



SOUTHERN SYDNEY FREIGHT LINE: NOISE ASSESSMENT AND CONTROL

Presentation by

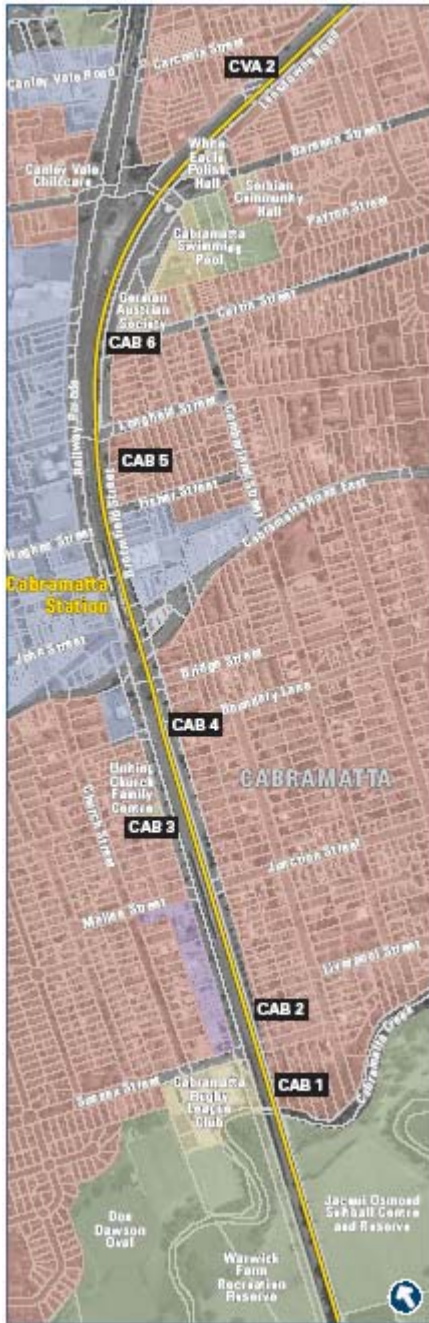
Dr Rob Bullen

THIS PRESENTATION WILL COVER:

- Brief description of project in this area
- Noise criteria and how they are derived
- Calculation of noise levels, present and future
- Design of noise mitigation (barriers)
- Barriers currently proposed in Fairfield area
- Role of community consultation

