Information meeting on noise from passing REM cars in Île-des-Soeurs – Highlights and answers to questions

Date and time: September 28, 2023, 6:30 to 8:00 p.m

Location (hybrid): Elgar Community Centre, 260 rue Elgar
Online via the icastPro platform

Highlights of the meeting

- Over 130 participants in person and online
- 4 speakers present:
  - Mario Beausoleil, Chief Operating Officer, CDPQ Infra
  - Élizabeth Boivin, Director of Environment, CDPQ Infra
  - Isabelle Lachance, Chief Community Relations Officer, CDPQ Infra
  - Pierre Guillot-Hurtubise, Facilitator

Meeting agenda:
- Introduction of REM team
- Question period: answering participants' questions in person and online

Contents of the presentation:
- Background
- Noise measurement campaign results
- Diagnosis: sources of noise
- Identified mitigation measures
- Timetable and next steps

Main topics addressed during the question period:
- Disturbance caused by noise from REM cars
- Questions about the diagnosis and choice of mitigation measures (including the potential addition of noise barriers)
- Clarifications on the effectiveness of identified measures (e.g., longevity, winter conditions)

The recording of the meeting and the documentation presented during the meeting are available at the following link: https://rem.info/en/events/information-meeting-ile-des-soeurs-sector

Back to main topics

Addition of noise barriers

Given the configuration of residences in relation to the structure, the installation of noise barriers offers little in the way of significant acoustic gains. In light of our diagnosis and the advice of our international railway acoustics experts, the addition of measures directly at source – acoustic grinding and dynamic absorbers – is the best solution for reducing noise for everyone.

With the implementation of mitigation measures, which are currently being rolled out, we are aiming to reduce noise by 5 to 10 dB at the source. Noise monitoring will be carried out at the source, as close as possible to the tracks. The results will be made public.

Location of dynamic absorbers

Dynamic absorbers are planned between rue Fernand-Séguin in Pointe-Saint-Charles and Île-des-Sœurs station, to reduce noise in existing residential areas.

Noise impact of cars and data presentation

REM is subject to the regulatory framework set by the Quebec government, namely the *Policy on Road Noise*. The data collected by the sound level meters at local residents' buildings have been presented according to this framework, based on a 24-hour period.

For data on the passage of REM cars, please refer to Appendix 5 of the technical report: https://rem.info/sites/default/files/document/pdf/2023-10-26_Rapportprincipal_Bruit_octobre-annexes.pdf

Written answers

Our team was unable to answer all questions during the meeting. Here are our answers to the remaining questions:

Do you have a graph illustrating the relative noise reduction as a function of speed reduction? Have you asked the Institut Robert-Sauvé en SST for a second opinion on the vibration measurement methodology for outdoor workers? Apart from hearing loss, what are the medium-term effects of noise caused by the REM on children and adults? Could CDPQ Infra and its sound experts publish maps illustrating the amplitude of noise in the surrounding streets along the REM route?

- In terms of relative noise reduction as a function of distance and noise amplitude in the neighbourhood, we are aiming for a target reduction of 5-10 dB at source. It is expected that this reduction will result in a noticeable reduction in noise of the same order in the vicinity of the network. We will also monitor the source and the results will be made public.
- We are working with international acoustics experts. We did not ask the Institut Robert-Sauvé for a second opinion on the disturbance caused by passing REM cars. This institute works in the field of occupational health and safety, as indicated in the question.
- The regulatory framework imposed by the Quebec government for noise in operation is the *Politique sur le bruit routier* [policy on road noise] of the Ministère des Transports et de la Mobilité durable. This framework takes into account the effect of cumulative noise (exposure) over a 24-hour period.

What is the height of the aerial structure in the SAX condo sector?

- The height is approximately 15 metres from Boulevard de l'Île-des-Soeurs. This height varies according to the topography.

Presentation begins: 6:30 p.m.

