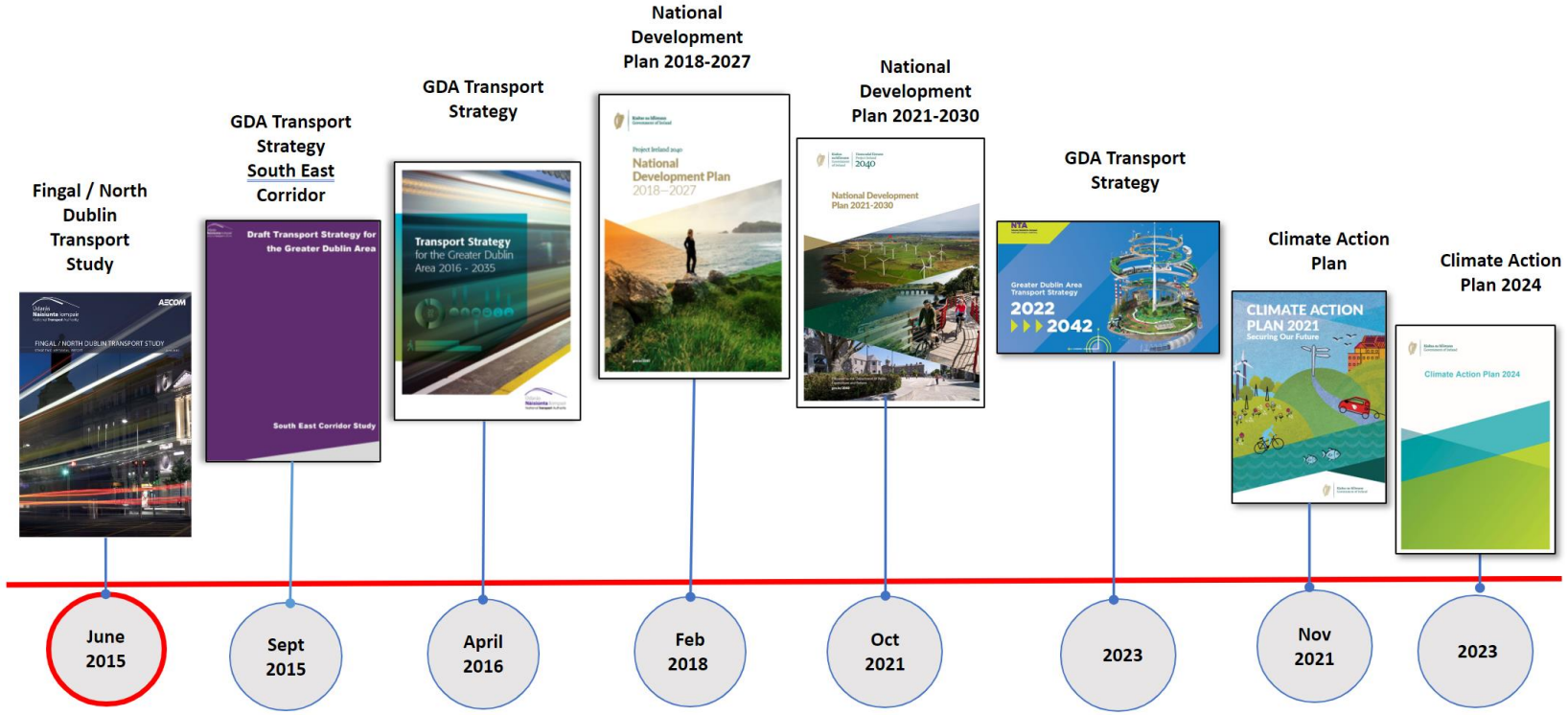
NTA
Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland 2040

Introduction to MetroLink

- MetroLink is a key scheme in the GDA' transport strategy to make Dublin a liveable city.
- Need established in every relevant transport study and policy document over the years.
- Metrolink is identified as the preferred public transport solution to serve transport demand on Swords/City Centre Corridor.



Introduction to MetroLink

- Aligns strongly with several of the National Strategic Outcomes of Project Ireland 2040, enabling compact growth, enhancing regional accessibility, delivering sustainable mobility, contributing to our transition to a low carbon and climate resilient economy.

- MetroLink will carry up to 50 million passengers annually , Capacity 20,000 pphpd, Trains every 3 mins and up to 90 secs.

- Modern, efficient , Integrated, automated Metro Line, befitting a city of Dublin's Importance.

Introduction to MetroLink

- Represents the spine of the GDA integrated public transport systems for Dublin.
- Linking with other transport modes including, Dart, Luas and Busconnects.
- Serves key destinations including Swords, Airport, Ballymun, Dublin City University, Glasnevin, O'Connell Street, Tara Street St Stephen's Green and Charlemont.

The Need for Public Transport

- Ireland is outgrowing its current transportation infrastructure.
- In 2021, Dublin ranked as the 35th most congested city in the world.(TomTom, 2021).
- A 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 (EFEU, 2017).

Sword/City Centre Corridor

- Major artery for the Irish economy and is becoming increasingly impacted traffic congestion.
- 8,000 workers currently commute from Swords to Dublin City Centre, but only 12% of those commuters use public transport (CSO, 2016).
- Morning peak journey times for private vehicles from Swords to St. Stephen's Green, just 19 Km, can take as much as 55 minutes or longer.
- An intervention is necessary to achieve a change in transport patterns that reduces the reliance on private cars and increases significantly the modal shift to public transport.
- There are real socioeconomic costs, lost time for commuters, impacts on quality of life, childcare arrangements access to social amenities, need for dual cars in driveways etc.

Public Consultation

- GDA strategy 2015/ Comprehensive route options selection process commenced, culminating in the identification of an Emerging Preferred Route.
- Extensive Public Consultation:
  - Emerging Preferred Route in March 2018.
  - Preferred Route in March 2019.
  - Meetings with Residents Groups and Key stakeholders.
  - TII listened to the feed-back and revised the route to address concerns.
  - Railway Order Application Statutory Consultation.

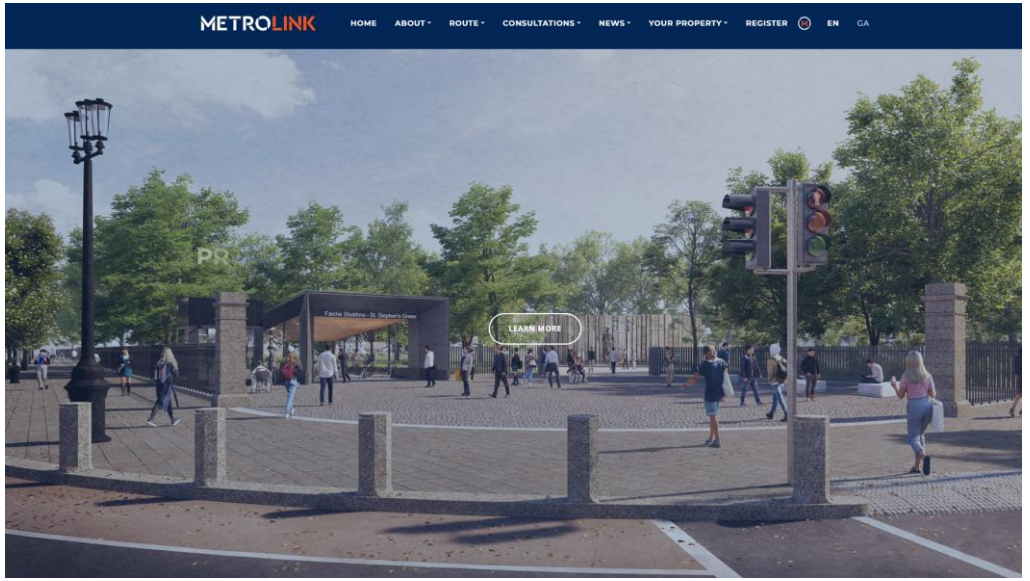
MetroLink Design / Construction

- Project has been developed and environmentally assessed on behalf of TII by leading experts in the metro design and delivery.
- Once consented, with take approximately 9 years to complete.
- There will be disruption while construction is ongoing, and we recognise that people's day to day lives will be affected during this period.
- TII are committed to and have a proven record of working with the local community and stakeholders to deliver the scheme in a way that minimises that impact.
- Dublin Port Tunnel, Luas lines, Dart all have been delivered, and community and the city generally has benefited enormously .

MetroLink – Access to Information

Aside from the comprehensive documentation forming part of the Railway order Application, the following document are available on the Metrolink.ie website :

- Land Acquisition Strategy.
- All documents relevant to the EPR/PR studies.
- Preliminary Design Review Report.
- POPS Scheme.
- Airborne and Ground Borne Noise Policy.
- Albert College Park Intervention shaft consultation document.



All of the documents requested by the Inspector are also available on the Project Website MetroLinkro.ie.

Oral Hearing

- Very much welcome the convening of an oral hearing into the scheme.
- We are here to help the inspector and the Board reach the right decision in respect to this critical piece of transport infrastructure.
- We have specialists available to answer questions across the wide range of environmental and design criteria.
- And are happy to provide any information we can, to help inform those in attendance on any aspect of the scheme.

An Bord Pleanála

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Response to Appendix 1: Matters to be Addressed by Applicant

19/02/24

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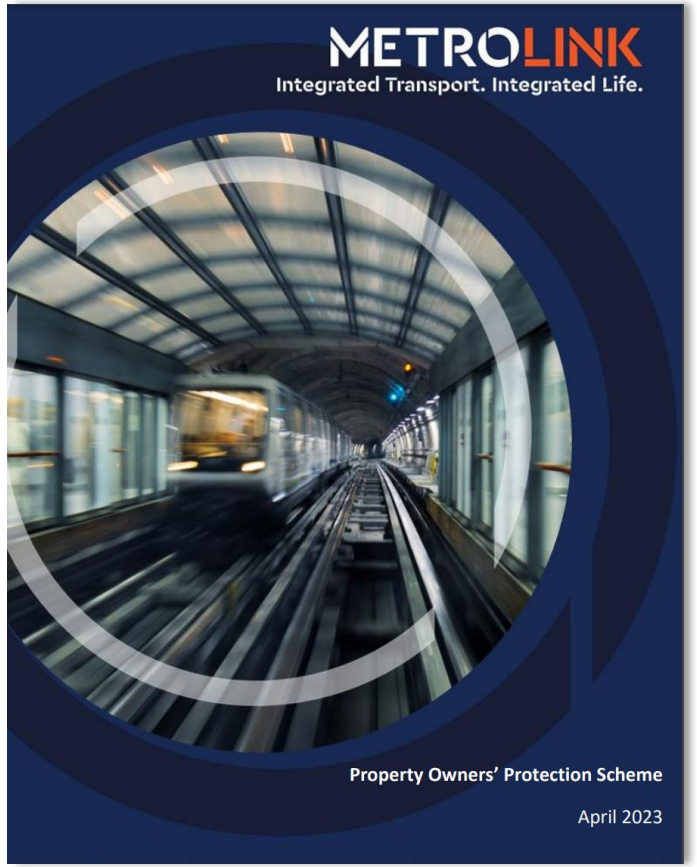
Appendix 1 Documentation Requested by the Inspector.

Item 8 ABP Appendix 1			
A	Property Owner Protection Scheme.	F	Preferred Route Design Development Report 2019
B	Collins Avenue Station: Environmental Assessment	G	Proposed approach to monitoring, communications and risk management
C	Approach to the proposed Asset Protection Policy	H	Overview of the fire safety, emergency and evacuation strategies
D	MetroLink Land Acquisition Strategy (referenced in Chapter 21 of EIAR).	I	Character appraisal/impact assessment of Santry Lodge and its curtilage.
E	Stakeholder and Community Engagement Plan (referenced in Chapter 5 of EIAR).		

8A Property Owners Protection (POPS) Scheme

- Residents have understandable concerns about a tunnel being constructed beneath their houses.
- TII is satisfied that the tunnel will be constructed at an appropriate depth and using appropriate methodologies and damage to properties (if any) will be cosmetic.
- The Property Owners Protection Scheme (POPS) is being implemented to provide an extra level of assurance to residential property owners regarding any impacts on their property.
- POPS is underwritten by TII as a free, "fast track" cost efficient option for relevant repairs to be conducted in the unlikely event that an owner's property were to be affected by MetroLink works construction.

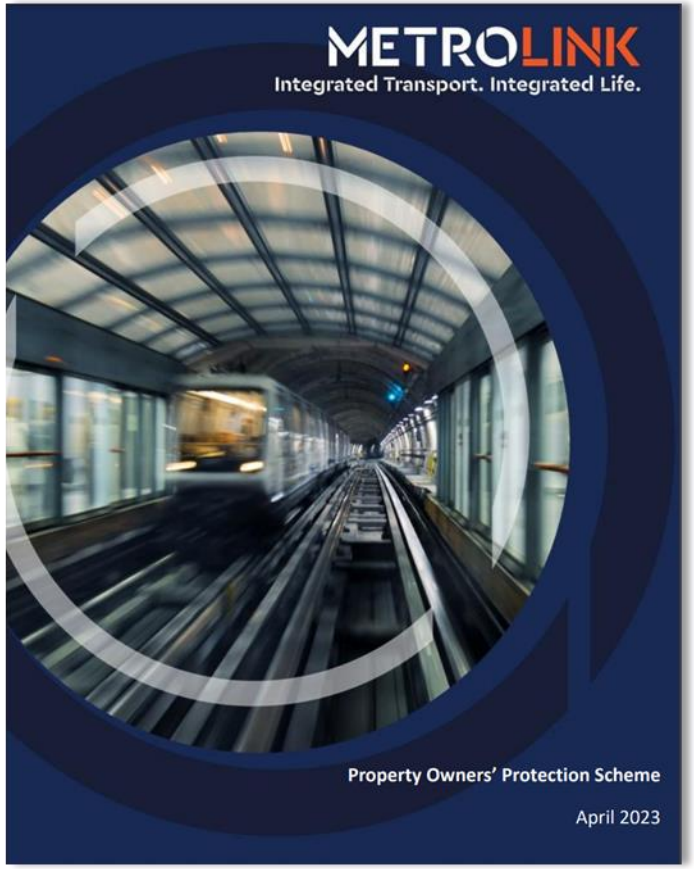


8A Property Owners Protection (POPS) Scheme

- Available to owners whose property lie within thirty (30) metres of the MetroLink Route Alignment or fifty (50) metres of station structures.
- These zones of influence were selected by Jacob/Idom Engineer on foot of empirical evidence relating to ground movement as outlined in the EIAR Volume 5 Appendices A5.17 Building Damage Report.
- The POPS scheme is only available for residential property owners.
- Property Owners can register for the POPS scheme on MetroLink.ie. Significant numbers have already signed up.

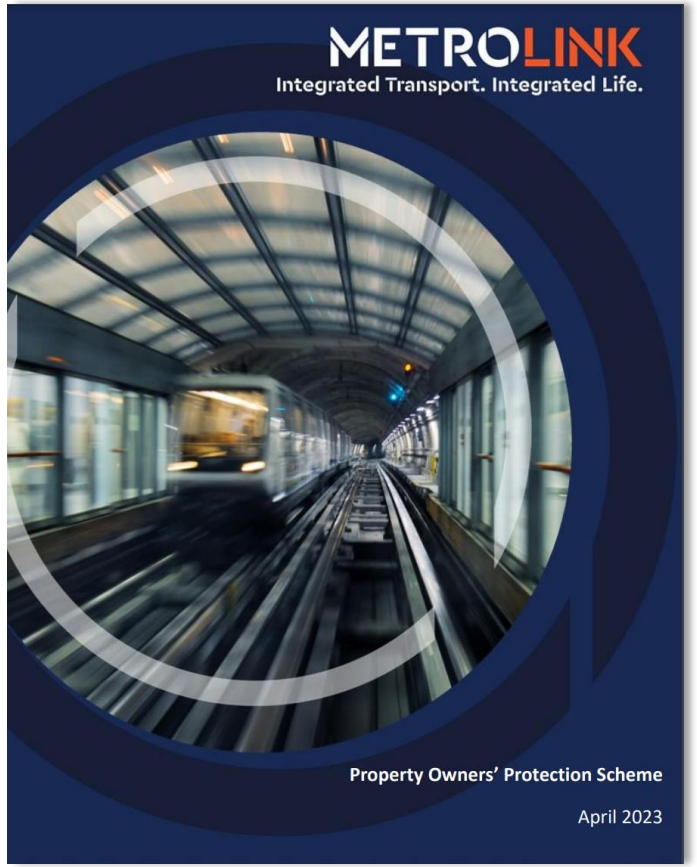
8A Property Owners Protection (POPS) Scheme

- Once signed up, a property owner can select a building surveyor from a panel of 3 building surveyors.
- The surveyor will carry out a pre and post construction survey of the property to record its condition.
- All surveys will be carried with the owner's agreement and the reports will be available to the owners when compiled.
- Any impact to the property arising from MetroLink works will be repaired by TII up to a value of €45,000. Level set to cover the absolute maximum value of any required repairs arising from MetroLink works.
- If the level of impact is in dispute, a Dispute Resolution Process will be put in place where an independent expert appointed by Engineers Ireland will adjudicate the matter.



8A Property Owners Protection (POPS) Scheme

- The owner's participation in POPS does not in any way impede their existing legal rights.
- All members of POPS will remain fully entitled to engage with their own consultants and pursue any claims for damages through legal channels if they wish.
- The MetroLink construction project will have extensive public liability insurance cover for damage to third party properties as is normal for any similar large construction project.



8C Asset Protection Policy (Guidelines for Developers)

- TII must ensure that proposed developments in proximity to the MetroLink alignment do not:
  - Impede TII's ability to deliver the MetroLink infrastructure during construction stage (e.g. foundation conflict with route of tunnel)
  - Negatively impact the constructed MetroLink infrastructure during operations stage.
- TII will develop a Guidance Note for Developers to assist developers by:
  - Imparting TII requirements for the protection of MetroLink assets.
  - Providing guidance on consultation with TII and the technical assurances required when planning such developments

8C Asset Protection Policy (Guidelines for Developers)

- TII will provide indicative exclusion and protection zones around MetroLink assets to guide developers on limitations on adjacent developments.
- Extent of zones will be dependent on specifics of proposed development, including:
  - Foundation type (e.g. depth of piling).
  - Loading of proposed building.
  - Local geological conditions.
- Developers will be encouraged to consult with TII as early as possible in the building design development to ensure proposal does not impact MetroLink infrastructure.

8C Asset Protection Policy (Guidelines for Developers)

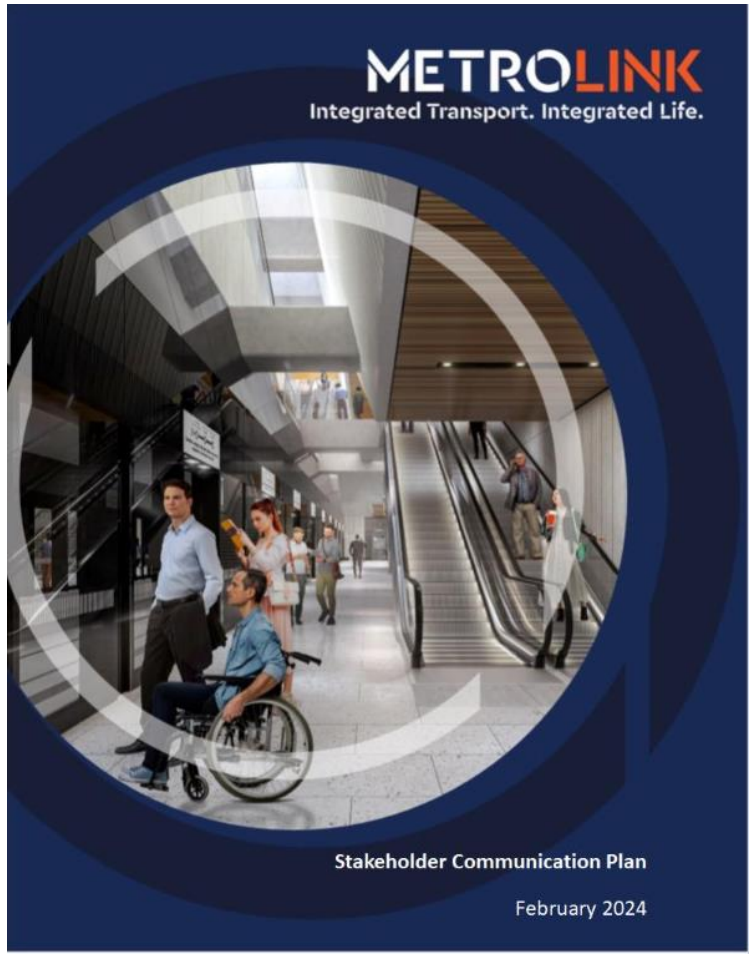
- For structural protection, defined exclusion and protection zones based on the final built infrastructure will be provided along the route, clearly setting out limitations on adjacent developments.
- The exclusion zone is an area in close proximity to the tunnel (or other MetroLink subsurface structure such as a cut & cover tunnel) where any intrusion by third party developments (e.g. piled foundations) would represent a significant risk to the structural integrity of that subsurface structure.
- The protection zone is a buffer zone outside the exclusion zone where any developers proposing developments within this area should consult with TII as soon as possible to understand what constraints may apply to the design and construction methodology proposed for the building to ensure safeguarding of MetroLink assets.

8C Asset Protection Policy (Guidelines for Developers)

- TII has developed a Draft Guidelines For Developers (2021/2024).
- TII will develop this document further post the project being granted a Railway Order.
- In the mean-time TII will work with developers to ensure that their developments are not stymied by the Metrolink project.
- We have a proven track record in doing so, with real examples of such collaboration at numerous sites along the route allow planning permissions to be submitted and works to proceed.

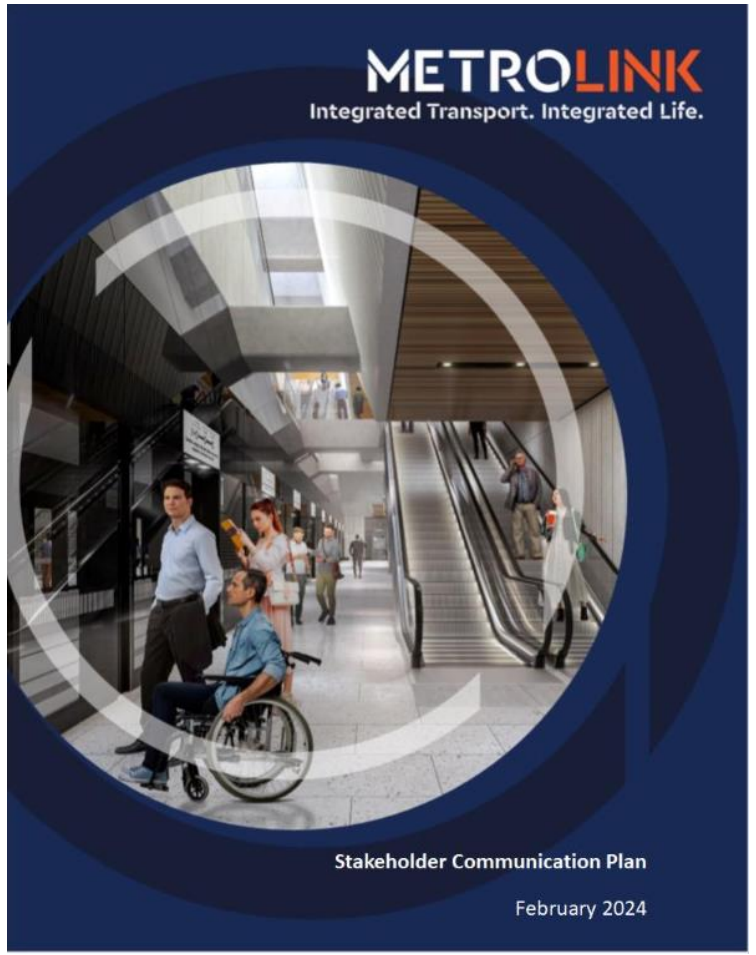
8E Stakeholder Communication Plan

- Draft Stakeholder Plan has been developed by TII.
- As with other TII projects the plan will be developed with involvement of all stakeholders and the scheme contactors.
- TII have a strong record in stakeholder engagement in the successful delivery of construction of large infrastructure project.