Focus on operational noise, not noise during construction

THE PROJECT IN THIS AREA

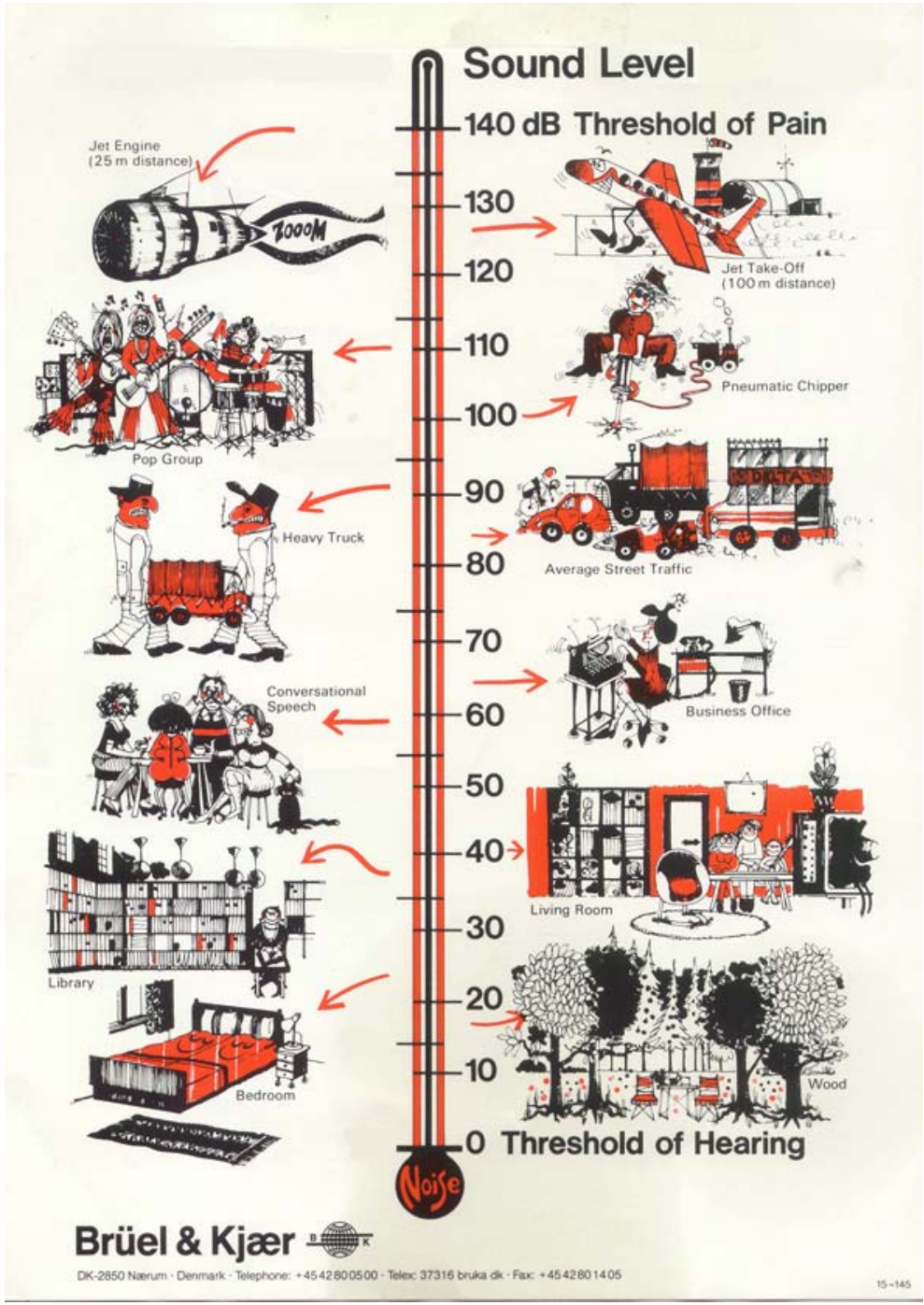


TRAIN OPERATIONS PER DAY, CABRAMATTA - GLENFIELD

Time Period	Type	2008	2018 With Project	2018 No Project
Day (7am – 10pm)	Freight	20	36	31
	Other	131	124	124
Night (10pm – 7am)	Freight	13	26	22
	Other	45	44	44

