

METROLINK

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A14.6

**Airborne Noise &
Groundborne Noise
Mitigation Policy**

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Integrated Transport. Integrated Life.



Airborne and Groundborne Noise Mitigation Policy September 2022



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1 Background

MetroLink, ('the proposed Project') will comprise a high-capacity high-frequency, modern and efficient metro railway between Estuary Station to Charlemont Station which lies south of Dublin City Centre. The alignment is 18.8km long in total.

The northern section of the proposed Project, between Estuary and Northwood, will be largely at-grade, or in retained, cut with a short section of tunnel under Dublin Airport. The southern section from Northwood to Charlemont will be underground in the "City Tunnel". There will be 16 new stations along the alignment with Estuary Station at surface level and four stations at Seatown, Swords Central, Fosterstown and Dardistown in retained cut. Dublin Airport Station and a further ten stations along the City Tunnel will be underground. The proposed Project has been designed to interchange with existing and proposed future elements of the transport network.

Transport Infrastructure Ireland (TII) is a state agency in Ireland dealing with road and public transport infrastructure and is the acquiring authority on behalf of the National Transport Authority in respect of the proposed Project.

2 Introduction to this Policy

This Airborne Noise and Groundborne Noise Mitigation Policy (also referred to herein as the "Policy") is designed to address special circumstances which will require further mitigation measures to be undertaken by TII in the delivery of the MetroLink scheme.

2.1 Airborne Noise Impacts

The construction of MetroLink will cause airborne noise effects to those who work or live close to the proposed project. These are assessed in Chapter 13 (Airborne Noise and Vibration) of the EIAR. TII will seek, through design and mitigation measures as identified in the EIAR and outline CEMP (Construction Environmental Management Plan) to control the effects of airborne noise from within the construction site. TII will take the steps outlined in the EIAR to design and construct the proposed Project so that airborne noise from its construction do not exceed the trigger values set out in Appendix A of this Policy.

At certain locations along the route EIAR airborne noise modelling indicates that even with airborne noise mitigation measures deployed on site (for example, noise barriers, use of noise-controlled machinery and other measures) airborne noise impacts may exceed the trigger values set out in Appendix A. In such circumstances further mitigation may be required, where the eligibility criteria set out at Sections 3.1-3.3 below are met.

Where airborne noise mitigation measures can be effectively deployed on site and maintain levels within the prescribed thresholds, certain sensitive individuals (e.g., for medical reasons or work patterns/night working) may still consider the impacts to be intolerable. In such circumstances further mitigation may be required, on a case-by-case basis as set out at Section 3.4 below.

2.2 Groundborne Noise Impacts

The groundborne noise modelling exercise has identified potential for significant effects resulting from the advancement of the Tunnel Boring Machine (TBM). The results of this modelling exercise are considered in Chapter 14 (Groundborne Noise and Vibration) of the EIAR. Unfortunately, there are no effective methods available to reduce groundborne noise impacts from TBMs at source. It is anticipated that occupants of certain properties identified in the EIAR will experience groundborne



noise impacts as the TBM passes beneath.

The impacts arising from the advancement of the TBM at any single location will occur for a very short period (i.e., a number of days) as the TBM passes beneath the affected property. The precise duration of any exceedances is dependent on the specific location of the property above the path of the TBM.

For this short period of time, building occupants will be aware of groundborne noise, however, advance public consultation and stakeholder engagement can greatly reduce the significance of effects, as building occupants would be prepared in advance for the passage of the TBM and the associated groundborne noise impacts.

Most building occupants will be able to tolerate the groundborne noise affect without issue, however it is recognised that some individuals may find its effect intolerable and will wish to vacate the property during the period of time it takes for the TBM to move away from their property. In these circumstances mitigation may be required, on a case-by-case basis as set out at Section 4 below.

2.3 Airborne Noise and Groundborne Noise Mitigation Policy

This Airborne Noise and Groundborne Noise Mitigation Policy details the mitigation measures which will be implemented by TII, to deal with the scenarios set out above, subject to persons meeting certain eligibility criteria.