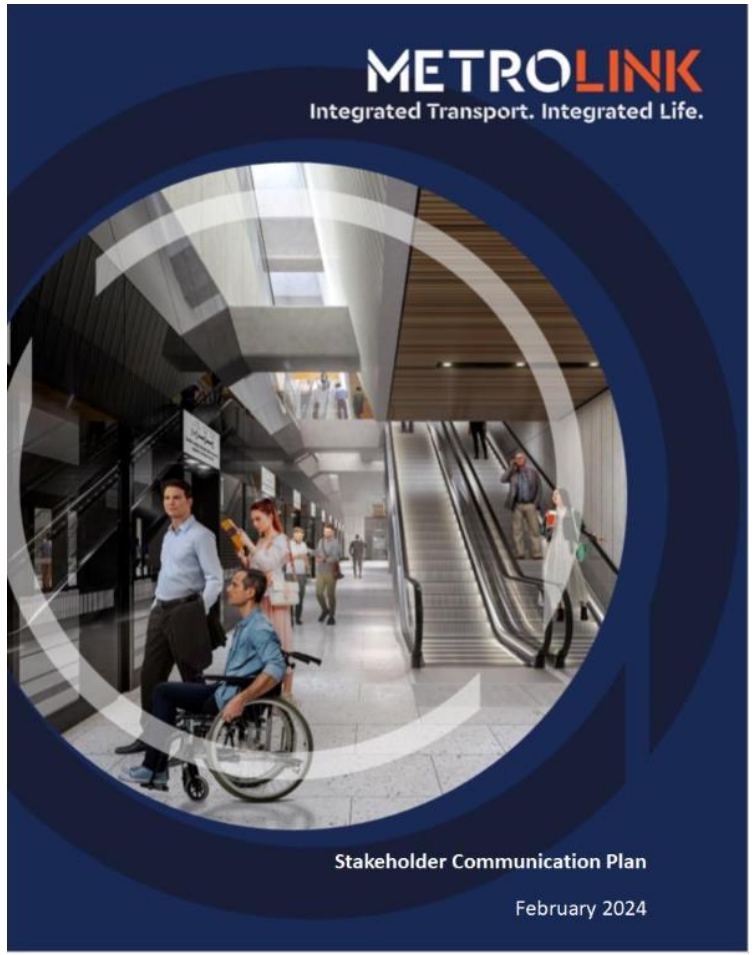
8E Stakeholder Communication Plan

- A strong Communications Forum established to bring together state agencies and other key stakeholders to ensure progress is maintained and issues resolved.
- A regular forum, primarily directed towards traffic issues will be set up and this will follow the model of the highly effective (Luas Cross City Traffic Forum).
- A director of communications supported by an experienced communications team will be appointed.
- Monthly business and local traders' "drop-in" meetings
- Regular Community Forums, held on a quarterly basis.



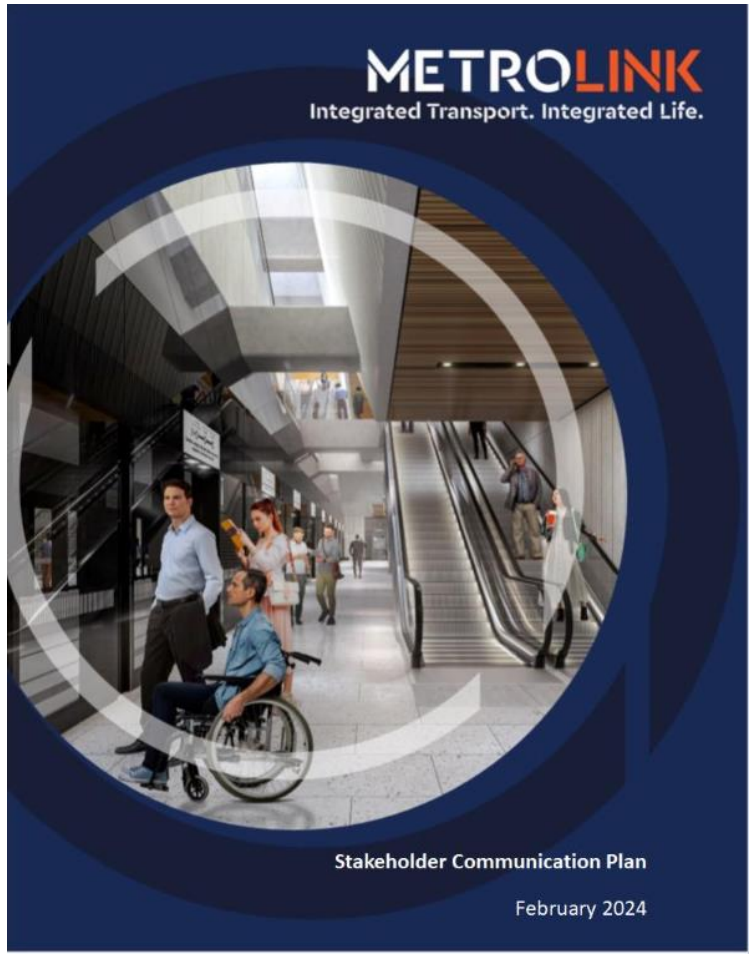
8E Stakeholder Communication Plan

- Local Liaison Officers (LLO). These TII staff members will each have a specific geographical area of responsibility. The LLO will be the “go to” person locally for all local interests in an area.
- Local community visitor information centres with a LLO assigned to each one.
- Manned 24hr community help line will be established
- Calls will be managed by the TII communication team and actions relayed to senior TII personnel for action.



8E Stakeholder Communication Plan

- Regular meetings with local groups such as residents' associations, schools, community groups, disability groups, sports groups, cycling groups etc.
- Community Clinics - Drop-in clinics along the route for members of the public to speak with the team and find out more about the project.
- Community Gain - Under the various construction contracts, TII will make provision to ensure that the appointed contractors work with Local Communities and the Local Authorities to participate and support local community initiatives .
- Construction Monitoring / Communications key Environmental monitoring information will be available for all parties to view online.



8F Preferred Route Design Development Report

- Prepared and was published as part of the 2019 Preferred Route Public Consultation
- The report provided an update on the Preferred Route design development that had commenced following the Emerging Preferred Route (EPR)
- Highlighted several changes being made to the EPR and providing explanation of the changes proposed.
- Preferred Route as developed and presented in the report retained the earlier EPR route corridor.
- The changes were presented as part of the Preferred Route Public Consultation in 2019 in order to elicit comment on the revised proposals.

8F Preferred Route Design Development Report

Changes included;

- Single-bore tunnel configuration (an Option retained at EPR stage).
- A different tunnel construction proposal, with two separate tunnels proposed, one under the airport and one driven southward from Northwood into the city.
- Removal of Tunnel Launch site, from Mobhi Road and relocation of station to HomeFarm FC pitch.
- Relocation of the depot from Estuary to Dardistown.
- Introduction of a viaduct crossing over the M50 and associated track realignment.
- The relocation of O'Connell Street Station (off O'Connell Street) with an associated short alignment change.

8F Preferred Route Design Development Report

- A revised alignment in East Verge of R132 in cutting, rather than on elevated structures with some associated changes to station locations.
- Changes to the Estuary Station and Park & Ride location and changes to the track alignment in the Estuary to Lissenhall.
- Removal of the proposed upgrade of the LUAS Green Line to metro standard from the present scheme, with Charlemont Station proposed as the present Metro terminus in the city.
- Changes to other station layouts (Northwood, Ballymun, Griffith Park, Glasnevin, Tara, St. Stephen's Green and Charlemont).
- Automatic Train Operation (ATO) – making it possible to run a high frequency train service using shorter trains and platforms while still delivering the required passenger capacity.

2 Agreements to be included in Schedule 13

- Extensive Consultation has taken place over the last 8 years with key Stakeholders:
- Agreed conditions are now in place addressing all principal concerns of the parties
- The agreed conditions will be issued to the inspector for inclusion in Schedule 13 of the Railway Order.

- Pass you over to My Colleague Dr Ronan Hallissey who together with other colleagues will take you through the remaining items required under Appendix 1.

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

Comhairle Contae Fhine Gall
Fingal County Council

daa
Dublin Airport

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Response to Appendix 1: Matters to be Addressed by Applicant

19/02/24

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Appendix 1.

Item	Requirements	Included in this Presentation
Item 1.	Identify any errata or proposed changes, modifications or updates as required including Draft Railway Order, associated schedules and property drawings.	Proposed Design Changes as they were assessed in addenda to the EIAR and NIS which are being submitted as appendices to my Witness Statement. Errata/updates as they relate to the draft RO Application. Updates to draft RO, schedules and Property drawings: ***Please refer to the update provided by Declan McGrath SC.***
Item 2.	Submit copies of any agreements made for the purposes of the Thirteenth Schedule of the Draft Railway Order.	Agreements with the following parties are being submitted to the Oral Hearing: DCC, FCC, DAA.
Item 3.	Address Implications of any policy changes since the lodgement of the application.	Policy changes as they related to the assessment presented in the EIAR and NIS.
Item 4.	Address implications of any relevant legislative or guidance updates since lodgement of the application.	Legislative and Guidance changes as they related to the assessment presented in the EIAR.

Appendix 1.

Item	Requirements	Item
Item 5.	Identify additional projects permitted since lodgement of the application for the purposes assessment of cumulative impacts and in combination effects	***Please refer to the update provided by Declan McGrath SC.***
Item 6.	Address potential implications of the designation of the North West Irish Sea cSPA with regard to both Appropriate Assessment and the Biodiversity Assessment contained in the EIAR. Identify if there have been any changes for any relevant European sites	***Please refer to the update provided by Declan McGrath SC.***
Item 7.	Provide a list of all other consents, licences, and approvals that will be required for the proposed development	***Refer to the Witness Statement of John Kehoe.***
Item 8.	Present the following:	
Item 8a.	Property Owner Protection Scheme.	***Refer to the Witness Statement of Aidan Foley.***
Item 8b.	Collins Avenue Station: Environmental Assessment Report of the Options.	***Yes***

Appendix 1.

Item	Requirements	Item
Item 8c.	Approach to the proposed Asset Protection Policy.	***Refer to the Witness Statement of Aidan Foley.***
Item 8d.	MetroLink Land Acquisition Strategy (referenced in Chapter 21 of EIAR)	***Refer to the Witness Statement of Michael Horan.***
Item 8e.	Stakeholder and Community Engagement Plan (referenced in Chapter 5 of EIAR).	***Refer to the Witness Statement of Aidan Foley.***
Item 8f.	MetroLink Preferred Route Design Development Report 2019.	***Refer to the Witness Statement of Aidan Foley.***
Item 8g.	Proposed approach to monitoring, communications and risk management during the construction phase, including respective roles and responsibilities of contractor(s) and TII.	***Refer to the Witness Statement of Paul Brown.***
Item 8h.	Overview of the fire safety, emergency and evacuation strategies (to include basis for, and location of, 1 No. intervention shaft at Albert College Park as proposed and the need for separate fire brigade/emergency services lifts at each underground station).	***Refer to the Witness Statement of Sandeep Upadhya.***

Appendix 1.

Item	Requirements	Item
Item 8h.	Character appraisal/impact assessment of Santry Lodge and its curtilage.	***Refer to the Witness Statement of Rob Goodbody.***

1. Errata and Changes and Modifications

Overview:

TII would like to bring to the boards attention a number of updates to the EIAR and associated documentation that have been introduced since the MetroLink Draft Railway Order was lodged in September 2022. These updates have been introduced for a number of reasons including

- The request received from An Bord Pleanala for matters to be addressed as outlined in Appendix A to the proposed Oral Hearing agenda.
- The need to address strategy and policy documents relevant to the assessments presented in the EIAR that have been implemented since the lodgement of the RO application.
- The requirement to update modelling presented in the EIAR in order to reflect updated strategy, policy and guidance documents.
- The requirement to assess cumulative impacts with projects approved since the lodgement of the RO application;
- Additional assessments undertaken to address project changes that have been updated to reflect agreements reached with project stakeholders; and
- Updates to the assessment presented in the EIAR to clarify outputs of some assessments.

2. Schedule of Mitigation.

TII would like to submit to the Inspector the following schedules of mitigation measures, in addition to those presented in the EIAR.

Any further mitigation measures arising out the Oral Hearing process will be submitted at the end of the Oral Hearing process.

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Updates to the EIAR

19/02/24

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2040

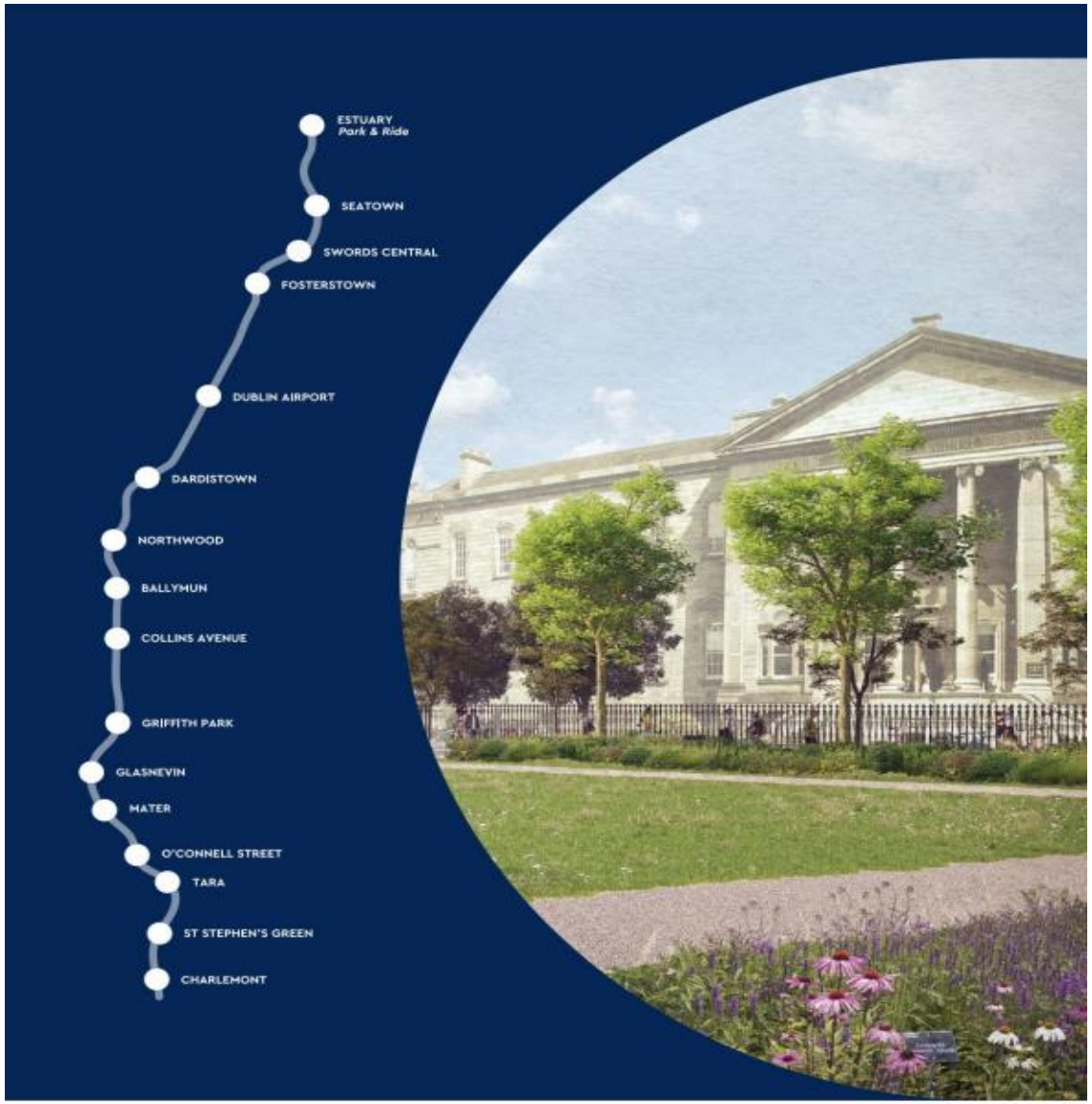
Overview: Update to the EIAR

Planning
J. Kehoe

Updates to EIAR
R. Hallissey

Architectural Heritage
R. Goodbody

Climate/ Air Quality
A. Challoner



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Chapter 4 Description of the MetroLink Project

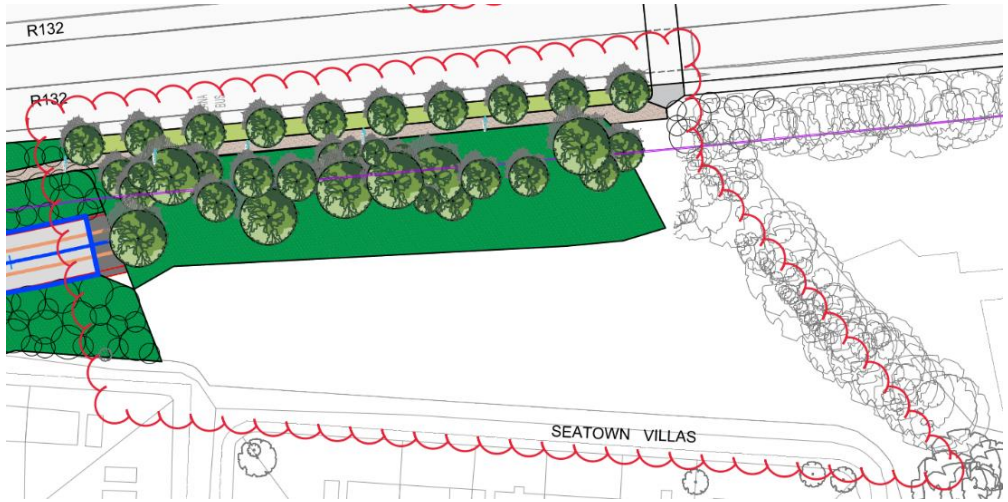
Chapter 4

On the basis of further consultation TII have proposed the following Updates:

- Amendment to landscape proposals at sections along the R132;
- Drop Off for Passengers with Reduced Mobility proposed for Charlemont;

Chapter 4

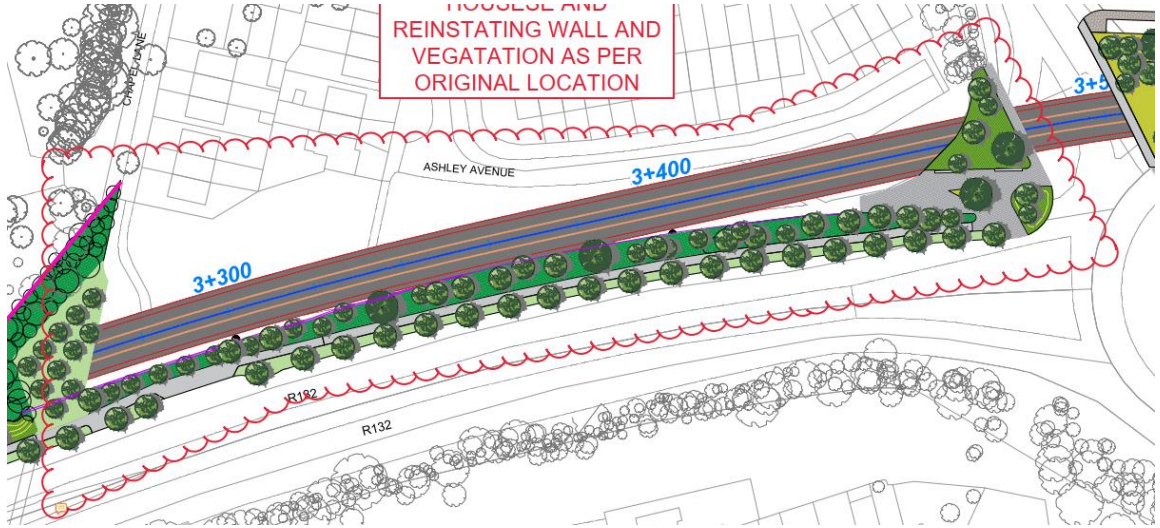
- ***Amendment to landscape proposals at sections along the R132 Seatown Villas;***



- ***Amendment to landscape proposals at sections along the R132 Estuary Court***

Chapter 4

- ***Amendment to landscape proposals at sections along Ashley Avenue;***



Chapter 4

No increase in ***Population and Land Use*** impacts is anticipated above those presented by the MetroLink EIAR and RO application.

- No increase in ***Human Health*** impacts is anticipated above those presented by the MetroLink EIAR and RO application.

- Returning the landscaping and boundary wall to the existing condition will mean linkages are not created, and therefore permeability and access to the R132 will not improve. However, this is no change from the baseline conditions and therefore MetroLink causes no impact on access to services and development.

No increase in ***Biodiversity*** impacts anticipated above those presented by the MetroLink EIAR and RO application.

- No increase in ***Land Take*** impacts is anticipated above those presented by the MetroLink EIAR and RO application. Change from permanent land take to temporary land take in green spaces at Estuary Court, Seatown Villas and Ashley Avenue.