MEASURING NOISE

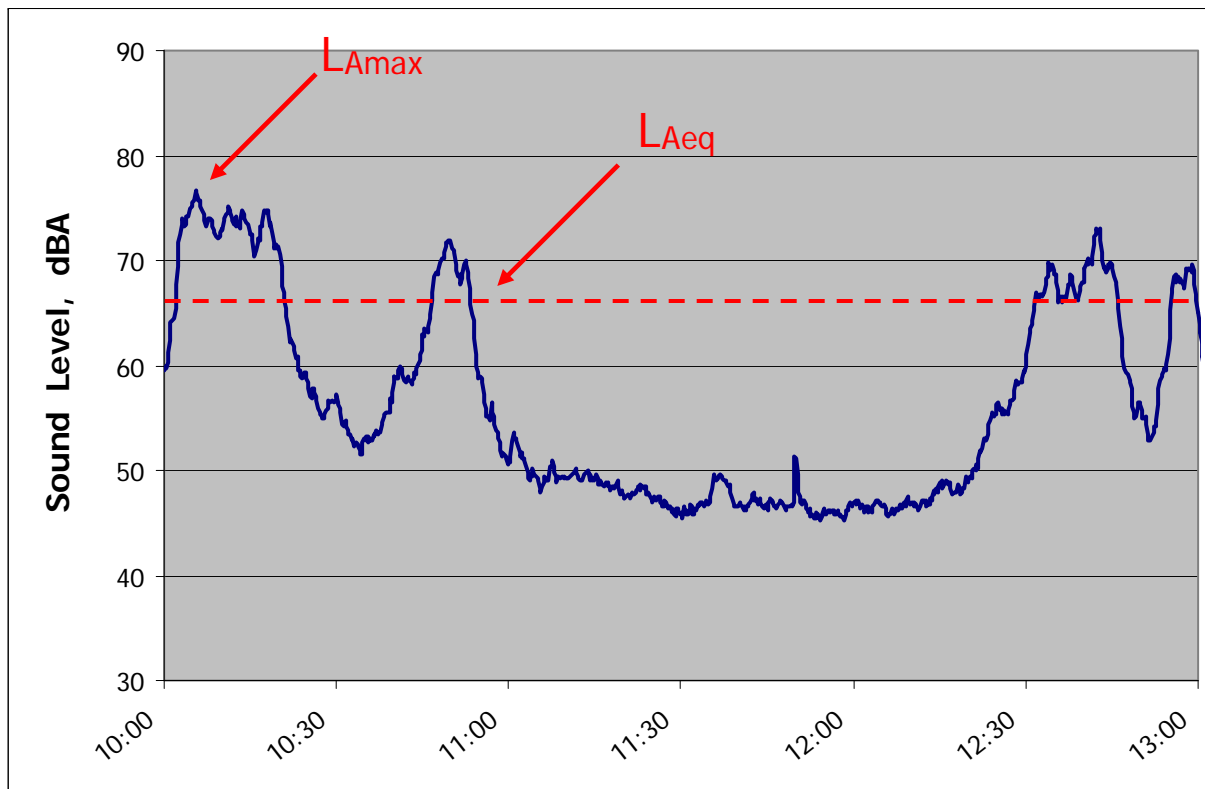
Measurement units are decibels, or dBA



CHANGES IN NOISE LEVEL

- 1 dBA: Just noticeable if concentrating fully on the noise
- 3 dBA: Just noticeable if not paying attention to the noise
- 10 dBA: Twice as loud (or half as loud)

MEASURING NOISE FROM TRAINS



DECC NOISE GOALS FOR RAIL TRAFFIC NOISE

At any residence:

- L_{Amax} should not exceed 80 dBA
- $L_{Aeq,24h}$ should not exceed 55 dBA

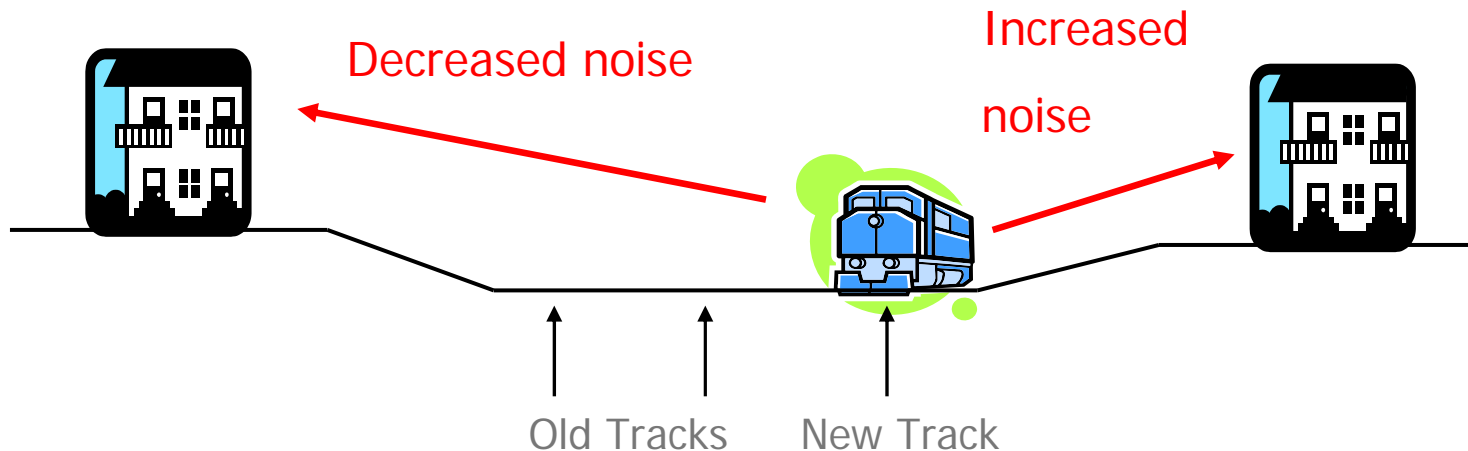
For a new project, these goals should be met at a time 10 years after opening, provided it is “**feasible and reasonable**” to do so.