3 Airborne Noise Further Mitigation Measures

TII is committed to being a good neighbor and will monitor the levels of airborne noise, at all work sites where there is a potential create noise disturbance to residents. Mitigation measures will be put in place at these worksites in accordance with the EIAR to control airborne noise levels. As noted earlier there may be circumstances where further mitigation is appropriate.

These further mitigation measures may take the form of:

- Noise Insulation;
- Temporary Rehousing; or
- Soft Interventions.

This Policy sets out how these further mitigation measures will be implemented in accordance with TII's Communication & Engagement Strategy. The mitigation measures offered will be considered on a case-by-case basis and authorised in accordance with the eligibility criteria below.

3.1 Who is eligible under the policy?

The airborne noise modelling in the EIAR is based on a reasonable worst-case scenario. Accordingly, there is scope to reduce the impact of airborne noise further at the detailed design stage and during the finalisation of the construction methodology for the works.

At the appropriate time TII will appoint a scheme contractor(s) to build the MetroLink project. The scheme contractor will ensure that this Airborne Noise and Groundborne Noise Mitigation Policy is adequately communicated to the public.

Following the completion of the detailed design stage and the finalization of the proposed construction methodology and at least 6 months prior to commencement of construction works, TII



in collaboration with the scheme contractor will update the EIAR airborne noise modelling predictions to reflect the planned construction methodology and timing of the works.

Where the updated predicted airborne noise levels still exceed the trigger values as presented in Appendix A, the owner/occupier of properties in close proximity to the works will be contacted and advised that they are eligible to enter into discussions with TII in respect to further mitigation measures to be put in place.

To be eligible for support the owner/occupier must be in occupation of a private dwelling and the dwelling must be located where the predicted construction airborne noise is estimated to exceed the relevant criteria referred to in Appendix A for:

- A period of 10 or more days in any 15 consecutive day or nights; or
- A total number of days exceeding 40 in any six consecutive months

Further mitigation measures to be put in place, will depend on the level of threshold exceedance and specific circumstances.

3.2 Noise Insulation

Noise insulation or, depending on the circumstances, the reasonable costs thereof, will be offered to eligible occupiers of a property (with owner's consent where required) lawfully occupied as a permanent dwelling subject to meeting the requirements of the proposed Project, if the following criteria are met:

- The updated predicted airborne noise level exceeds the Noise Insulation Trigger Level, as presented in Table 1 Appendix A: or
- Where the updated predicted airborne noise is 5 dB(A) above the existing airborne noise level for the corresponding period, whichever is higher; and
- for a period of ten or more days of working in any 15 consecutive days; or
- for a total of days exceeding 40 in any six-month period.

The noise insulation package may consist of:

- Secondary glazing for living room and bedroom windows on eligible facades plus supplementary ventilation if required.
- Blinds where there is a need to control heat [i.e., south facing windows]

Depending upon the type of window, secondary glazing will usually comprise another pane of glass inside the existing window which can be opened for cleaning or ventilation. Windows work best to control noise when closed so alternative ventilation such as an electric fan or acoustic vents will be provided.

On a south facing window secondary glazing may make the room hot. In such cases, blinds can be fitted between the main window and the secondary pane to minimize this effect. Where the options for blinds are not accepted as part of the noise insulation package, possible impacts will be explained to the occupier of the dwelling.

There may be circumstances where it is not possible to fit secondary glazing or provide alternative ventilation. Such matters will be considered on a case-by-case basis.

These further mitigation measures cannot be used for work needed to remedy existing defects, including the replacement of existing windows if these are in a poor state of repair. The condition of



any property will be taken into account when TII is determining the appropriate support.

There is no obligation to accept the offer of noise insulation and acceptance is at the occupier's discretion. Owner's consent for carrying out mitigation measures will be required where the property is not owner-occupied.