Chapter 4

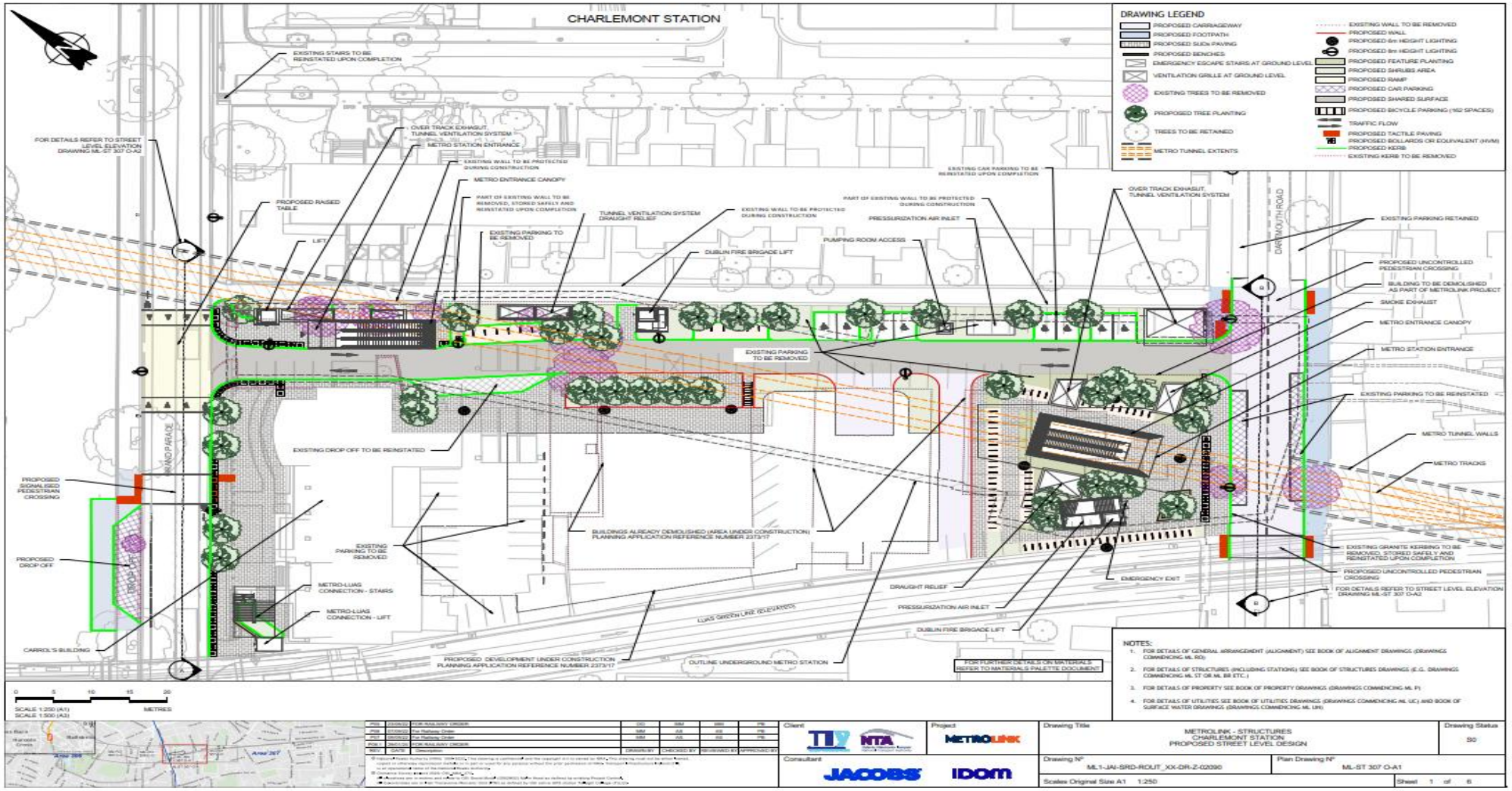
- No increase in ***Landscape and Visual*** impacts is anticipated above those presented by the MetroLink EIAR and RO application.

- The positive Landscape and Visual impacts associate with the landscaped area will not occur as the existing boundary wall and landscaping will be reinstated to the current conditions, however this will not lead to a negative impact from the proposed Project.

- It is considered that the proposed reinstatement of the boundary/landscaping at these locations along the R132 would not pose a risk in terms of overall compliance with ***planning policy***. This is because the project here will enhance access and permeability along the alignment for pedestrians and cyclists in tandem with other projects such as the R132 Connectivity Project.

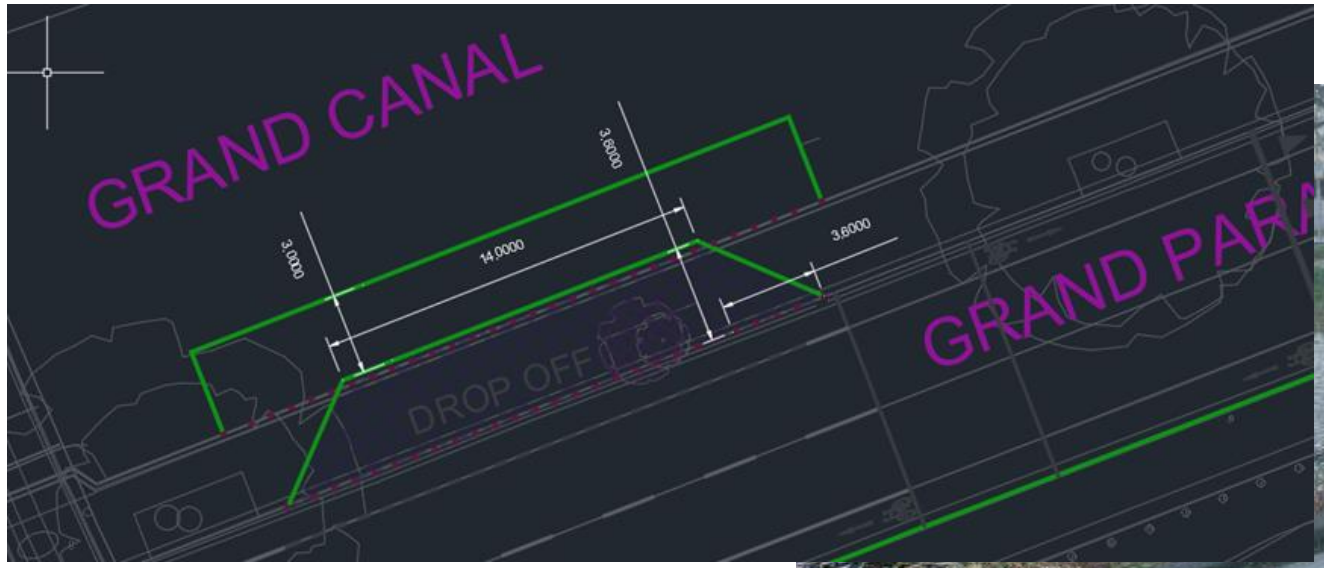
Chapter 4

Charlemont “PRM Drop Off”



Charlemont “PRM Drop Off”

Following Consultation - Drop Off for Passengers with Reduced Mobility proposed for Charlemont



Charlemont “PRM Drop Off”

- *The PRM drop off will require an abutting footpath to overhang the canal by approximately 3.25m.*
- *To avoid impacts with the canal structure or its ecology, it is proposed that the footpath is a cantilevered structure constructed solely from Grand Parade and not from within the canal.*
- *To accommodate this, a “minipile foundation” will be constructed landside.*
- *Following the completion of the construction, kerbs and safety barriers will be installed.*

Charlemont “PRM Drop Off”

Environmental Assessment Overview

- *As the proposed minor structure will have no elements in or attached to the Grand Canal itself there is no potential for significant effects on this element of industrial heritage;*

- *A habitat survey undertaken for this location identified that t*he habitat at this location consisted of a grassy verge, with the tall-herb swamp habitat further into the canal. There is no ecologicaly valuable habitat at this location and any potential habitat loss will be minimal considering the very limited extent of the works. As a result any effects are not considered significant.

- There will be no element of construction works undertaken in the canal and works along Grand Parade will be undertaken in line with the CEMP prepared for the MetroLink project. As a result it is not considered that there will be a significant effect on the hydrology of the canal.

- The provision of a PRM drop off at this location will have a significant positive effect allowing people with reduced mobility to access MetroLink more easily.

Charlemont “PRM Drop Off”

Environmental Assessment Overview

- A stage 1 Road Safety Audit has been undertaken and its recommendations have been incorporated into the design. Accordingly, the operation of the Charlemont should have minimal impact on traffic safety in this area.

- ***Overall, This review has identified that no additional significant effects as a result of the MetroLink Project as a consequence of the provision of a PRM Drop-Off at Charlemont.***

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Chapter 5 MetroLink Construction Phase

Chapter 5

In the Draft Railway Order for MetroLink Limits of Deviation (LODs) are proposed and these LODs are the same as those approved by the Board for “Old Metro North” and “Dart Underground”.

The statutory powers contained within the Railway Order allow for changes within the LOD to occur where it is found that the spatial position of the proposed Project may need to be adjusted, mainly for reasons of engineering practicability.

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Surface works (not impacting on public roadways)	2	2	5
Surface works (impacting on public roadways)	1	1	2.5
Tunnel Alignment	5	10	15

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Retained Cut and Cut and Cover Alignment	1	2	2.5
Station Box Locations	5	10	2

Chapter 5

However a number of submissions received from the statutory consultation process raised concerns with regard to the LODs, particularly those that allowed for movement upwards.

In Response: TII proposed to modify the proposed LOD to restrict any potential deviation upwards to just 1m.

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Surface works (not impacting on public roadways)	1	2	5
Surface works (impacting on public roadways)	1	1	2.5
Tunnel Alignment	1	10	15

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Retained Cut and Cut and Cover Alignment	1	2	2.5
Station Box Locations	1	10	2

Chapter 5

These new limits will further reduce potential impacts above the alignment

(1) Settlement Effects;
(2) Groundborne Noise & Vibration;
(3) Effects on future site development potential.

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Chapter 7 Consideration of Alternatives

Chapter 7

As requested by An Bord Pleanála in Appendix 1 to the Oral Hearing Agenda Collins Avenue Environmental Report TII will submit a copy of the *Collins Avenue Station: Environmental Assessment Report of the Options.*

This report was an internal document produced by the MetroLink team in order to

- Present an internal review of the potential environmental effects associated with a number of locations (options) identified for a station in the Emerging Preferred Route ;

The assessment identified potential for significant environmental effects if not mitigated:

"A station at this location would be requiring temporary and permanent land take from Our Lady of Victories Church grounds. There would be potential direct impacts of noise, visual and dust disturbances during the construction phase on sensitive receptors such as the above mentioned church, nearby schools and residents etc. There could be disruption to traffic along R108 during construction thereby causing access impacts to local population. There is the potential for impacts on the setting of buildings with architectural heritage value, and potential for damage to possible buried archaeological assets during construction. The location is within an urban area with some roadside vegetation of limited biodiversity value. This option avoids the significant traffic disruption associated with some of the other options. The location is not within a floodzone or close to any surface waterbodies; however there is a historic river running north-south beneath the church building, although no impacts are predicted."

Chapter 7

However, as presented in the EIAR for MetroLink it is possible to mitigate all identified significant effects for this location.

As a result, the station location proposed in the Alignment Options Report remains the preferred station location. The rationale for retaining this station location are as follows:

- This is the preferred strategic location for a station with maximum passenger demand serving this location;
- This location allows for ease of transfer to other public transfer routes on Collins Ave;
- This location for a station avoids the requirement for an intervention shaft to the north.

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Chapter 9 Traffic and Transport

Chapter 9

Since the draft Railway Order was lodged in September 2022, the Transport Strategy for the Greater Dublin Area 2022-2042 has been replaced the GDA Transport Strategy 2016-2035.

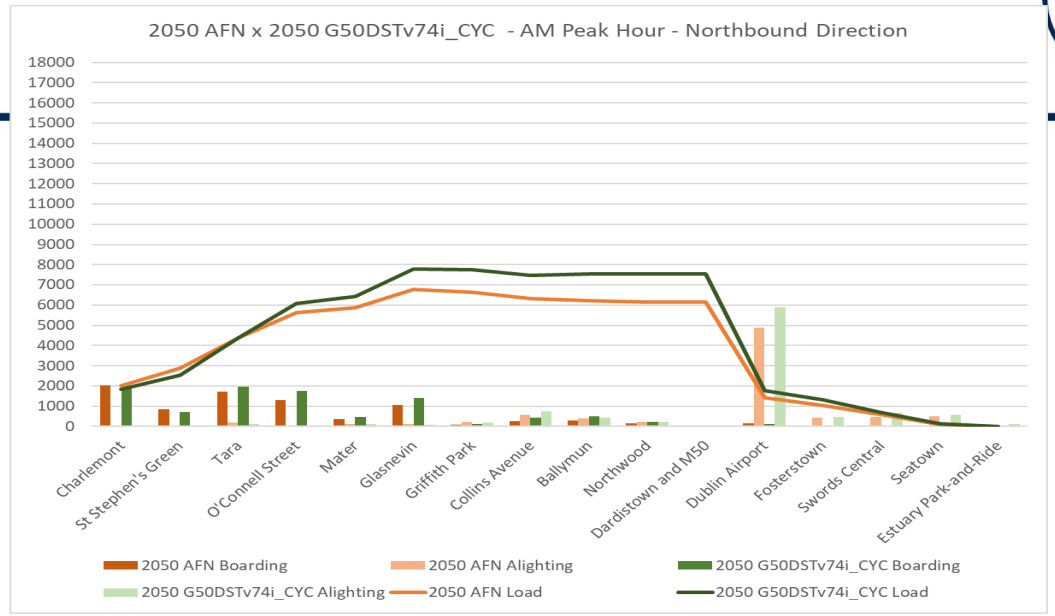
Some changes in new strategy:

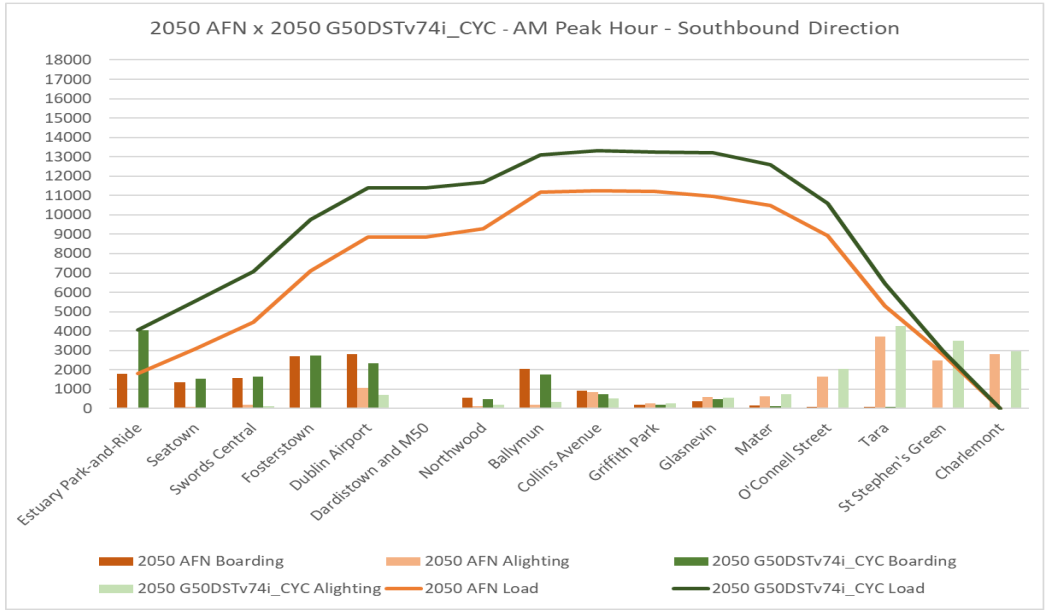
- Proposed road schemes in New GDA are very similar to the previous GDA but reduction in workplace parking by 50%. Parking charge also applied;
- Removal of Dart + Tunnel Scheme;
- Slight realignment of LUAS GreenLine extension: Bray to Charlestown;
- LUAS RedLine extension no longer to Poolbeg;
- Bus Connects PLUS – Increased bus capacity;
- Additional orbital bus network is proposed in the new GDA.

Chapter 9

New modelling for 2050 identified that:

- The profiles are very similar for each time period in the New GDA compared to the Prior GDAR;
- In the AM peak the maximum line flow is approximately 13,000 (SB) in the new GDA , compared to 11,000 in the Prior GDA
- The LT and SR periods have similar line flows
- In the PM peak, the maximum line flow is approximately 7,000 (NB) in the new GDA compared to 8,000 in the Prior GDA

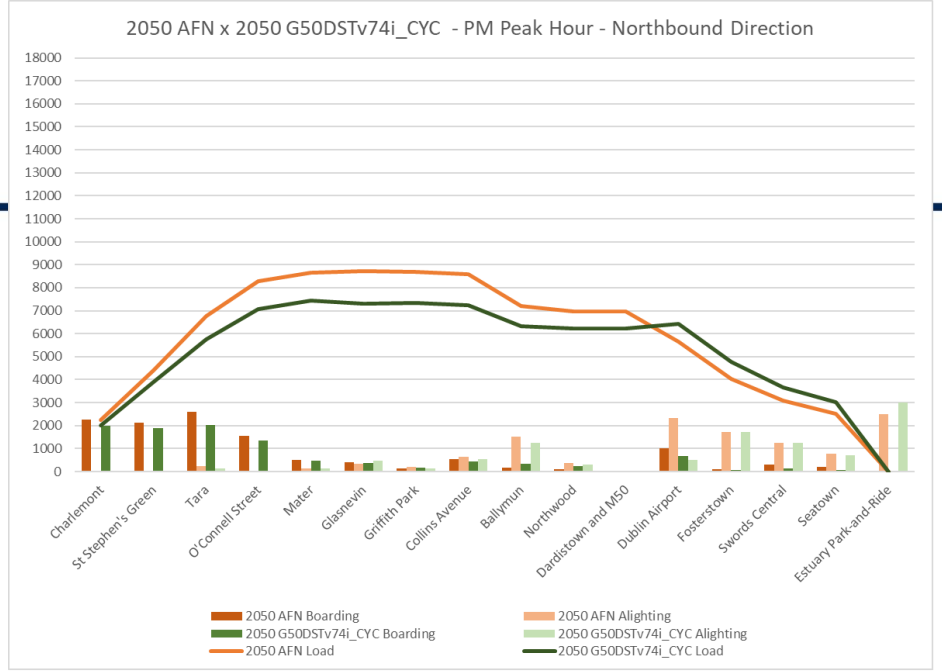


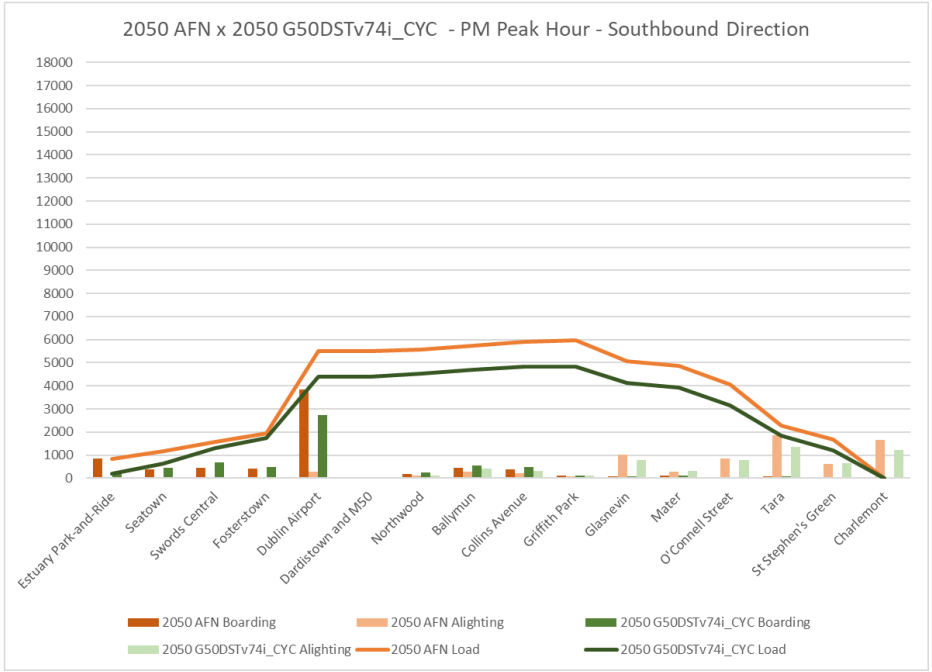


Chapter 9

New modelling for 2065 identified that:

- The profiles are very similar for each time period in the New GDA compared to the Prior GDA;
- In the AM peak the maximum line flow is approximately 16,000 (SB) in the new GDA , compared to 14,000 in the Prior GDA
- The LT and SR periods have similar line flows
- In the PM peak, the maximum line flow is approximately 9,000 (NB) in the new GDA compared to 9,500 in the Prior GDA





Chapter 9

Key Findings:

a) Fitness for Appraisal:

Both the original and new GDA models are deemed suitable for the Metrolink appraisal, ensuring robust analysis and decision-making. The latter version shows better level of convergence than the former one.

a) Consistency in Passenger Distribution:

The distribution of passengers through metro stations remains consistent in both GDA scenarios, providing stability in expected travel patterns.

a) Impact of New GDA Changes:

The modifications introduced in the new GDA contribute significantly to non-car modes, presenting favourable implications for the Metrolink project.

Similar Impact on Road Traffic

Chapter 9

Key Findings:

a) Noise & Vibration:

The GDA figures were reviewed and did not result in any increase in traffic noise levels across the project.

a) Air Quality:

Addressed in Air Quality Section.

a) Climate:

Addressed in Climate Section.

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Chapter 11 Population and Landuse

Chapter 11

Chapter 11 of the EIAR uses key Census data as part of its baseline assessment of population and its associated demographic and socio-economic characteristics along the route.

- This data is from the published 2016 Census, which was the most recent at the time of the RO submission.
- However Census 2022 data has been incrementally published, largely in 2023, with updated statistics available.
- As a result the analysis presented within Chapter 11 of the EIAR has been reviewed in the context of this new data.

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Chapter 11

Section 1 / AZ 1:

- *Percentage Change (2016-2022): +11%*
- *Total Population Change: +1,972 individuals*

This section comprises the Estuary, Seatown, Swords Central and Fosterstown Stations. Growth here is higher than the national average (8%) and is largely seen in a densification of population proximate to the Swords Central and Fosterstown Stations.

Section 2 / AZ 2:

- *Percentage Change (2016-2022): -7%*
- *Total Population Change: -84 individuals*

This section comprises the Dublin Airport Station. Population decline here is largely due to a reduction on an already small base, coupled with changes in census geography.

Chapter 11

Section 3 / AZ3:

- Percentage Change (2016-2022): +274%
- Total Population Change: +5,944 individuals

This section comprises the Northwood Station. Growth here has been significant due to residential development since Census 2016. It does benefit from changes in SAs slightly.

Section 4A / within AZ4:

- Percentage Change (2016-2022): -5%
- Total Population Change: -1,037 individuals

This section comprises the Ballymun Station. The decline here is likely attributable to the temporary vacancy of on-campus student accommodation during Covid in DCU specifically.

Chapter 11

Section 4B / within AZ4:

- Percentage Change (2016-2022): 0%
- Total Population Change: +99 individuals

This section comprises the Collins Ave, Griffith, and Glasnevin Stations. The nominal increase here is likely attributable to a temporary vacancy of on-campus student accommodation during Covid in DCU specifically.

Section 4C / within AZ4:

- Percentage Change (2016-2022): +18%
- Total Population Change: +17,733 individuals

This section comprises the Mater, O'Connell St. Tara, SSG and Charlemont Stations.

Growth is significantly above the national average here (8%), indicating considerable change since Census 2016, even despite likely lower on-campus occupancy during Covid for students.

Chapter 11

Overall, the levels of population in absolute terms along the route (all sections) has increased (by approx. 15%) since 2016.

- Consequently, the scheme's delivery will provide benefits to an even greater number of people than before (including across wider Dublin and commuters beyond).

- Conversely, a greater number of people will be potentially impacted by the effects of the proposed project in the construction phase, though this remains subject to mitigation as all chapters have assessed. All EIAR conclusions are therefore still applicable in their entirety.

