MMRP – PRESENTATION TO IAC

RESIDENTS OF: 35 O’SHANASSY STREET, NORTH MELBOURNE
ASSUMED LOCATION CHARACTERISTICS

As a large, busy and dynamic city, Melbourne hosts a range of activities – such as major construction projects, heavy vehicle traffic, train and tram operations and outdoor events – that generate varying types and levels of noise and vibration. Across the Melbourne Metro alignment, many buildings, facilities and places already experience continuous or intermittent levels of noise and vibration associated with being located near to major arterial roads, tram or train lines. The construction and operation of Melbourne Metro would occur within this context.

Source: EES-Chapter 13- Noise & Vibration (page 13 -1)
NORTH MELBOURNE LOCATION CHARACTERISTICS

- No High-rises
- No continuous or intermittent trams or trains noise and vibration
- No major arterial roads noise
- No heavy vehicle transport
- No major public events
- No noise and vibration from major construction sites in close proximity
- Single or double storeys freestanding dwellings, with living areas on ground or below ground level (often Heritage listed) – THE MOST VULNERABLE

DIVERSE CHARACTERISTICS OF DIFFERENT PRECINCTS ALONG THE ROUTE MUST BE CONSIDERED AND MUST BE INCORPORATED INTO DESIGN CONSTRAINTS AND SOLUTIONS

The worst affected house in Arden precinct

Potentially the worst affected area on the entire MMRP route
COMMUNITY ENGAGEMENT

ERODED CONFIDENCE IN MMRA

POOR COMMUNITY CONSULTATIONS

- Drop off letters - not an appropriate way to convey the life changing information
- Provided details sometimes inconsistent (the tunnel depth: 17m, 20m, 13m)
- Information sessions not advertised broadly within the community (mainly to affected owners). One off event with limited timeframe
- MMRA responses general in nature, lacking details. Very little documented certainty about the outcome and the impact of the project.
- Limited focus, brief interaction with individual residents (divide and conquer). Q&A group session initiated by North Melbourne residents.

TUNNEL DEPTH:
- Approx. 17m (28/10/2015 COMMUNITY CENTRE, NORTH MELBOURNE)
- Approx. 20m (Letter from MMRA 28/Jan/2016, Ref: DOC/16/4851)
- Approx. 13m – EES documents – Section drawing – Arden tunnel precinct

Western Distributors information info booth. Good example of community consultation. Located in front of library for 7 consecutive days.
ROUTE ALIGNMENT

TUNNEL ROUTE: Curzon, O'Shanassy & Courney Streets
ROUTE ALIGNMENT

Errol Street, O'Shanassy Street & Curzon Street
Poor Design Practice

- “Best practice should achieve the highest quality outcomes through design NOT through mitigation, retrofit or renovation” – City Of Melbourne EES Submission

- MMRA employs risky, poor design practice involving:
  - Designing to maximum allowed values (noise and vibration)
  - Exceeding maximum allowed values
  - Achieving compliance through mitigation

- This results in low tunnel depth and potential high impact during construction time and ongoing issues with operational noise and vibration
What if mitigation intervention fails?

- What if mitigation doesn’t deliver expected results?
- What is the plan “B” considering that at that stage the tunnel can’t be lowered and that higher mitigation technique doesn’t exist (Arden precinct requires “very high attenuation” to achieve minimum requirements)?
- Who will monitor the actual levels of operational and maintenance noise and vibration? (MMRA have vested interest in the project and is not considered independent, MMRP is a PPP project – could the monitoring end up in the hands of a private corporation and how would the corporation protect the interest of residents vs profit?)
- Who will deal with complaints and claims arising from exceeded levels of operational vibration and noise, and how would the affected resident be compensated (which Act covers these situations?)
THE TUNNEL DEPTH

Impact at proposed Tunnel Depth

Proposed Tunnel Depth

Houses with below ground living or working areas

Approx. 12-13 m

THE MOST VULNERABLE RESIDENTIAL AREA

THE SHALLOWEST PART OF TUNNEL (APPROX 13-15m) - THE LARGEST IMPACT, THE HIGHEST ATTENUATION REQUIRED TO ACHIEVE MINIMUM REQUIREMENTS PRESCRIBED BY RELEVANT STANDARDS

TUNNEL DEPTH INFORMATION AS PROVIDED BY MMRA:
- Approx. 17m (Community Consultation: 28/10/2015 COMMUNITY CENTRE, NORTH MELBOURNE)
- Approx. 20m (Letter from MMRA 28/Jan/2016, Ref: DOC/16/4851)
- Approx. 13m – EES documents – Section drawing – Arden tunnel precinct
Existing Baseline Noise and Vibration Measurement – Tunnel Precinct

- Measurement of existing (external and internal) ambient noise and vibration not conducted along “Tunnel precinct”
- Existing noise and vibration measured on locations: not related to MMRP route and not “equivalent” to tunnel precinct location
- Working with inadequate baseline noise and vibration parameters might impact/influence predicted noise and vibration levels
- MMRA states that internal measurement of existing noises and vibration levels in existing houses above the tunnel precinct is not required. Community disagree.
“Vibration Condition” classification