3.3 Temporary Re-Housing

Temporary rehousing or, depending on the circumstances, the reasonable costs thereof will be offered to occupiers of a property lawfully occupied as a permanent dwelling, subject to meeting the following criteria:

- A noise level 10 dB(A) above any of the Noise Insulation Trigger noise levels presented in Table 1 of Appendix A for the corresponding times of the day; or
- A noise level 10 dB(A) above the existing airborne noise level for the corresponding times of the day, whichever is higher, and
- for a period of 10 or more days of working in any 15 consecutive days or
- for a total of days exceeding 40 in any six-month period.

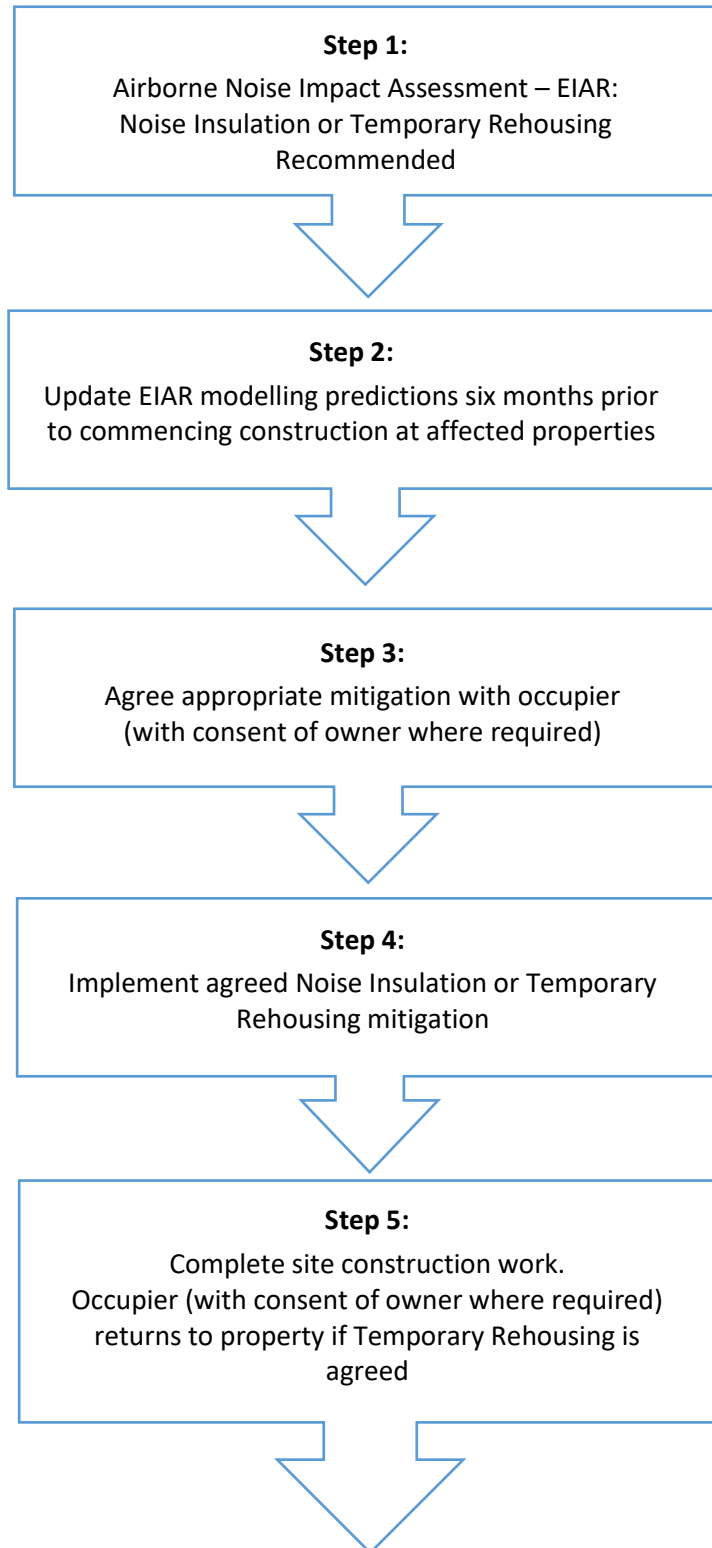
Where temporary re-housing arrangements are made, they will be for, in general, a **maximum of 4 weeks**. Any extensions to the 4 week rehousing programme will be addressed on a case by case basis. TII will meet all reasonable cost associated with the temporary accommodation and all relevant expenditure associated with the move. These may include but are not limited to:

- Reasonable rental costs;
- Removals including disconnection of services and re-connection where applicable;
- Storage; and
- Any other reasonably incurred costs.

