

MINISTÈRE DES TRANSPORTS,
DE LA MOBILITÉ DURABLE ET
DE L'ÉLECTRIFICATION DES TRANSPORTS

Autoroute 20

Baie-D'Urfé sector

Noise environment assessment

March 15, 2017

Context

May 2016

- Resolution of the City of Baie-D'Urfé requesting the performance of a **preliminary acoustic** study by the Ministère

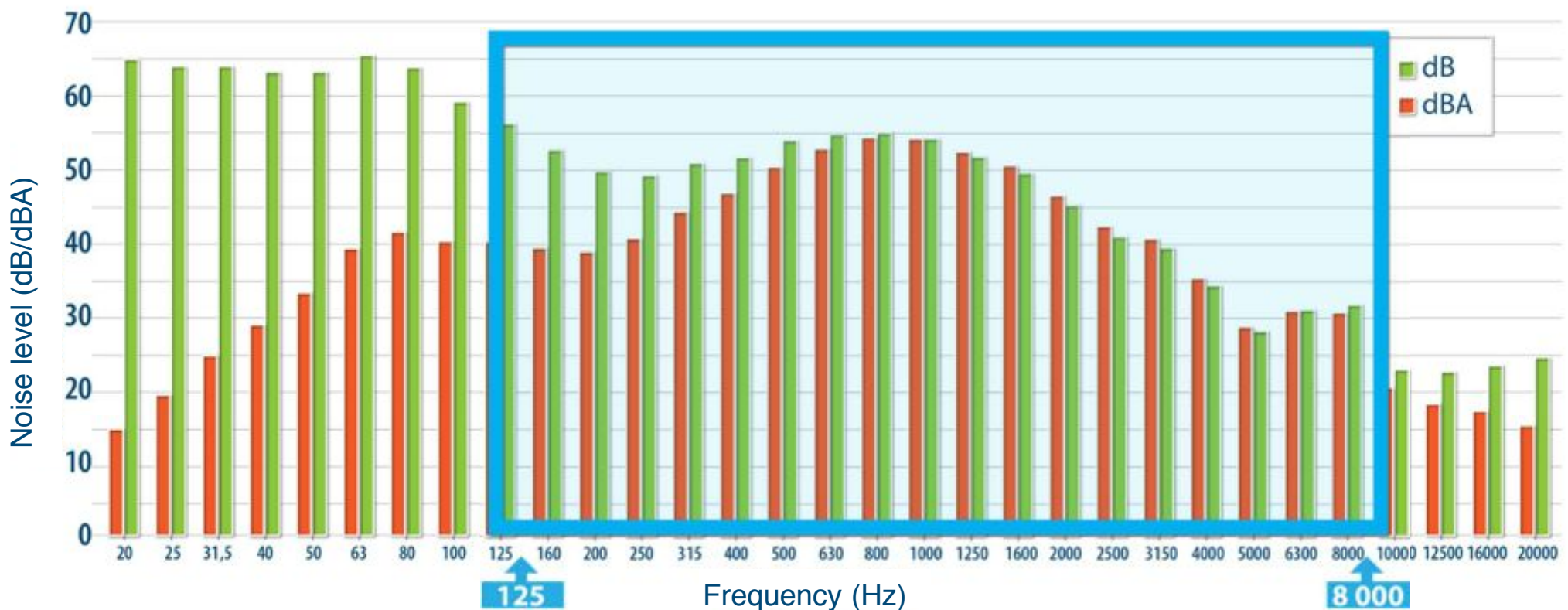


August and September 2016

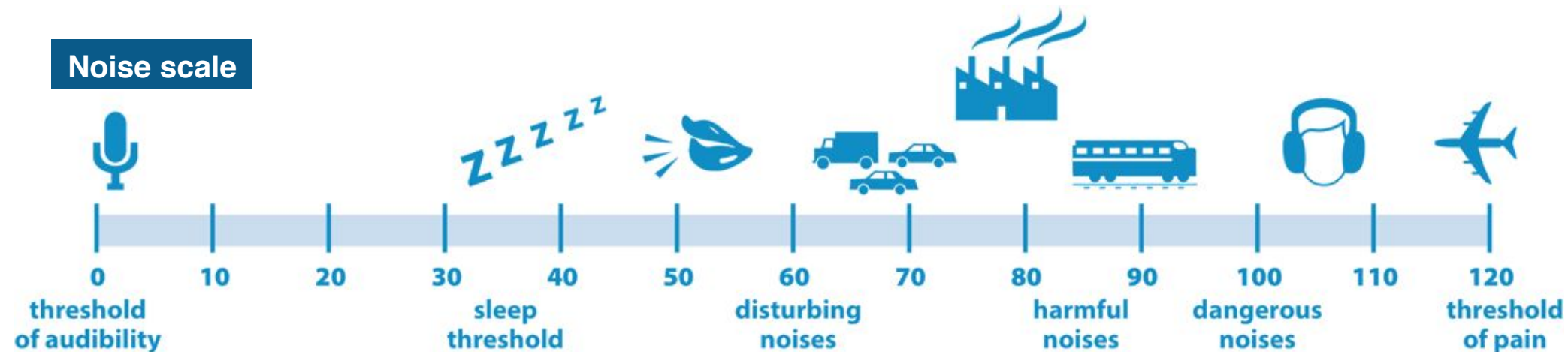
- **Measurement** of existing sound levels
- **Identification** of problem sectors