- EES classifies operational vibration as “intermittent” and base calculations of predicted vibration dose value on that criteria.
- This condition classification doesn’t represent the condition of operational vibration accurately considering that predicted train frequency in each tunnel will be 1-3 min.
- If vibration calculation is based on “intermittent classification” that would allow for much higher vibration values, and would have a much more significant impact on affect residents living above tunnel.
- The Vibration condition shall be classified as “Continuous” in accordance to EES’s Summary section description of services as: “...continuous trains eliminating the need for timetabling.”
**Operational Noise**

### Table 13-10  Guideline Targets for operational ground-borne noise

<table>
<thead>
<tr>
<th>Sensitive land use</th>
<th>Time of day</th>
<th>Internal noise trigger levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Day (7am-7pm)</td>
<td>40 dB[LAeq] and an increase in existing rail noise level by 3 dB(A) or more</td>
</tr>
<tr>
<td></td>
<td>Night (10pm-7am)</td>
<td>35 dB[LAeq] and an increase in existing rail noise level by 3 dB(A) or more</td>
</tr>
</tbody>
</table>

**Predicted continuous operational ground borne noise level:**

The proposed Environmental Performance Requirements detailed in the EES specify that the major contractor will be required to mitigate operational noise to these levels. Once mitigation treatments are applied to the tunnel, ground-borne noise levels during operation are predicted to be less than 30 dB[LAeq].

Source: MMRA – Briefing to North Melbourne residents, July 2016

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**Operational Vibration**

### Table 1  Vibration dose value ranges which might result in various probabilities of adverse comment within residential buildings

<table>
<thead>
<tr>
<th>Place and time</th>
<th>Low probability of adverse comment m/s^2 (1/3 sec)</th>
<th>Adverse comment possible m/s^2</th>
<th>Adverse comment probable m/s^2 (1/3 sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential buildings</td>
<td>0.2 to 0.4</td>
<td>0.4 to 0.8</td>
<td>0.8 to 1.6</td>
</tr>
<tr>
<td>16 h day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>0.1 to 0.2</td>
<td>0.2 to 0.4</td>
<td>0.4 to 0.8</td>
</tr>
<tr>
<td>8 h night</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** For offices and workshops, multiplying factors of 2 and 4 respectively should be applied to the above vibration dose value ranges for a 16 h day.

**Predicted continuous operational ground borne vibration level:**

During operation, vibration levels are predicted to be in the order of 0.04 m/s^2 during the day and 0.03 m/s^2 during the night.

Source: MMRA – Briefing to North Melbourne residents, July 2016

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**What is the physical interpretation of the predicted continuous ground borne noise level and how it compares with existing noise levels?**

**What is the physical interpretation of the predicted continuous ground borne vibration level and how it compares with existing vibration levels?**
PROJECT RISKS: TUNNEL PRECINCT – GREY AREAS

Discriminatory Design Constraints – Tunnel Precinct

- **Design Criteria Include:** Users convenience and ease of access, operational constraints, impact on businesses and institutions, project cost & delivery time
- **Design Criteria Exclude:** Impact on residents living above the “Tunnel Precinct”
  Resulting in:
- Poor design outcome - the lowest tunnel depth under the most vulnerable residential areas, relying on a very high attenuation to barely meet minimum noise and vibration requirements prescribed by the relevant guidelines.
- Lack of consideration of the MMRP impact on residents living above the “Tunnel precinct”. Typically, majority of impact analysis in EES focus on station precincts.

Tunnel Precinct – Flora & Fauna

- EES does not provide analysis on biodiversity of existing flora and fauna above “Tunnel Precinct” and potential MMRP’s impact on them.
- Very shallow tunnel depth (approx. 13m) might have an impact on very old, established Platanus trees with a substantial root system and in-ground fauna (ground borne noise).
PROJECT RISKS: TUNNEL PRECINCT – GREY AREAS

EES based on limited existing condition survey of “Tunnel precinct”:

- Lack of “Tunnel Precinct” area survey and understanding of specific location characteristics. (city vs inner city neighbourhood characteristics).

- New development under construction on the corner of Arden and Abbotsford street with a total depth (including footings) of 10-12m below natural ground level. The tunnel runs under the site.

- A number of houses along the Tunnel Precinct have underground living spaces. It seems that EES doesn’t include a detailed survey that would allow realisation that the tunnel depth under some houses will be only about 7m -8m.

- Existing internal and external baseline noise and vibration measurement not conducted along the “Tunnel Precinct”.
PROJECT RISKS: TUNNEL PRECINCT – GREY AREAS

Social Impact:

- Social impact on areas above the underground tunnel like: traffic closure, congestions and relocations, are also not addressed by EES.
- City of Melbourne EES Draft Submission (Social Impact and Displacement: CBD South Station - Deficiencies (page 15):

  "The EES does not satisfactorily address the social impacts of the project on all sections of the community and the displacement of vulnerable communities."

Planning Controls:

- City of Melbourne also raises their concern about MMRA’s proposal to exclude tunnels from development plan that is subject to Planning Approval (City of Melbourne EES draft submission; Section 13.2.1 Approval of Development Plans (page 104)):

  "Although the Incorporated Document facilitates the use and development of land for the entire project including tunnels as well as station, portals and associated infrastructure, the requirement to submit a development plan for approval relates only to the parts of the project above and at ground level and up to ticketed areas."

  "The planning approval will be the primary statutory approval for the entire project. As such, it is submitted that it should require development plans to be submitted for the entire project."
COMPENSATION AND DAMAGES

Tunnel Precinct Map

DDO Map

Acquisition Map