



Transport Infrastructure Ireland Dublin, Ireland

MetroLink Independent Engineering Expert

Report of Stakeholder Consultation before ROA

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ABBREVIATIONS AND ACRONYMS

ABP	An Bord Pleanála
ACA	Architectural Conservation Area
ACP	Albert College Park
CA	Collins Avenue
CBC	Core Bus Corridor
DART	Dublin Area Rapid Transit
DCC	Dublin City Council
DCU	Dublin City University
DTO	Dublin Transportation Office
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
EPR	Emerged Preferred Route
EU	European Union
FCC	Fingal County Council
HA	Hampstead Avenue
IE	Iarnród Éireann/Irish Rail
IEE	Independent Engineering Expert
IS	Intervention Shaft
JV	Joint Venture
Luas	Dublin Light Rail Transit/Modern Tram System
MCA	Multi Criteria Analysis / Assessment
MN	Metro North (also called OMN, Old Metro North)
N&V	Noise and Vibration
NMN	New Metro North
NTA	National Transport Authority
OMN	Old Metro North (also called MN, Metro North)
POPS	Property Owners' Protection Scheme
PR	Preferred Route
RFI	Request for Information
RO	Railway Order
ROA	Railway Order Application
RPA	Railway Procurement Agency
RSG	Residential Stakeholder Group(s)
SMTP	Scheme Traffic Management Plan
TBM	Tunnel Boring Machine
TII	Transport Infrastructure Ireland
VAT	Value-Added Tax

EXECUTIVE SUMMARY

Transport Infrastructure Ireland (TII) is charged by the Irish Government through its National Transport Authority (NTA) with the development and promotion of the proposed Dublin MetroLink scheme, from outline design, through the Legal Powers or Railway Order (RO) process, procurement, construction and into Operation.

MetroLink is a proposed 19 kilometre, automated midi-metro system which will run from Charlemont in the South of the City, interchanging with Luas, through the City Centre with stations at St. Stephens Green, Tara Street and Connelly, continuing under inner North Dublin with a station serving the Mater and a large interchange with Irish Rail at the Cross Guns Bridge at Glasnevin. The line then continues north under Mobhi Road with a Griffith Avenue station at the present Home Farm FC ground and onwards to an interchange with the proposed CBC system around the Collins Avenue and Ballymun Road intersection.

The route then services Ballymun centre, again underground, before emerging from tunnel at the proposed Tunnel Boring Machine (TBM) launch site and servicing a station at Northwood, by the retail park and residential development area. The line will cross the M50 by bridge and thereafter run on surface through the agricultural and recreational lands south of Dublin Airport, where a Depot and Maintenance facility will be sited near the stop at Dardistown.

Re-entering bored tunnel the line will service a central station at the Airport, emerging into open land to the north and then moving to follow the alignment of the R132 bypassing the centre of Swords, with proposed stations (some elevated or at surface but most in either open cut or in cut and cover) at Fosterstown, Swords Central, Seatown, emerging from cut and cover tunnel into a surface terminus at Estuary (with park and ride).

TII has engaged an Independent Engineering Expert, RINA Consulting, to assist and support the Residential Stakeholder Groups (RSG) represented along the alignment through the process of the preparation for and submission of the Railway Order, and the issues that will arise from that process.

RINA will analyse the Environmental Impact Assessment Report (EIAR) Submission and will report on its findings to the RSGs highlighting any areas of concern or otherwise and suggesting where appropriate questions that might be placed with TII itself, or its engineering consultants.

In advance of the RO submission stage, RINA has been engaging with the RSGs between September 2021 and September 2022, discussing their various concerns and collecting and collating 116 questions from the RSGs to place with TII as a series of 20 Requests for Information (RFIs), to which TII have in very large measure responded as of the date of this report.

This report summarises this series of interactions, providing the answers from TII to the various requests for information. It should be noted that a significant number of the questions will be answered definitively only when the EIAR becomes available, on September 30th 2022.

1 INTRODUCTION

RINA Consulting has been retained by Transport Infrastructure Ireland (TII) as Independent Engineering Expert (IEE) to provide impartial technical advice to Residential Stakeholder Groups who may be affected by the construction and operation of MetroLink.

MetroLink is the preferred public transport project to address the transport need of the Swords / Dublin Airport / City Centre corridor, included in the National Transport Authority's (NTA) Transport Strategy for the Greater Dublin Area, for the period 2016-2035 (presently under revision but still with MetroLink at its core).

The MetroLink Project is the development of a north-south urban rapid transit service that will run between Swords and Charlemont, linking Dublin Airport, Irish Rail, DART, Dublin Bus and Luas Services, creating fully integrated public transport along the 19km route. A large portion of the route will be underground including the areas where it passes under the city centre area and Dublin Airport. The underground section will terminate at Charlemont, where it will interchange with the Luas Green Line. There will be a total of 15 new stations, 3000 additional park and ride spaces and a journey time of approximately 25 minutes from Swords to the city centre. MetroLink will cater for 20,000 passengers per direction per hour, with some margin for growth, and carry up to 50 million passengers per annum.

RINA Consulting is providing a technical service for engagement with TII's indicated Residential Stakeholder Groups along the MetroLink route and review public Railway Order drawings, Environmental Impact Assessment Report documents and any other relevant published documents provided by the TII with a view to providing objective reports on various aspects of MetroLink to the Residential Stakeholder Groups (RSGs).

RINA's IEE assignment includes the following tasks:

1. Review Published Emerging Preferred Route and Preferred Route documents
2. Review Stakeholder Submission Reports regarding the Emerging Preferred Route and Preferred Route
3. Meet with Stakeholder Groups and establish objectives, protocols for engaging with Stakeholder Groups
4. Prepare a report clarifying any questions, requested information or assist in understanding other issues as may be requested by the Stakeholder Groups following the initial meetings
5. Review all public Railway Order documents provided by the Client, including design route drawings, the Environmental Impact Assessment Report, technical papers, and any other relevant documents
6. Provide report(s) on various aspects of the entire MetroLink design detailed in the documents in the Railway Order Submission on issues and associated issues with the construction and operation of MetroLink
7. Chair open sessions to discuss with relevant groups the findings of such report(s) and hold a Question & Answer session(s), as required
8. Provide an updated report on Stakeholder Group queries.

This document is related to first four Tasks, summarizes all the activities carried out by IEE before Railway Order Application (ROA) and includes the clarification for any questions, information and assistance in understanding other issues as may be requested by the Stakeholder Groups.

1.1 AUTHORS, PURPOSE AND STRUCTURE

The document is produced by RINA staff, including:

- ✓ **Andrea Raffetti**, Urban Rail Engineer, Project Manager;
- ✓ **Luke Albanese**, Urban Rail Engineer, Deputy Project Manager and Rail Transport Planning Specialist;
- ✓ **Paolo Merlanti**, Geotechnical Engineer, Senior Tunnelling Specialist;
- ✓ **Claudio Bellini**, Transportation Engineer, Transport Planning Specialist and Document Manager.

The document includes the following chapters:

- ✓ Chapter 2, including the list of documents received by TII, starting from the information from tender stage;
- ✓ Chapter 3, showing the Stakeholder Group consultation process;
- ✓ Chapter 4, describing the database including all the proposed questions and comments;
- ✓ Chapter 5, summarizing the Requests for Information presented by IEE in order to provide the appropriate response to the collated Stakeholder questions;

- ✓ Chapter 6, illustrating the relevant topics common to all groups;
- ✓ Chapter 7, for the topics related to specific groups.

1.2 STAKEHOLDER CONTEXT

TII is the Statutory Agency tasked with the promotion of the MetroLink project, and in the popular perception there is often a presumption that the needs and concerns of particularly residential stakeholders, are of somewhat secondary importance in the “grand scheme of things”. This is especially the case when the State is promoting infrastructure projects with a view to improvements in the life of the Nation. In order to fulfil both the spirit as well as the letter of EU and Irish law, TII has agreed to engage an Independent Engineering Expert during the legislative process preparatory period, to support the residential stakeholders likely to be affected by the MetroLink works and who would not normally be able to engage technical professionals for their needs.

The Scope of Work of the IEE is therefore exclusively related to supporting the Residential Stakeholder Groups with respect to the development of the MetroLink project and helping them to understand both the implications of the proposals for themselves, the proposed approaches to minimisation of disturbance and risk to their interests and to understanding the overall process for the project authorisation through the Railway Order Process (although not accompanying or representing them through that process further than specified by TII, presently intended to end prior to the Oral Hearing).

The present IEE role is modelled on the work of the previous IEE on the Old Metro North project in the period 2007-20010, and we have taken the opportunity to familiarise ourselves with the main report and supporting appendices of the IEE at that time, and also to discuss the IEE role in that context with some of the Stakeholders who had interaction with the IEE on the OMN project, and to try and understand their expectations, within the context of the present Commission.

During the execution of the Commission therefore, and in the review of the existing Published Documentation on the EPR and PR stages, we have concentrated on the issues that have been raised by Stakeholders in their written submissions and in their first Stakeholder engagement meetings with the IEE Team.

It is not the intention of the IEE to question the fundamental project rationale or engineering decisions in and of themselves, as these have been widely agreed and consulted upon through multiples layers of Government and its various Agencies and their adopted policies and subjected to extensive public consultation. All of the queries the IEE team are interested in exploring and, any comments that we make during the Commission are derived, either directly or by direct inference, from the questions and concerns expressed by the Residential Stakeholder Groups and this will extend all the way from the EPR to the RO submission, and they should be understood in that context.

1.3 ASSURANCE APPROACH

RINA as IEE has taken an ‘Engineering Assurance’ based approach to this Stakeholder Support role. That is to say that we have sought evidence of the data and reasoning behind key decisions and compared the evidence to what would be considered ‘best practice’ internationally within the EU for the justification of key decisions made on such projects, and especially where these would have a significant impact on Residential Stakeholders. Such decision-making evidence and data would normally form a key ‘backbone’ of the justifications set out in the Environmental Impact Assessment Report, submitted as part of the Railway Order Application for the ‘Preferred Scheme’ being promoted.

2 LIST OF DOCUMENTS RECEIVED FROM TII

The following documents have been received from TII.

A separate Report concerning IEE review of published EPR and PR documents (1÷38) has been issued.

