Open Letter: 'The Health Impact of Elevated Rail on Bayside Communities'

As Bayside health care professionals we write to voice our concerns about the negative health implications of the proposed elevated rail (Sky Rail) on the Frankston line. Our concerns are based upon a review of the evidence in academic journals.

Our research demonstrates that public infrastructure is closely related to health outcomes. The World Health Organisation recommends 'health in all policies' which includes consideration of the health impact of large infrastructure projects on populations (Leppo, Ollila, Pena, Wismar, & Cook, 2013).

Elevated rail adjacent to residential areas increases noise and vibration, reduces natural light, reduces property values, increases air pollution, impacts green space and clashes with local amenity. It also attracts crime, compromises safety and impacts the social determinants of health. All of these factors negatively impact health. We therefore advocate for a 'rail under road' option that will not have these deleterious effects on health.

Noise and Vibration

The literature indicates that noise and vibration increases significantly and travels greater distances with elevated rail. Xia et al. (2009) report noise concerns and vibration impacts on the environment and people near elevated rail. Research shows a link to sleep disturbance resulting in fatigue, impaired judgement, poor decision-making and an increased risk of occupational and road accidents (Killgore, Balkin & Wesensten, 2006; Lamond et al., 2004). Stickgold, Hobson, Fosse & Fosse (2001) state good quality sleep is a public health issue, essential for optimal health. Insufficient sleep is linked to diabetes, cardiovascular disease, obesity and depression (Unruh et al., 2008; Babisch, 2006). Passchier-Vermeer and Passchier (2000) associate noise with decreased school performance. The negative health impact associated with noise pollution from Sky Rail will impact thousands of homes and community facilities such as schools, kindergartens, churches and aged care homes.

Elevated rail will significantly **overshadow homes**. The impact of reduced sunlight on mental health is well supported in the literature (Halpern, 2013). Multiple studies assert that a lack of natural light increases the risk of mental health issues including depression and anxiety (Edwards & Torcellini, 2002).

Close proximity to rail infrastructure (particularly heavy diesel) **reduces property values** due to noise, visual intrusion and the perception of crime (Diaz, 1999). These factors would be exacerbated by elevated rail. On the Dandenong line it is predicted that elevated rail sections are likely to reduce property values by 20-25% and negatively affect the revenue of small businesses (Zhou & Robb, 2016, Ferguson, 2014). Uncertainty about income is proven to induce emotional strain, anger, anxiety and depression (Schonfeld & Mazzola, 2015). In other contexts mortgage stress and financial strain is a risk factor for conflict, mental illness and domestic violence (Pattavina, Socia & Zuber, 2015).

Air Pollution

Elevated rail carrying diesel trains is likely to increase the amount and range of air pollution because height facilitates greater drift. Diesel exhaust emissions contain hundreds of chemical compounds that are associated with irritation of the eye and the respiratory and gastrointestinal systems (Balmes, 2011). The long term effects of exposure to exhaust and brake particulate

matter are poorly understood and therefore best avoided. (Morawska, Moore & Ristovski, 2004, Stenfors et al., 2004; Abbasi, Jansson, Sellgren & Olofsson, 2013). The International Agency for Research on Cancer has recognised diesel exhaust soot as a carcinogen (Abbasi et al., 2013).

Green Space and Amenity

Elevated rail will negatively impact green space and clash with amenity in the Bayside suburbs. This area along the line includes 40 km of beachfront, the Edithvale/Seaford 'Ramsar Convention' listed wetlands and a 2,070 hectare 'green wedge' in the city of Kingston alone. The positive link between green space and health is well documented and most apparent in the elderly and people of lower socioeconomic status, both already vulnerable sub-populations (Maas, Verhiej, Groenewegen, De Vries & Spreeunwenberg, 2006; Mitchell & Popham 2008). The visible and audible elevated rail will significantly reduce the health benefits of this green space.

Crime and Safety

Graffiti is a visible form of crime and considered a sign of social decline, representing a threat to safety and quality of life (Morgan & Louis, 2009; Lorenc et al., 2013). Elevated railway bridges and pylons attract graffiti because they are prominent, visible and easy to reach with limited surveillance. Controlling and removing graffiti in Australia costs $1.5 billion annually (Morgan and Louis, 2009). This cost is expected to be borne by local councils along the Frankston line, creating further stress to residents. Railway bridges also attract anti-social behaviour such as dumping, drug use and loitering due to reduced lighting and limited surveillance. This impacts community safety and liveability. Under-road stations are easier to illuminate and monitor and are less appealing for anti-social behaviour.

Social determinants of health (SDH)

The SDH will be negatively impacted by elevated rail. A Lancet Commission found that factors which have the greatest impact on health are social and include community engagement, social inclusion and early life (Marmot, Friel, Bell, Houweling & Taylor, 2008). Liveable communities create conditions that optimise health and wellbeing outcomes by improving neighbourhood walkability, public open space and social facilities (Giles-Corti, Badland, Mavoa, Turrell & Bull, 2014). An elevated concrete construction will divide communities and impinge on these conditions, negatively impacting health and wellbeing.

We often assume that what is, has to be. In reality, virtually everything in our built environment is the way is it because someone designed it that way. Researchers agree that the design of the built environment holds tremendous potential to address health concerns including cardiovascular disease, diabetes, asthma, depression, violence and social inequity. In short, we have the capacity to build future communities that promote, rather than reduce, physical and mental health (Jackson, 2003).

The academic evidence portrays a strong case against elevated rail. Based on this, as health care professionals, we advocate for the health of the Bayside community by opposing elevated rail. <u>We request</u> a formal response to our concerns by May 8th2016 and an independent health impact assessment prior to further design proposals. <u>We urge all stakeholders</u> to elect a 'rail under road' option for the removal of all level crossings on the Frankston line.

Authors:
Patricia Schwerdtle (MPH, PGC-HPE, PGD-CC, Bach HP, RN)
Alison Lunt (M Cl Sc. B App Sc (OT) Hons)

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Signatories:

Patricia Schwerdtle, Registered Nurse
Alison Lunt, Occupational Therapist
Fiona Mc Alinden, Social Worker
Mary Nanya, Registered Nurse (Retired)
Matthias Schwerdtle, Paramedic
Rebecca Sullivan, Registered Nurse
Sean Sullivan, Registered Nurse
Trevor Clany, Paramedic
Eleanor Mulvany, Occupational Therapist
Dr Mark Savage, Medical Doctor
Tarryn Armour, Registered Nurse
Chris Nanya, Registered Nurse
Judith Bennet, Registered Nurse
Lynette Wright, Naturopath
Sharon Keane, Community Aged and Disability Worker
Sarah Grzegorczyn, Occupational Therapist
Pamela Stewart, Registered Nurse (Retired)
Kelly Sinclair, Occupational Therapist
Karen Masson, Registered Nurse
Narrelle Roberts, Chiropractor
Rohan Iddles, Student Nurse