If you have any questions about the project, visit rem.info/en

Image: JF Savaria

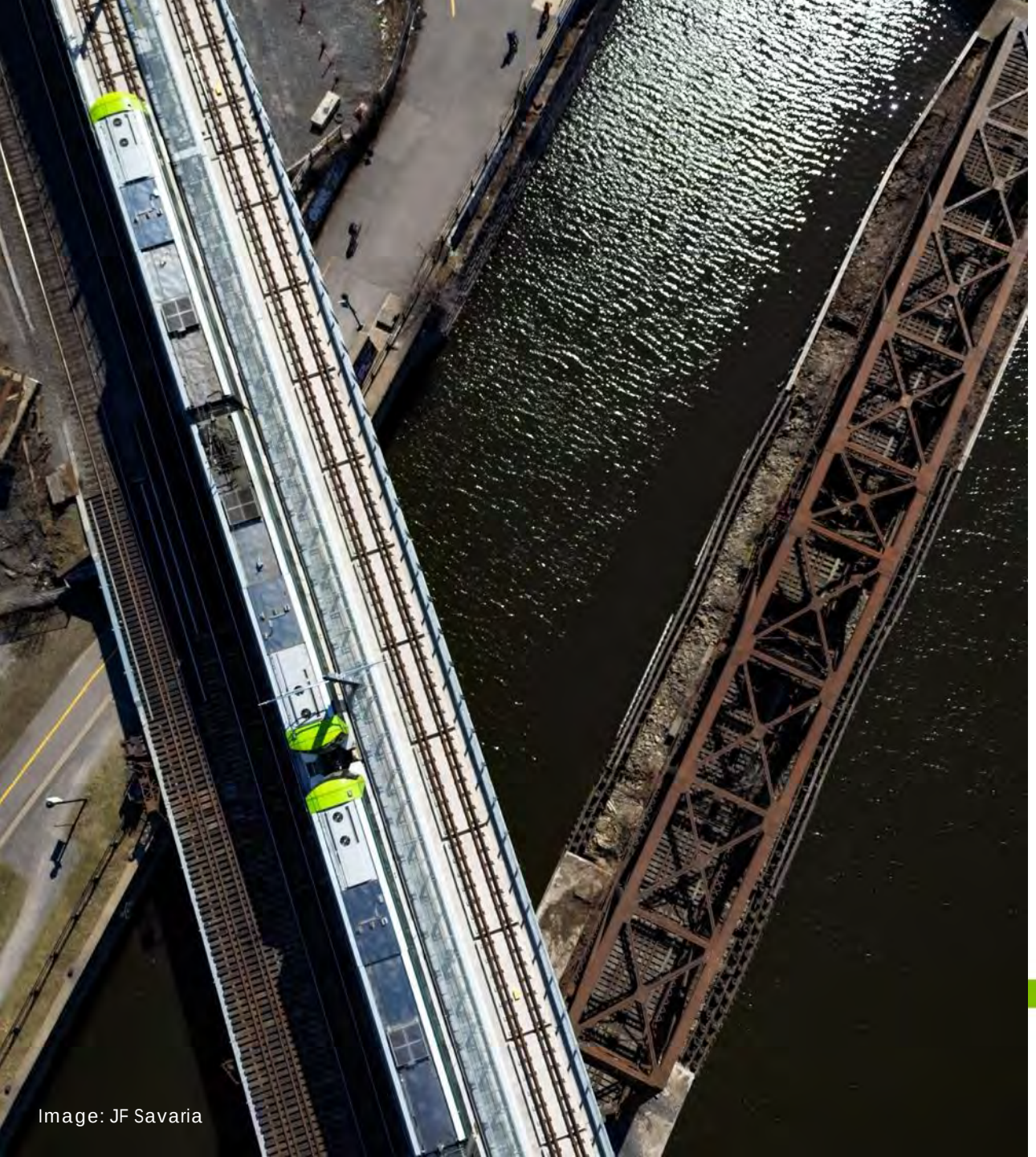
Image: JF Savaria

Noise from passing cars

Analysis and measures selected for the L'Île-des-Soeurs area

September 28, 2023

Réseau express métropolitain

Agenda

- Background
- Noise measurement campaign results
- Diagnosis: sources of noise
- Identified measures
- Timetable and next steps
- Question period

Background

A regulatory framework in place

Noise from the REM within a framework set by governmental authorities

Project decree requirements:

Creation of detailed sound modelling

Implementation of measures at source and mitigation measures for significant impacts

Follow-up program during operation beginning in the first year → deployed at the start of testing

A response to exchanges with citizens

1. Implementing noise measurement campaigns and data analysis
   - Seven sound level meters installed between Île-des-Sœurs and Griffintown
   - Additional campaign directly on the tracks
2. Hiring of acousticians from SYSTRA, specialized in railway acoustics and having worked on several networks around the world, to carry out a diagnosis