INFORMATION FROM TENDER STAGE

✓ **Emerging Preferred Route (March 2018)**

1. MetroLink Emerging Preferred Route Public Consultation Report 2018
2. New Metro North, Luas Green Line Tie-in Study, Options Appraisal Report
3. Green Line Tie-in Option 4D 9.5M Wide Skew Platform
4. MetroLink Charlemont Station & Green Line Tie-In, Initial Design Development
5. New Metro North, Concept Engineering Design Report, Volume 1: Main report, 6 June 2018
6. New Metro North, Emerging Preferred Route Concept Engineering Design, Drawings, January 2018
7. MetroLink Scheme - Cost Benefit Analysis, 22 March 2018
8. New Metro North Green Line Metro Upgrade - Line B, NMN-GTW-0003_01, 27 June 2017
9. MetroLink Public Consultation 2018
10. Tunnel Configuration study for 'new Metro North' and 'DART Underground' Tunnel Configuration study for new Metro North, April 2017
11. New Metro North, Alignment Options Report, Volume 1: Main Report, 15 March 2018
12. New Metro North, Alignment Options Report, Volume 2: Appendices, 15 March 2018
13. New Metro North, Alignment Options Report, Volume 3: Assessment Options Drawings
14. New Metro North, Alignment Options Report, Volume 4A: Environmental Constraints Reports, 15 March 2018
15. New Metro North, Alignment Options Report, Volume 4B: Environmental Constraints Reports - Annex
16. New Metro North, Alignment Options Report, Volume 4C: Environmental Constraints Reports - Figures

✓ **Preferred Route (March 2019)**

17. Constructability Report - Green Line Closure
18. Luas Green Line, Peak hour capacity requirements south of Charlemont
19. MetroLink Preferred Route Design Development Report, March 2019
20. Public Consultation Document - MetroLink Preferred Route, March 2019

ADDITIONAL INFORMATION

21. Albert College Park Tunnel Intervention Shaft Public Consultation 2020 (brochure)
22. Albert College Park Intervention Shaft - Residents' Survey 2020
23. Albert College Park - Technical Document
24. MetroLink FAQs Master – List Final 020621
25. ML1-JAI-RTA-ROUT_XX-DR-Y-01 from 001 to 027 | Alignment Drawings – Plan
26. ML1-JAI-RTA-ROUT_XX-DR-Y-02 from 001 to 028 | Alignment Drawings – Profile
27. ML1-JAI-RTA-ROUT_XX-DR-Y-02101, 02102, 02201 and 02301 | Alignment Drawings – Profile – Depot

INFORMATION OBTAINED FROM RFI

✓ **RFI#1**

28. ML1-JAI-FAE-ROUT_XX-ST-Y-00001 | Safety Strategy
29. ML1-JAI-GEO-ROUT_XX-DR-Y-00123 | Barrier effect mitigation measures
30. ML1-JAI-GEO-ROUT_XX-DR-Y-00013 | Geological Long Section - Phase 1
31. ML1-JAI-GEO-ROUT_XX-DR-Y-00037 | Geological Long Section - Phase 2
32. ML1-JAI-GEO-ROUT_XX-DR-Y-00014 | Hydrogeological Plan

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- 33. ML1-JAI-GEO-ROUT_XX-DR-Y-00015 | Hydrogeological Long Section
 - 34. ML1-JAI-GEO-ROUT_XX-SU-Y-00006 | Factual Report AGI-3- Concept Design-2018
 - 35. ML1-JAI-STU-ROUT_XX-DR-Y-00003 | Greenfield Settlements MAP – Lay out
 - 36. ML1-JAI-STU-ROUT_XX-DR-Y-00004 | Typical cross sections of the TBM tunnel
 - 37. ML1-JAI-STU-ROUT_XX-DR-Y-00006 | TBM - Tunnel. Ring General Layout - Distribution of the different segments on the TBM ring
 - 38. ML1-JAI-STU-ROUT-XX-DR-Y-00016 - TBM Tunnel. Ring Details - Details of screws and other auxiliary elements for segments connection
 - 39. ML1-JAI-STU-ROUT-XX-DR-Y-00018 | TBM Tunnel Monitoring. Special Buildings - Typical instrumentation for buildings during tunnel construction
 - 40. ML1-JAI-STU-ROUT-XX-DR-Y-00025 | General Arrangement. Plan Layout - Drawing including the tunnel alignment in plan view superposed with the ground orthoimage
 - 41. ML1-JAI-STU-ROUT_XX-M2-Y-000042 | Albert College Park Intervention Shaft. - Construction sequence - Construction method statement of the shaft
 - ✓ **RFI#2**
 - 42. ML1-JAI-EGN-MS09_XX-RP-Z-00001 | Collins Avenue Station: Draft Environmental Assessment Report of the Options
 - ✓ **RFI#3**
 - 43. ML1-JAI-ARC-ROUT_XX-RP-Y-00001 | Value Engineering Report
 - 44. ML1-JAI-FAE-ROUT_XX-RP-Y-00001 | Proposed Ventilation Strategy – Smoke Control
 - 45. ML1-JAI-FAE-ROUT_XX-RP-Y-00002 | Assessment Design Fire for Rolling Stock
 - 46. ML1-JAI-FAE-ROUT_XX-RP-Y-00003 | Firefighting Track Design Principles
 - 47. ML1-JAI-STU-ROUT_XX-RP-Y-00015 | Tunnel Fire Safety Pros and Cons of a Single Bore Tunnel Arrangement
 - ✓ **RFI#4**
 - 48. ML1-JAI-ARC-ROUT_XX-PP-Y-00021 | R132 Station Design Concept + Urban Realm | Preliminary Design Changes
 - 49. ML1-JAI-PLD-ROUT_XX-PP-Y-00011 | R132 - Boundary Compliance Check
 - 50. ML1-JAI-RTA-ROUT_XX-DR-Y-00010 | (title of drawing not present)
 - 51. R132 presentation 20180830_Hot Spots
 - 52. R132 Alignment Option 3 | Horizontal and Vertical Profiles
 - 53. 011_04_R132 documentation, including GIS Model, CAD drawing and the following Reports:
 - 54. Option 3 Route Drawings
 - ✓ **RFI#6**
 - 55. ML1-JAI-PLD-ROUT_XX-RP-Y-00406 | Preliminary Design Report - Volume 4 - Chapter 6 - Sub-Surface Stations

3 STAKEHOLDER GROUP CONSULTATION PROCESS

The list of stakeholder groups involved in the consultation process is reported in the following table.

Table 3.1: List of Stakeholder Groups involved in the consultation process before ROA

Group	Main Contact	Other participants
Ashley Avenue	John Sheehan	Deirdre Byrne, Eoin Ward, Ierine Casserly, John Walsh, Mary and Tony Brown, Mary O'Connor, Michael Carney, Michael Macken, Nuala O'Hara, Patricia Mynes, Sandra Byrne, Sonny Walsh
Ballymun Road and Albert College	Phil Canny	Frances Maguire, Jim Deignan, Liam Johnston, Paul Cusack, Ronan O'Hagan, Shane Maguire, Sheila Rafter, Stephen Nohilly, William Rafter
Dartmouth	Edward Kelly	Bryan Coyle, Catriona Shaffney, Ciaran Black, G.A. Cusack, Grattan Boylan, Herbert Mulligan, John Conway, Josie Deloire, Lorraine Mulligan, Mark Colgan, Michael Doyle, Suzi Taylor and (*) Elisabeth V, Grace, Maurice, Terry
Dalcassian Downs	Charlie Lowe	Ciara Dunne
District 7 Community Alliance	Tony Kelly	Patrick Grant, Pauline Cadell, Ray Kenny, Tom McKeon and (*) Bernie
Estuary	John Cumiskey Noel Murtagh	Barry Arthurs, Denis O'Callaghan
Griffith Avenue and District	Ruth Carty	Una Caulfield, Sheila O'Connor
Hampstead	Declan Campbell	Gerry Kealy, Jon Griffin, Louise Boughton
Prospect ACA	Anu Meehan, Lesley Hewson	Jennie McGee, Sinead Kavanagh
Seatown	Thomas Lowndes	Ann Graves, Brigid Manton, Darragh Butler, David Gargan, Paul Murphy
Wadlei and Hillcrest	Kieran Smyth	John Ryan

(*) = surname not specified during the meetings

Starting from the first half of November 2021, all the stakeholder groups have been consulted in several separate meetings, as detailed in the following table.

Table 3.2: List of dedicated meetings held with Stakeholder Groups

Group	First round	Second round	Additional meetings
Ashley Avenue	13/11/2021	26/01/2022	
Ballymun Road and Albert College	12/11/2021	28/01/2022	
Dalcassian Downs	-	-	06/07/2022
Charlemont and Dartmouth	-	01/02/2022	
District 7	-	31/01/2022	
Estuary	13/11/2021	20/01/2022	
Griffith Avenue and District	11/11/2021	27/01/2022	16/12/2021 12/04/2022 15/06/2022
Hampstead	10/11/2021	25/01/2022	
Prospect ACA	10/11/2021	24/04/2022	
Seatown	13/11/2021	19/01/2022	
Wadlei and Hillcreast	11/11/2021	27/01/2022	

The first round of meetings was held in Dublin, during the Consultant site visit; the others was held using the MS Teams platform.

In addition to the considerations expressed during the meetings, the following groups have formally submitted a document collecting the main topics and questions relevant for their areas:

Table 3.3: List of formal document submission by Stakeholder Groups

#	Group	Date document received
1	ACRA	15/11/2021
2	ACRA	02/02/2022
3	ACRA and BRNRA	05/11/2021
4	Ashley	16/11/2021
5	Charlemont (1)	17/02/2022
6	Charlemont (2)	17/02/2022
7	Charlemont (3)	01/07/2022
8	District7	31/01/2022
9	GADRA	26/11/2021
10	Seatown	25/10/2021
11	Seatown	25/04/2022
12	Seatown	09/05/2022

The documents provided by the Stakeholder Groups are included in the Appendix A.

4 QUESTION COLLECTION

Starting from the stakeholder meetings and the documents provided by stakeholders, a database including all the proposed questions and comments was built in order to summarise all the proposed topics.

The database includes the following fields

- ✓ Author and sequence number;
- ✓ Indication if the question is specific for location;
- ✓ Comment addressed specifically to RINA.

The stakeholder question database is included in Appendix B.