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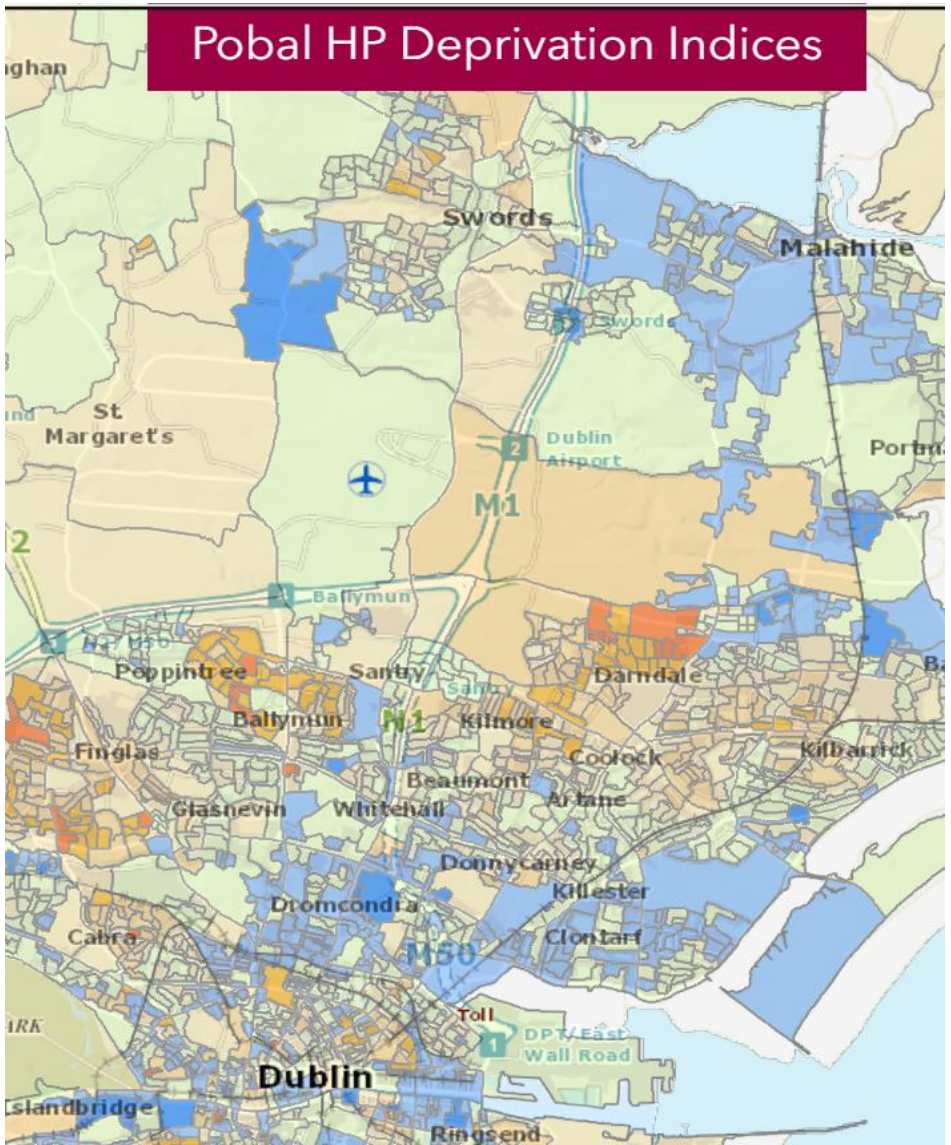
Chapter 11

- The Pobal-HP Deprivation Index assigns a score to each Census small area (SA) or neighbourhood in the country. A higher score suggests a higher level of deprivation, while a lower score indicates a more affluent area.

- The Index was updated in November 2023 to reflect the latest Census 2022 results.

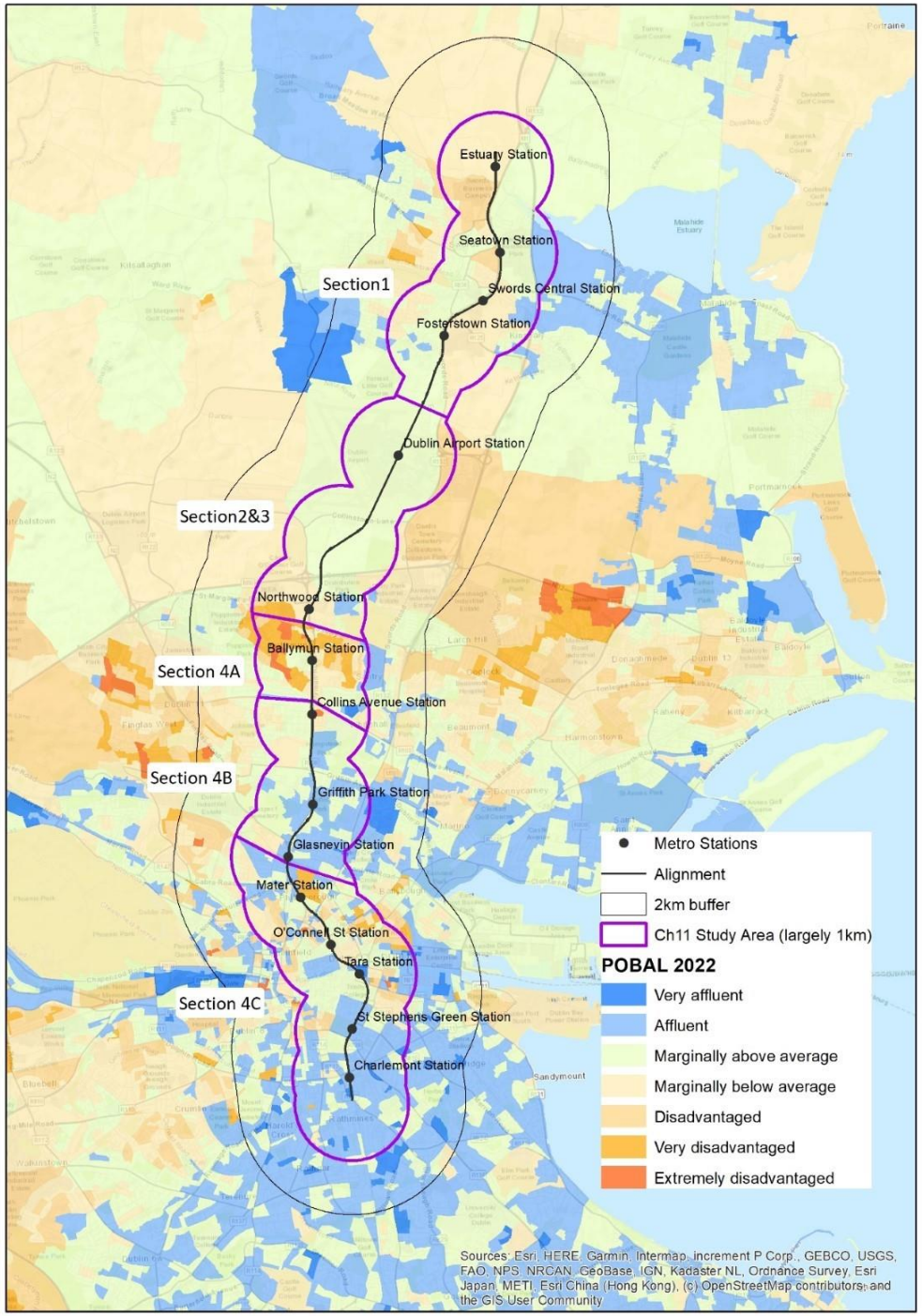
- An analysis was undertaken to review observed change since the 2016-era Index, used in EIAR chapter 11.



Chapter 11

- **Overall, the levels of deprivation recorded have increased along the alignment since 2016**.

- As a result, the population will stand to gain even more from Metrolink in both construction and operation phases through direct and indirect means.



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Chapter 14 Groundborne Noise & Vibration

Chapter 14

Clarification of Results: A full and comprehensive analysis of Groundborne Noise and Vibration has been presented in Chapter 14 Groundborne Noise & Vibration and associated appendices.

However, some outputs of the assessment were not clearly reported in the Chapter due to an error in transcribing some of the results.

Addendum Summary – Construction Phase

- Significant effects associated with Mechanical Excavation at additional residential properties close to Glasnevin Station, Tara Station, and at the non-residential receptor St Josephs Catholic Church close to Mater Station were not reported in the summary tables in the main Chapter. Predicted values had been correctly tabulated in App 14.5.

- Predicted groundborne noise and vibration magnitudes associated with the construction of the intervention tunnels at Charlemont had not been presented in App 14.5. However there is no residual significant effects identified.

- Predicted TBM groundborne noise levels south of Eden Quay updated. Generally the effects have reduced, but a new Significant Effect arises at one property along Eden Quay.

- Significant residual construction groundborne vibration effect from the passage of the TBM at National Concert Hall incorrectly identified in chapter. Now removed.

- Additional assessment of groundborne noise and vibration during Mechanical Excavation at Seatown Station, and during the construction of Seaton Pumping Station undertaken. No significant effects identified.

- Significant Effects associated with blasting at Dartmouth Road not reported in main chapter. The requirement to control blasting at the Oversite Development at Charlemont, means that there are no significant effects.

Addendum Summary – Operational Phase

- Additional lengths of Floating Slab Track included to remove Significant Effects at 2 no. non-residential properties in AZ1, and 20 residential properties in AZ4.

- Previously incorrectly reported operational vibration Significant Effects at the National Museum and National Gallery removed from the summary tables.

- Drawings added to show the extents of the Floating Slab Track, including additional lengths referred to above.

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Chapter 16 Air Quality

Chapter 16 Air Quality

After the lodgement of the draft RO in September 2022 Transport Infrastructure Ireland (TII) published new guidance documents and standards for the EIAR with respect to Air Quality (December 2022);

- ***PE-ENV-01106: Air Quality Assessment of Specified Infrastructure Projects (TII 2022a) and***
- ***PE-ENV-01107: Air Quality Assessment Standard for Proposed National Roads (TII 2022b).***

The 2011 Air Quality Standard Regulations (S.I. No. 180 of 2011), published April 19th 2011, are considered as the appropriate standards within the Air Quality Chapter of the EIAR.

However since the lodgement of the draft RO, these have been superseded by the ***2022 Ambient Air Quality Standard Regulations (S.I. No. 739 of 2022)*** published on January 10th, 2023.

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Chapter 17 Climate

Chapter 17 Climate

Addendum Documents to Chapter 17 Climate prepared in order to address:

- The Climate Action Plan 2023 & The draft Climate Action Plan 2024;
- Updated Traffic data from the Greater Dublin Area Transport Strategy 2022 – 2042 (NTA 2023);
- PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (offline & Greenways) – Overarching Technical Document, and
- PE-ENV-01105: Climate Assessment of Proposed National Roads – Standard

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Chapter 22 Infrastructure and Utilities

Chapter 22

An update note was prepared for Chapter 22 to address:

(1) An update to the proposed Overflow from the Seatown Pumping Station following discussions with Irish Water; and

(2) To provide some additional analysis of the environmental effects associated with the Pumping Station (N&V);

Chapter 22

An update to the proposed Overflow from the Seatown Pumping Station following discussions with Irish Water;

The utilities drawing for Seatown presented within the draft RO Utility Details Book 1 of 4 (Fingal County Council) shows a proposed emergency overflow to the Ward River from Seatown Pumping Station.

However based on consultation with Irish Water a new design for the overflow:

- The emergency overflow from the pumping station has been redesigned to connect into an existing sewer that conveys the flow to the existing Swords Wastewater Treatment Plant.

Chapter 22

To provide some additional analysis of the environmental effects associated with the Pumping Station (N&V);

Additional analysis is presented on the potential impact associated with the excavation of this pump station:

	Predicted level	Threshold level
Mechanical Excavation Groundborne Noise, L_{ASmax} dB	32	40
Mechanical Excavation Vibration, VDV $ms^{-1.75}$	0.012	0.8
VDV - Vibration Dose Value		

- No significant Groundborne N&V effects:
- No Significant Airborne Noise & Vibration Effects;

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Chapter 24 Material and Waste Management

Chapter 24 Materials and Waste Management

An update to Chapter 24 of the EIAR has been undertaken to reflect the following:

(1) More up to date data on landfill capacity (2022) has become available;

(1) While the notification pursuant to Article 27 has been made to the EPA as outlined in the chapter. However it has not yet been determined and as a result an additional analysis has been undertaken (as a precautionary approach)

(2) The unlikely scenario in which the notification to the EPA pursuant to Article 27 is not successful is assessed.i.e Where material is designated as a waste and is disposed of to soil recovery facilities (SRF) to manage surplus excavated material, as outlined in the EIAR.

Chapter 24 Materials and Waste Management

- Prior to mitigation measures being implemented if all waste was to be sent to inert and non-hazardous landfill, it is likely to reduce national landfill capacity void in Ireland by ***24%***. This is considered a significant effect (very large).

- Once mitigation is implemented through the use of SRF thus diverting more waste from landfill the reduction of national landfill capacity is reduced considerably to ***4.1%***. However, this is still considered a significant effect (moderate or large).

- The mitigation measures, as set out in paragraph 24.6 of Chapter 24 remain valid. The aim of the mitigation measures are to minimise the impact to the environment through good material resource efficiency practices.

- If during the peak generation year (year 5) all SRF compliant material was to be sent to soil recovery facilities, the proposed Project would take up approximately 23% of annual capacity at soil recovery facilities in the counties surrounding the proposed Project.

Scenario	Description	Sensitivity of the Receptor	Magnitude of Impact	Significance of Effect
No mitigation	All material is landfilled	Very High	Major	Very Large
Mitigation	80% of material is recovered through SRF and 20 % goes to landfill	Very High	Minor	Moderate or Large

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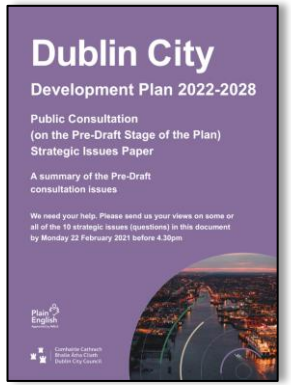
Impact of Policy Change

3. Impact of Policy Changes 1

The following documents have been adopted since lodgement of RO in September 2022:

- Climate Action Plans 2023 and 2024
- National Implementation Plan for the Sustainable Development Goals 2022-2024
- Greater Dublin Area Transport Strategy 2022-2042
- Greater Dublin Area Cycle Network Plan 2022
- Fingal Development Plan 2023-2029
- Lissenhall East Local Area Plan 2022-2028
- Sustainable Swords Strategy 2022
- Dublin City Development Plan 2022-2028



3. Impact of Policy Changes 2

The following documents have been prepared in Draft:

- Fingal Draft Climate Action Plan 2024-2029
- Dublin City Council Draft Climate Action Plan 2024-2029
- Draft Dublin City Centre Transport Plan 2023
- Draft National Biodiversity Action Plan 2024

The following Local Area Plans have expired in that period:

- Dardistown Local Area Plan 2013-2019
- George’s Quay Local Area Plan 2017

Greater Dublin Area Transport Strategy 2022-2042

Measure LRT1 – MetroLink

- *A Railway Order application for the MetroLink was made to An Bord Pleanála in 2022. Subject to receipt of approval, it is intended to proceed with the construction of the project.*

Measure LRT12 – Additional Depot Facilities

- *It is intended to provide additional depot facilities as required to cater for an expanded light rail network.*

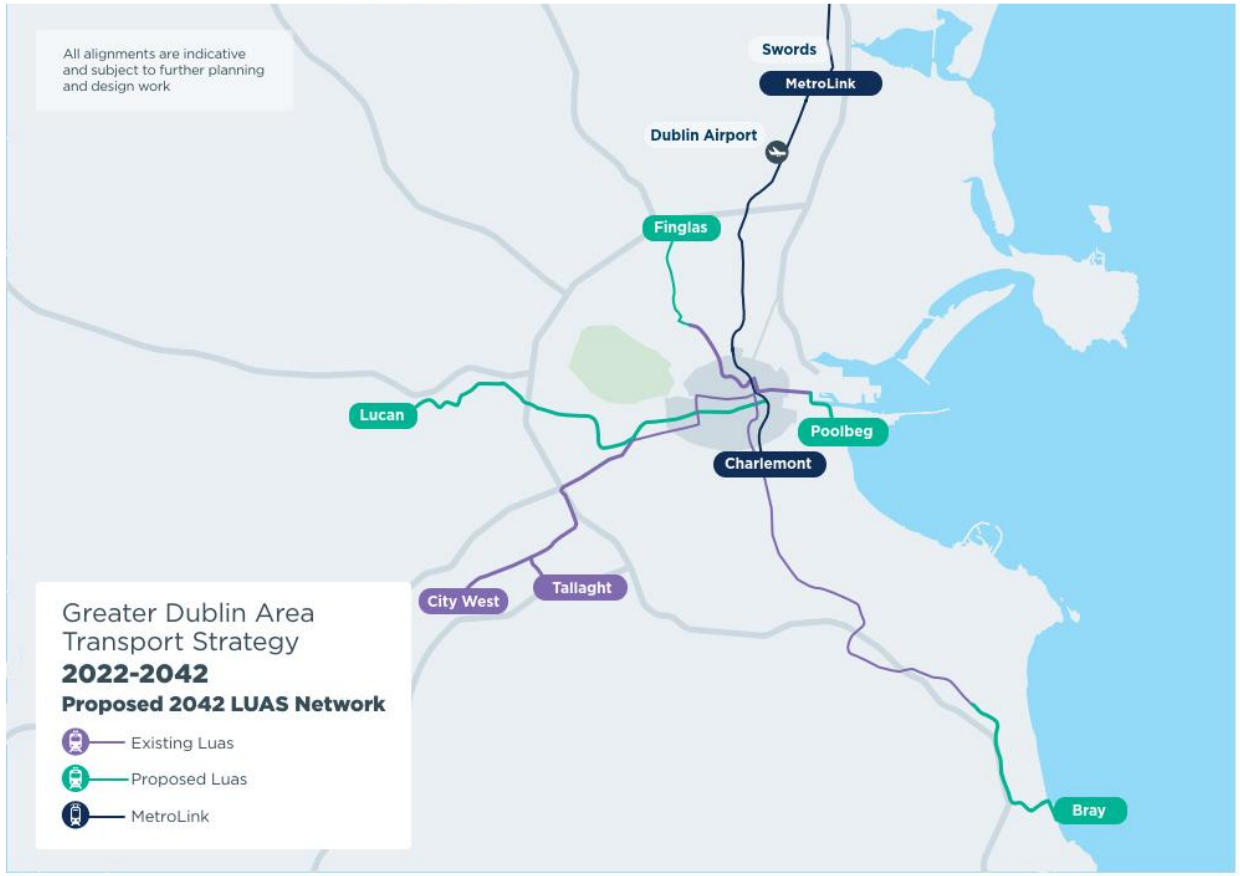
'Integration with a combined metro / rail station to be developed at Glasnevin under the MetroLink project to serve both the Maynooth Line and Kildare Line';

'Charlemont offers the optimal location for the primary interchange with the Green Line in response to growing demand in the longer term and is an appropriate location to facilitate any potential future metro extensions to serve the south west, south or south east of the city region should sufficient demand arise.' (12.3.2)

'In addition, a major upgrade of Tara Station will be undertaken to facilitate enhanced interchange between MetroLink and the DART network.' (12.4.13)

Section 9 sets out the Park and Ride strategy and includes Lissenhall

Figure 12.6: Proposed 2042 Light Rail Network



Fingal Development Plan 2023-2029

'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.' (page 71)

Policy CSP26 – Consolidation and Growth of Swords

- *Promote and facilitate the long-term consolidation and growth of Swords as a Key Town including the provision of key enabling public transport infrastructure, including MetroLink and BusConnects, in accordance with the relevant provisions of the NPF, RSES and the MASP.*

Policy CSP29 – Promote and Facilitate Metrolink

- *Promote and facilitate the development of Metrolink, connecting Swords to the Airport and on to the City Centre.*

Objective CSO43 – Swords – Dublin Airport

- *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.'*

Chapter 6 – Connectivity and Movement highlights need to shift towards sustainable transport modes

Fingal Development Plan 2023-2029
Core Strategy Map (Figure 2.1)

Fingal Development Plan 2023-2029

Specific Matters

- Retail Warehouse zoning
- Biodiversity Net Gain
- Green Infrastructure
- Protected Structures
- Cycle Parking

Dublin City Development Plan 2022-2028

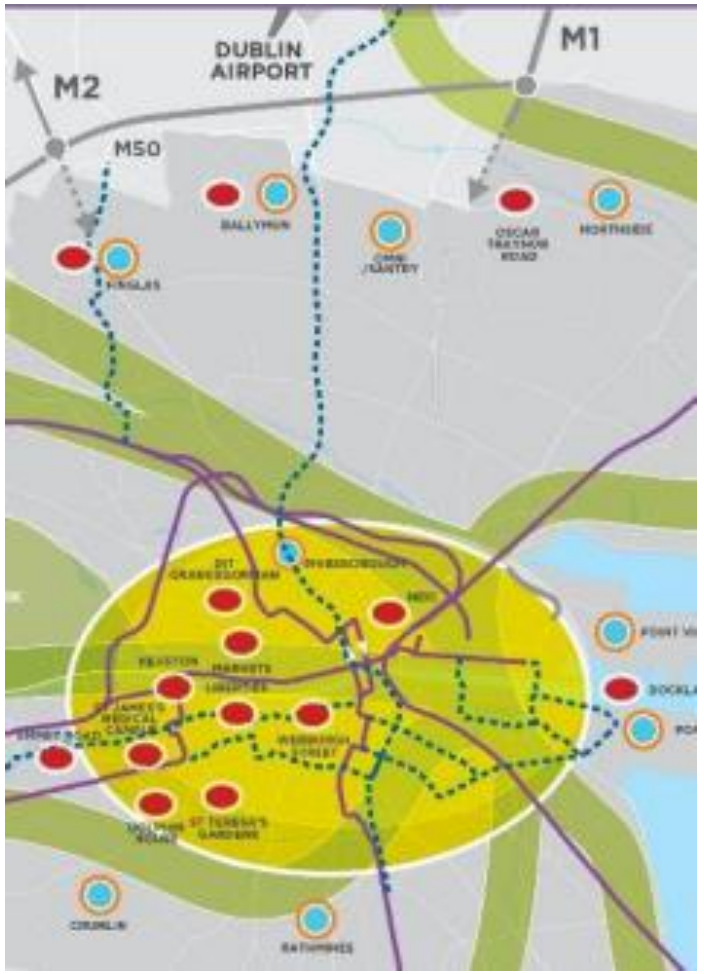
Core Strategy promotes ‘compact growth’ within its long-term vision.

Core Strategy is based on the principles of the 15-minute city, all connected by an exemplary public transport, cycling and walking system and linked with a high-quality green space network.

- *‘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 Bus Connects’*

SMT22 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.