In this area, **existing** noise levels at residences facing the line are:

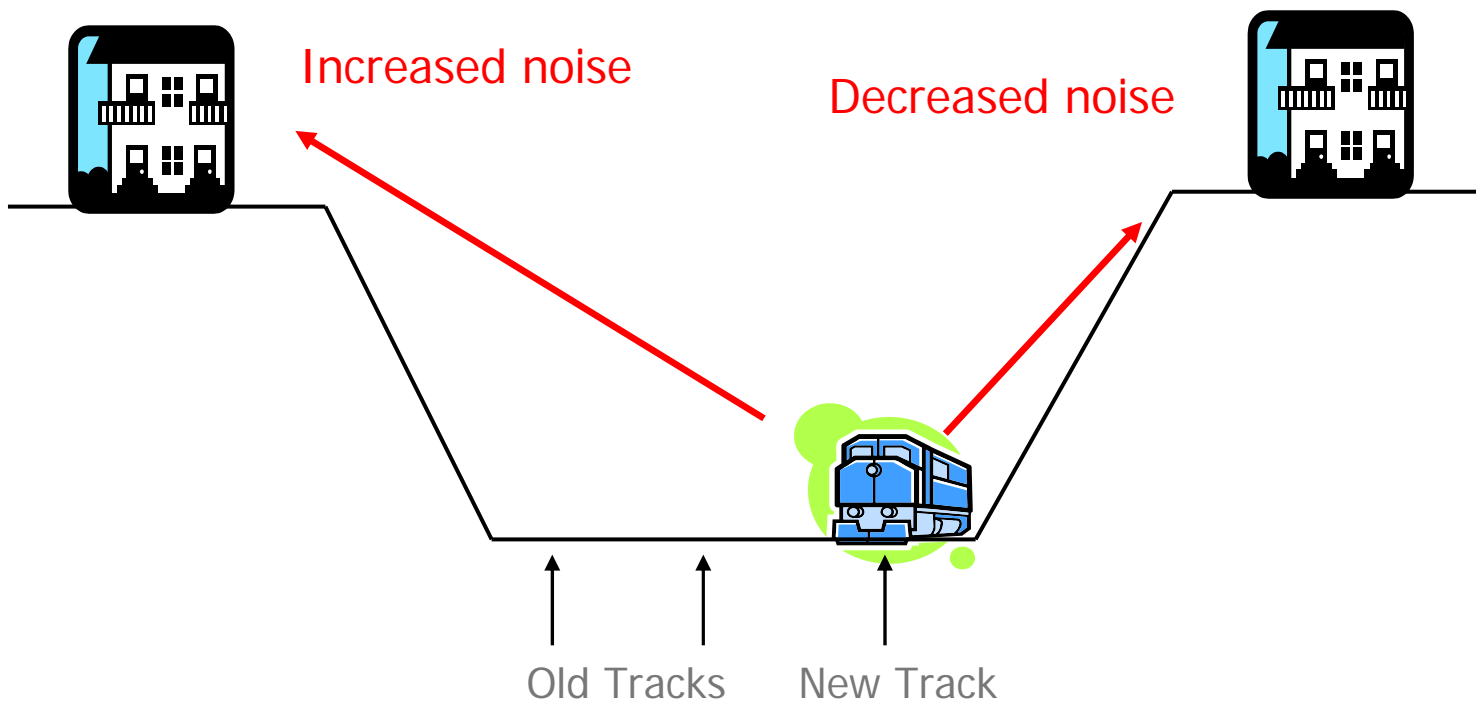
- L_{Amax} 87 – 93 dBA
- $L_{Aeq,24hr}$ 64 – 70 dBA

“FEASIBLE AND REASONABLE”

- Where the project reduces existing noise levels (or does not increase them), physical mitigation measures (barriers) are not required.
- Where the project increases existing noise levels, mitigation should be designed with the intention of meeting DECC’s goals