The questions have been aggregated considering the general topic and specific sub-topic, as follows:

General Topic	Specific sub-topic
Alternative locations and alignment options	<ul style="list-style-type: none"> ✓ Alignment options ✓ Alternative locations ✓ Shaft and venting
Construction, installation and operation methods	<ul style="list-style-type: none"> ✓ Shaft ✓ Spoil extraction ✓ Tolka river ✓ Tunnel ✓ Works boundary
Details about Railway Application Order, Documentation and RINA involvement	<ul style="list-style-type: none"> ✓ Content of Environmental Impact Assessment Report (EIAR) ✓ Content of Railway Application Order ✓ RINA involvement
Green areas and recreational spaces	<ul style="list-style-type: none"> ✓ Linear Park ✓ Seatown Green Area ✓ Trees replacement and new planting
Impacts, damages, monitoring and compensations	<ul style="list-style-type: none"> ✓ Compensations for damage and disturbance ✓ Evaluation of impact for noise and vibration ✓ Flooding and settlements ✓ General impact on construction phase ✓ General impact on operational phase ✓ Impact on property values ✓ Mitigation measures for noise and vibration ✓ Monitoring ✓ Resident relocation ✓ Archaeology and Heritage
Timeline and penalties	<ul style="list-style-type: none"> ✓ Penalties ✓ Timing
Traffic and accessibility	<ul style="list-style-type: none"> ✓ Resident access ✓ Works access ✓ Road cleaning and resurfacing ✓ Traffic management and disruption

5 REQUESTS FOR INFORMATION

In order to provide the appropriate response to the collated Stakeholder questions, the Consultant submitted to TII the following Requests for Information (RFIs), based on the unique questions of significance.

The results of the RFIs are reported here in one of the following categories:

- A. Evidence of the decision or issue has been provided (and we present it here in our report as an appendix) – considered comprehensive as an explanation – even if Stakeholders don’t necessarily agree with the decision.
- B. Evidence of the decision or issue has been provided – but it is not comprehensive and doesn’t necessarily provide as much information as Stakeholders would wish for or expect (we will discuss this with TII), **and/or** this information will be supplied within the EIAR at RO Application submission.
- C. Evidence has not been provided for some reason (we will ask TII about this if it should occur, which is not our expectation).

Table 5.1: List of Request for Information presented to TII by the Consultant

#	Content	Submission date	Response date	Evidence / Agreement
1	Provision of various documents included in the EPR and PR design, related to: Safety Strategy Barrier effect mitigation measures Geological Sections Hydrogeological Plan and Long Section Factual Report Greenfield Settlements TBM Plan Layout Albert College Park Intervention Shaft	17/01/2022	19/01/2022	A
2	Siting of Collins Avenue Station	17/01/2022	28/01/2022	B
3	Twin bore vs single bore tunnel configuration	07/02/2022	21/02/2022	B
4	Alignment Choices along the R132	07/02/2022	22/02/2022	B
5	Development of the “Linear Park” concept along the R132	07/02/2022	Response not yet received	C
6	ACRA questions about location of alternative for Collins Avenue Station in north Albert College Park	08/02/2022	31/03/2022	B
7	Content of Environmental Impact Assessment Report (EIAR)	05/04/2022	18/05/2022	A
8	Alternative locations and alignment options ✓ Alignment options ✓ Shaft and venting	05/04/2022	18/05/2022	B
9	Construction, installation and operation methods ✓ Spoil extraction ✓ Tunnel ✓ Works boundary	05/04/2022	18/05/2022	B
10	Details about Railway Application Order, Documentation and RINA involvement	05/04/2022	18/05/2022	B

#	Content	Submission date	Response date	Evidence / Agreement
	<ul style="list-style-type: none"> ✓ Content of Environmental Impact Assessment Report ✓ Content of Railway Application Order 			
11	Green areas and recreational spaces <ul style="list-style-type: none"> ✓ Trees replacement and new planting 	05/04/2022	18/05/2022	B
12	Impacts, damages, monitoring and compensations <ul style="list-style-type: none"> ✓ Archaeology and Heritage ✓ General impact on construction phase ✓ General impact on operational phase ✓ Impact on property values ✓ Monitoring ✓ Resident relocation 	05/04/2022	13/06/2022	B
13	Timeline and penalties <ul style="list-style-type: none"> ✓ Penalties ✓ Timing 	05/04/2022	13/06/2022	B
14	Traffic and accessibility <ul style="list-style-type: none"> ✓ Resident access 	05/04/2022	18/05/2022	B
15	Impacts, damages, monitoring and compensations <ul style="list-style-type: none"> ✓ General impact on construction phase ✓ Mitigation measures for noise and vibration 	13/04/2022	13/06/2022	B
16	Traffic and accessibility <ul style="list-style-type: none"> ✓ Traffic management and disruption 	13/04/2022	18/05/2022	B
17	Follow-up to RFI#6 – More Detailed Transport Demand Modelling	16/05/2022	05/08/2022	B
18	Alignment alternative in District 7 Community Alliance area	20/06/2022	20/07/2022	A
19	Albert College Park Tunnel Intervention Shaft	20/06/2022	04/08/2022	A
20	Question from Charlemont area resident's group	02/08/2022	Response not yet received	C

In the following for each RFI the IEE questions and TII responses are listed.

RFI #1 AND #3

IEE asked several documents (see list at page 7 starting from point 28 for RFI #1 and page 8 starting from point 43 for RFI #3); all the documents have been provided by TII.

RFI #2

IEE asked working notes or reports relating to the siting of Collins Avenue Station developed by Arup during the overall EPR development process

The draft version of document “Collins Avenue Station: Environmental Assessment Report of the Options” was provided by TII; this document includes:

- ✓ Environmental multi-criteria assessment methodology;
- ✓ Identification and description of five potential station locations;
- ✓ Appraisal of all options;
- ✓ MCA outcome and summary of findings.



Figure 5.1: Potential locations for Collins Avenue Station, included in the Environmental Assessment Report of the Options

Although all the options are located within an area with numerous sensitive receptors, Options 1, 2 and 5 are much closer to these than 3 and 4 and hence could affect more human receptors. All options would also require temporary and permanent land take, although 2, 4 and 5 would also require demolition of properties. While 5 would require the demolition of three private dwellings, 2 would require the demolition a pre-school club, and 4 would require the demolition of a multi-storey car park. An existing dental clinic facility may potentially be affected by access restrictions during construction of 2.

A historic watercourse flows under the footprint of 4 and 5 and very close to 3, requiring possible diversion.

Although all the options are situated in an urban setting, 3 would be situated within a park, requiring the removal of mature trees, thereby affecting biodiversity and landscape. 3 is also the only option that completely avoids construction within a highway, and hence would cause least disruption of traffic.

5 would be entirely within the R108 Ballymun Road, so the associated traffic disruption during construction would be significant.

Whilst 3 appears to score well, it is noted that, should the station be constructed this far south, an intervention shaft would need to be constructed to the north, because of the extended distance between stations. This intervention shaft would potentially be close to the junction of Collin’s Avenue and Ballymun Road. In contrast, the PR option has the station further north, but an intervention shaft in Albert College Park. All options would require an intervention shaft to be built in addition, because of the distance between Ballymun and Griffith Park, and the safety requirement for ventilation and evacuation facilities to be available at 1km distances along the route

RFI #4

IEE asked all appraisal reports, working notes and technical and costing data which support the decision-making process summarized at Appendix E Alignment Along the R132, of the Jacobs Idom Preferred Route Design Development Report ML1-JAI-CPS-ROUT_XX-RP-Y-00001 | P02 2019/04/05.

The documents listed at page 8 (starting from number 48) have been provided by TII.

RFI #5

The ‘Linear Park’ or advanced landscaping concepts along the R132 are extremely controversial. Stakeholders have requested a detailed understanding of the origin of this concept.

IEE asked all reports, working notes, appraisal data and consultation results concerning the development of the ‘Linear Park’ concept along the R132. In addition, IEE asked to demonstrate how the Linear Park concept is in compliance with Fingal County Council’s current Development Plan (Part FCC DP 17-23 Parks and Open Spaces).

TII response not yet received.

RFI FROM #7 TO #16

The RFIs from #7 to #16 were focused on the specific questions collected from all the Stakeholders and included in database of Appendix B. For these RFIs the IEE questions and the TII responses are reported in the following table; in the initial bracket (#) the database reference number is reported.

Table 5.2: Detailed list of IEE questions and TII responses included in the RFI from from #7 to #16

RFI	Topic	IEE Questions	TII Responses
#7	Content of Environmental Impact Assessment Report (EIAR)	(#2, #10, #11, #12, #13, #54, #57, #90, #91, #92 and #113) Please Confirm that the EIAR will cover at least the following phases: <ul style="list-style-type: none"> ✓ Preparatory works ✓ Tunnel construction and spoil extraction ✓ Equipment installation ✓ Commissioning Operation	The EIAR will address the entire lifecycle of the project, including those described above.
#7	Content of Environmental Impact Assessment Report (EIAR)	(#2, #10, #11, #12, #13, #54, #57, #90, #91, #92 and #113) Please confirm that the EIAR will include inter alia: <ul style="list-style-type: none"> ✓ Location of assessment points, along the entire metro route (including stations and shafts for ventilation) ✓ Type of impact (noise, vibration, atmospheric emission, settlements, etc.) 	The EIAR will describe and/or assess each of these elements listed above.