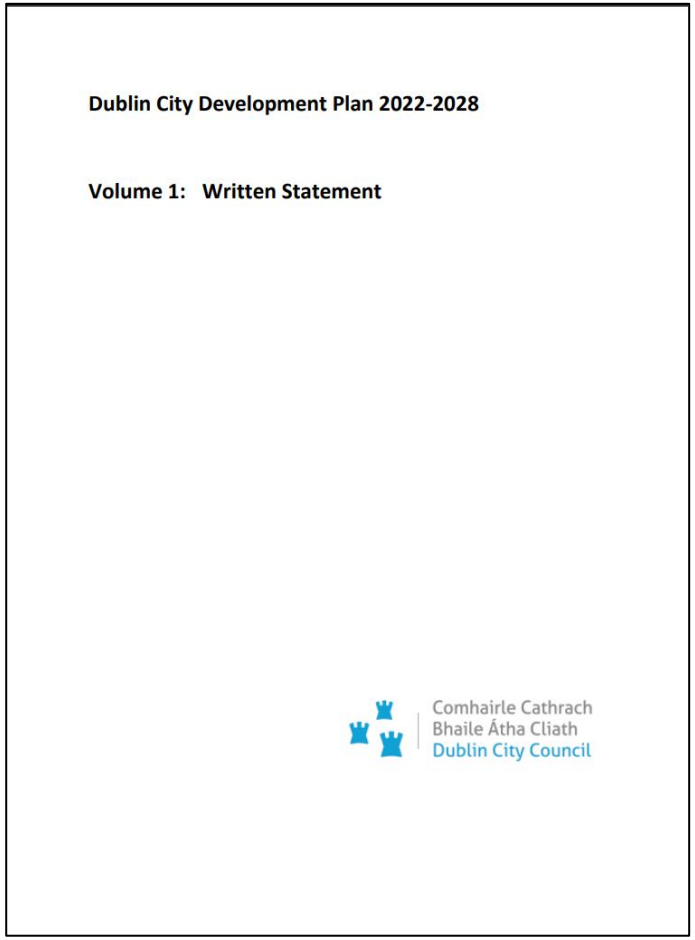


Dublin City Development Plan 2022-2028
Core Strategy Map Extract (Figure 2.1)

Dublin City Development Plan 2022-2028

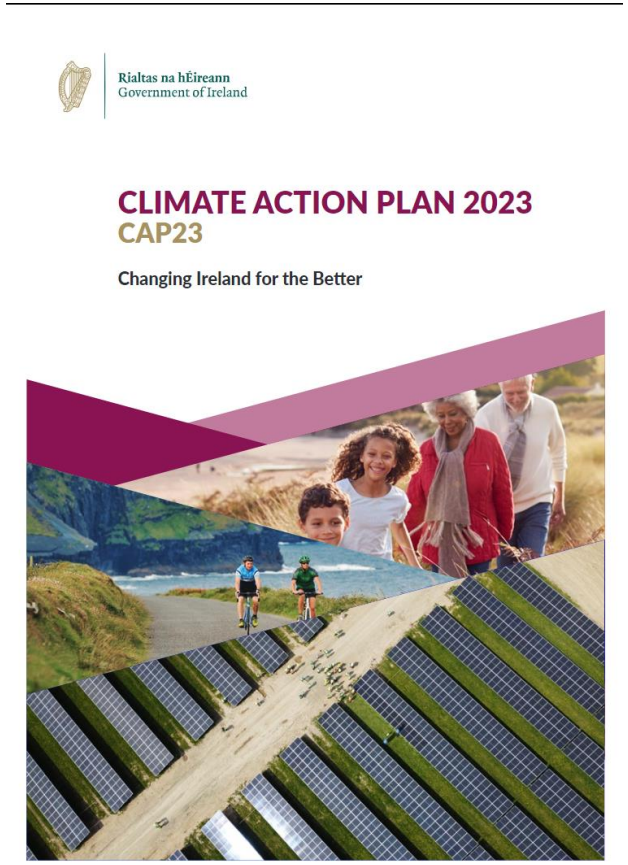
Specific Matters

- Z9 - Amenity / Open Space Lands / Green Network Zoning
- Protected Structures and National Monument Protection
- Green Infrastructure
- Markievicz Leisure Centre
- Cycle parking



Updated Climate Policy

- Climate Action Plan 2023
- Climate Action Plan 2024
- Fingal County Council Draft Climate Action Plan
- Dublin City Council Draft Climate Action Plan



Summary

- Strategic importance to the long-term development of the Dublin region
- Specifically identified in the National Planning Framework and National Development Plan
- Key element of the Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031 and the Greater Dublin Area Transport Strategy 2022-2042.
- The Proposed Project is identified as a key project to deliver compact growth and sustainable mobility in the development plans of Fingal County Council and Dublin City Council
- In accordance with the statutory planning policy for the area in which it is situated, at national, regional and at local level

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Integrated Transport. Integrated Life.

Climate Module & Carbon Model

19/02/2024

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

Climate Action Plan (CAP)

- When the EIAR was submitted, the most recent CAP was the 2021 CAP (CAP21).
- Two more CAP have been published since.
- The currently adopted CAP23 and the draft CAP24 both view MetroLink as integral:

CAP23

Needed to significantly improve the attractiveness, capacity and frequency of public transport services;
Necessary to achieve modal shift and associated reduction in fossil-fuelled vehicle kilometres travelled.
Action TR/23/36 - Advance MetroLink planning pending ABP approval

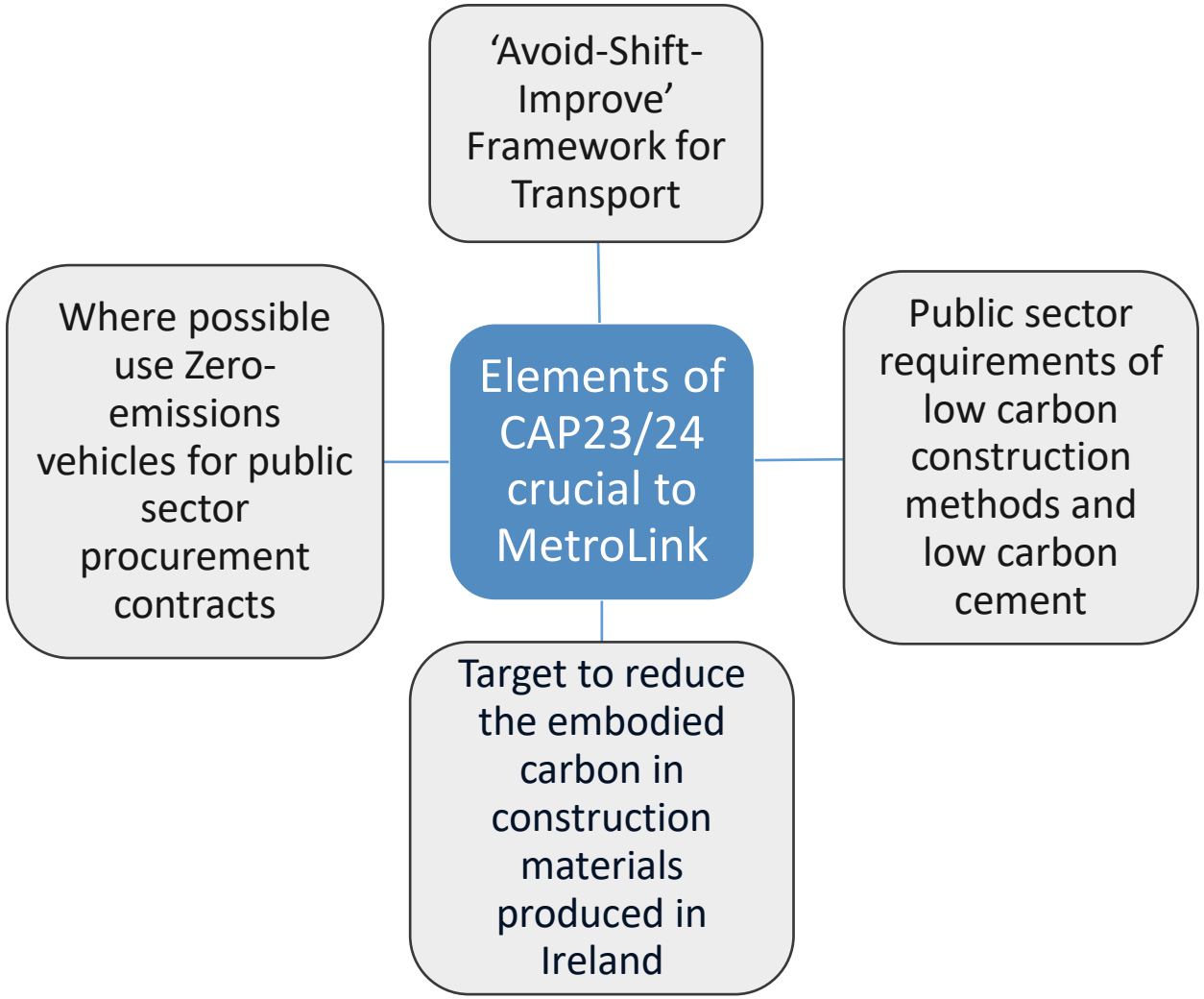
Draft CAP24

MetroLink is one of the projects "required to deliver on our carbon emissions reduction targets, and to provide people with the sustainable alternatives to private car usage".

- CAP21, CAP23 and CAP24 have clear alignment of purpose: **To ensure Ireland is on track for net carbon zero target for 2050**, which is set out as the national climate objective in Section 3 of the 2015 Climate Action and Low Carbon Development Act (No. 46 of 2015), which was amended by the Climate Action and Low Carbon Development (Amendment) Act 2021 (No. 32 of 2021).

Climate Action Plan (CAP) Developments

Each CAP builds on the last: Refining the targets/actions to achieve our 2030 and 2050 carbon objectives.



‘Avoid-Shift-Improve’ framework

Avoid

- Developing services, communities, and infrastructure in such a manner as to AVOID the need to travel as much.

Shift

- Improving the relative attractiveness of sustainable travel modes such as Public Transport, Cycling and Walking, to SHIFT away from car use.
- Facilitate increased use of lower-carbon modes and reduce the percentage of total private car journeys.

Improve

- Complement these measures by increasing the proportion of EVs in our car fleet to 30% by 2030, which will IMPROVE the efficiency of the national car fleet.
- Electrification of the freight and public transport sector will also be key.

MetroLink's Impact on ‘Avoid-Shift-Improve’ framework

Shift

- Providing a frequent (up to every 90 seconds at peak time) service,
- Providing a reliable service (no road congestion to deal with); and
- Providing a high-capacity rail service, which removes 800,000 annual private car trips

Improve

- Providing electrification of the public transport system with a system powered by 100% renewable energy.

New Carbon Beneficial Commitments from TII

51.7%
Reduction in Embodied Carbon

Corporate Power Purchase Agreement (CPPA) for electricity generated from **renewables for 100% construction and operational power**

Replacement of diesel on construction sites with sustainably sourced HVO

The use, where practicable, during construction of **low carbon concrete** with an embodied carbon equivalent to a 50% GGBS replacement

Procurement only from suppliers that met the industry reduction requirements within the CAP for 10% reduction in embodied carbon by 2025

Transition to **electric construction plant run** on renewables as technology becomes available

Other Major Climate Policy Updates

- **Government's Long-Term Strategy on Greenhouse Gas Emissions Reduction:** This sets out indicative pathways, beyond 2030, towards achieving carbon neutrality for Ireland by 2050. It builds on the decarbonisation pathways set by the carbon budgets, sectoral emissions ceilings and Climate Action Plan 2023, to ensure coherent and effective climate policy. MetroLink will interact with other sustainable transport modes, opening a much wider network providing connectivity and integration with other public transport services (Luas, DART, Bus, Active Travel Network). This aligns with the Long-term Strategy.

- **Dublin City Council Climate Neutral Dublin 2030 Draft Plan:** Strives for neutrality before 2050 as per Dublin City's participation in the EU Mission for 100 Climate Neutral and Smart Cities (Net Zero Cities). Action OS7 states that Dublin City Council should promote active travel and public Transport. Promotion of public transport projects such as MetroLink fits with this aim.

- **Fingal County Council Draft Climate Action Plan 2024-2029:** 45% of GHG emissions in Fingal are related to transport. FCC's support of MetroLink, and other public transport projects such as BusConnects and DART+, are specifically called out in this section as an action (Action T20).

TII Carbon Tool

In 2022, TII published new guidance documents and standards for the EIAR with respect to Climate:

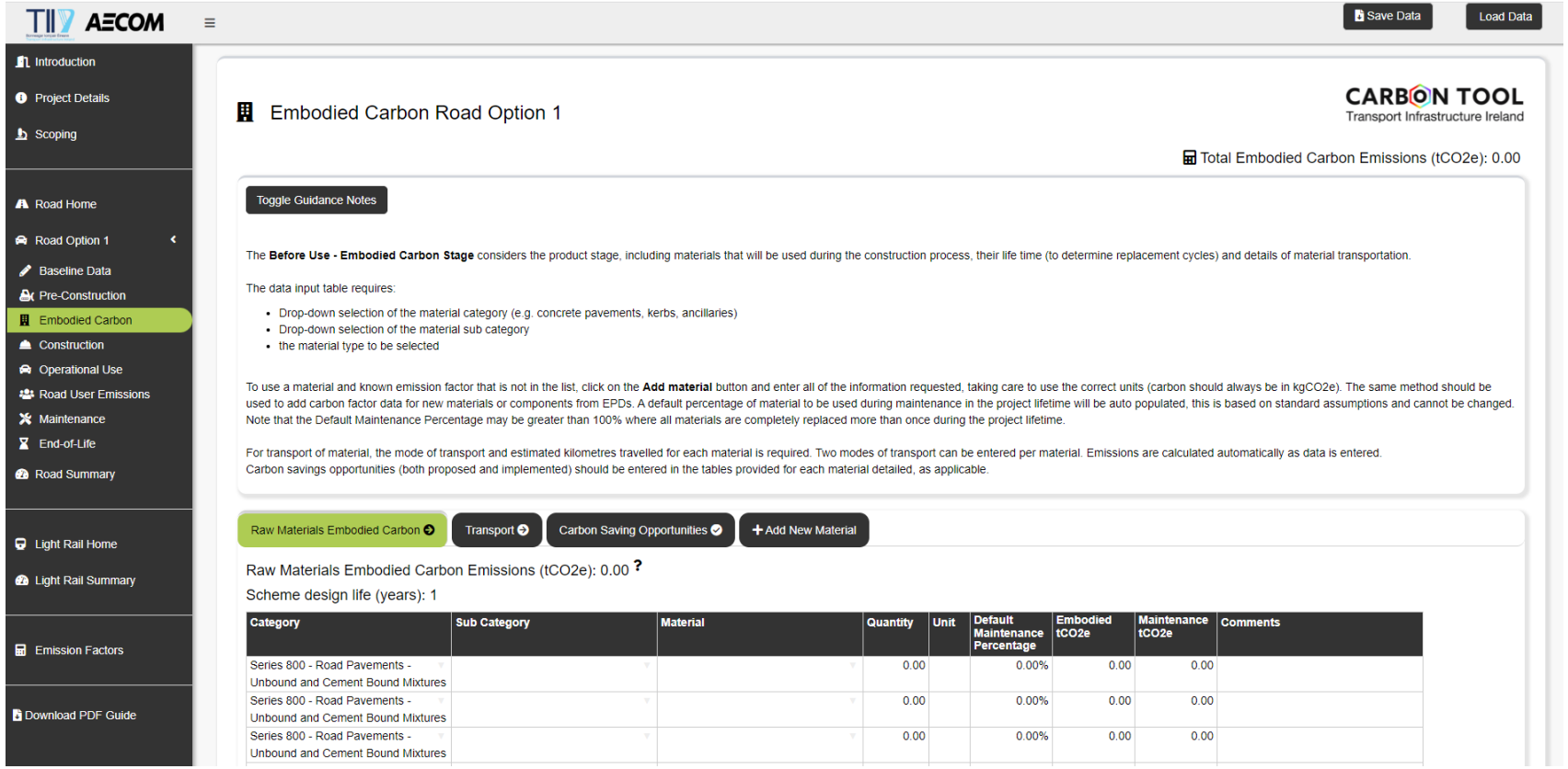
- **PE-ENV-01104 (Technical)**: Climate Guidance for National Roads, Light Rail and Rural Cycleways (offline & Greenways)
- **PE-ENV-01105 (Standard)**: Climate Assessment of Proposed National Roads.

This online tool is substantially similar to the Carbon Tool that I used in my assessment for the EIAR chapter, which was a previous iteration of the TII Carbon Tool (V2.1). .

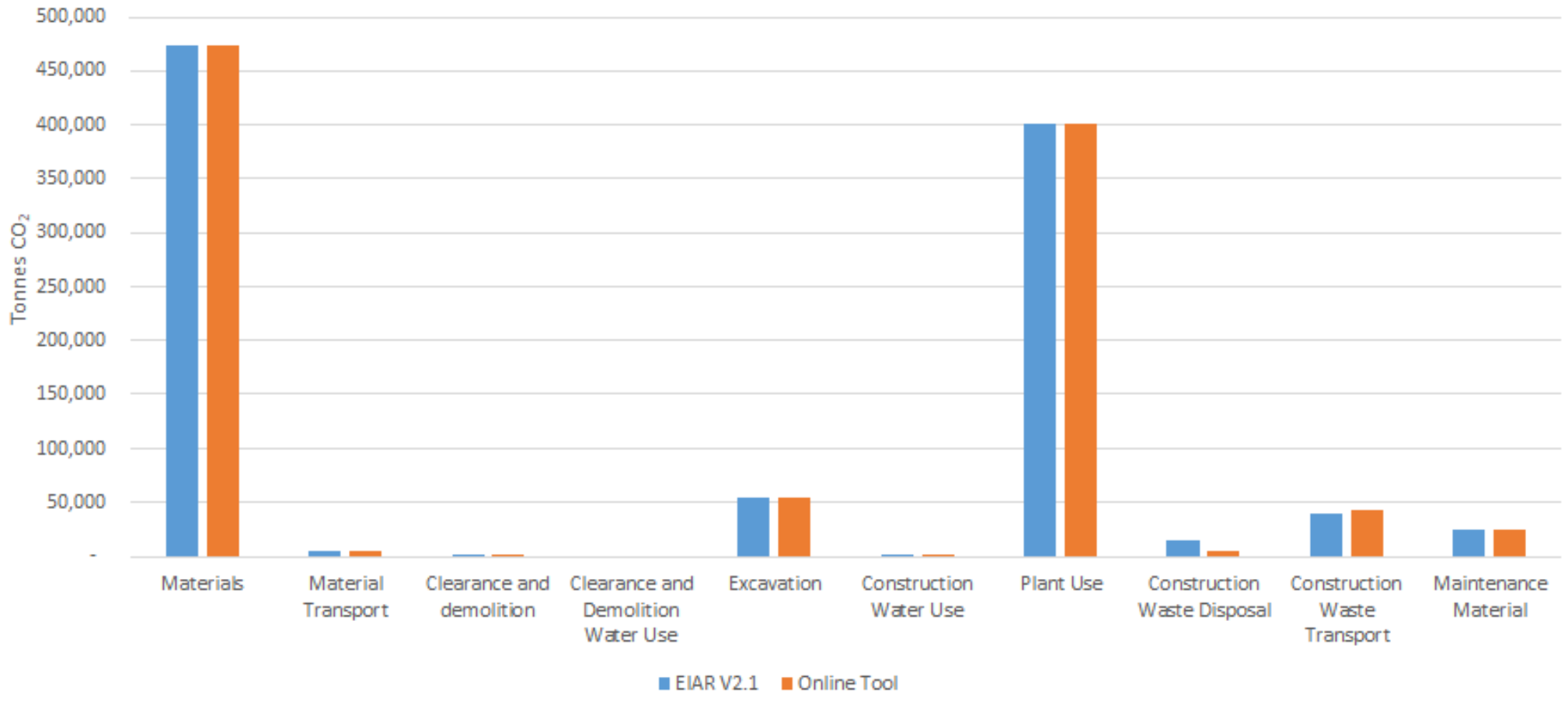
TII Carbon Tool

Carbon emissions are calculated by multiplying the emission factor (i.e. $kgCO_2/m^3$ concrete or $kgCO_2/L$ diesel used) by the quantity or volume of the material/activity.

EIAR assessment has been updated to the Online Carbon Tool with material volumes were kept consistent with the EIAR.



TII Carbon Tool: Differences arising from Update

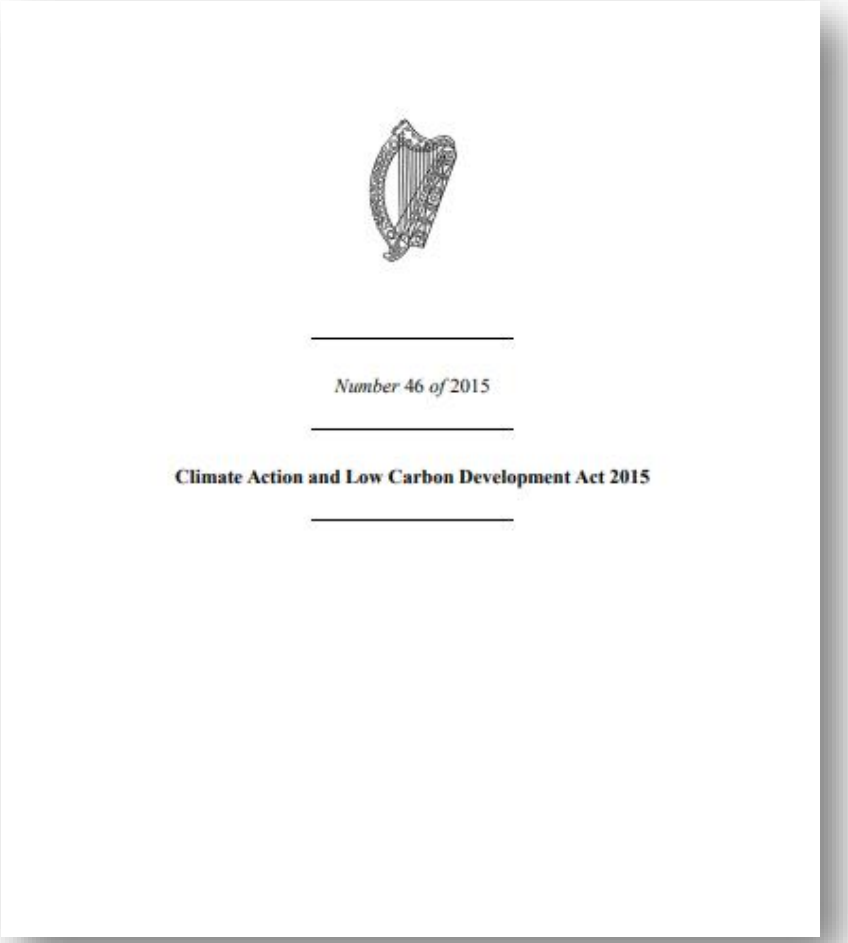


The result of the update is a **change of less than 1%** in the overall emissions due to the updated tool.

Compliance with the Climate Action and Low Carbon Development Act 2015

Section 15 of the Climate Action and Low Carbon Development Act 2015 (as amended by the Climate Action and Low Carbon Development (Amendment) Act 2021) provides that a relevant body (An Bord Pleanála in this case) shall, in so far as practicable, perform its functions in a manner consistent with:

- (a) the most recent approved climate action plan,
- (b) the most recent approved national long term climate action strategy,
- (c) the most recent approved national adaptation framework and approved sectoral adaptation plans,
- (d) the furtherance of the national climate objective, and
- (e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.