"FEASIBLE AND REASONABLE"

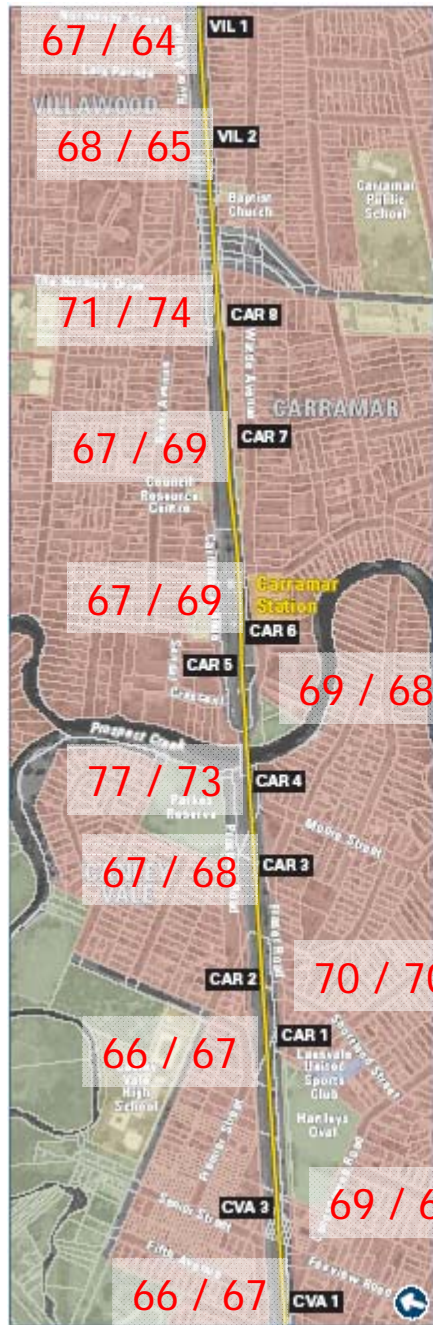
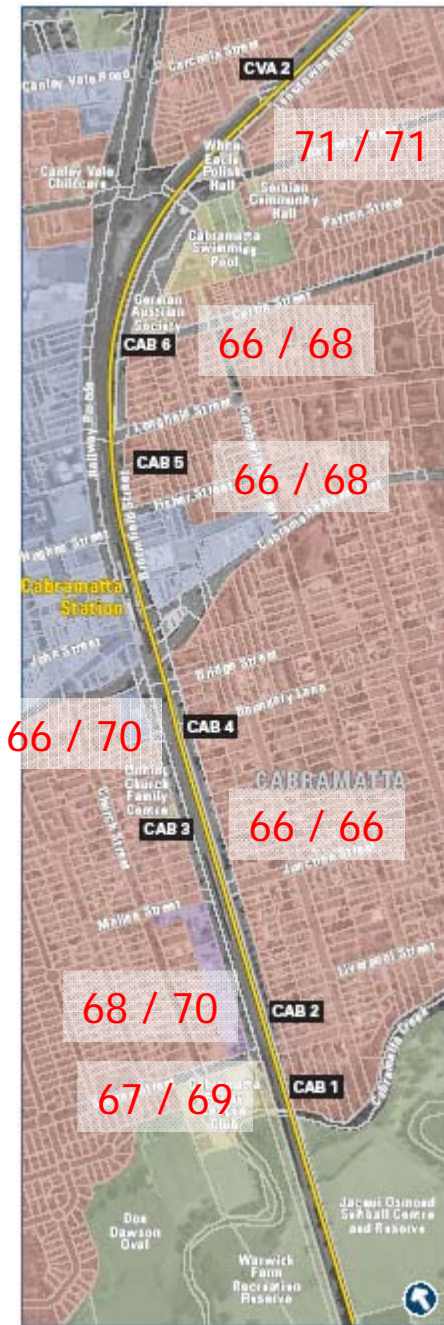


“FEASIBLE AND REASONABLE”

- If the exceedance of DECC goals is no more than 5dB, either now or with the project, barriers are not required
- In general a barrier over 4m high is not considered feasible from an engineering point of view
- In all cases the provision of barriers is subject to urban design considerations and to community consultation