A few basic notions

- Noise is identified by **its intensity** (noise level) and **its frequency** (low or high-pitched sounds)
- Noise intensity **measuring unit**: → **decibel** (dB)
- **Sensitivity of the human ear** taken into consideration with an A-weighting: Low-frequency sounds are not perceived as well as high-frequency sounds



A few basic notions



- 3 dBA → Barely perceptible variation
- 5 dBA → Perceptible variation
- 10 dBA → Doubles or reduces by two the noise intensity
- 55 dBA and - → Recognized as an acceptable noise level

Noise levels do not add up in a **linear manner**

Doubling the noise sources \neq Doubling the noise level

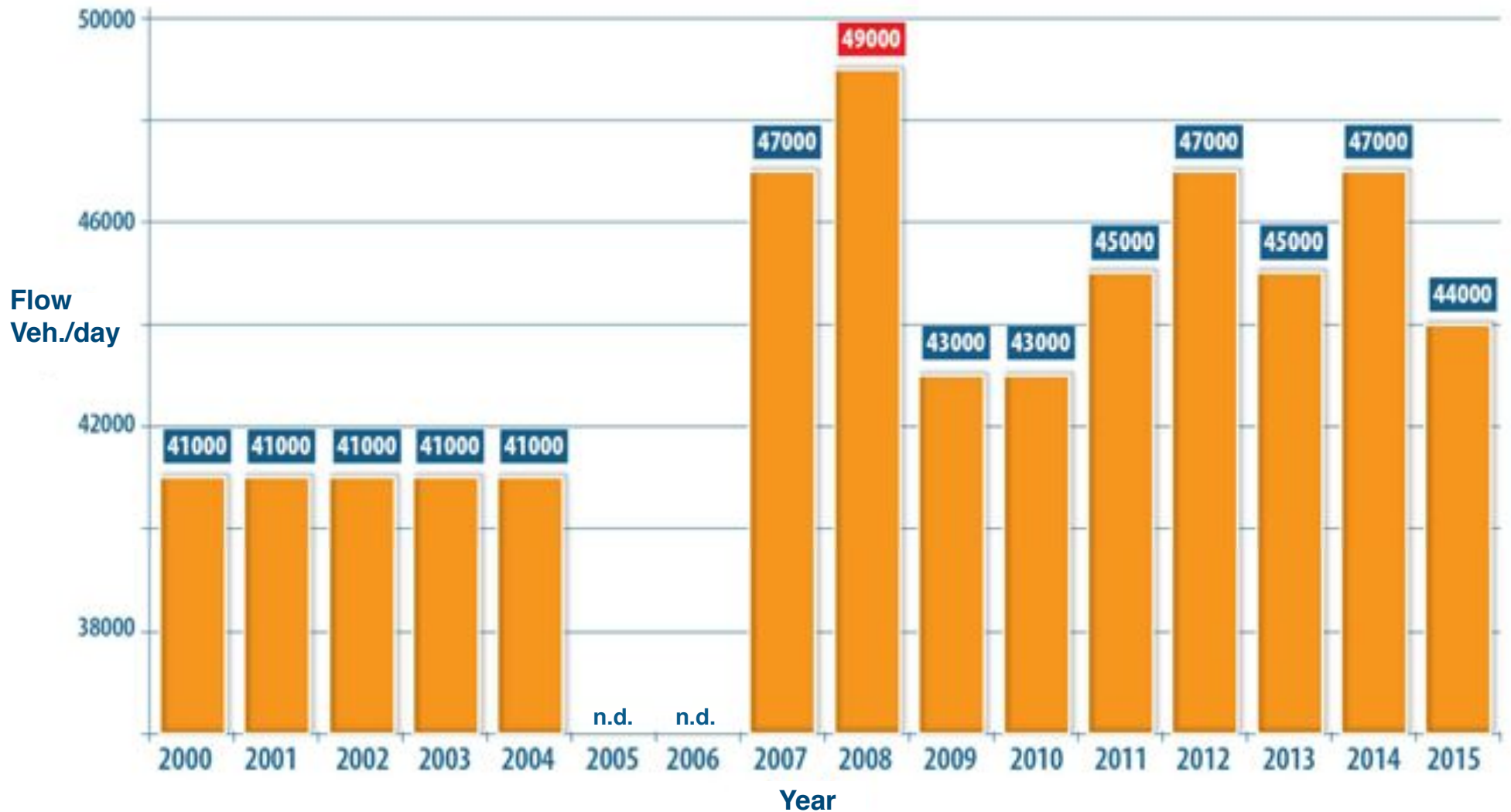
A few basic notions



- Indicator used → $L_{eq,24h}$ in dBA
- Sound level equivalent **to all variations** in sound levels observed over 24 hours
- Level of a continuous sound which would have the **same energy** for 24 hours as the observed fluctuating sound level

Evolution of sound outputs

A-20 (between Morgan and Woodland streets)

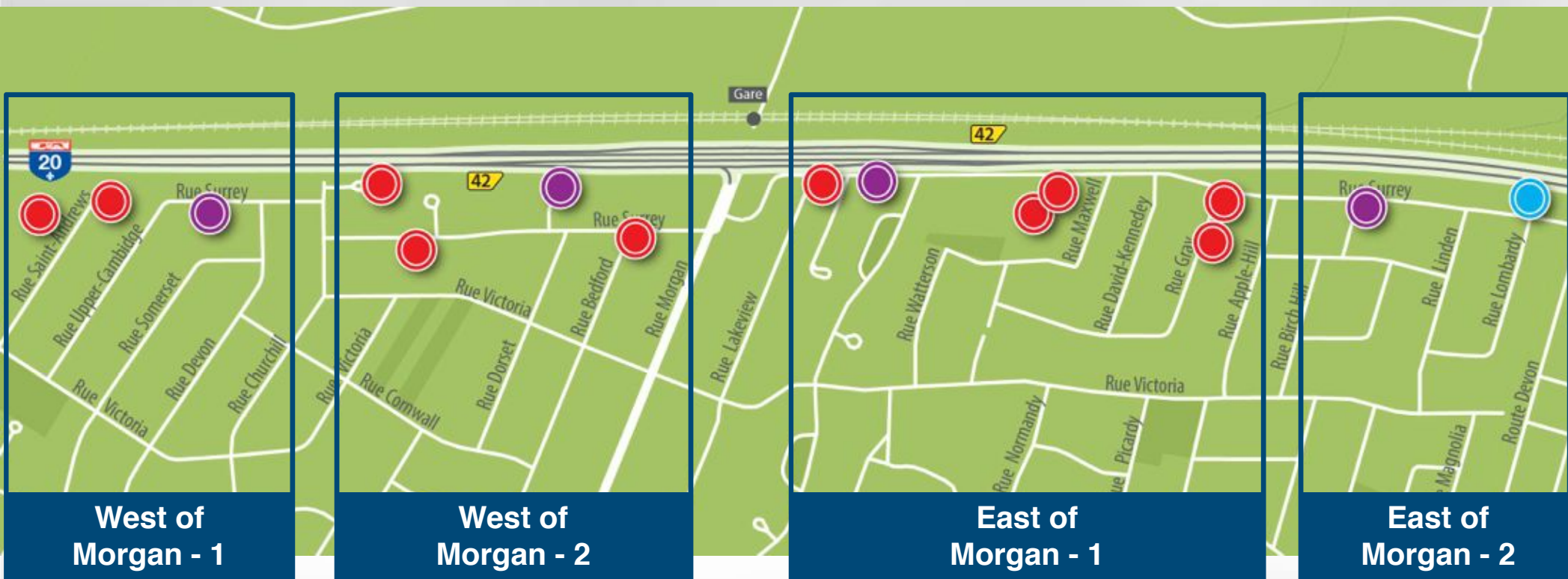


* 2015: about 6 % from trucks (2 880 per day)

Noise environment measurement

15 sound readings of varying durations performed between August 23 and September 21, 2016

- 4** long-term independent stations (4 weeks)
- 1** 3 hours reading
- 10** one hour readings