Number 46 *of* 2015

Climate Action and Low Carbon Development Act 2015

The MetroLink project is

- Consistent with the most recent approved climate action plan and national long term climate action strategy and furthers the national climate objective;
- Consistent with the most recent approved national adaptation framework and approved sectoral adoption plans, ensuring that the impact of future climate change has been considered and adaptation has been applied to reduce vulnerability to such impacts, and
- Consistent with the objective of mitigating GHG emissions and adapting to the effects of climate change in the State.

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Air Quality Regulations Update

19/02/2024

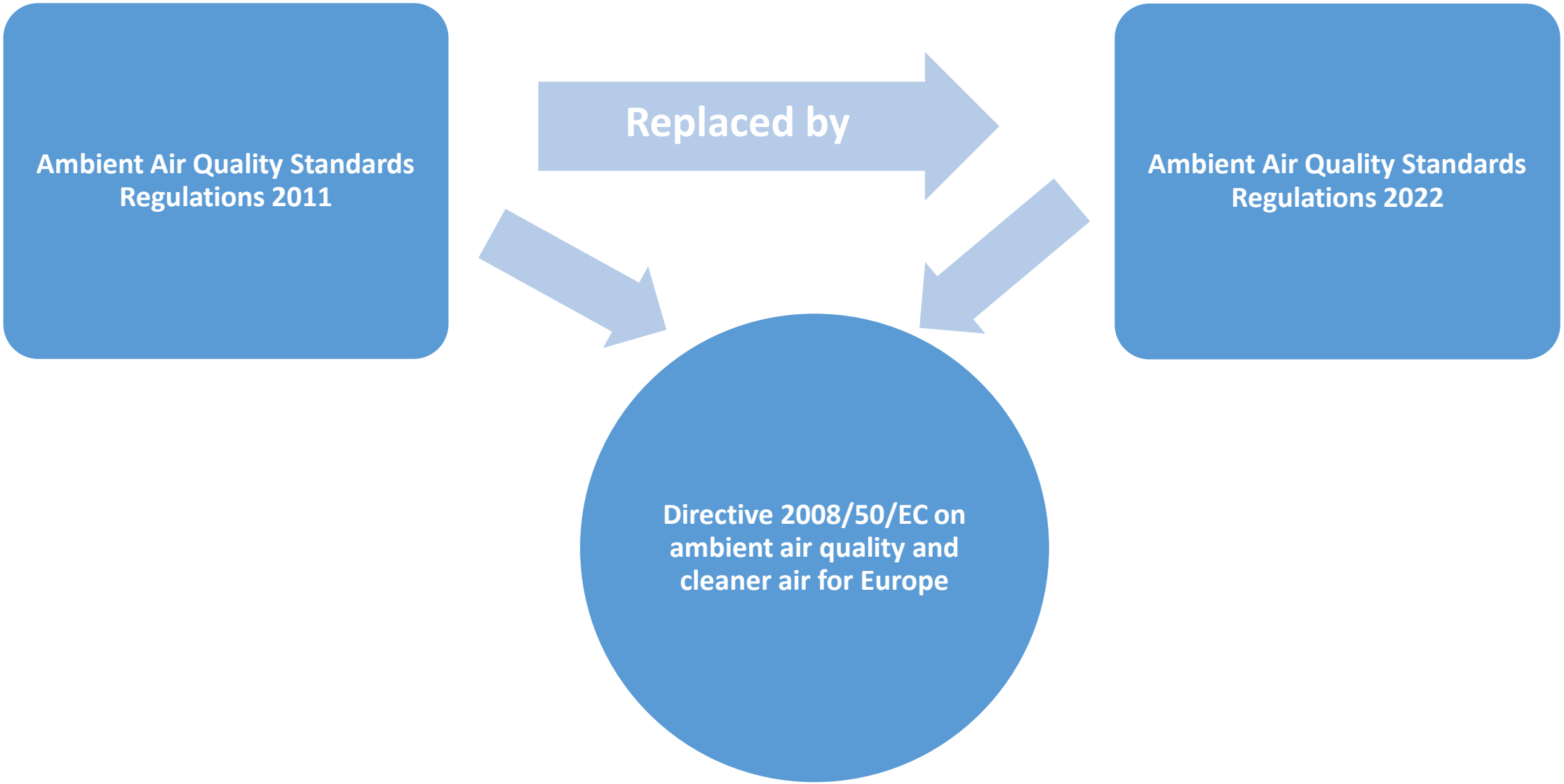
Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland 2040

Ambient Air Quality Standards Regulations 2022



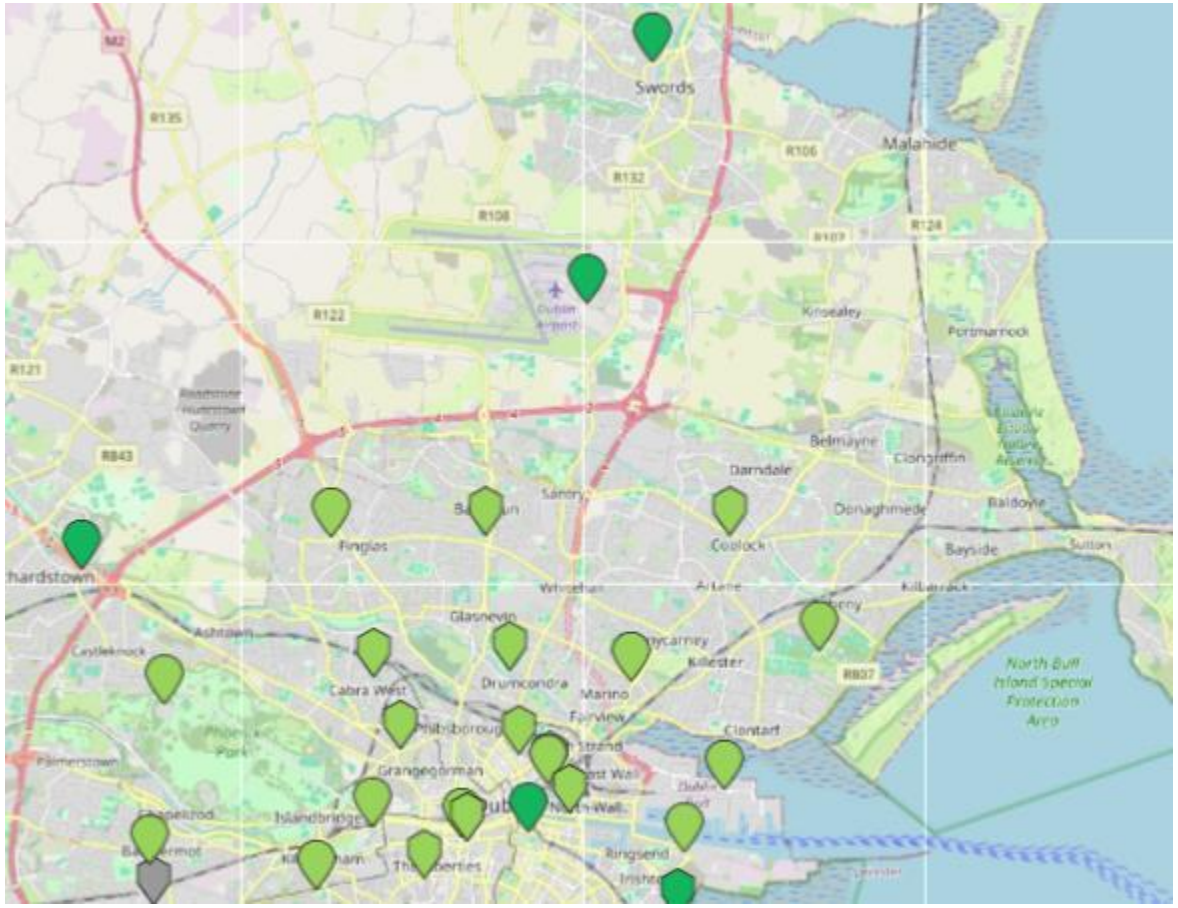
Ambient Air Quality Standards Regulations 2022

A key change of relevance to construction projects is that, under the heading Short-Term Action Plans, Regulation 25(5) provides:

> *"The short-term action plans referred to in paragraph (1), may, depending on the individual case, provide for effective measures to control, and, where necessary, reduce or suspend activities which contribute to the risk of the respective limit values, or target values or alert thresholds being exceeded. Those action plans may include measures in relation to motor vehicle traffic, **construction works**, ships at berth and the use of industrial plants or products and domestic heating."*

The implication of this for MetroLink is the potential for a short-term action plan to be put in place by DCC or FCC to protect sensitive receptors should EPA monitoring data indicate the risk of the respective limit values, or target values or alert thresholds being exceeded.

Construction Dust Mitigation Monitoring



https://dublincityairandnoise.ie/

Target of 6 months (pending timeline of granting of railway) of pre-construction monitoring for dust, PM_{10}, $PM_{2.5}$ and NO_2.

Real time monitors at all construction compounds plus some “mobile” monitors which can float to required locations along linear construction.

In addition, TII have 10 additional real time monitors along the M50 (not included in figure) and DCC have a numerous other monitoring locations that can be used to investigate if any peaks are regional or site specific.

Procedure for addressing exceedances of triggers

- SMS text messages and/ or emails shall be activated and sent to the Employer's Representative and the Contractor from monitoring equipment.
- The Employer's Representative and the Contractor shall review the construction activities in the vicinity to determine the cause.
- The Employer's Representative reserves the right to stop the Works. Where activities outside the control of the Contractor may have had an influence on a trigger level being breached, these shall be identified; and works shall recommence following agreement with the Employer's Representative
- The Contractor shall review the monitoring data, including most recent air quality data.
- The Contractor shall identify and agree with the Employer's Representative appropriate engineering controls and management procedures to reduce dust levels resulting from the works activities identified as the cause of the trigger level being reached.
- The Contractor shall confirm to the Employer's Representative that controls and management procedures have been implemented.

TII Specific Mitigation – Metro North

Diaphragm Wall works (2012) at the mater hospital

TII Specific Mitigation – Luas Cross City

Dust suppression is built into the saw cutter via a tank and hose near the saw

Hose being used while saw cutting is going occurring.

Updates to CAFE Directive (2008/50/EC)

The EU Ambient Air Quality Directive proposes to adapt to the priorities of the European Green Deal and in particular to its zero-pollution pillar. An update is currently undergoing negotiations.

Limit value updates for the protection of human health to be attained by 1 January 2030 that more closely aligns with WHO limit values published in 2021.

The WHO guidelines are based solely on health considerations, while the EU standards reflect broader considerations, such as technical feasibility and the political, economic and social aspects of achieving these standards.

The proposed updated Air Quality Directive reinforces the need for public transport measures to improve air quality and move people away from private fossil fuel vehicles.

Clean Air Strategy for Ireland

Clean Air Strategy for Ireland (2023) commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target (IT) 3 by 2026, the IT4 targets by 2030 and the final targets by 2040.

Pollutant	Regulation	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	WHO Air Quality Guidelines	24-hour limit for protection of human health	50µg/m^3 NO_2	50µg/m^3 NO_2	25µg/m^3 NO_2
		Annual limit for protection of human health	30µg/ m^3 NO_2	20µg/ m^3 NO_2	10µg/m^3 NO_2
PM (as PM_{10})		24-hour limit for protection of human health	75µg/ m^3 PM_{10}	50µg/m^3 PM_{10}	45µg/m^3 PM_{10}
		Annual limit for protection of human health	30µg/ m^3 PM_{10}	20µg/ m^3 PM_{10}	15µg/m^3 PM_{10}
PM (as $PM_{2.5}$)		24-hour limit for protection of human health	37.5µg/m^3 $PM_{2.5}$	25µg/m^3 $PM_{2.5}$	15µg/m^3 $PM_{2.5}$
		Annual limit for protection of human health	15µg/m^3 $PM_{2.5}$	10µg/m^3 $PM_{2.5}$	5µg/m^3 $PM_{2.5}$

Clean Air Strategy for Ireland

The strategy acknowledges that:

"meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both $PM_{2.5}$ and NO_2".

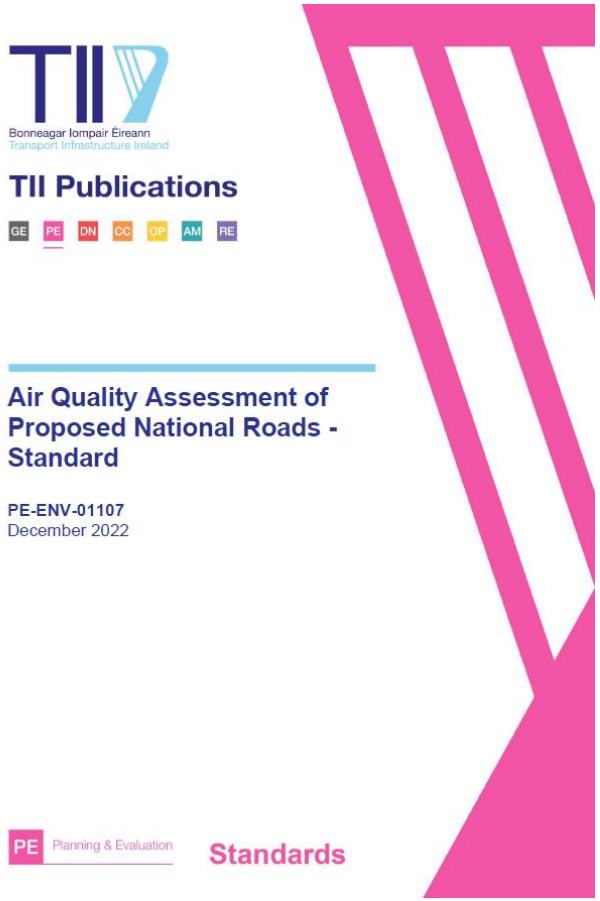
More than 35% of emissions of nitrogen oxides, and more than 10% of $PM_{2.5}$ emissions, come from the transport sector with private vehicles being the most significant source.

Above is a photo of Merrion square on a November afternoon in the 80s, clearly showing the impact of smog.

New TII Air Quality Guidance Documents

In 2022, TII published new guidance documents and standards for the EIAR with respect to Air Quality:

- **PE-ENV-011067**: Air Quality Assessment of Proposed National Roads – Standard
- **PE-ENV-01106**: Air Quality Assessment of Specified Infrastructure Projects



Air Quality - Significance Criteria Updates

Clean Air Strategy for Ireland (2023) commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target (IT) 3 by 2026, the IT4 targets by 2030 and the final targets by 2040.

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Limit Value (AQLV)			
	1	2-5	6-10	>10
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

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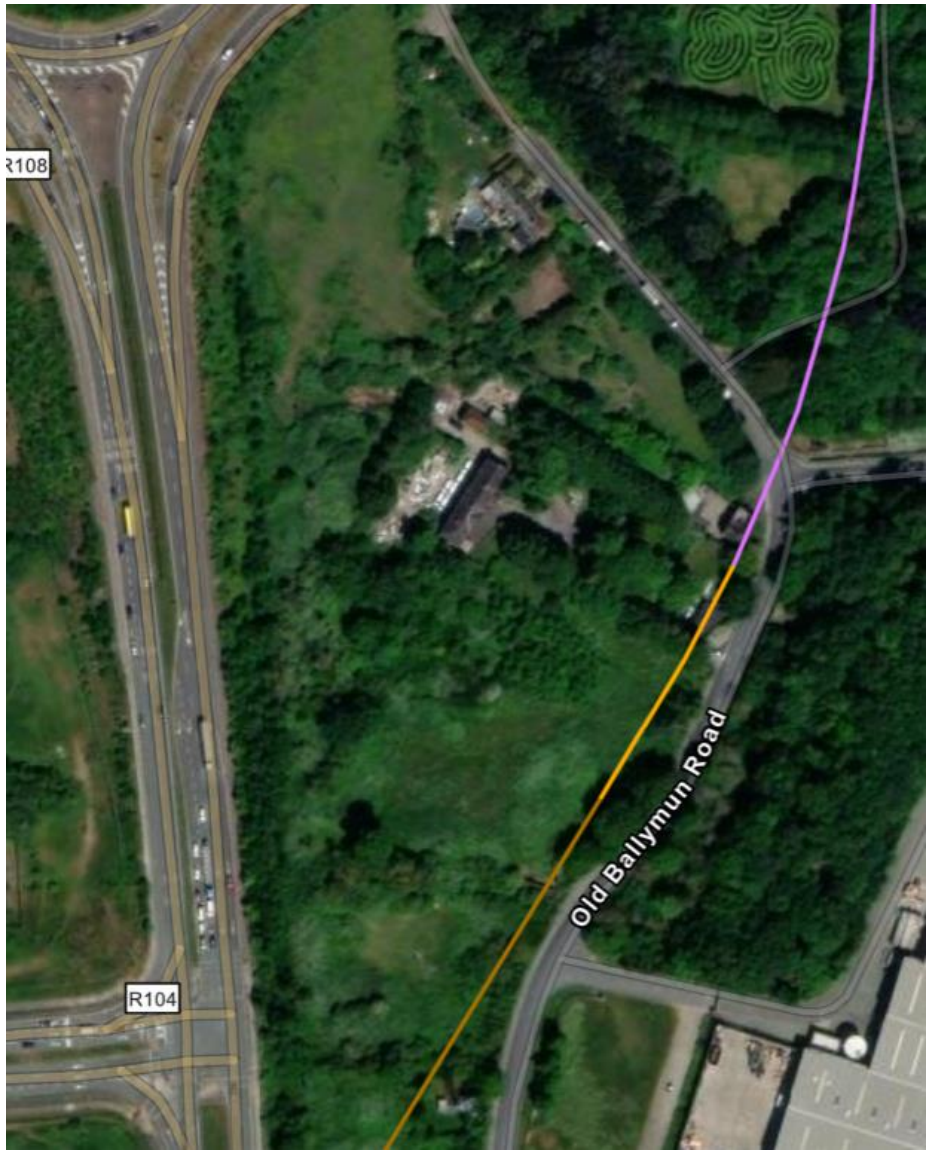
Chapter 26 Architectural Heritage (Rob Goodbody)

Chapter 26 Architectural Heritage

Santry Lodge has been added to the Fingal Development Plan 2023 – 2029 RPS

As a result, TII has reviewed the assessment presented in Chapter 26 of the EIAR in order to

- Review the assessment outcomes in light of this new “designation”



Chapter 26 Architectural Heritage

A charter school was established on this site in the 1740s and continued in use until the 1890s.

After the school closed the front part of the building complex was demolished and the remaining school buildings were occupied as two houses.

The two houses were named Santry Lodge and Tower House and the latter was demolished in the 1980s.

There is no documentary evidence to indicate when the surviving building known as Santry Lodge was constructed, though the style of the surviving earlier windows suggests some time from about 1820

Chapter 26 Architectural Heritage

In the original assessment Santry Lodge was accorded a ***Medium level of significance*** in the light of discussions with the Conservation Officer in Fingal County Council. The gate lodge and the former Tower House were considered to have a lower significance and were accorded a level 4 significance (***Very Low, negligible or of no architectural heritage value***).

Reassessing the potential impact on Santry Lodge concludes that the original level of impact on the setting of the house would now be increased to ***very significant***.

Table 26.38: Potential Direct Impacts During Construction between the M50 Motorway and Northwood Station

Impact Reference	Affected Feature	Baseline Rating	Magnitude of Impact	Significance of Effect	Impact Assessment Prior to Mitigation
AHI-16	BH-13: House on Old Ballymun Road to the north of gate lodge of Santry Lodge	V. Low	High	Slight	The realignment of Old Ballymun Road and the construction of the portal will require the demolition of this house. The magnitude of this impact will be high, though the house has no statutory status. The predicted effect would be slight.
AHI-17	BH-15: Gate lodge, gates and walls at Santry Lodge	V. Low	High	Slight	The realignment of Old Ballymun Road and the construction of the portal will require the demolition of the gate lodge and gateway at Santry Lodge. The magnitude of this impact will be high, though the lodge and gateway have no statutory status. The predicted effect would be slight.
AHI-18	BH-16: House on Old Ballymun Road to the south of gateway to Santry Lodge	V. Low	High	Slight	The realignment of Old Ballymun Road and the provision of a new access road will require the demolition of this house. The magnitude of this impact will be high, though the architectural heritage significance of this house is low. The predicted effect would be slight.

Chapter 26 Architectural Heritage

Reassessment of the potential impacts on the two gate lodges now concludes that the impact would be ***profound***, which is a greater impact than originally assessed, due to designation, which includes the curtilage of Santry Lodge.

The proposed mitigation was to record the two buildings, the gate lodge of Santry Lodge to English Heritage level 2, while the derelict lodge was to be recorded by the lesser method of photographs and written description. This has now been modified to record the derelict lodge at the more detailed level.

No change is proposed to the mitigation measures for the gateway and front boundary wall, which was to relocate them on the new front boundary line. ***This mitigation will be implemented in consultation with Fingal County Council.***

8d Land Acquisition Strategy (Strategy)

- This published Strategy sets out the principles that TII will apply in assembling the necessary property rights and interests required, for the delivery of MetroLink.
- The land required for MetroLink is in multiple ownership. This includes a range of residential and commercial properties which are occupied.
- TII will use reasonable efforts to engage with property interests with the objective of reaching an agreement that establishes the basis and terms upon which a future acquisition will be undertaken. Where it is not possible for this to be achieved, TII will be authorised to acquire the necessary property interests under the Transport (Railway Infrastructure) Act 2001.
- TII understands the importance of residential property owners and commercial businesses of being able to plan their affairs with as much advance information as possible and have introduced a discretionary scheme.

8d Land Acquisition Strategy (Strategy)

- The Strategy includes the discretionary scheme which is aimed to support residential property owners and commercial businesses. Key terms from the scheme include:

Residential Property

Introduction of a 'pre-agreement' for residential property owners to enable parties to reach a conditional agreement on both a baseline residential unit price (Index linked) and other matters of compensation in advance of a confirmed Railway Order.

TII will engage the services of a Residential Lettings and Management Agency to support qualifying tenants seeking to identify alternative accommodation at the relevant time. Once identified, TII will assist in meeting relevant and reasonable costs.

Commercial Property

TII will establish an agency service to support affected businesses in their search for suitable alternative accommodation.

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Proposed approach to monitoring, communications and risk management during the construction phase, including respective roles and responsibilities of contractor(s) and TII.

8G Approach to Monitoring

EIAR Appendix 5.1, The Construction Environmental Management Plan (CEMP) identifies:

- the minimum requirements with regards to monitoring and its implementation across all environmental criteria.
- the roles and responsibilities for developing, implementing, maintaining and monitoring environmental management.

TII's contractors will be required to develop and implement an Environmental Management System (EMS) that follows the principles of ISO 14001. The EMS will include an environmental policy, and operational, monitoring and auditing procedures to ensure compliance with all environmental legislation.

Approach to Monitoring

Monitoring during construction will include:

- Noise
- Vibration
- Air quality
- Groundwater level and quality
- Surface water
- Archaeology
- Waste characterisation testing
- Contamination
- Ground movements

TII will be responsible for monitoring compliance with the CEMP using specialists to monitor construction.

For the duration of the contracts, the environmental performance of the contractors will be monitored through site inspections and audits. The programme for monitoring, inspections and audits will be specified in the contract and will be a combination of internal inspections and independent external audits (routine and unscheduled).