RFI	Topic	IEE Questions	TII Responses
		<ul style="list-style-type: none"> ✓ Level of tolerance and acceptability (with reference to Irish Law and / or international good practices) ✓ Mitigation measures and compensation scheme details for unacceptable impacts and damages including the length of time the compensation scheme will run for after the system is completed ✓ Possibility of temporary relocation of residents who are subjected to unacceptable impacts and the criteria for assessing these ✓ Restoration of the existing situation, if it is modified by the construction activities 	<p>The Property Owners Protection Scheme has been introduced to provide the comfort to any property owner of a private property located within the scheme area that there is a fast, free, independent survey service and redress scheme available to them on an individual basis to look after their concerns about any structural impact from the construction of MetroLink. The Property Owner Protection Scheme (POPS), which is easily accessible, cost-free and open to all relevant property owners will be launched prior to the construction phase of the project. Under this scheme, property owners can choose one of three independent survey companies to undertake a condition survey on their property. The panel surveyor shall recommend the repairs required where they assess that damage to the property has been caused by the construction of MetroLink.</p> <p>The premise of the scheme is that any property owner of a private property located within the scheme area, may sign up to the POPS and avail of free, independent condition surveys of their property. Condition survey data will be gathered before, during and for one year after MetroLink is operational.</p> <p>This will be addressed within the EIAR as part of the RO submission.</p> <p>Where feasible, any temporary land take acquired for the purposes of constructing MetroLink will be reinstated on a like-for-like basis. This will be described within the EIAR.</p>
#8	Alignment options	<p>(#35) Does the current preferred route of the project not take full account of the current Fingal Co. Co. Development Plan 2017-2023, in particular for the Ashley Area?</p>	<p>The Fingal Development Pan for 2017-2023 was developed with an indicative route of the New Metro North scheme (approximately the Emerging preferred Route). Since the publication of the 2017-2023 plan, TII have been consulting with Fingal County Council on the development of the MetroLink preferred route and this route will be</p>

RFI	Topic	IEE Questions	TII Responses
			reflected in the 2023-2029 Fingal Development Plan.
#8	Alignment options	(#103) Some Bus Connects and the Metro appear to have parallel alignments in our area. What integration and coordination between the two systems is being planned for? We are the only area which will have a CBC directly above a Metrolink - have TII adequately referenced this in their decision making on PR? Does it make sense to have these significant overlaps in service provision?	Throughout the development of MetroLink, there has been close coordination with the BusConnects team working on behalf of the National transport Authority, including sequencing of the works, placement of BusConnects bus stops with regards to the proposed MetroLink station locations etc. While there are some sections of the alignments with an overlap in service provision between MetroLink and BusConnects, this significantly improves the level of integration between these two transport systems, allowing MetroLink passengers to easily interchange with an upgraded BusConnects core radial corridor with improved dedicated bus and cycle lanes, and connections to orbital routes providing an integrated service across the city, and vice versa.
#8	Shaft and venting	(#19/1) In the current Metrolink project, residents suggested to TII that the proposed intervention shaft structure already planned for Albert College Park could be up-scaled to a fully functioning station. What is the actual cost difference between the two options? Has this been properly costed?	The capital cost difference between an intervention shaft (of the size proposed for Albert College Park) to a MetroLink station is estimated to be € 92.5m. This figure excludes indirect cost, land and property, risk inflation and VAT.
#8	Shaft and venting	(#19/2) Given that it will only have 60 metre platforms and 1 entrance would it not make sense to have another station in ACP rather than an intervention shaft? What would be the cost difference between these 2 options? What would it cost to make provision for a future station in ACP even if not activated at the present time?	The capital cost difference between an intervention shaft (of the size proposed for Albert College Park) to a MetroLink station is estimated to be € 92.5m. This figure excludes indirect cost, land and property, risk inflation and VAT. Providing for a future proofed station at Albert College Park would not make economic (or operational) sense given the proximity to the neighbouring stations.
#8	Shaft and venting	(#66) Intervention Shaft access point during the operational phase – will these be used for routine access by maintenance teams?	The shafts will not be used by maintenance teams for routine access onto the system. Occasional maintenance attendance at the intervention shaft access point will be required periodically.
#9	Spoil extraction	(#69/1) Will the shaft site be used for extraction spoil from the TBM tunnel especially from some of the more constrained station sites?	The shaft site at Albert College Park will not be used for the extraction of spoil from the TBM tunnel. All TBM extracted spoil will be returned through the TBM tunnel to Northwood

RFI	Topic	IEE Questions	TII Responses
			for management in accordance with all relevant legislation.
#9	Spoil extraction	(#69/2) Routes of spoil extraction: ✓ a) are they dependent on NTA CBC implementations? ✓ b) will they be part of RO or decided at a later stage by DCC/TII? ✓ c) will spoil /construction traffic routes be part of RO? ✓ d) Can TII or NTA provide a map of how soil to be removed? ✓ e) Can Four Masters tunnel spoils be removed elsewhere via another site station like Des Kellys location to reduce truck traffic in our locality?	MetroLink and BusConnects will follow different timelines for construction therefore it can be assumed that they are independent of each other, however, all interface issues between the projects are captured in the EIAR chapters. A Scheme Traffic Management Plan (STMP) setting out all traffic management arrangements during construction will be included in the RO. Yes, they will be included in STMP. This will be included in STMP and the relevant chapters of the EIAR which all form part of the RO. The Four Masters tunnel spoils will be removed directly from the site station location via the tunnel to Northwood for management in accordance with all relevant legislation.
#9	Spoil extraction	(#69/3) Can TII provide a SPOIL MANAGEMENT PLAN, including the following details: ✓ Sites used for extraction spoil and relative quantities of heavy vehicles ✓ Traffic routes for heavy vehicles and operating program (night / day / all day) ✓ Sites used for spoil relocation	The extraction of spoil, the estimated number of heavy vehicles and associated vehicles movements will be addressed in the STMP and the relevant chapters of the EIAR which all form part of the RO. Traffic routes for heavy vehicles and an outline of their operating programme will be included in the Scheme Traffic Management Plan (STMP) which will be included in the RO. Sites proposed for soil relocation will be captured within the EIAR.
#9	Tunnel	(#85) Estuary Residents will accept the alignment if it is entirely cut and covered. Can TII confirm that this is the case?	While the entire MetroLink alignment along the R132 is not entirely cut & cover, the section of the alignment from the point the track crosses under the R132 directly adjacent to Estuary Court to the Seatown Station is contained in a cut & cover structure.
#9	Tunnel	(#94) Duration of TBM pass-through, in particular for Dartmouth area?	Anticipated TBM production rate is to be 70 meters/week.
#9	Works boundary	(#25) Will the EIAR/railway Order Application Contain a Detailed Construction Code of Practice/Construction Plan? What will it contain? Will it include where exactly	The EIA process will assess all likely significant effects on the environmental through all phases of the project. This includes the construction phase and a specific construction phase

RFI	Topic	IEE Questions	TII Responses
		<p>any works boundary fences will be placed while the works are being completed?</p>	<p>management plan, the Construction Environmental Management Plan has been developed to provide a framework that outlines how contractors working on MetroLink shall manage and where practicable minimise potential negative environmental effects during the construction phase. The construction phase will include all site preparation, enabling works, demolition, material delivery and storage, waste storage and removal, construction activities, line wide installation and commissioning, post project restoration and any associated engineering works. This document will be included as part of the overall RO submission. Land references and all temporary land take will be shown on the RO drawings and will indicative of the works boundary during the construction stage.</p>
#10	Content of Environmental Impact Statement	<p>(#70) Please provide the main information about EIA/EIS, in particular:</p> <ul style="list-style-type: none"> ✓ Contents of EIA/EIS ✓ Documents included ✓ Data collected ✓ Experts involved ✓ Multi-criteria Assessments Undertaken 	<p>The EIAR is organised into over 30 separate chapters, each chapter focussed on a particular area of assessment (such as landscape, air quality, biodiversity etc) and the impact assessment process, including the documents included, data collected (and methodology used) and any multi criteria analysis carried out set out in each. Each chapter provides a description of the assessed environmental impact across the entire scheme.</p>
#10	Content of Railway Application Order	<p>(#41, #56, #59, #77) Please provide the main information about documents included in the RO Application. In particular confirm that the following ones will be included:</p> <ul style="list-style-type: none"> ✓ Site Survey Report and Geotechnical Data ✓ Location and typology of electricity substations ✓ Construction methodologies (in terms of used technologies and indication of working hours) ✓ Routes for extracted spoil 	<p>A summary of all advanced Surveys completed will be incorporated within the various chapters and appendices in the EIAR.</p> <p>Details on the proposed electrical Substations will be confirmed as part of RO submission</p> <p>The Construction Phase EIAR Chapter will include details on construction methodology</p> <p>A Scheme Traffic Management Plan (STMP) describing these proposed routes will be included in the RO.</p>

RFI	Topic	IEE Questions	TII Responses
#11	Trees replacement and new planting	(#33, #36, #39, #88) Please provide the main information about ENVIRONMENTAL IMPACT ASSESSMENT REPORT – MITIGATION ACTION PLANS, including: <ul style="list-style-type: none"> ✓ Trees replacement and new planting ✓ Biodiversity compensation ✓ CO2 compensation (considering the reduction due to removal of trees and existing vegetation) ✓ Acoustic barrier effect mitigation (of existing trees and vegetation) both during and after construction ✓ Reduction of construction site footprint ✓ Alternatives to proposed laydown and storage areas considered 	All information above will be included in the EIAR as part of the RO submission.
#12	Archaeology and Heritage	(#83) Please confirm that the EIAR will provide ARCHAEOLOGICAL SURVEYS of the route. Please provide indication of the number and locations of these surveys and the levels of detail within them.	The EIAR will contain details the multiple phases of archaeological investigations undertaken along the route of the proposed scheme and these will be included with the RO submission. As the proposed scheme shares a somewhat common alignment with old Metro North, a substantial amount of the aforementioned archaeological surveys had taken place prior to the development of MetroLink. <p>The combined archaeological investigations for old Metro North and MetroLink comprise Geophysical Surveys, Wade and Metal Detection Surveys, Archaeological Monitoring of Geotechnical Investigation's and Utility Slit Trenches in addition to the undertaking of Advance Targeted Test Excavations and Intensive Archaeological Test Excavations. The MetroLink Archaeological Surveys comprise:</p> <ol style="list-style-type: none"> 1. Geophysical Surveys <ol style="list-style-type: none"> a. Four Phases of Works from St Stephen's Green to Lissenhall 2. Wade Survey <ol style="list-style-type: none"> a. Broadmeadow River- areas not previously covered by the old Metro North Survey(Licence Area 4) 3. Advance Targeted Archaeological Test Excavations

RFI	Topic	IEE Questions	TII Responses
			<p>a. Estuary Park & Ride (Lissenhall; Licence Area 1)</p> <p>b. Griffith Station (Home Farm Football Pitch; Licence Area 3)</p> <p>c. Dardistown Depot (Licence Area 4)</p> <p>4. Archaeological Monitoring of Geotechnical Investigations</p> <p>d. Five Phases of Works from St Stephen's Green to Lissenhall (works ongoing, reports incorporated into GI documents)</p> <p>Reports from the previous archaeological investigations carried out during Metro North can be found on TII's website at https://www.tii.ie/tii-library/archaeology/</p>
#12	General impact during construction phase	(#51) If one house on a terrace is within the zone of influence should the full terrace not be included- (Stella avenue for example)	It is assumed that the zone of influence refers to settlement – in which case where a single house on a terrace falls within this zone, the POPS scheme (see response to RFI 7 for a description) considers the entire terrace rather than just the single dwelling in terms of potential impact.
#12	General impact during construction phase	<p>(#84) Please provide the main information about ENVIRONMENTAL IMPACT ASSESSMENT REPORT – MITIGATION ACTION PLANS, including:</p> <ul style="list-style-type: none"> ✓ Trees replacement and new planting ✓ Biodiversity compensation ✓ CO2 compensation (considering the reduction due to removal of trees and existing vegetation)? ✓ Acoustic barrier effect mitigation (of existing trees and vegetation) both during and after construction? ✓ Reduction of construction site footprint ✓ Alternatives to proposed laydown and storage areas considered 	All information above will be included in the EIAR as part of the RO submission
#12	General impact during construction phase	(#106) Construction Code of Practice includes the issues related to small tight site?	The Construction Phase EIAR Chapter will include details on construction methodology
#12	General impact during construction phase	(#112) Construction Code of Practice includes the issues related to work during weekend?	The Construction Phase EIAR Chapter will include details on construction methodology. Proposed standard working hours during the weekend will be set out in the EIAR.