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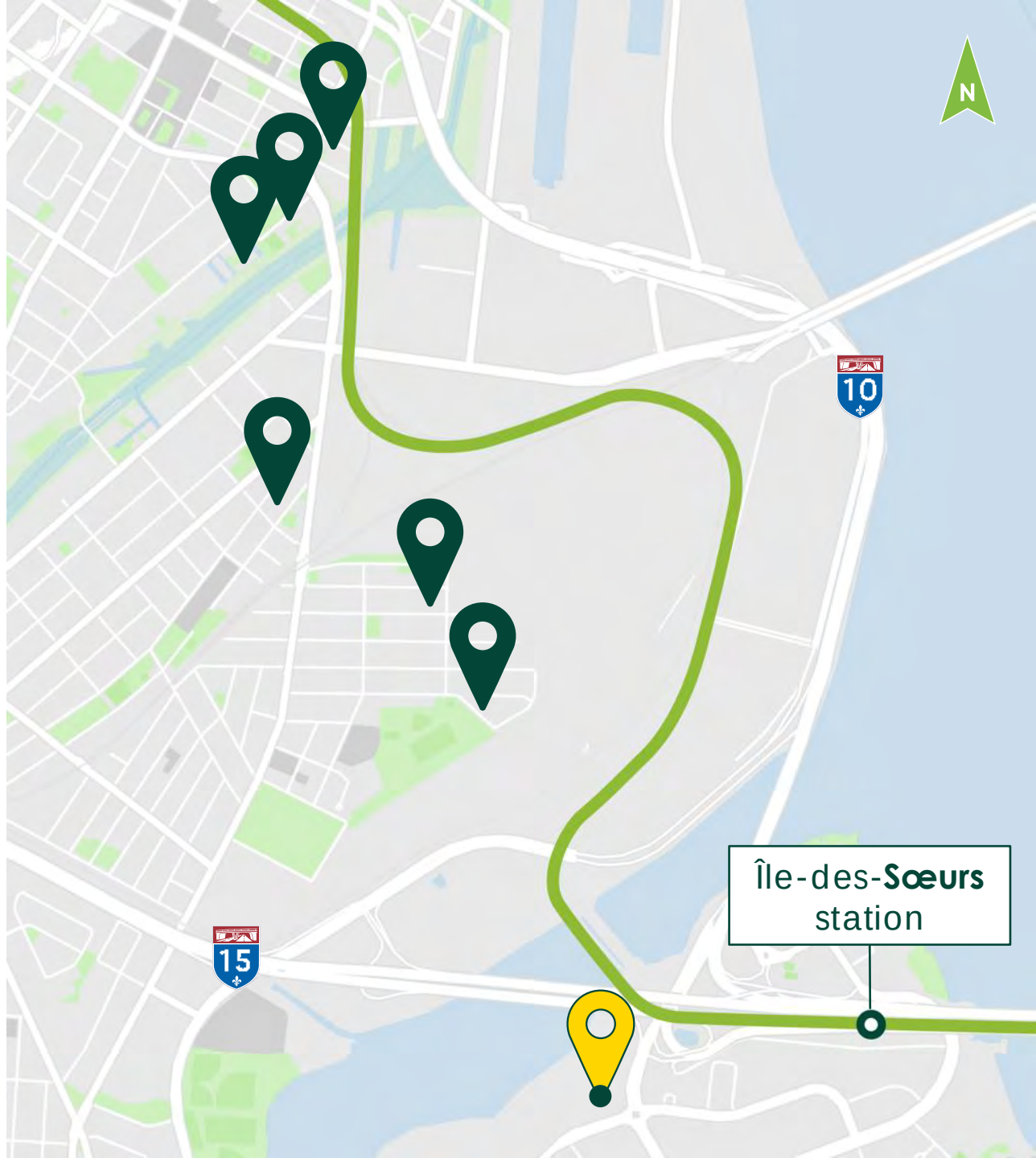
Mandate: identify targeted measures, sector by sector, to reduce noise for all

Noise measurement campaign results in your sector

Summary

One sound level meter deployed in Île-des-Soeurs near the tracks

230 chemin du Golf,
5th floor



REM route

Methodology:

data collected over several weeks to obtain representative data

Results:

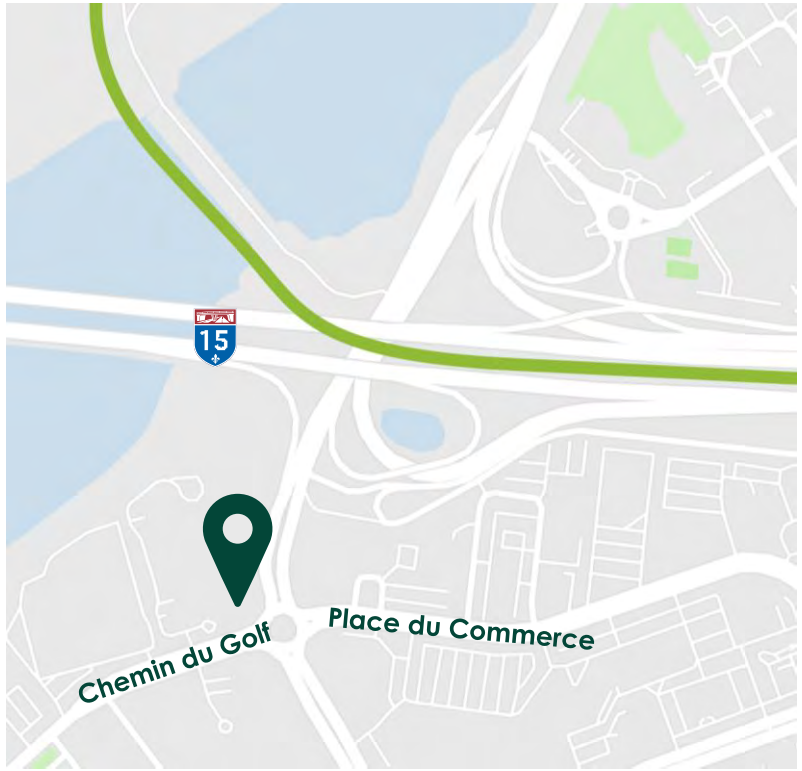
sound modelling data higher than expected in some areas

Approach:

act on the entire section, given the integrated nature of the structure and the proximity of the neighbourhoods