To ensure works do not exceed the limits as set by the EIAR, monitoring trigger limits will be set to ensure limits are not exceeded. These will be accompanied by Monitoring Action Plans (MAP) that will be developed prior to construction detailing responses to breaches of trigger levels.

The Role of the ‘Independent Monitoring Engineer’

TII require all relevant information that will allow TII to monitor the impacts of tunnelling and excavation ground movements on buildings and infrastructure.

The Project will generate a huge amount of monitoring information, and therefore it is vital that the quantity of monitoring information received by TII does not become so voluminous that the management, interpretation and assessment of this information overtakes the objective of reviewing the critical movement data to assess whether the works are being undertaken correctly and safely.

Total Station and Prism for Monitoring Buildings

TII will use a separate organisation employed by the Contractor for installing, reading the instruments and processing the data collected during construction to give TII the assurance that the works are progressing within the specified tolerance or give sufficient warning that movements are identified progressing towards the specified limits to enable corrective action to be taken.

The data collected by the IME will be made publicly available to provide the assurance that the works are progressing safely and correctly.

Approach to Communication

Delivering MetroLink will require the active support of the community and stakeholders, from Government to local businesses. While MetroLink will deliver considerable benefits to all of Dublin and Ireland, during the construction stage it will also lead to disruption.

The stakeholder engagement plan is designed to achieve three key objectives:

- Ensure all communications with the community and stakeholders are timely, consistent and coherent;
- To build and maintain relationships with the community and stakeholders; and
- To ensure that the Project team is a trusted source of information.

Approach to Risk Management

- The identification, evaluation and control of risk is fundamental to the safe effective delivery of MetroLink.
- The scope and methodology presented in EIAR Chapter 26 is based on the provisions of the EIA Directive, Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022), Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 ((COMAH Regulations), European Commission (2017) guidance, IEMA (2020) guidance and other published risk assessment methodologies and professional judgement (referenced in Section 28.2.2.2).
- Critical construction phase risks have been identified and
- A MANDS (Major Accident and/or Natural Disaster) Risk Register has been developed which contains the reasonable worst-case scenarios identified as presenting a probabilistic risk during the Construction Phase and Operational Phase of the proposed Project.

The key objective of this risk register is to identify whether additional mitigation and/or management measures are required (above those mitigation measures that have already been embedded in the current design) to manage the identified risks to the environment to be as low as reasonably practicable (ALARP).

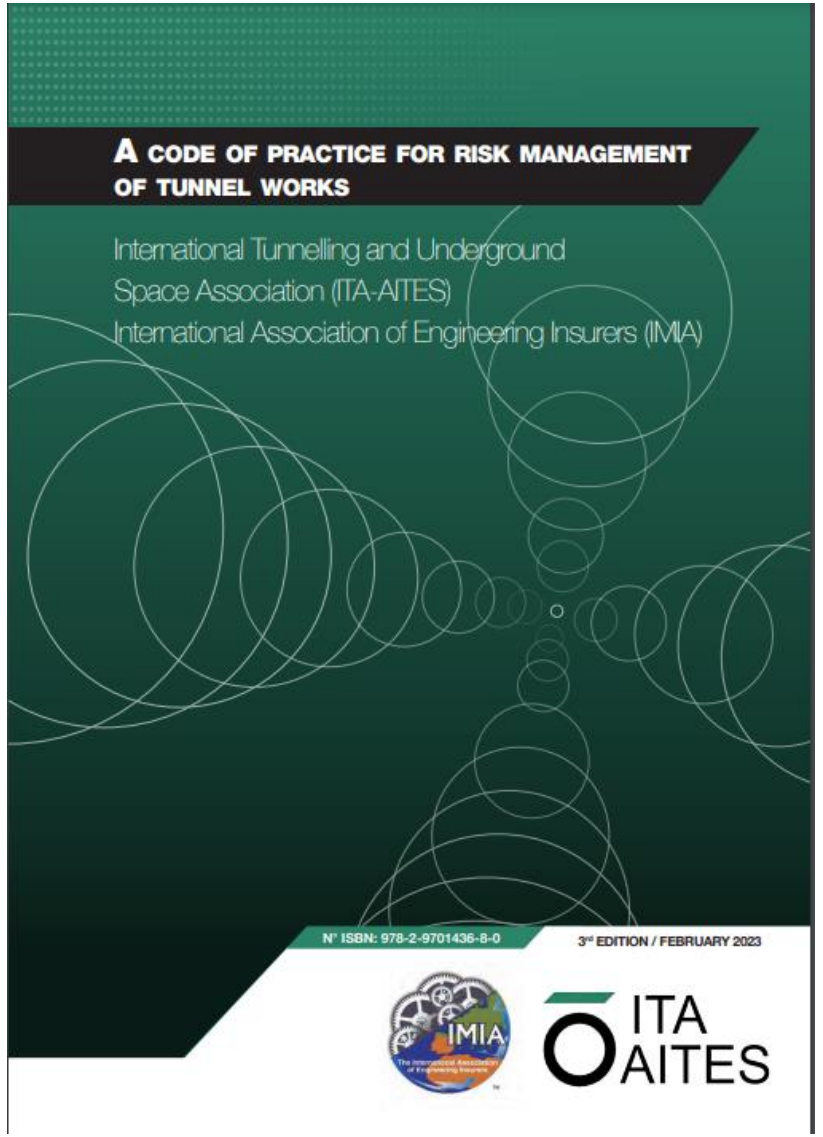
MetroLink Risk Management

- TII intend to operate in accordance with **A Code of Practice for Risk Management of Tunnel Works.**

- The objective of the code is to promote and secure best practice for the minimisation and management of Risks associated with the design and construction of projects involving Tunnel Works.

- TII will procure all subsequent design and construction contracts to be compliant with the Code. (Not limited to “Tunnel Works” only)

- The Code will be included in procurement documents and tender evaluations will score supply chain competency to identify, evaluate and manage risk.



Code Compliance

To deliver the Code's objective MetroLink will:-

a. ensure that technical and management **Competence** and resources are suited to the complexity of the project

b. instil a risk aware culture through active and integrated **Risk Management** incorporating Digital delivery

c. identify and provide mitigation of Risks such that the **Likelihood** of failures is extremely remote from all reasonably foreseeable causes throughout **Construction**

d. ensure **Risk Assessments** are informed by sufficient site and ground information

e. ensure that all Contract documentation include:
   - project requirements, reference designs and **Risk Assessments**
   - an explicit, clear allocation of **Risks**
   - **Ground Reference Conditions**
   - requirements for tender **Method Statements**
   - a clear process for change management

f. allow tenderers sufficient time to assess **Risks**

g. **Design Risk Assessments** will be used ensure risk is designed out wherever feasible, not simply transferred to construction

h. Contractor's pre-construction works to include evidence of integrated Risk Management incl. **Risk Management Plans**, **Risk Registers** and **Method Statements**

i. employ **Independent Construction Supervision** and sufficient **Instrumentation and Monitoring** to ensure that design and construction Risk Assessment assumptions are verified and validated for conditions encountered during construction.

MetroLink Risk Registers

- TII are currently operating a developed risk management process
- The risk management plan sets out the current approach to Risk Management on the MetroLink project and covers:
  a) Governance and Control
  b) Roles and Responsibilities
  c) Risk register Hierarchy
  d) Training
  e) Project Risk Management Process
  f) Project Risk Management Interventions
  g) Assurance
- Risks are identified, evaluated, and allocated appropriately to the party best able to manage the risk.

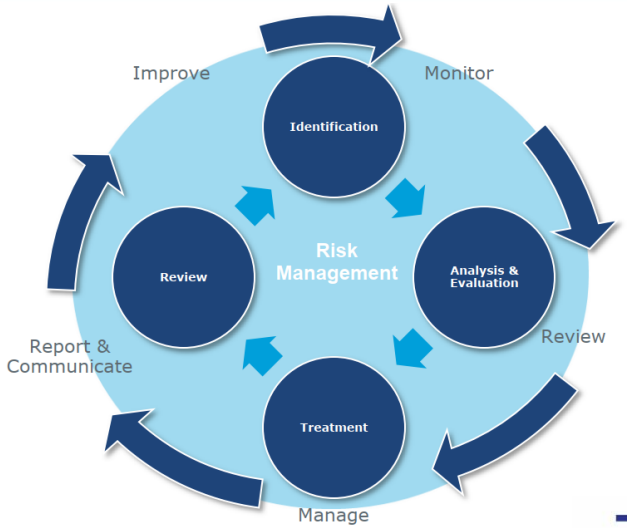


Figure 7 - Risk Management Process (Turner & Townsend)

Figure 1 - Risk Management Document Hierarchy

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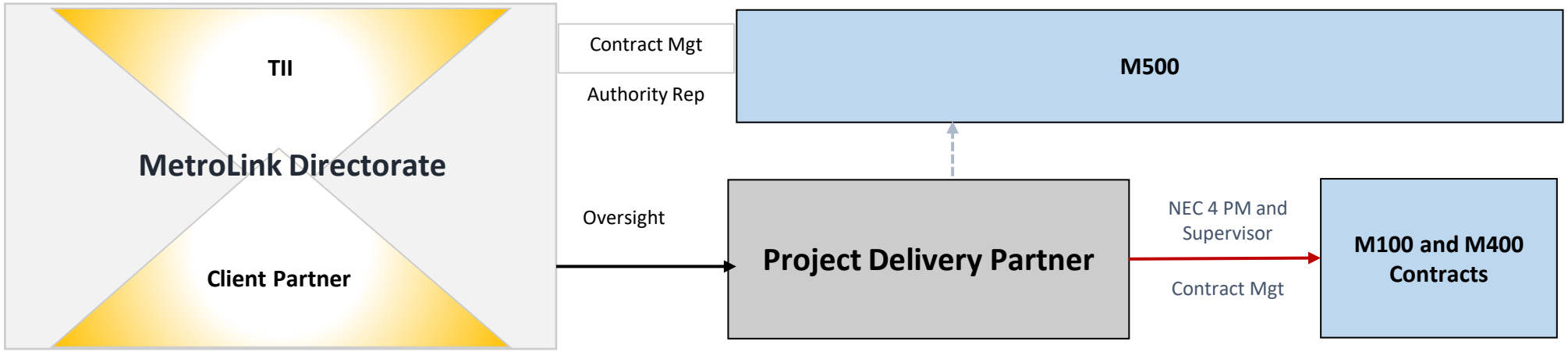
Project Risk Management Plan
ML1-TNT-PMG-ROUT_XX-RP-Z-00001

MetroLink Roles and Responsibilities



MetroLink Directorate (Client Partner)

- Develop appropriate frameworks, systems, processes and procedures to control and manage delivery of MetroLink.
- Produce Tender Design for M400s and M500 Contracts
- Produce all relevant procurement documentation for M400 and M500 Contract and for Project Delivery Partner
- Provide Design Assurance services, with responsibility for M500 Design Assurance and oversight of PDP Design Assurance of M400s
- Oversee Railway Systems Integration line-wide by M500
- Oversee, collaborate and work with the Project Delivery Partner in their role overseeing each of the M100 and M400 Contracts as well as the Construction Supervision and Assurance and Systems Installation assurance by M500.
- Oversee and act as the Authority's Representative for the M500 Contract.

Project Delivery Partner

- Oversee and act as the Project Manager for the M100 and M400 contracts including undertaking design assurance, contract management, construction supervision, construction assurance, interface management and stakeholder management
- Pre-fit out assurance prior to M400 handover to M500
- Systems installation assurance of M500
- Undertake construction supervision and assurance of the M500 contract upon commencement of the M500 works phase.

M100 / M400 / M500 Contracts

- The M100 Contract is an Advanced Works Contract that include utility diversions, archaeological resolution, vegetation clearance and demolitions that will precede the main M400 series civil construction contracts.
- The M400 series contracts for the base infrastructure comprise three, geographically-based, design-build contracts for the civil engineering and stations components, divided between the Southern (M401), the Central (M402) and the Northern (M403) sections.
- The M500 is a single, availability-based, PPP contract for the delivery of alignment-wide systems, the automated train control metro system, trains, construction of P&R, depot and operations control buildings as well as 25-year of operations and maintenance of these assets.

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Fire Safety, Emergency and Evacuation Strategies

Sandeep Upadhya

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

METROLINK

- Overview of Fire Strategy
- Emergency & Evacuation Strategy
- Need for Separate FB Lifts
- Intervention Shaft at ACP

Four Pillars of MetroLink Fire Safety Design

1. ***Fire Prevention -*** to Identify risk and to implement actions leading to reduction of risks.

2. ***Fire Protection -*** to install suitable systems for the detection and suppression of fire

3. ***Fire Planning -*** Procedures and process to provide for safe evacuation of people and facilitation of emergency services operations.

4. ***Firefighting -*** Provide suitable systems to assist fire brigade and protection emergency personnel.

Overview of Fire Strategy

1. *Legislation, Standards & Guidance Documents*
2. *Rolling Stock Fire Strategy*
3. *Station Fire Strategy*
4. *Tunnel Fire Strategy*

Regulations, Standards and Guidance

1. **Step 1** - Irish Building Regulation SI No 115/2006 notably Part B relating to Fire Safety

2. **Step 2** – In the absence of applicable Irish Regulations or Design Standards, European Standards are applied to the design

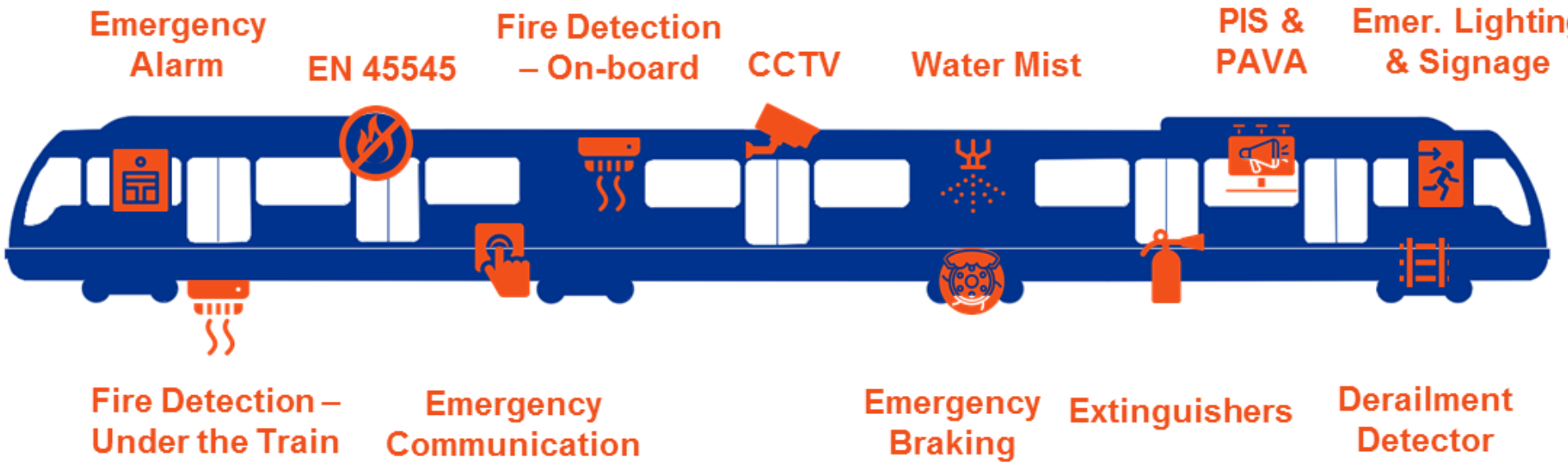
3. **Step 3** - In the absence of applicable Irish and European Regulations or Design Standards, other international standards and regulations are considered. For example, British Standards, National Fire Protection Association (NFPA), and other international standards.

Stations and Tunnels - NFPA 130: Standard for Fixed Guideway Transit and Passenger Rail (Copenhagen Metro, Dubai Metro, Rio Metro, Los Angeles Metro, Singapore Metro)

BS 9999, BS 9992, Transport For London Station Planning Guidelines, International Tunnelling Association Fire Safety Guidance.

Rolling Stock Fire Strategy

- **EN 45545 - European Railway Safety Standard for fire Safety of Rolling Stock**
- **EN 50553 - Requirements for Running Capability in case of fire on board a Roling Stock**
- Designed to Operation Category 4 & Hazard Level 3 (Maximum level of safety defined in the standard).
- Low combustibility and low risks of propagation of fire.
- In the event of fire on board, trains have a minimum running capability of 4 minutes at 80 kph.
- Minimum fire compartmentation of 15 minutes of all on-board systems increased to 30 minutes for the floor compartmentation.



Station Fire Strategy

- Materials and finishes are required to be non-combustible and/or of limited combustibility compliant to standards.
- Adequate compartmentation to ensure segregation of public and non-public areas with 60 to 120 minutes fire separation.
- Diverse Egress routes from Front of House (Public Areas) & Back of House Areas with maximum travel distances compliant to standards. Evacuation lifts & Refuge Areas available for PRMs.
- Stairs and Escalators designed with exit capacities to evacuate Crush Loaded trains & Station Loads in 4 minutes from platform and 6 minutes to Point of Safety.
- Intervention Shaft (stairs, lifts and lobbies) to allow Intervention from Fire Services.
- Smoke Control Systems for Train Fire or Fire within the Stations.

Station Fire Systems Provision to Support Strategy

Smoke and Heat Detectors, Linear Heat Detectors – Fire Detection Systems	Automatic Sprinkler Systems & Gas Extinguishing Systems
Lighting - Emergency Lighting	Station Incident Rooms and Blue Light Station, Emergency Help Points
Emergency Signage	Fire Hose Reels and Extinguishers
Firefighting systems – Water tanks, Hydrants and Standpipes	Emergency Help Points
Closed-Circuit Television (CCTV)	Smoke Control and Ventilation Systems
Public Address and Voice Alarm (PAVA)	Shaft Emeregency Pressurisation Systems

Tunnel Fire Strategy

- Materials and finishes are required to be non-combustible and/or of limited combustibility compliant to standards..

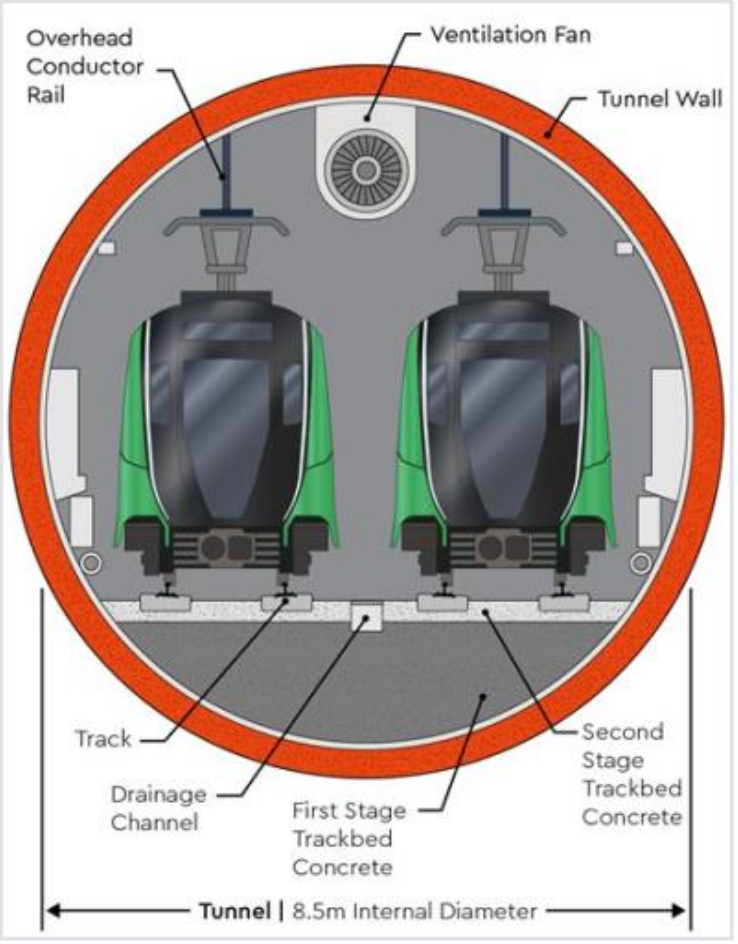
- Two Means of Egress from the tunnels with maximum escape distance of 500m from the furthest point to a Point of Safety (Station End Shaft or Intervention Shaft). Designed to NFPA 130 (& EU-TSI-SRT) compliance ; 1km between exits.

- Most equipment within the tunnels are made of metal and plastics which are non-toxic and flame retardant. Examples include the catenary system, the rails wiring and trays, lighting, jet fans in the tunnels, CCTV, and small sensors.

- Tunnel Structures are designed to provide structural fire integrity & designed to be passable by people. 610mm unobstructed clear width for egress .

- Tunnel End emergency Stairs designed for a capacity of 28 persons/min.

- Tunnel ventilation system capable of extracting smoke from Tunnel Fires.



Tunnel Fire Systems Provision to Support Strategy

Linear Heat Detection System	Light Emergency Rail Vehicles
Tunnel Ventilation Fans	Dynamic Evacuation Signage
Emergency & Maintenance Lighting	Electrical Isolation of Equipment
Firefighting Systems – Water tanks, Hydrants and Standpipes	Mechanical Booster Jet Fans and Shaft Pressurisation
Closed-Circuit Television (CCTV)	Blue Light Stations
Public Address and Voice Alarm (PAVA)	DFB Storage Rooms

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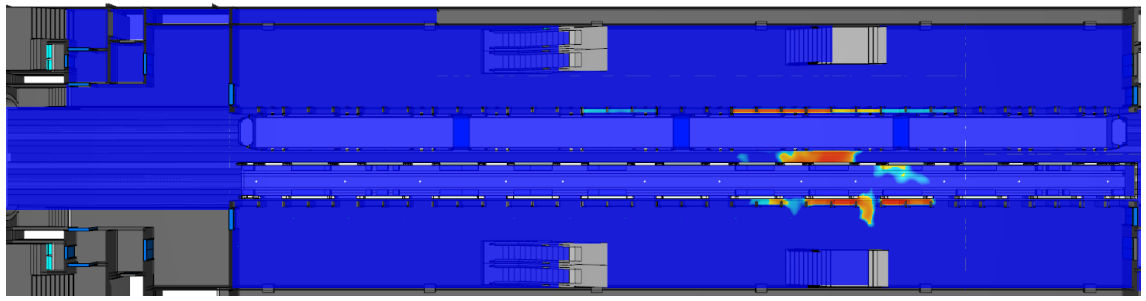
Emergency Evacuation Strategy

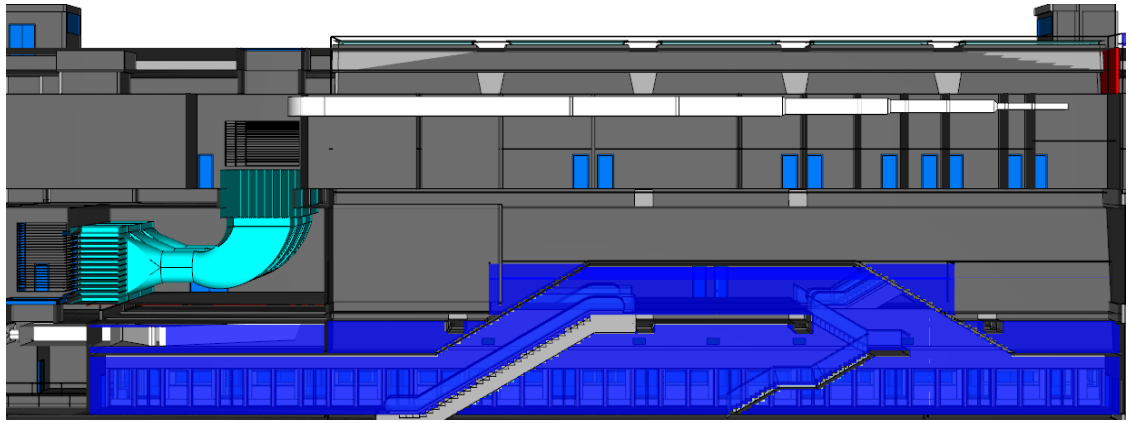
Station Emergency Strategy

1. Detection is via smoke/heat detectors in the stations, a passenger activating a push button, an OCC operator detecting a fire on CCTV or a passenger reporting a fire through station emergency phones or intercoms.
2. If an evacuation is required for causes other than a fire, the OCC operator will need to activate the evacuation scenario manually.
3. Diverse escape routes in the station have been designed to evacuate the station platforms in 4 minutes and to a Point of Safety (concourse level) within 6 minutes.
4. There are three evacuation routes from both platforms, via the escalators and the stairs to the mezzanine and the emergency stairs platform-mezzanine-concourse-street.
5. The emergency exits consist of automatic openings at street level, provided with an electric or hydraulic opening system, as well as manual opening.
6. Dublin Fire Brigade provisions include the station incident room, storage room and a mustering room located at the concourse level and at the platform level next to the lift and emergency stairs provided for Intervention.
7. Smoke exhaust Systems and Pressurisation Systems are activated. Details in Witness Statement.