RFI	Topic	IEE Questions	TII Responses
#12	General impact during operational phase	(#79/1) Will homes on Hampstead need to be evacuated if incidence in the tunnel and fans need to clear smoke	No evacuation of houses is envisaged as being required in the event of a fire incident in the tunnel, however, further analysis is underway to confirm the extent of possible fires and the consequential extent of smoke exhausted – TII to revert.
#12	General impact during operational phase	(#79/2) Please provide details of the IMPACT MONITORING PLAN for the following phases: <ul style="list-style-type: none"> ✓ Preparatory works ✓ Tunnel construction and spoil extraction ✓ Equipment installation ✓ Commissioning ✓ Operation The plan should include: <ul style="list-style-type: none"> ✓ Location of monitoring points, along the entire metro route (including stations and shafts for ventilation) ✓ Type of monitored impact (noise, vibration, atmospheric emission, settlements, etc.) ✓ Level of tolerance and acceptability (with reference to Irish/EU Law and / or international good practices) ✓ Frequency of monitoring and proposed length of monitoring ✓ Procedures for consultation of the monitored data ✓ Mitigation measures and actions in case of overcoming of maximum impact level 	The EIAR will detail a range of mitigations measures including environmental monitoring. These will include specific monitoring locations, tolerances acceptable and frequencies. Any alterations to those will be informed by any RO granted by ABP and any such related conditions.
#12	Impact on property values	(#17) What effect will this project have on property values before, during and after project completion? Some residents may wish to consider selling up and moving rather than face major disruption for a period of 7-10 years. Please provide Private Property Assessments that show these effects including the likely impacts of house insurance premiums for those above or close to the line.	TII have not carried out any such analysis. For information, previous analysis of property prices for those properties in proximity to Luas or Dart stations carried out by daft.ie can be found at The Daft.ie DART & Luas House Price Map: By Stop https://www.blog.daft.ie/post/the-daft-ie-dart-luas-house-price-map-by-stop
#12	Monitoring	(#7, #53, #58, #71, #78) Please provide details of the IMPACT MONITORING PLAN for the following phases: <ul style="list-style-type: none"> ✓ Preparatory works 	The EIAR will detail a range of mitigations measures including environmental monitoring. These will include specific monitoring locations, tolerances acceptable, frequencies will be informed by any RO

RFI	Topic	IEE Questions	TII Responses
		<ul style="list-style-type: none"> ✓ Tunnel construction and spoil extraction ✓ Equipment installation ✓ Commissioning ✓ Operation <p>The plan should include:</p> <ul style="list-style-type: none"> ✓ Location of monitoring points, along the entire metro route (including stations and shafts for ventilation) ✓ Type of monitored impact (noise, vibration, atmospheric emission, settlements, etc.) ✓ Level of tolerance and acceptability (with reference to Irish/EU Law and / or international good practices) ✓ Frequency of monitoring and proposed length of monitoring ✓ Procedures for consultation of the monitored data ✓ Mitigation measures and actions in case of overcoming of maximum impact level <p>In particular will homes on Hampstead need to be evacuated if incidence in the tunnel and fans need to clear smoke?</p>	<p>granted by ABP and any such related conditions.</p>
#13	Penalties	<p>(#37) Please can TII give an indication about:</p> <ul style="list-style-type: none"> ✓ Details of mechanisms of penalties for contractors and subcontractors who does not adhere to contractual conditions relating to the EIAR and Stakeholder Impacts? 	<p>All contractors and subcontractors engaged on the MetroLink scheme will be contractually required to adhere to the conditions set by the Railway Order. Exact mechanisms or penalties for non-compliance will be determined once drafting of the contractual documents have been completed.</p>
		<ul style="list-style-type: none"> ✓ Communication plan for stakeholder, including changes to programme schedules and their reasons 	<p>TII has engaged extensively with stakeholders along the route. The section on Consultation in the EIAR will capture the extent of the consultation and communication with stakeholders. This will be published as part of the Railway Order application process later this year.</p> <p>Changes in programme schedules in mega projects such as MetroLink will arise for a variety of reasons. Every effort is made to meet indicative targets and programmes but unfortunately circumstances will arise from time to time which will result in changes to schedules – all contractors working on MetroLink will be required to maintain lines of communication with</p>

RFI	Topic	IEE Questions	TII Responses
			stakeholder groups to ensure such events are quickly communicated.
#13	Timing	<p>(#3) Please provide the complete timeframe of the project, including the following phases:</p> <ul style="list-style-type: none"> ✓ Design and permitting ✓ Bord Pleanála approval ✓ Preparatory works ✓ Station and Tunnel construction (area by area) ✓ System fit-out (area by area) ✓ Equipment installation ✓ Testing and Commissioning ✓ Start of operation 	The complete timeframe, broken down per phase as detailed above, is currently being finalised and will be provided as part of the RO submission.
#14	Resident access	<p>(#4) Please provide the TRAFFIC MANAGEMENT PLAN during construction and operations phases, in particular indicating (area by area):</p> <ul style="list-style-type: none"> ✓ If the resident accesses are close to the construction sites, how they will be regulated? How will access times be kept to a minimum? ✓ Will local parking restrictions (residents only) need to be introduced? ✓ What are the traffic limitations or reductions in the in the area adjacent to the works? Will any roads be temporarily or permanently narrowed? Will there be a loss of on-street parking in the temporary and permanent situations? 	The management of traffic during construction and operational phases will be included within the Scheme Traffic Management Plan and the relevant chapters of the EIAR.
#15	General impact on construction phase	(#72) Residents noted that the Dublin Port Tunnel and other works had resulted in significant activity by rodents and other small vermin. What does TII propose to do to monitor and control such vermin during and after the construction works for MetroLink?	With the construction methodology of MetroLink, with sealed concrete lined tunnels, sealed concrete station structures and the length of the overall underground section, the likelihood of similar rodent activity affecting residents in proximity of the works is deemed to be much less than Dublin Port Tunnel. Regardless, throughout the works, residents will have a clear line of communication to report any such issues.
#15	Mitigation measures for noise and vibration	(#26) What mitigation measures will be put in place so as to prevent any vibrations either during the construction phase or in the future operation of the Metro link, being felt in houses once the track is in use (for	The Vibration and Groundborne noise chapters of the EIAR will detail the expected impacts during construction, largely through the operation of the TBM (which will be of a transitory nature). During operation, no perceptible vibration or ground borne

RFI	Topic	IEE Questions	TII Responses
		example floating track or specific operational measures and so forth)?	noise from train operation of the scheme is expected. A significant source of vibration and noise during train running is corrugation of the track through wear, which will require infrequent rail grinding operations, a potential source of vibration and noise. Nearly affected residents will be consulted before these types of maintenance activities take place.
#16	Traffic management and disruption	(#97) If the road traffic projections for our area turn out to be inaccurate and residents suffer a much greater traffic density than forecast, with the consequences of congestion, delay and hampered accessibility to our area - who is responsible for introducing any corrective traffic management measures and over what time period?	A detailed traffic assessment has been undertaken for the project and details of this assessment have been discussed with local authorities i.e. DCC, FCC. The outcome of these studies did not indicate any significant impact. Similar to Luas Cross City, during the construction stage a traffic forum will be set up with representatives from TII, the Contractors, the local authority and An Garda Síochána to quickly react and respond to any changing circumstances.

RFI #17

With reference to RFI #6, Albert College Residents Association and Ballymun Road (North) Area Association have expressed some significant doubts related to the transport modelling approach employed in the EPR stage by ARUP – in other words using a strategic approach to look at different alignments but extrapolating these results to the actual station demand, which was both not detailed enough for the purpose, likely gives a misleading result, is now probably outdated and does not accurately reflect the future passenger demands in the area, especially given the future educational and residential development plans for the area, which are substantial. The IEE agrees that this is a matter that should be better supported with demand forecasting analysis at the appropriate level of detail.

For these reasons, IEE transferred to TII a request for a revision of the previous modelling be carried out to reflect not just current, but also future footfall demands at an appropriate and more detailed level of model zoning, which will provide a more balanced set of metrics on which to base such an important decision affecting the lives of so many stakeholders in the area.

TII response

The Regional Model System is a suite of transportation models covering Ireland which are developed by NTA. The Eastern Regional Model (ERM) is one of this family and covers much of East and Central Ireland, in particular Dublin and its surrounding area. The model has been used to identify and assess proposed improvements in the country's travel infrastructure (covering both highways and public transport) over recent years.

The modelling processes used to identify the optimal locations for the stations have been developed over a number of iterations to reflect the choices travellers make in terms of destination choice, mode choice and route choice. The decision processes are sophisticated and are based on best practice within the industry. The models use zones to represent spatial areas as origin and destination points of any journey. The spatial geography is detailed in the urban area in order to support accurate journey costs and realistic choices between alternatives. The model zones in turn are built from smaller units based on the national Census geography; these are used to collate future anticipated land-use developments, populations and employment. The calibration and validation of ERM gives a representation of travel which responds appropriately to cost and delay change, the addition of infrastructure, policy initiatives and changes over time. ERM's level of detail (in terms of its data inputs, spatial resolution, modelling processes and calibration) means that it is well suited to assess or appraise policies, schemes and proposed transport infrastructure, such as the Metrolink.