Occupiers offered temporary re-housing during construction of the proposed Project, will continue to be responsible for all outgoings associated with their home. The type of re-housing offered will depend upon the duration of the relocation and the availability of re housing alternatives. The process for determining eligibility for Noise Insulation Mitigation or Temporary Rehousing Mitigation is summarised in Figure 1 below.



Figure 1: Process for determining eligibility for Noise Insulation Mitigation or Temporary Rehousing Mitigation





3.4 Soft Interventions

As noted in 2.1 in circumstances where predicted noise impact levels are not predicted to exceed the airborne noise trigger values in Appendix A, but temporary disturbance or nuisance occurs for certain sensitive individuals (e.g., for medical reasons or work patterns/night working), during the construction phase of the proposed project alternative interventions may also be available. In these circumstances arrangements will be agreed locally, at the relevant time, with TII when an assessment of impact will be undertaken.

Options will be discussed with the effected party and depending upon the outcome a suitable intervention will be agreed. Examples of soft interventions may include:

- Noise cancelling headphones; and
- Blackout blinds

4 Groundborne Noise Further Mitigation

As noted in Section 2.2, most individuals will be able to tolerate the groundborne noise without issue and will have been notified about the works in advance. However, it is recognised that some sensitive individuals, such as those with a medical condition or night workers, may find its effect intolerable.

4.1 Who is eligible under the policy?

In such circumstances TII will consult with the individual and consider on a case-by-case basis arrangements for their temporary rehousing. The period of rehousing will be for a maximum of 2 days.

TII will meet all reasonable costs associated with the temporary accommodation and all relevant expenditure associated with the move.

5 Other categories of buildings and persons affected

Whilst the further mitigation measures and supports described above only apply to dwellings (and other buildings used for accommodation), lawfully used for residential purposes, there may be other properties which are particularly sensitive to noise, for example commercial, educational and community facilities.



APPENDIX A- Airborne Noise Trigger Values

Table 1: Criteria for Noise Insulation or Temporary Rehousing (Residential)

Time	Relevant Time Period	Averaging Time, T	Noise Insulation Trigger Value	Temporary Rehousing Trigger Value ¹
Monday to Friday	07:00 – 08:00	1hr	70 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	10 dB above Noise Insulation Trigger value or 10 dB above existing airborne noise level for corresponding period, whichever is higher
	08:00 – 18:00	10hr	75 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	18:00 – 19:00	1hr	70 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	19:00 – 22:00	3hr	65 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	22:00 – 07:00	1hr	55 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
Saturday	07:00 – 08:00	1hr	70 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher, whichever is higher	10 dB above Noise Insulation Trigger value or 10 dB above existing airborne noise level for corresponding period, whichever is higher
	08:00 – 13:00	5hr	75 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	13:00 – 14:00	1hr	70 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	13:00 – 22:00	3hr	65 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
	22:00 – 07:00	1hr	55 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	
Sunday and Public Holidays	07:00 – 21:00	1hr	65 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	10 dB above Noise Insulation Trigger value or 10 dB above existing airborne noise level for corresponding period, whichever is higher
	21:00 – 07:00	1hr	55 dB(A) or 5dB(A) above existing airborne noise level for corresponding period, whichever is higher	

Please see the Airborne Noise and Vibration chapter of the EIAR (Chapter 13, Volume 3) for details of existing airborne noise levels.

NB: The noise levels are predicted or measured at a point one meter in front of the most exposed of any windows and doors in any façade of an eligible dwelling.



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