Chemin du Golf

Summary of 2023 results



Ambient noise

68/69

dBA, Leq(A)24h

Ambient noise with the REM

69/70

dBA, Leq(A)24h

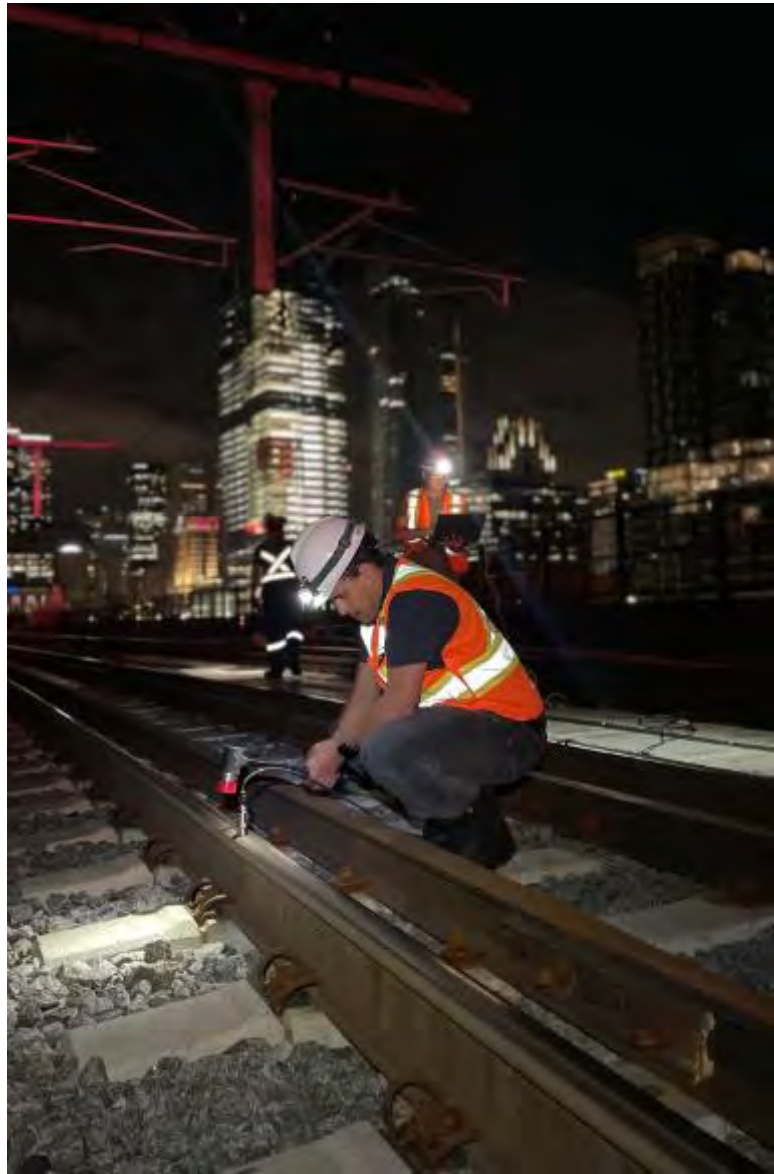
Diagnosis: sources of noise

Acoustic characterization tests

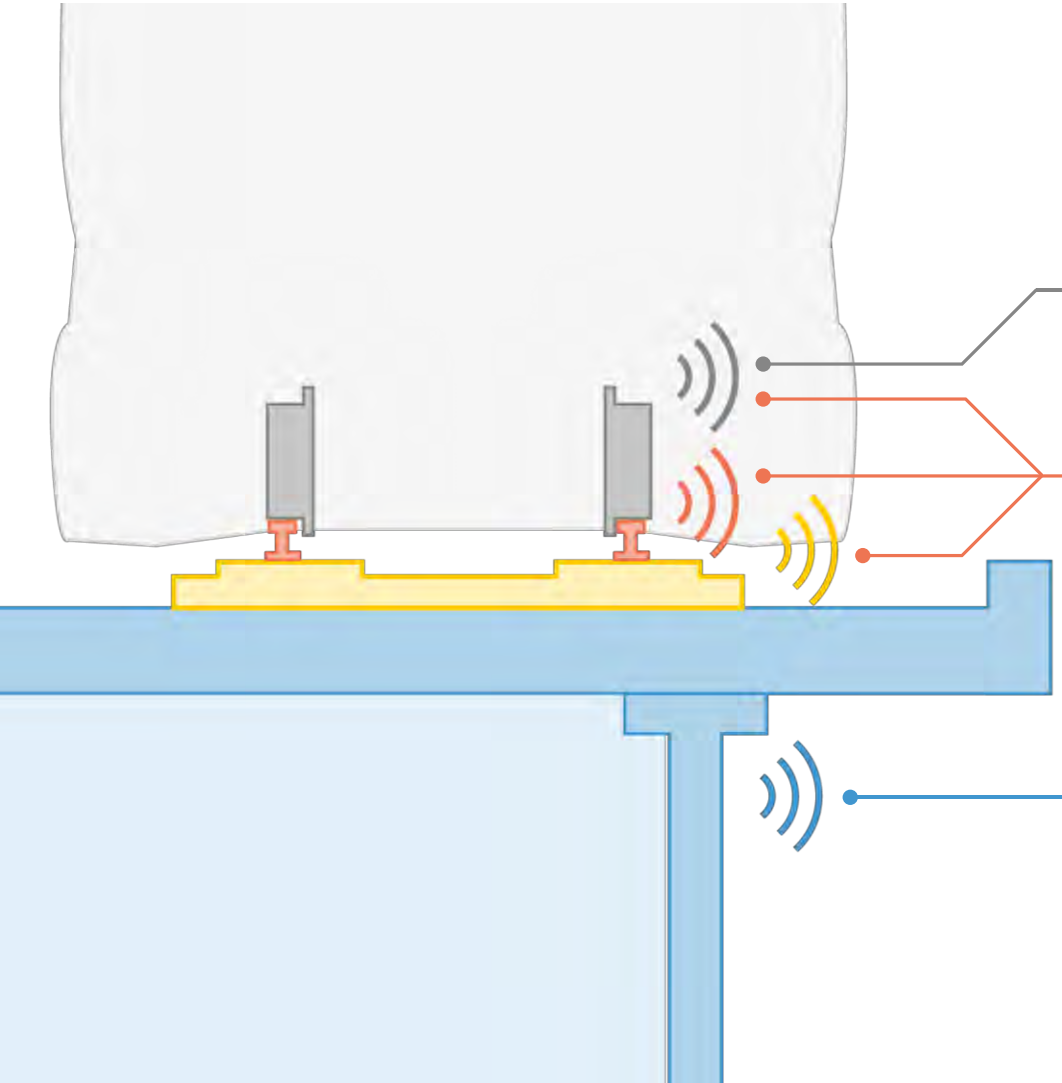
Additional measurements taken directly on the tracks to evaluate:

- Noise level (at 7.5 metres)
- Track decay rate (rail behaviour)
- Rail roughness (condition of rail surface)
- Vibrations transmitted to the structure

Objective: understand sources of noise to target the most effective measures



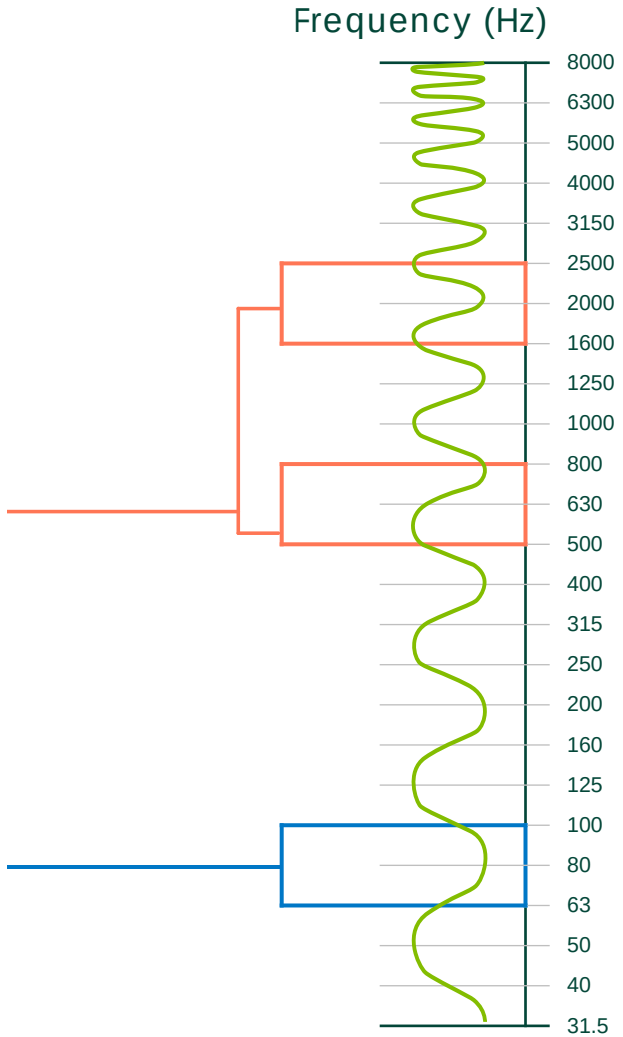
Noise generation mechanisms - Light rail systems



Traction noise:
motorization and auxiliaries

Rolling noise:
radiation of
wheels, rails and platform

Rumbling noise:
radiation from overhead structure



Identified mitigation measures

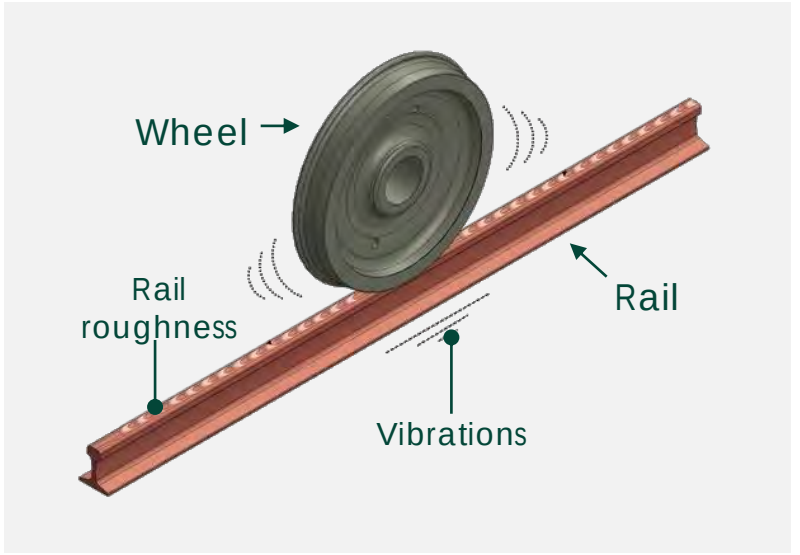
Identified mitigation measures

The most effective method of noise reduction for all residents:

<u>at source,</u>
targeted to the type of noise

1. Acoustic grinding
to reduce rail roughness

– Rumbling noise
– Rolling noise



2. Dynamic absorbers
to reduce rail radiation
(propagation of vibrations)

– Rolling noise

Noise barriers

Physical barrier that reduces noise propagation, possible at engineering level but:

- Few or no significant gains expected for all residents, given the type of built environment (density and height)
- Limited effectiveness for high-rise buildings (rolling noise) and for attenuating rumble noise

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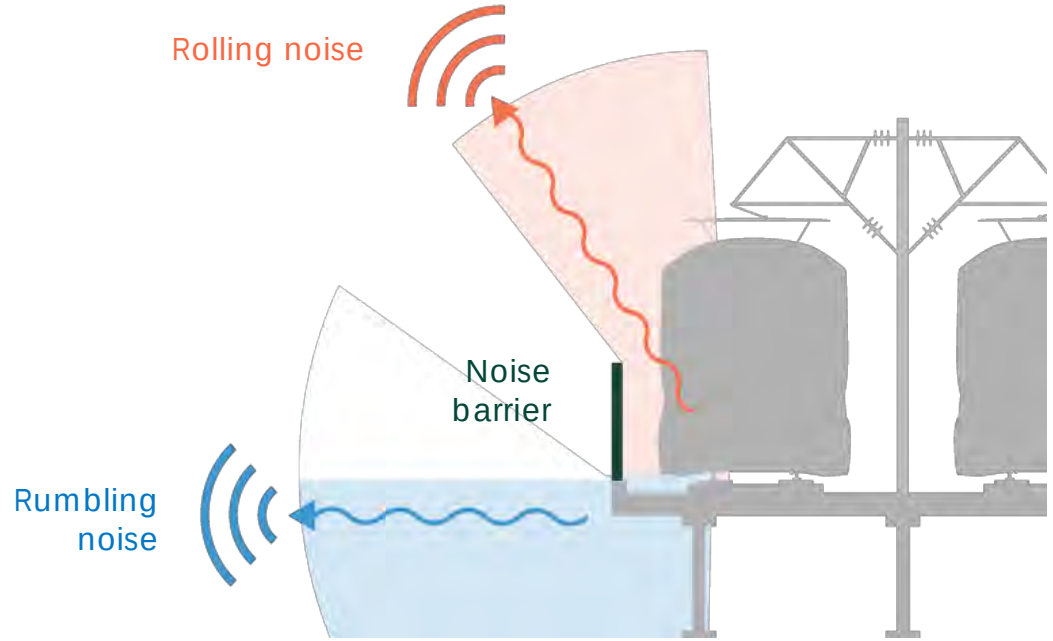
Objective: reduce noise at source to benefit all residents