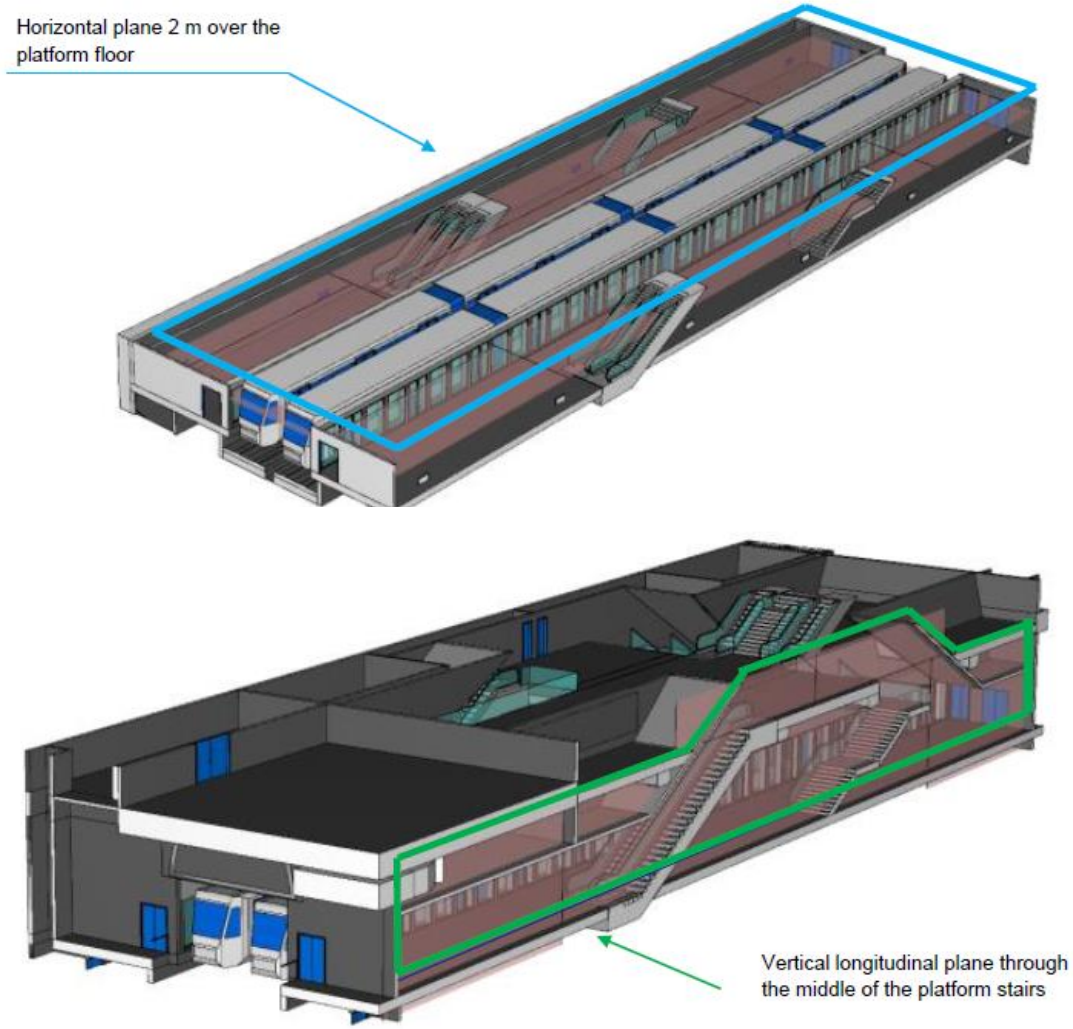
Fire in a Train Stopped in the Station

3-Dimensional Smoke Movement and Evacuation Modelling





Temperature, Visibility , Velocity and Toxicity

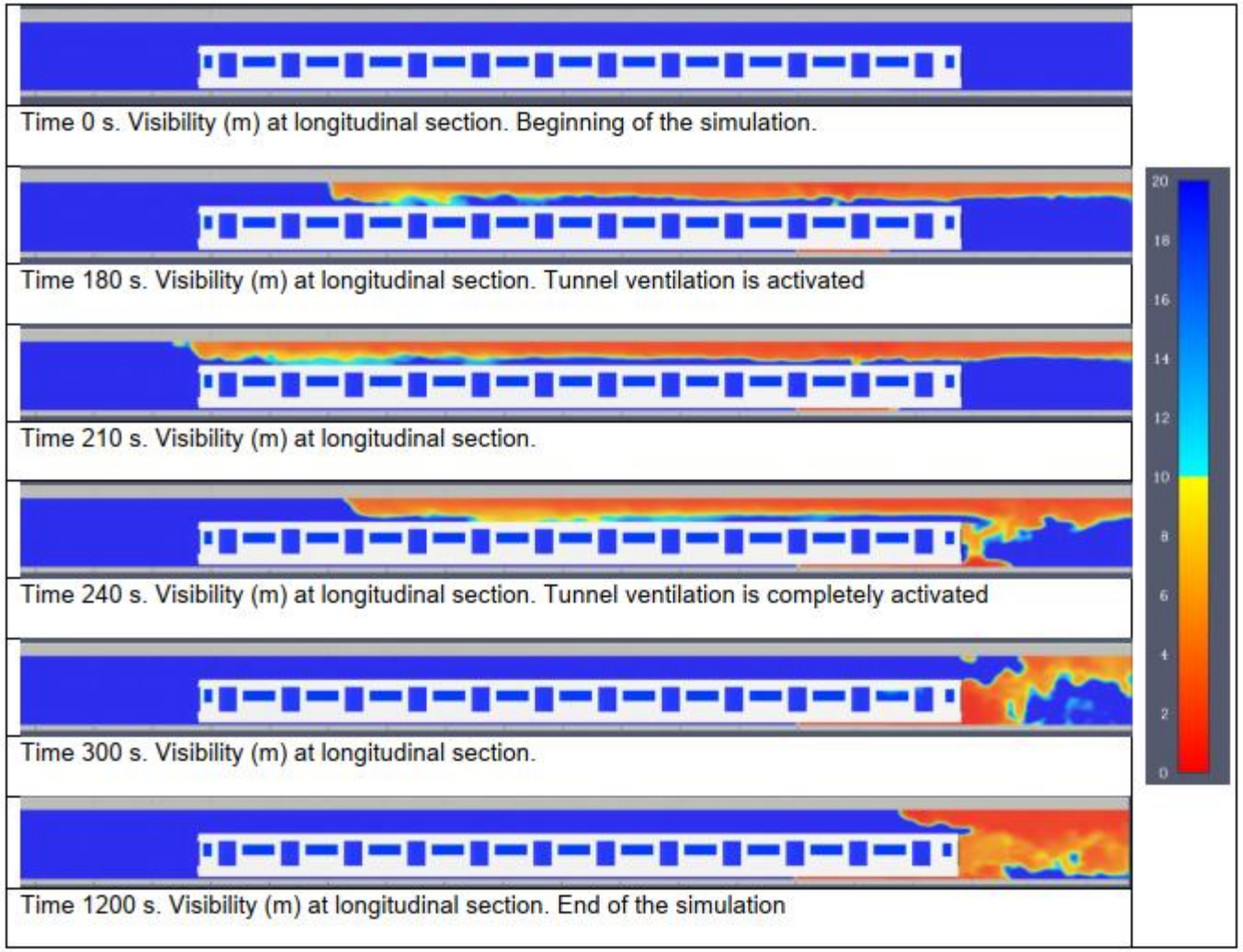


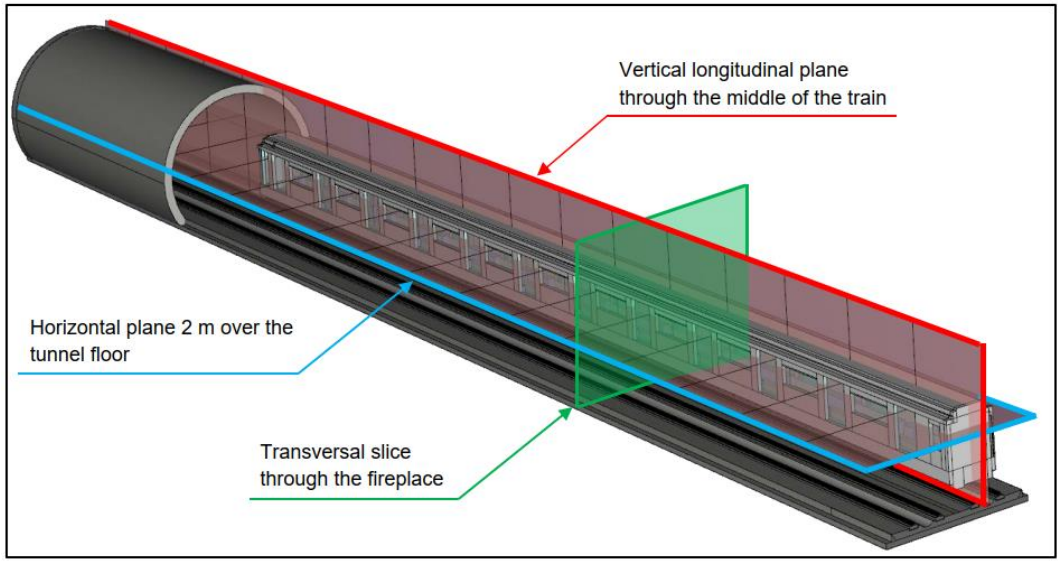
Tunnel Emergency Strategy

1. Detection is by passenger notification - Intercom, in-train detectors and/or CCTV through OCC monitoring.
2. Primary response is for the train to continue to the next station. To be supported by visual signs/notes - “safest point of evacuation is always achieved at the next station.”. This strategy is consistent with all other metros around the world. OCC to reinforce this message by PAVA.
3. The affected section of track will be declared unsafe to the signalling system so that other trains will avoid entering the section. Metrolink Operators are mobilised and Emergency Services Informed.
4. In the unlikely event that a train stops on the track and must be evacuated, passengers will leave the trains via the front and/or rear doors, with ramps leading to the track slab.
5. Passengers will then move towards the nearest intervention shaft or station as directed by the OCC and guided by dynamic evacuation signage. PAVA system regularly keeps passengers informed.
6. Forced ventilation will blow smoke in the opposite direction to the evacuation of passengers.
7. Intervention protocol for Dublin Fire Brigade begins following arrival at OCC and on site.
8. Surface Roads shall be closed upon arrival of GARDA and Emergency Services.

Fire in a Train Stopped in the Tunnel

3-Dimensional Smoke Movement and Evacuation Modelling





Temperature, Visibility , Velocity and Toxicity

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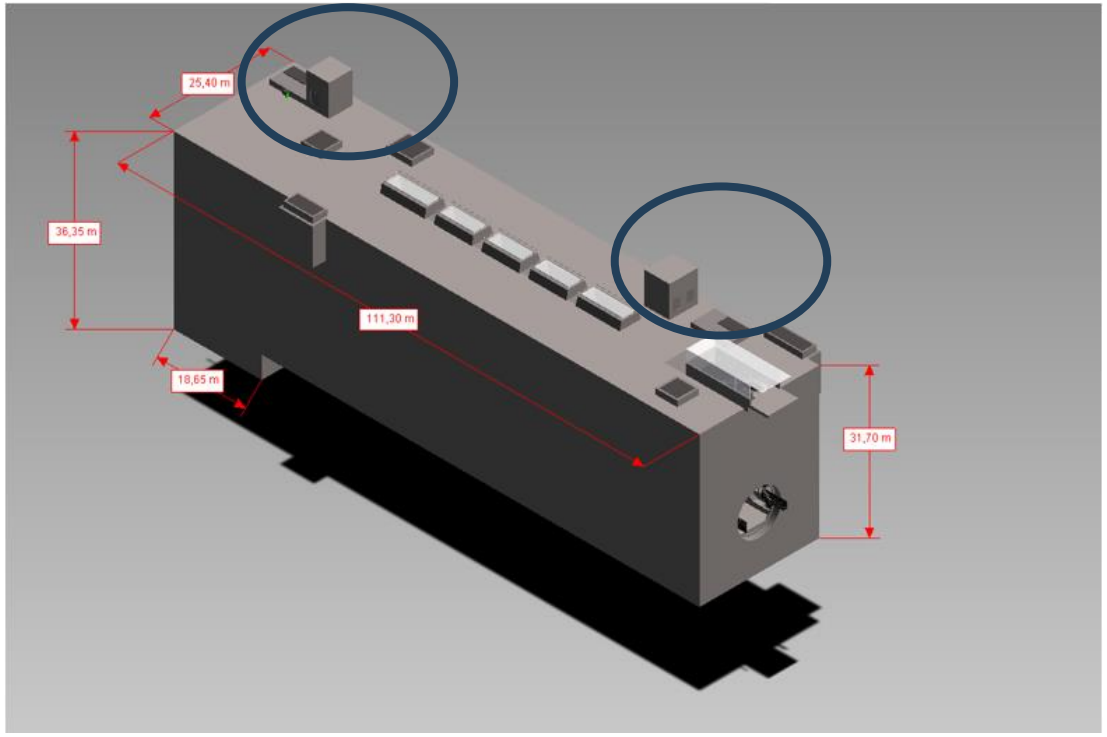
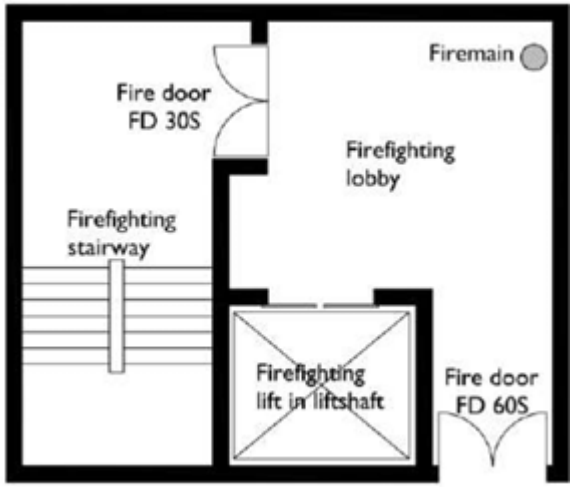
DFB Intervention Lift Requirements

Firefighting Lifts - Underground Stations

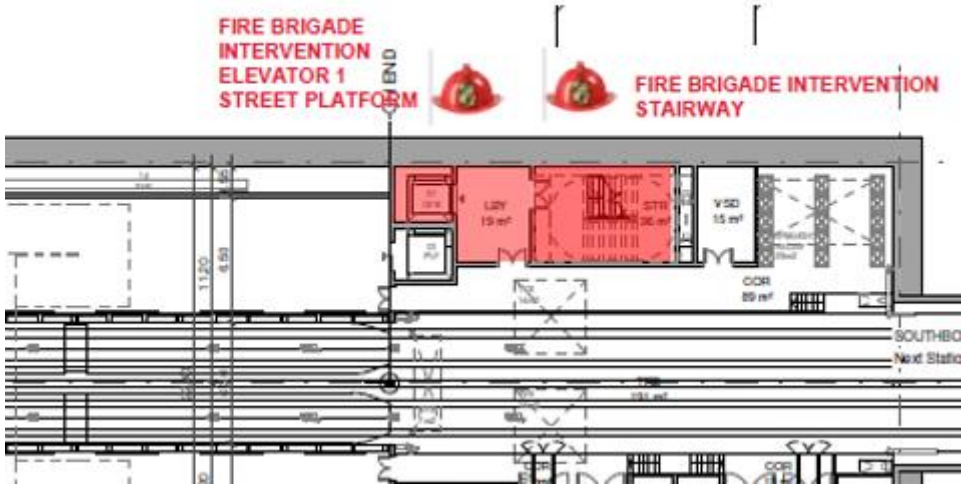


Pop-Up Lifts Example



Firefighting Shafts

1. Firefighting Shafts provide a secure operating base for FB to undertake intervention and rescue in stations and Tunnels.
2. Firefighting shafts - mechanically pressurised Lobbies, stairs and lifts.
3. Lifts required by Irish Building Regulations Part B Section 5.3.2 for Building deeper than 10m. Guidance also consistent with BS 9999 & BS 9992.
4. Number of lifts dictated by floor area served and hose coverage.



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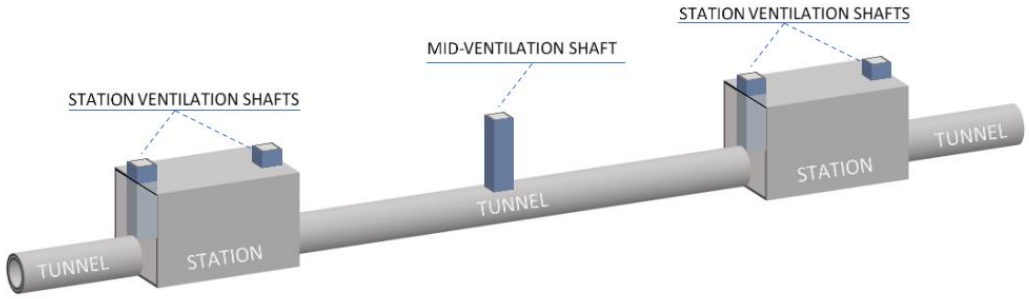
Intervention Shaft at ACP

Fire Strategy – Intervention Shaft

- Fire Safety strategy for Metrolink requires Egress/Intervention shafts at maximum intervals of 1km within the tunnel sections. This aids in limiting the travel distance required for occupants to escape enclosed railways and for emergency services to reach an incident on foot carrying breathing apparatus and other equipment.
- AZ4 sections are within 1km of each other. Collins Avenue Station to Griffith Park Station is approximately 1500m, therefore, a shaft is required in between. A shaft is placed approx. 500m from Collins Avenue Station and 1000m from Griffith Park Station.
- Footprint - Tunnel Ventilation Equipment and firefighting shaft placed within a secure building and a fire brigade storage room.
- The compound for the shaft has been appropriately sized to accommodate vehicular access to maintain, service and if required replace tunnel ventilation and emergency access equipment.

Albert College Park Intervention Shaft – Appendix A8.16



Summary

- Fire safety provisions are developed in accordance with all the relevant legislations, standards, and best practice guidelines.
- Rolling Stock, Stations and Trainway take due consideration of the requirements of the fire strategy which are developed to be achieve the four pillars safety which are prevention, protection, planning and firefighting.
- The probability of fire anywhere within the system is low, however, the safety systems provided can overcome the effects of fire should this ever occur.
- All fire safety systems provided by the design aid in rapid evacuation of passengers and staff as well as intervention from the emergency services. Fire Detection Systems, Fire Extinguishing Systems, Tunnel Ventilation Systems, Emergency Lighting, and all other Emergency Communication Systems have been designed to aid in the rapid evacuation of all passengers and staffs including People of Restricted Mobility (PRM).
- TII have been and will continue to engage with Dublin Fire Brigade if the Railway Order is granted to ensure that the fire safety of the MetroLink project continues to be given the highest importance throughout the subsequent design and construction stages.

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Air and Groundborne Noise Policy

- The Airborne and Groundborne Noise Mitigation Policy is designed to address special circumstances which will require further mitigation measures during the delivery of MetroLink.
- Airborne noise: reasonable worst case predictive modelling, detailed in EIAR, identify certain locations where, even with standard mitigation measures deployed on sites, the Policy Trigger Values and associated relevant criteria may be exceeded.
- Groundborne noise: No effective mitigation measures to reduce groundborne noise emissions from Tunnel Boring Machine at source. EIAR identified receptors where predicted effects will be significant.
- In such cases, the Policy identifies further mitigation measures, subject to eligibility criteria being met as:
    - Noise Insulation,
    - Temporary Rehousing; or
    - Soft Interventions.

A14.6 Airborne Noise & Groundborne Noise Mitigation Policy

Air and Groundborne Noise Policy

Airborne Noise Further Mitigation - Process

- TII and Contractors to update reasonable worst case EIAR airborne noise modelling predictions at least six months prior to commencement of works to reflect final construction methodology and timing of works.
- Impacted owner/occupier of eligible properties will be contacted by TII and discussions to be held in respect of further mitigation measures (Noise Insulation, Temporary Rehousing and/or Soft Interventions).
- Noise Insulation may include secondary glazing for living and bedroom windows plus supplementary ventilation, if required.
- Temporary re-housing will be for a maximum of four weeks, with any extensions addressed on a case-by-case basis. TII will meet all reasonable costs associated with temporary accommodation and all relevant expenditure associated with move.
- Soft interventions agreed locally on a case-by-case basis and may include, for example, noise cancelling headphones.

Air and Groundborne Noise Policy

Groundborne Noise Further Mitigation - Process

- Advanced public consultation and stakeholder engagement can greatly reduce the significance of effects during passage of the Tunnel Boring Machine.
- However, recognised that some individuals may find groundborne noise effects intolerable and will wish to vacate the property during passage e.g., those with a medical condition or night shift workers.
- TII will consult with receptors and consider, on a case-by-case basis, arrangements for temporary rehousing.
- The period of rehousing, due to groundborne noise from the Tunnel Boring Machine, will be for a maximum of 2 days with TII meeting all reasonable costs associated with temporary accommodation.

Conclusion

- The Policy is aligned with best practice on significant UK infrastructure projects including HS2 and Thames Tideway Tunnel.
- Innovative for transport infrastructure delivery in Ireland.
- MetroLink committed to being a good neighbour to those who live close to the proposed project.

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