RFI #18

District 7 Community Alliance suggested an alternative of the alignment in their area.

The proposed alignment is much straighter on the eastern side of Botanic Road, passing straight down from the Griffith Park stop, under the Smurfit site and interchanging with IE under the present tennis courts, again a good construction site compared with the one proposed by TII. The line could then travel straight under the Canal, the corner of Mountjoy and have a station at the 'Musgraves' site, avoiding the difficulties associated with passing under so much poorly founded housing with a very curved alignment and giving a far better site for constructing the station behind Mater, rather than in Four Masters Park.

TII response

TII and Irish Rail had carried out initial feasibility assessment of the Glasnevin Interchange Station in 2019 in order to explore all feasible options in vicinity of Cross Guns bridge that would meet NTA requirements for passenger interchange between Irish Rail and MetroLink. Option of locating Irish Rail passenger platforms east of Cross Guns Bridge was explored but found not feasible for following reasons:

- a. Length of Irish Rail platforms of 174m would require significant property take along Whitworth Road / David Park.
- b. Irish Rail would require four platforms (width of 4m each) to fulfil operational requirements set out by NTA transport modelling. This would inevitably impact on MGWR retained cut space proofing, resulting with reduced width of the Royal Canal Greenway and removal of Whitworth Road along proposed IE platforms.
- c. Vertical alignment of Irish MGWR (falling toward Docklands) and GSWR (climbing towards Drumcondra Station) would be on the IE design and operational limits (maximum gradient of 1:60 on plain line and 1:120 within the platforms). The MGWR vertical realignment would extend further east by 700m to Drumcondra bridge. This results with maximum gradient of 1.8% and would impose operational restriction of MGWR rail line for particular rolling stock.
- d. Level difference between proposed MGWR and GSWR platforms would require stairs and ramps for accessibility. It was concluded that the position of the MetroLink Station East of Cross Guns Bridge, was not optimal and Glasnevin interchange platforms should be located on the west side of Cross Guns Bridge.

In relation to Musgrave Site, TII have previously assessed an alternative station location at the Musgrave site in 2020 (below) in lieu of the currently proposed Mater Station in its current location.

The findings from the desktop study are as follows:

- a. Proposed Musgrave Station would be constrained by limiting horizontal curve alignment of 350m to the north, which would allow to place "East Glasnevin Station" on straight section of the alignment. Position of the proposed station would be east of tennis courts and would significantly impact on the residential area north of GSWR.
- b. Placement of Irish Rail platforms would be impact on surrounding area (see below).
- c. The tunnel section between the proposed station beneath the Musgrave site and the Glasnevin "East" Station would be only 350m which would impact on the efficiency of MetroLink operational pattern (90 seconds headway) and passenger demand.
- d. Omitting Mater Station from the scheme would result with 1230m long tunnel between the station at the Musgrave site and O'Connell Station. Consequently, an intervention shaft would be required between stations to satisfy safety requirements of maximum 1,000m distance between emergency exits.

RFI #19

in relation to Albert College Park Tunnel Intervention Shaft, could the site be reduced in footprint substantially?

For example, there appears to be a significant amount of parking space, which we would not consider appropriate. Emergency access will be directly from parking on the Southbound Side of the Ballymun Road dual carriageway in our view.

TII response

TII and its designers, Jacobs/IDOM, have been very closely consulting with Dublin Fire Brigade throughout the development of the design of the Albert College Park intervention shaft, and the current design reflects this engagement in terms of space and access requirements for the shaft in the event that fire brigade intervention is

required at this location. As such, TII do not consider the reduction in the surface footprint of the intervention shaft as feasible.

RFI #20

During the interaction with resident's group at Dartmouth Road, Dartmouth Square West, and general Charlemont area, IEE had collected the following relevant issues.

- a. In relation to establish before and after levels, and subsequent deformation, due to deep construction projects adjacent an important public infrastructure (the Luas line), some levelling surveys has been conducted, on a weekly basis, in the vicinity of the Luas railway embankment, and the Dartmouth Road Street frontage, for the duration of the piling and excavation process on the Hines building site.

The local stakeholder group is interested to receive and analyse the type of collected engineering data, and clear explanations of expected, and realised, surface deformations resulting from any settlement activity.

- b. The stakeholder group is interested to receive and analyse the following information:

1. DEPTH OF PROPOSED EXCAVATIONS,
 - Depth of secant piles at east and south boundary,
 - Depth of station box excavation at east and south boundary.
2. SOIL CONDITIONS,
 - Soil analysis of complete zone of excavation.
 - Soil analysis of zone of tunnel boring.
 - Soil analysis of proposed zone of ventilation tunnel.
3. PROJECTED SOIL SUBSIDENCE,
 - Engineering review of projected subsidence,
 - Review of proposed remediation.
4. WATER TABLES,
 - Review of existing established water table, water courses.
 - Projection of future water table, changes, and consequences.
5. PRECISE TUNNELLING SYSTEMS PROPOSED,
 - TBM proposed.
 - Shield procedure,
 - Ring erection,
 - Gap grouting and time scale.
 - Remediation procedures and face pressures.
6. PROJECTED SECANT WALL DEFORMATIONS.
 - Projected secant wall deformation at east boundary.
 - Projected wall deformation at south boundary.
 - Projected soil settlement in consequence thereof.
 - Remediation proposals.
7. ZONE OF SETTLEMENT.
 - Precise maps of projected zone of settlement.
 - Settlement slump trough graphs.
 - Precise indication of properties to be affected
 - Scale of projected settlements.
8. RANGE OF PROJECTED SETTLEMENT.
 - Range of projected settlement for individual houses in slump zone.
9. CHARACTER OF ADJACENT BUILT ENVIRONMENT
 - The existence of foundations.
 - Analysis of foundations for all effected properties.
 - Projections for settlement for all effected properties.
 - Remediation proposals for all effected properties.

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10. PROJECTED DURATION OF SETTLEMENT,
- Precise projections for duration of TBM pass.
 - Projections for settlement at shield pass,
 - Projections for settlement at ring erection.
 - Projections for duration of damage and settlement in future years.
11. EVALUATION OF DAMAGE, COMPENSATION DISTURBANCE, AND DEVALUATION OF PROPERTY.
- Precise details for evaluation of damage to property.
 - Precise details of evaluation of compensation.
 - Precise details for evaluation of permanent devaluation of property
 - Implications for house insurance/damage.
 - Caretaking of abandoned houses during re-locations.
 - Security of houses during re-locations.
- c. In relation to Dartmouth Road closure (probably for 2-5 years), the stakeholder group is interested to receive and analyse the following information:
- how do resident access their properties - NTA state the footpath will remain open, but what about driveways and vehicular access for deliveries?
 - How will residents be able to park close to their homes?
 - What is the international precedence on this?
- d. Does the POPS (Property Owners Protection Scheme) include the security, insurance, maintenance, and upkeep related to existing but temporarily vacated properties?
- e. The stakeholder group is interested to receive and analyse the comprehensive breakdown of the cost to tunnel south from St Stephen's Green to Charlemont, and also the cost to build out the Charlemont station?
- f. In relation to proposed action to increase capacity of Luas trains, in order to transfer passengers to Metro at Charlemont, the following question are proposed:
- Will trams have a destination of Charlemont only to service metro?
 - What additional volumes are proposed? What frequency?
 - What are the detailed proposals from NTA/TII of the physical space and engineering requirements to facilitate the proposed additional trains to turn back just north of Charlemont?
 - How to they propose to find space, deal with the gradient and turning radius, as the Luas approaches Adelaide road?

TII response not yet received.

6 RELEVANT COMMON TOPICS

Certain topics were common to all or a very great many of the Stakeholder Groups. These are listed below with a summary of the issues raised.

Table 6.1: List of relevant topics common to all groups

Topic	Detailed Description
Noise and Vibration - temporary and permanent	Construction N&V, especially due to TBM activity and any drill and blast tunnelling. Permanent N&V due to operation of the Metro at down to 90 second headways – use of N&V attenuating Trackform mentioned by residents. N&V from escalators and lifts mentioned.
Traffic Management	Routing for both resident access during construction and in the permanent situation, particularly around station sites, other access shafts or spoil removal locations. Routing for construction vehicles, timings of these, and so forth.
Parking – temporary and permanent	Loss of residential parking spaces during construction and permanently. Use of parking by construction workers at site during construction. Parking of construction vehicles during works progress (e.g. concrete trucks, tipper trucks, cranes, diggers etc.)
Dust	Construction dust generation and suppression. Possibility of dust emissions from ventilation shafts during operational phase.
Water Table and flooding	Concerns about the possibility of flooding due to construction works intervening in the GDA high water table, several areas of made ground, areas with known and unknown underground streams, several areas with previous flooding issues, areas near the mouths of significant large streams or small rivers. Barrier effects.
Settlement issues and compensation zone	Significant worry about ground settlement during construction and in the longer term. Questions about the width of the coverage zone for compensation and the length of the scheme. Questions about the monitoring of effects, esp. longer term. Comparisons with DPT experiences.
Loss of green spaces – temporary and permanent	Significant concern about the temporary and permanent loss of green spaces, parks and recreation areas both directly bordering housing and contained within estate walls, and public parks of significant local heritage and amenity value. Worries about non-replacement of temporarily removed green spaces into original format and permanent loss of highly valued historic park facilities.
Why are TII not building the MN project instead?	The change of project alignment and station locations was questioned, since previously different issues were encountered and resolved and a RO application had been made and granted (although now lapsed).
Why haven't TII been negotiating with us like RPA did on OMN? (perception of significantly less engagement this time around)	Certain perception that TII has engaged in information transmittal rather than actual consultation, especially over the more controversial parts of the alignment and station locations. Residents cited a number of examples where residents on OMN had objected to certain details and RPA had negotiated these concerns to satisfactory conclusions or at least a compromise in some cases with the assistance of the IEE.

Topic	Detailed Description
Residents asked about the assessment of and planning for fire or explosion in the tunnels	Stakeholders unfamiliar with Metro systems expressed reasonable worry about the fire and explosion aspects of the design and operational aspects of the proposed Metro system.

7 TOPICS RELATED TO SPECIFIC GROUPS

In this Chapter the topics related to specific resident groups are presented, referring to the following:

- ✓ R132 Groups (including Estuary, Seatown and Ashley Avenue);
- ✓ Ballymun Road and Albert College;
- ✓ Charlemont and Dartmouth;
- ✓ District 7;
- ✓ Griffith Avenue and District;
- ✓ Hampstead;
- ✓ Prospect ACA.