Identified mitigation measures

Target reduction of 5 to 10 dB at passage, at the source

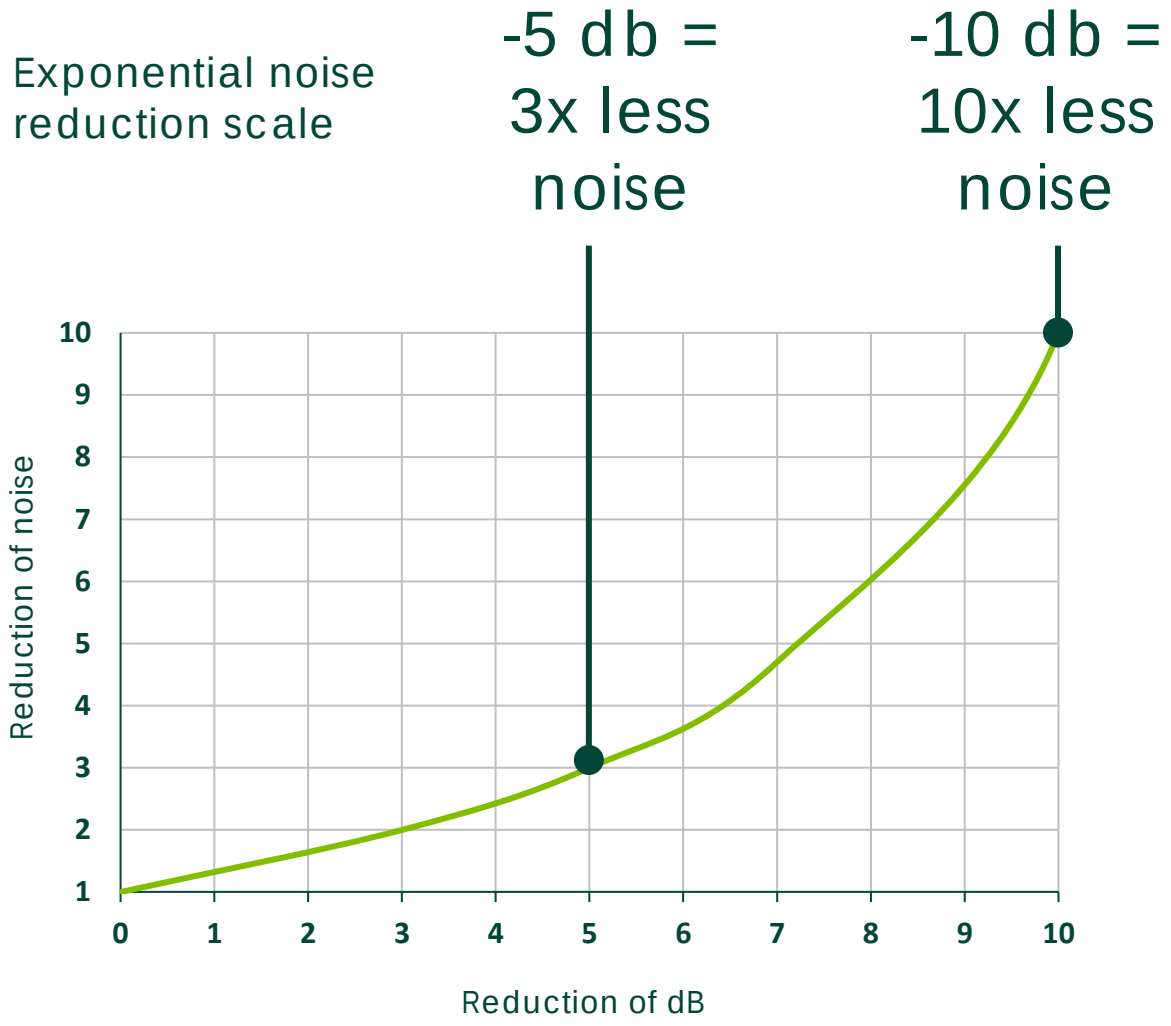
depending on lane configuration

1. Acoustic grinding

2. Dynamic absorbers

2 to 5 dB + 3 to 5 dB

Exponential noise reduction scale



Timetable and next steps

Measure for implementation

Grinding

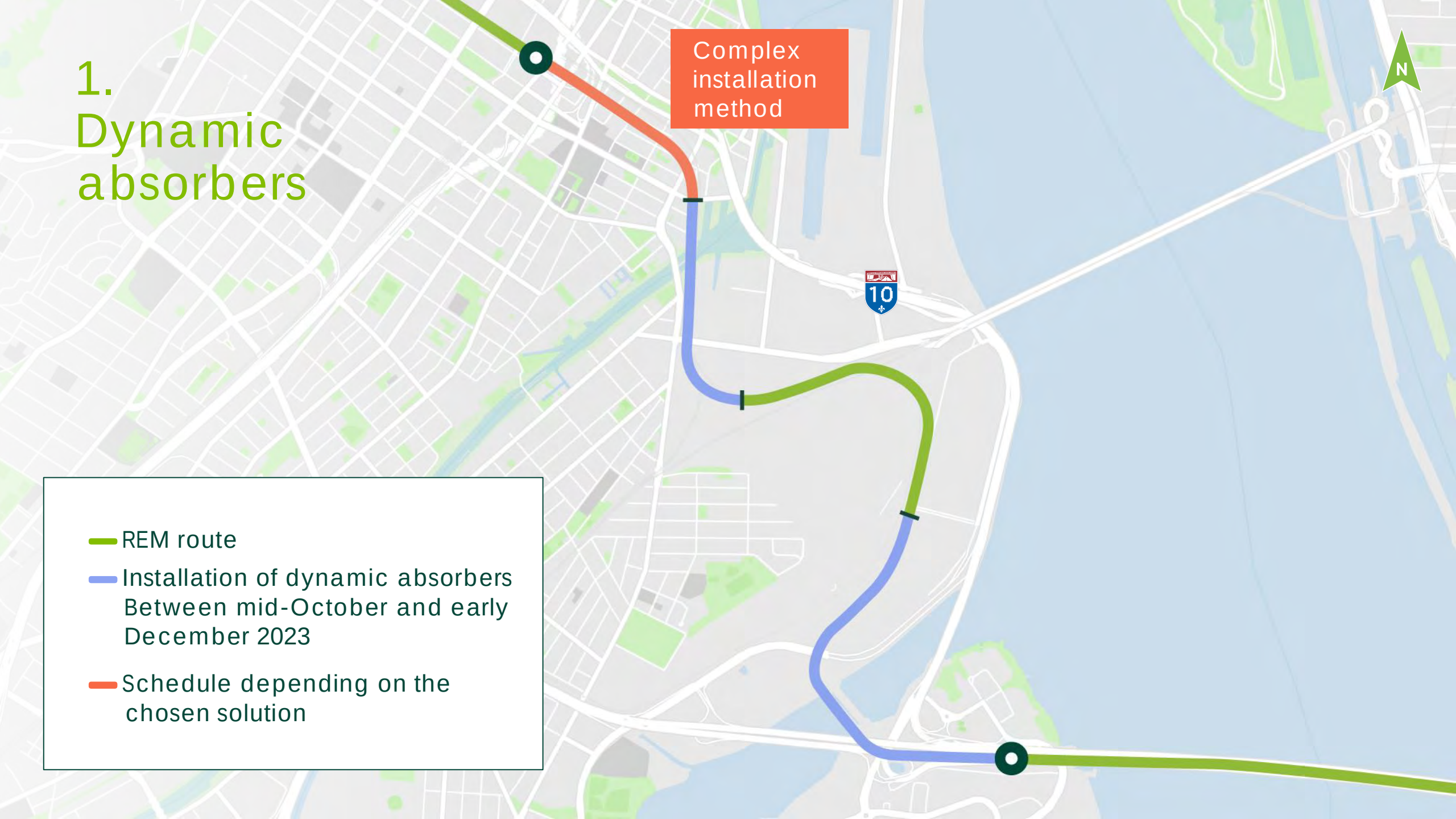
- Objective: smooth the tracks
- Work carried out with specialized machinery
- Around fifty passages required