Measurement results

West of Morgan - 1



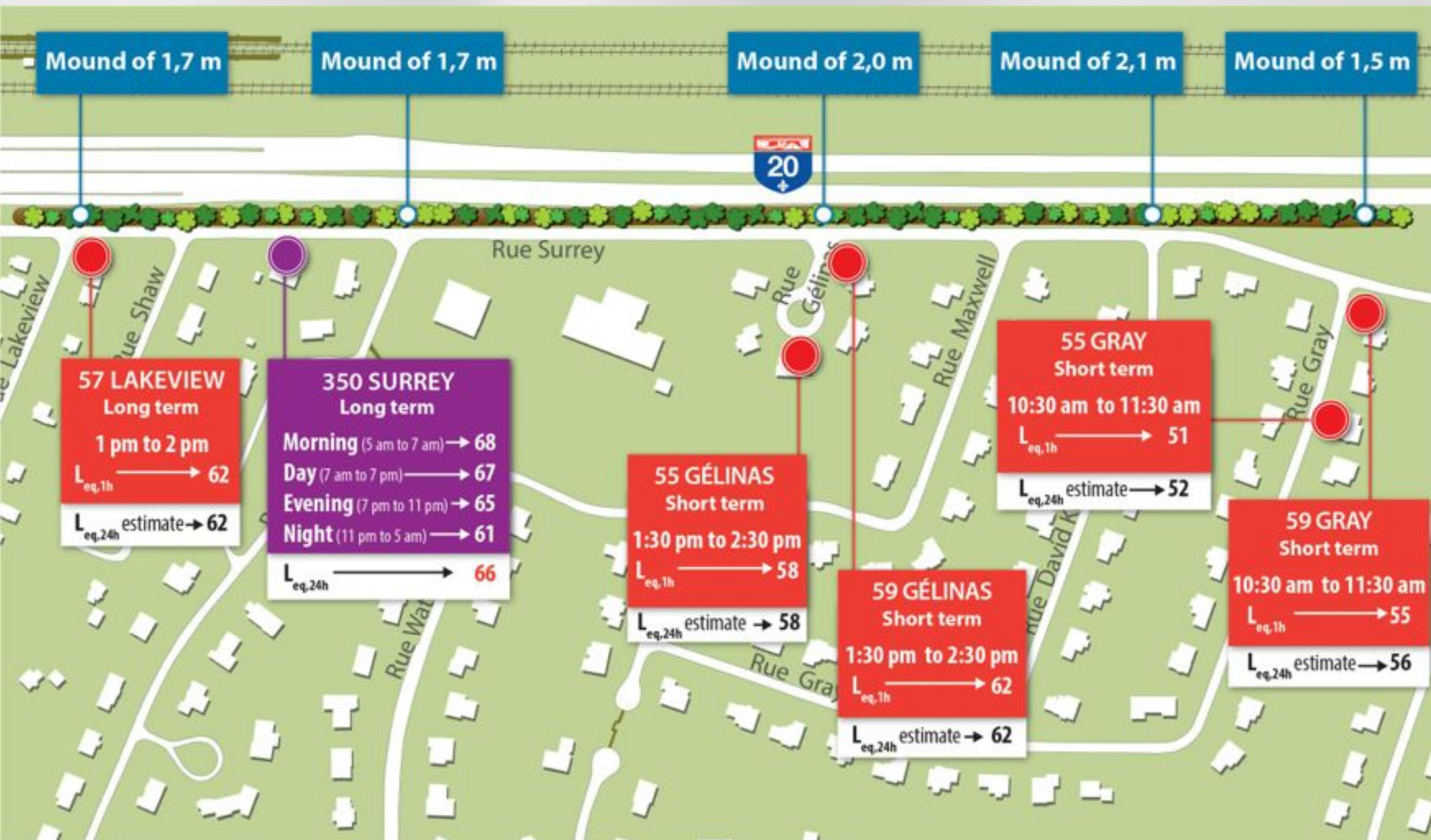
Measurement results

West of Morgan - 2



Measurement results

East of Morgan - 1



Measurement results

East of Morgan - 2



Roadway noise policy

➤ Problem area

- outdoor noise level **= or > 65 decibels**
- includes at least **10 residential units**
- **density of 30 units** per linear kilometre

➤ Implementation of mitigation measures if :

- dwellings were built prior to March 1998

➤ Mitigation measures

- sound barriers (walls, mounds)
- vegetation

➤ Cost sharing

- 50 % municipality / 50 % Ministère

➤ Desired effectiveness

- Reduction by half (about 7 dBA) and sound level less than 65 decibels



Roadway noise policy

➤ **Assessment of the sectors** through calculations using:

- sound outputs from **2015**
- sound readings performed in **2016**
- the map of **sound levels** along autoroute 20 (ground level)



Sound mapping

West of Morgan - 1



Sound mapping

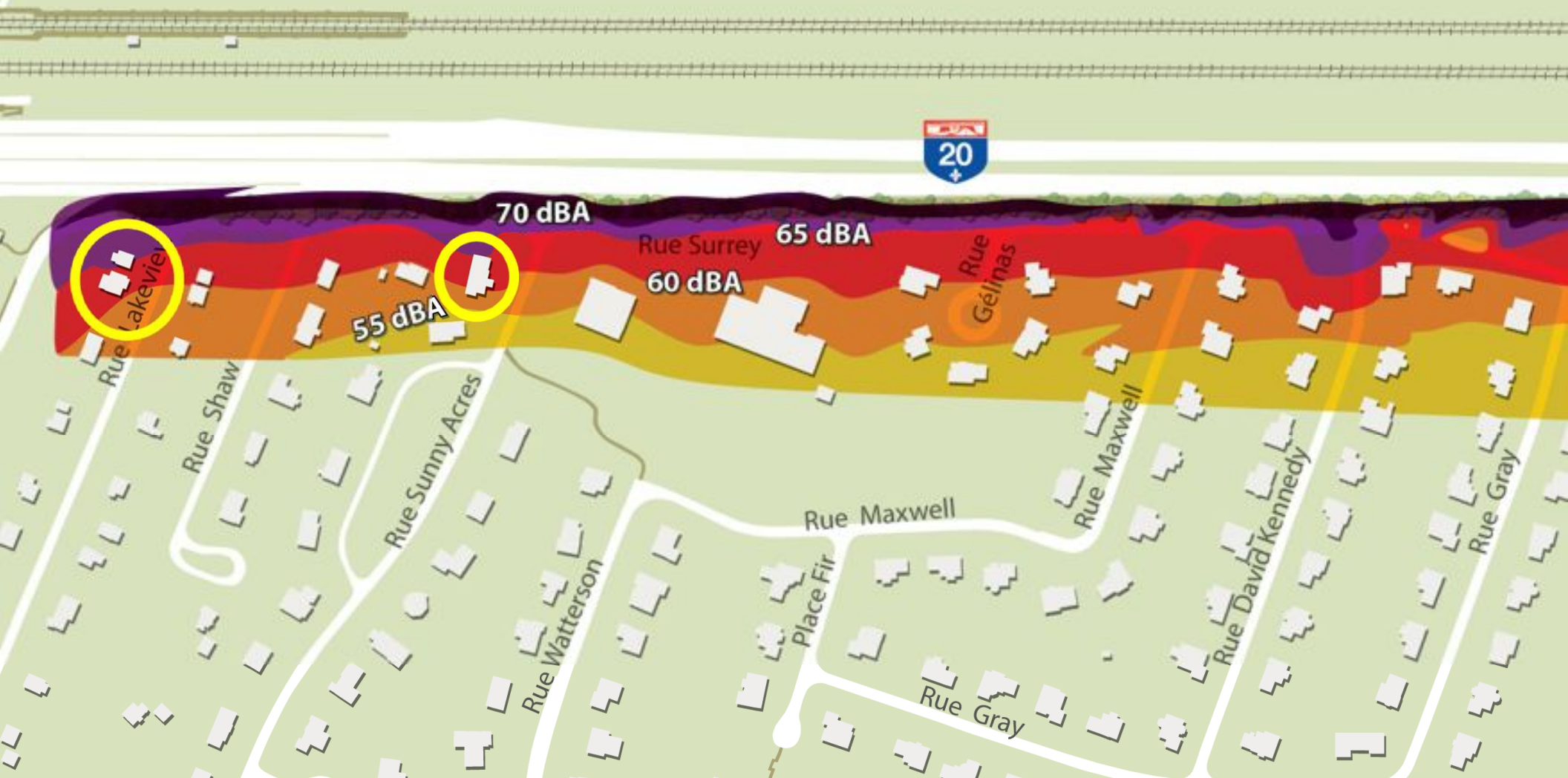
West of Morgan - 2



➤ **Conclusion: No dwelling in the 65 dBA or + zone**

Sound mapping

East of Morgan - 1



➤ Conclusion: 3 dwellings in the 65 dBA or + zone

Sound mapping

East of Morgan - 2



➤ Conclusion: 1 dwelling in the 65 dBA or + zone

➤ **Only 1 problematic sector**

- **4 dwellings affected** → density criterion not met

 **NO mitigation measure can be offered based on the roadway noise policy**