Each group has its own specific areas of concern (although in some cases these are shared largely with closely situated groups).

These concerns were the main items noted as a result of the first round of Stakeholder meetings, and many (but not all) groups subsequently submitted enhanced lists of specific questions, which were included in the questions database.

Table 7.1: List of relevant topics for R132 Groups (Estuary, Seatown and Ashley Avenue)

Topic	Detailed Description
Why isn't the alignment in cut (and cover) in the middle of the R132?	Although the RA did not object in principle to the PR alignment all questioned why it wouldn't just be easier to place it underground in the median of the R132, which in any event is due to be completely reconstructed and an elevated version of the alignment was previously proposed to be built in the median.
Linear park/enhanced landscaping concept very strongly opposed in principle	All the RA groups are very strongly opposed to the proposal to not restore their original boundary walls and to restore the original planting plan, but rather to 'open up' their estates onto the downgraded R132. Residents were concerned about the road safety (for children) and local security and privacy implications, with references made to anti-social behaviour. Residents concerned that their desire to live in a peaceful suburban environment was being sacrificed to urban planning ideas appropriate only for much more heavily urbanised areas, which they do not wish to live in.
Total amenity loss during construction	While there was acceptance that some amenity loss would be necessary on a temporary basis, RA groups were concerned about the period of construction, and the size of the construction sites, particularly the use of their amenity areas for laydown and spoil storage as opposed to other available local areas (some photographs supplied).
Flooding risks (Estuary particularly)	A number of the RA groups discussed the previous record of flooding in their areas, the presence of underground aquifers and the local high water table, and also the permeability of the made ground on which their estates were constructed. Very large worries about the dam effect of the cut and cover construction proposals.
Siting of construction compounds, laydown and muck storage areas	See above

Topic	Detailed Description
Location of stations (updated alignment drgs.)	Some concerns about the siting of stations in contrast to previous proposals were expressed.
Local parking issues in operation (particularly Seatown)	Concerns about informal park and ride and kiss and ride affecting already limited street parking in the areas concerned.
Founding concerns, made ground and buried watercourses	Several residents expressed concerns about settlement due to construction near their houses on foundations on unstable ground. Estuary particularly had already seen some subsidence in the past for various reasons which had damaged local houses. See above re. buried watercourses and made ground.
Loss of bridge crossings	Great concern was with the safety of children crossing a dual carriageway at grade when existing bridges are perfectly safe and serviceable, even if they might need to be temporarily removed for construction purposes.
Safety of children – playing in green spaces and crossing the alignment	See above

Table 7.2: List of relevant topics for Ballymun Road and Albert College

Topic	Detailed Description
Position of Collins Avenue Station contested	Suggestion to return to OMN configuration instead of PR which would better support DCU and surrounding lands developments and be easier a cheaper to build
Scepticism about Bus Connects interchange being significant	Concerns that interchange between the modes will not amount to significant patronage, leading to a misplaced intention behind the station preferred location at Collins Avenue (rather than the OMN siting)
Highly sensitive receptors – elderly, special needs education etc	High proportion of elderly and special needs residents and pupils in the area will be unfairly impacted by the station construction.
Unconvinced about the need for large station entrance with Signature Architecture	Common theme at several places. Preference for a low key (NY Subway or Paris Metro) style entrance rather than a large brightly lit location attracting unwelcome attention and undesirable characters and antisocial behaviours.
Traffic management planning – temporary and permanent	Grave concerns about Road Traffic access to the ACP residential area on temporary and permanent basis, with the present 2 entrances being reduced to just 1 off Collins Avenue.

Table 7.3: List of relevant topics for Charlemont and Dartmouth

Topic	Detailed Description
The area hasn't got great transport links and is rather inaccessible to most users, therefore is the area forecast to have good patronage?	Queries about the correctness of transport demand forecasts for the proposed interchange and the walk-in catchment of Charlemont station(s). Concerns also about the local road traffic demand forecasts with concerns about traffic diversionary traffic into the lanes and traffic congestion from informal kiss and ride and park and ride traffic.
What led to the decision to site the Terminus at Charlemont, rather than at St. Stephens Green?	Doubts expressed about the suitability of Charlemont as an interchange with Luas GL as opposed to SSG.
Why was the Green Line link put on hold for so long?	Querying why the GL integration with MetroLink was pushed back, and questioning whether it would in fact ever occur, given the well understood technical difficulties associated with the proposed integration, first noted by the RPA in 2001-2010
Would it be feasible to site a terminus at St. Stephens Green?	See above
The residents asked about the feasibility of the Metro serving South West Dublin, as per the 'Platform for Change' from the DTO – Harold's Cross etc.	Query relating to NTA transport strategy about the purposes of Metro and its ultimate destination, also reference to DTO 'Platform for Change' from 2000 proposing a South Western Light Rail line.
Concerned about the impact of heavy construction works on their young families – what measures would be taken to deal with these specific impacts?	Concerns about the construction impacts, considering the very close location of the existing Hines site, and then the future MetroLink sites to homes bordering Dartmouth Square West. Residents concerned that they were already noticing ground movements from the Hines works.
Noise and Vibration in Operation	A very major concern for residents, especially with train movements effectively every 45 seconds. Residents had heard some things about special types of construction (Floating Track was mentioned and the Gate Theatre) and wondered if this would be proposed at Charlemont terminus?
Residents asked had there been a study on the optimal location of the Southern Terminus of Metro?	See above
Residents asked about the NTA Strategy Review, which was presently underway. Would this change the terminus?	See above

Table 7.4: List of relevant topics for District 7

Topic	Detailed Description
Significant concerns about settlement/subsidence and resultant	In common with Prospect ACA particular concerns about the effects of tunnelling on very poorly founded Victorian era homes in their areas,

Topic	Detailed Description
structural damage particularly in the medium to longer term given age and founding(lack of) of houses	and the compensation scheme proposed by TII, its physical and temporal extents.
Noise and vibration both during construction and the operational phases	Worries expressed both about the underpassing of the TBM to housing and the likelihood of N&V during operations, citing amongst others LUL and similar older Metro systems.
Proposed tunnel depth seemed remarkably shallow and that building deeper into the limestone bedrock would prevent many of the settlement problems	Reflecting concerns both over settlement and N&V issues (and groundwater) suggestions from well informed resident (likely from the engineering sector) about the choice of tunnel vertical alignment.
Temporary traffic management proposals during construction (and what they might entail)	Concerns about the effects both directly around Mater station site in Four Masters Park and residential roads, but also wider traffic management issues across D7 with a number of possible major contemporaneous developments taking place. Construction traffic (tipper trucks in particular) a major concern.
Parking problems (already substantial, especially considering the Hospital traffic) during construction for the workers and others	Particular issue with local residents parking spaces being used by construction workers, and construction vehicles standing waiting to access sites.
The size, frequency and impact of haulage trucks which would be used for tunnelling spoil removal during construction	Construction traffic (tipper/dumper trucks in particular) a major concern for residents, both the parking issues and also the number of vehicles and the dirt and dust resulting (as well as local pollution, noise and vibration from these vehicles).
Guarantees about the longer-term reinstatement of Four Masters Park	Concerns that FMP will not be restored to public access after the Metro construction works are complete or will be substantially altered in character permanently.
Houses in the alignment route will all need to be surveyed?	Questions about the requirement and timing of surveys of houses along the zone of influence.
Residents were concerned about the possible siting of construction compounds and suggested some possible sites for consideration	Given the rather congested nature of the local urban structure and road layout concerns about the siting of laydown areas and construction compounds and suggestions for location of such facilities at a number of possible locations in the area.
Specific questions were raised about the non-use of the former diaphragm wall that had already been built to accommodate the Metro North project	Recurring question about the existing infrastructure placed for OMN and why it could not be re-used. Concerns about perceived financial waste to taxpayers and also unnecessary re-work to accommodate the Mater station site.
Alternative alignment	Residents questioned the proposed alignment in this area and suggested an alternative, straighter alignment on the eastern side of Botanic Road, passing straight down from the Griffith Park stop, interchanging with IE under the present tennis courts. The line could

Topic	Detailed Description
	then travel straight under the Canal, the corner of Mountjoy and have a station at the 'Musgraves' site, avoiding the difficulties associated with passing under so much poorly founded housing with a very curved alignment and giving a far better site for constructing the station behind Mater, rather than in Four Masters Park
Residents expressed concerns that the D7 area was subject to some possibly major contemporaneous developments as well as Metro as expressed great disquiet at the potential for large scale and long-term disruption in their area	See above

Table 7.5: List of relevant topics for Griffith Avenue and District Residents Association

Topic	Detailed Description
Relative positioning of Stations (Collins Avenue) etc. and ACP Intervention Shaft	Concerns about the requirement for a IS in ACP, as opposed to a more southerly station location obviating that need.
Why single bore versus twin (and hence need for IS)	Since the choice of SBT had given rise to the need for the IS, what was the reasoning underlying this choice, which seemed a little unconventional to Stakeholders.
High proportion of over 80s in their area – impact on elderly properly assessed	Concerns about construction impacts on the vulnerable elderly residents in the area, and whether those impacts had been properly assessed.
Issue about what would happen if project was 'put on hold' when under construction (e.g. economic downturn) – how would the worksites be appropriately mitigated and not left as huge open holes with significant property and environmental impacts?	Question related to concerns about not wishing to have large, abandoned and potentially dangerous sites left open to the elements if the project was put on-hold (for financial reasons for example) with the localised and possibly long-term disfigurement of the areas concerned.
Issues around property values very near station entrances	Residents concerned that while it was acknowledged that Metro would likely have a positive effect of area property values the same could not necessarily be said for those in closest proximity to the station entrances, where high levels of activity (including possible antisocial behaviour) were likely. Queries as to what work had been undertaken on this specific issue.