CALCULATION OF NOISE LEVELS

- Calculations in two stages – for environmental assessment as part of the EIS in 2006, and more recently in detailed design
- Based on measured noise levels at 10 locations + large database of noise levels from freight and other trains
- Computer model calculates noise taking account of:
 - train speed
 - number and types of movements
 - level and height of wheel/rail noise and diesel exhaust
 - height and position of tracks
 - height and position of most-affected receiver



LAeq,24h NOISE LEVELS IN 2018 WITHOUT / WITH THE PROJECT

OTHER RESULTS

- In this area, in 2018 between 64% and 89% of total noise would be due to freight operations. This is slightly higher than at present.
- Night-time noise levels would grow or reduce by approximately the same amount as total noise.
- With the project, noise from maintenance activities would be similar to, or slightly lower than, existing levels. Any barriers would also attenuate this noise.

REDUCING TRAIN NOISE WITHOUT BARRIERS

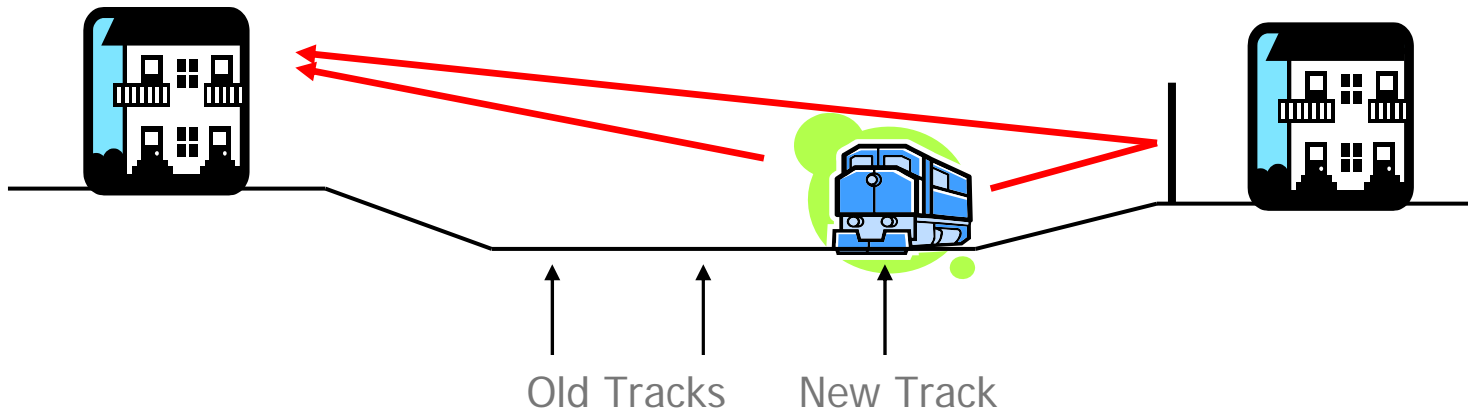
- Quiet trains – improved exhaust mufflers & coupling; new technology such as wheel damping
- Remediation of noisy trains – automatic detection of noisy trains, removal and remediation

These programs are in place now and will be extended in the future.

However, neither of these will produce reductions of more than a few dBA in the foreseeable future.

NOISE BARRIERS

- Only method capable of producing noise levels that approach DECC requirements.
- In many places heights need to be over 4m to achieve requirements. For preliminary design, heights are limited to 4m.
- In most places an absorptive facing is needed to prevent reflections increasing noise on the opposite side of the track.



BARRIER DESIGN IN EIS, AND ALTERATIONS BASED ON DETAILED DESIGN



Break at commercial premises

L_{Aeq,24h} NOISE LEVELS WITH BARRIERS



COMMUNITY CONSULTATION

- Noise barriers are required to be considered as part of this project, to help achieve DECC's noise goals.
- Barriers beyond 4m high are not considered "feasible", and so the DECC's goals can only be partially achieved. Nevertheless they would provide a significant reduction in noise compared with both the existing and future situation without barriers.
- Whether the proposed barriers are "reasonable" depends, among other things, on input from the community. It is this input that is sought at and following this meeting.