Image: RailTechnology

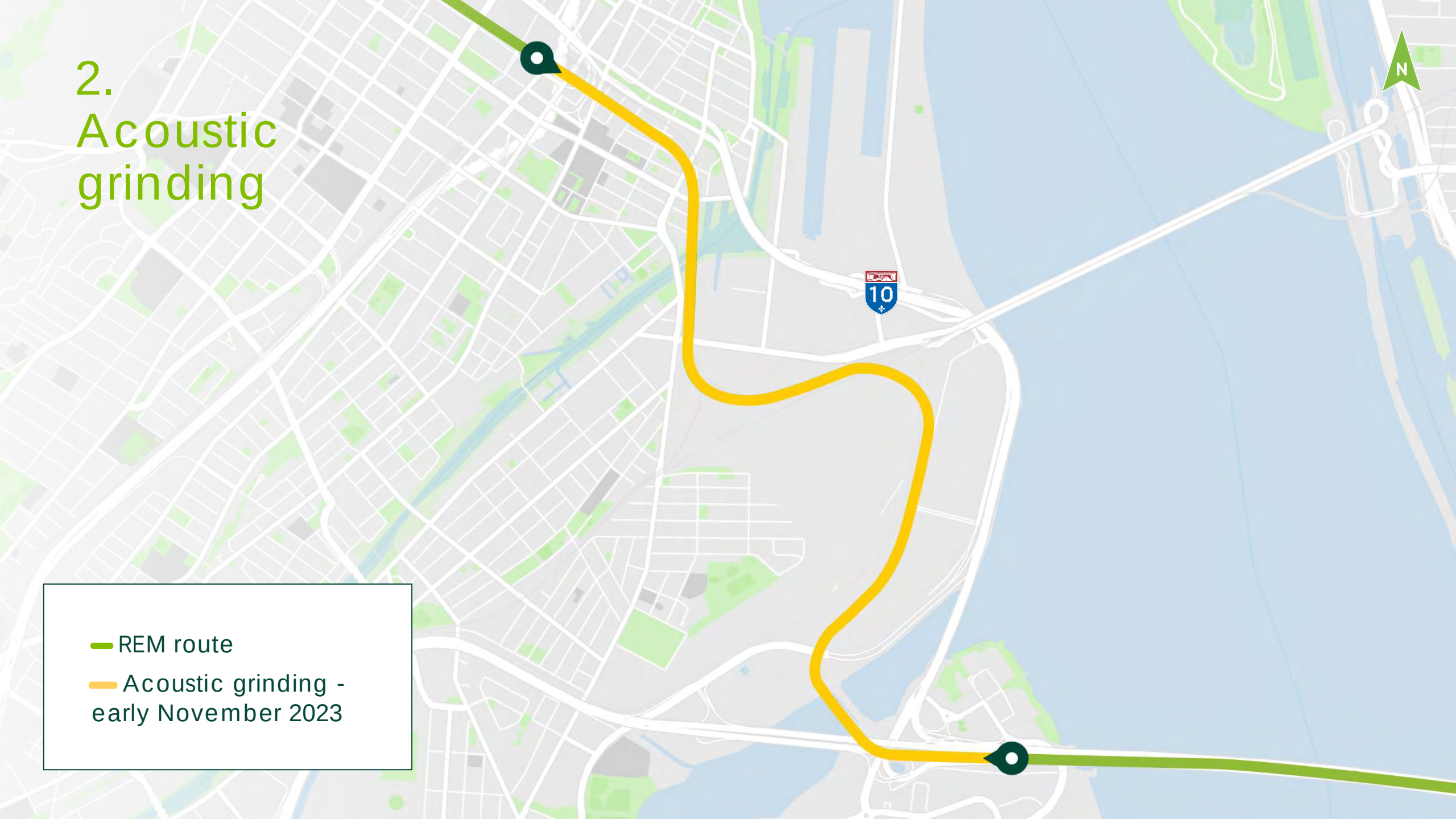
Dynamic absorbers

- Installed manually on both sides of the rail
- A dynamic absorber is installed for each sleeper

1. Dynamic absorbers



2. Acoustic grinding



Performing the work

Performed at night
between mid-October
and early December,

from Sunday to
Thursday evenings

cannot be carried out
during network operation

- Network closes at 10 p.m.
  shuttles available from Panama to Central Station – upcoming communications campaign for users

- Grinding:
  noise during brief periods as the grinder passes

Next steps

Analysis of the situation

Sound surveys, acoustic diagnostics, on-site tests (Lachine Canal

Identification of target measures

Public feedback

Deployment of measures from October to beginning of December

Public feedback on results

Question period

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express
métropolitain

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