Table 7.6: List of relevant topics for Hampstead

Topic	Detailed Description
Positioning of CA station and the IS in ACP	See above as per GADRA
Mainly pressing for an extra station between Griffith and Collins or 'what's in it for us?' to suffer years of disruption for effectively no benefit to them	Residents believe that marginal cost for a station box in ACP compared to overall project cost, and that the station would offer true benefits for the community, whereas the IS offered none, only a reduction in their significant amenity.
Several points about scale of developments at DCU and Eustace and Marlets and point about MN station having had 2 entrances proposed (the only one on the line)	Questions as to whether the local development planning position had been properly assessed by TII in terms of likely demand from the potential new development sites and at DCU itself. These perhaps pulling the 'centre of gravity' of the area southwards towards ACP from the preferred CA station location.
ACP as construction compound strongly opposed	Strong opposition to the idea of ACP being used for laydown, spoil storage or construction compound activities. Point about the high level of use of ACP locally especially including Special Needs children.
Difference in real costs between the IS and at least a station box?	See above
IS proposals sub optimal proposed use of space – taking up too much of the park. Can the scale of the site be reduced – is car parking necessary?	Concerns that the IS takes a far too large footprint into the park, with many parking spaces which seem unnecessary, as the Ballymun Road would need to be closed in an emergency evacuation and ES vehicles can easily park kerbside therein.
Concerns about flooding risks – pictures provided in HA of frequent flooding	Residents provided evidence of the underground stream, high water table and significant flooding in the area. Concerned that TIIO would properly mitigate these risks and that the construction might exacerbate the existing problems.

Table 7.7: List of relevant topics for Prospect ACA and Dalcassian Downs RAs

Topic	Detailed Description
Foundations and settlement were a grave concern for the old housing stock around Glasnevin Cemetery etc.	Similar to D7, the groups were worried that their lightly founded Victorian era housing stock would be especially susceptible to ground settlement or heave during and after the construction of the alignment via TBM in their areas.
Where terraced housing was concerned, what is considered within the settlement affected zone – 'wholeness of terrace'?	Concerns that part of a terrace which fell strictly outside the Zone would get no consideration for possible damage or compensation which affected a few houses within the zone directly.
TII compensation scheme limits	Lack of understanding as to what the limits are and why the limits are proposed geographically, but also in terms of time, as long term settlement also thought of as being a potential risk.

Topic	Detailed Description
N&V from construction directly under their houses	See above in D7
Lost watercourses and groundwaters	Similar to many areas on the alignment, residents concerned that the passage of lost watercourses underground had not been considered and that effects on the flows of groundwaters and the high level of the water table would not be considered in the correct level of detail.
Glasnevin Station issues – local community needs being addressed as part of station development, appropriate architecture (nothing too modern)	Residents questioned whether the proposed signature station would include facilities for local residents in the development, and consultation about the appropriate architectural treatments for the station considering the character of much of the neighbourhood.
Station area security	Significant concerns that this very large interchange station will generate a high footfall and a great deal of activity and present security issues for the local community and possibilities of antisocial behaviour in the area.
Functional allocation of spaces	See above re. residents facilities and consultation.
Dalcassian residents to be 'bought out' by TII?	Significant questions from highly concerned residents about the proximity of their apartments to large structures in the construction phase (the compound fencing, batching plant, the D-Walling tanks and pumps. In this case which residents would be offered temporary resettlement, or permanent purchase of their property interests?

8 ADDITIONAL MEETING WITH JI AND TII DESIGN TEAMS

A specific meeting (27/07/2022) was held in Dublin between the Jacobs-IDOM JV, TII and IEE teams, in relation to the following topics raised by residents and previously replied to in the relevant RFIs, but where the answers had not provided the clarity expected.

THE R132 ALIGNMENT CHOICE

The decision to adopt the current alignment solution was based on a comparative assessment of the two alignment options (lateral vs. central), savings mainly with respect to years of disruptions due to temporary (phased) traffic arrangement during construction.

Temporary traffic management problems made building the alignment in the middle of the R132 too complex; nevertheless, the entire road is going to be rebuilt and the roundabouts are all going to be removed and replaced by signalised junctions.

Even though the road would be reduced to 4 lanes from 6, that didn't make the job really any easier and they would need to take down the lateral vegetation to widen the road during construction.

Also, considering the 64 metre platforms, the design did not seem to consider building the stations not under the road intersections in the main alignment, and perhaps doing a 'box jacking' for the tunnel under the intersection.

In the opinion of IEE, it is not clear why the programme should be any longer for the middle of the R321 than for the Eastern side, especially as they still need to cross under all of the side roads and the R132 itself and they propose removing all of the footbridges and being near the houses in high water table they may need to carry out extensive mitigation works.

Top-Down tunnel construction methodology has not considered on the R132.

TII mentioned some possible movement on the landscaping and linear park ideas, and that recently (2 months ago) it had been presented to the residents.

THE CHOICE OF SINGLE VERSUS TWIN BORE TUNNEL

This decision, made on advice from the IDOM experts, appeared to be based on the following factors:

- ✓ Reduced programme length and risk due to not needing to bore all of the cross passages, which is difficult and takes time and costs a lot;
- ✓ The potential benefits of being able to build the system without dedicated crossover chambers, and to add further crossovers later without difficulty;
- ✓ A greater than 10% cost saving.
- ✓ Recent positive experiences in Spanish and Italian Midi and Major Metro construction projects in managing the costs and risks associated with the single bore solution.

Extensive fire and safety modelling had been carried out to support this decision, and Dublin Fire Brigade seem comfortable (although have not issued formal agreement to this). Dublin Fire Brigade have engaged Atkins/SNC Lavalin as their independent assessors and they have asked some pretty searching questions about the tunnel evacuation safety strategy, which TII will need to re-examine.

Fire risk is clearly on the "negative" side of the cost-benefit analysis for twin vs single bore configuration, although there are plenty of ways to design a single bore metro line with an adequate level of safety for passengers, maintainers and the public. In other words, when assessing the single-bore configuration, it is necessary to consider the extra costs related to the design and operational provisions you will be forced to adopt in order to mitigate the fire risks to an acceptable level.

The main preliminary assumptions have not been clearly explained, for example: vertical alignment for geological and settlement conditions, number of TBM's to be correlated to entrance and exit sites, preliminary schedule of works, spoil system considerations (i.e. belt conveyor transport of spoil), respect of Standards (i.e. distance between stations 1000 m or 762 m), long term settlement.

The designer affirmed that maintenance of the front shield cutters, would be done by the interior of the TBM by pressurized chambers.

TII said that Prof. Burland asserted that all the housing were subjected to a level of damage inferior to 2 out of 5 (BRA Buiding Risk Assessement). It was not clarified when a preliminary classification of the expected maximum

settlement from a building condition would be done after a BCS (Building Condition Survey). It was not clarified also the main arguments of the settlement initial assumptions like for example the "Volume Loss" value.

COLLINS AVENUE STATION POSITIONING

The interchange between orbital bus routes and the residential catchment area were the main reasons for the preferred location. The modelling had considered the likely development potential of the area.

No comparative analysis has been done considering different options for the location of the station: probably it would be useful to do, comparing interchange benefits (i.e. the current option) with more optimised solutions with respect to capturing more efficiently future demand patterns.

It would consider moving the station, if really necessary, although the intervention shaft will still need to go somewhere, and the other location would be in the library in the deprived community of Ballymun (south) although (probably in the car park in reality). Likewise, some of the groups prefer the existing station location, others prefer Albert College Park.

The whole issue of the footprint of the intervention shaft would need to be looked at although the fire brigade had asked for parking for emergency vehicles right on-site.

Finally, the flooding problems in the area due to the underground stream are known.

NOISE AND VIBRATIONS

About noise and vibrations, a massive track system was planned under one of the main buildings underpassed by the Metro. No other relevant considerations were done by the designers on this item.

9 CONCLUSIONS

This phase of the MetroLink Project, Initial IEE engagement with Residential Stakeholder Groups has provided the opportunity for the many residents along the proposed alignment to ask detailed questions, both to the IEE and also to TII itself concerning a wide variety of matters, both specific and more general which either will definitely affect the Stakeholders concerned, or are perceived as potentially significant risk items in terms of property, wealth and wellbeing, or quality of life.

The IEE has sought from TII to obtain the evidences (in terms of data, technical notes and multi-criteria type analyses) which would both provide the necessary reasoning behind key decisions that have been made and to elucidate the 'trade-offs' which are a necessary part of any major infrastructure project development.

In the Irish and UK planning systems, and within the EU framework for EIA, it is considered 'best practice' to approach the provision of such evidence bases for significant decisions which might have a major effect on stakeholders in a structured and reasoned manner, and it is with this approach in mind the IEE has collated the Stakeholder Questions (116 in number) into a relevant unrepeatable subset of 47 questions, and then a series of 20 Requests for Information from TII reflecting the themes in the Stakeholder Questions and Other Submissions.

The IEE agreed with TII that the responses to these RFIs would be categorised in one of 3 ways. These were;

- A. Evidence of the decision or issue has been provided (and we present it here in our report as an appendix) – considered comprehensive as an explanation – even if Stakeholders don't necessarily agree with the decision.
- B. Evidence of the decision or issue has been provided – but it is not comprehensive and doesn't necessarily provide as much information as Stakeholders would wish for or expect (we will discuss this with TII), and/or this information will be supplied within the EIAR at RO Application submission.
- C. Evidence has not been provided for some reason (we will ask TII about this if it should occur).

At the time of writing of this report we can state that 18 of the 20 RFI's placed with TII have received responses (in other words 2 have not received any response at the present time). Chapter 5 details the RFIs and their responses.

The responses to the RFIs, which covers both the **Stakeholder Questions and other Stakeholder Submissions** are broken down as follows:

Response Category	Response Number	Response Percentage
A	4	20%
B	14	70%
C	2	10%

The responses to the aggregated **Stakeholder Questions only**, differs slightly and are as follows:

Response Category	Response Number	Response Percentage
A	11	23%
B	35	74%
C	1	1%

While it might seem surprising that such a high proportion of the responses fall into Category B, in fact it is to be expected that much of the scheme detail affecting stakeholders will be expected to be presented in the EIAR, made available only at the RO Application itself.

In a number of cases the type B responses received were queried in more detail by the IEE first with TII and then directly with the Design Team from Jacobs/Idom, and although verbal assurances were received, no evidence was provided at the time, but TII committed to closing out the B items for the submission of the EIAR.

The document register which we were shown did not obviously contain all of the documentation that we would have expected to see supporting this scale of project for the Preferred Route identification stage, rather it concentrated on the Preliminary Design Stage.

The earlier Emerging Preferred Route stage documentation seemed to our minds to be more comprehensive and to contain the range of documents expected at that stage, which to us seemed somewhat counter-intuitive.

CLBEL / INITIALS:initials

REFERENCES

All the reference documents are listed in Chapter 2.



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