

# Interdisciplinary Conservation Science Research Group

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School of Global Urban and Social Studies

RMIT University

## ***Submission on the Melbourne Metro Rail Project Environmental Effects Statement***

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### **Who are we?**

RMIT University's Interdisciplinary Conservation Science Research Group is a team of academic researchers based within the School of Global, Urban and Social Studies at RMIT University. Our research focuses on understanding the interaction between society and our natural environment. We recognise that managing biodiversity demands a multidisciplinary approach that reconciles ecological, social and economic concerns.

### **General comments**

We welcome the opportunity to provide a submission on the Melbourne Metro Rail Project Environmental Effects Statement.

Our submission focuses on the revegetation works planned subsequent to the construction of the Melbourne Metro. There is a great opportunity to replant these areas with diverse, native vegetation that will deliver benefits to people who work, live, play and travel in Melbourne.

Nature in cities delivers a truly remarkable range of benefits to urban residents including:

- Health and well-being benefits
- Helping to future-proof the city in the face of climate change
- Delivering habitat for the many threatened species that depend on Melbourne
- Providing the potential to re-engage urban residents with nature
- Providing an opportunity to highlight Australian indigenous culture and engage indigenous people in the planning, design and implementation of urban greening.

We provide some evidence for these benefits below.

***Recommendation: That every opportunity possible is taken to 1) avoid removing vegetation and 2) to compensate for unavoidable vegetation removal by replanting impact sites with diverse, native vegetation in a way that maximizes the delivery of benefits to the people of Melbourne.***

## Background

Urban green spaces contribute myriad ecosystem services such as ameliorating the heat island effect (McPherson 1994), alleviating peaks in stormwater runoff (Xiao & McPherson 2002), absorbing air pollution (Nowak et al. 2006), providing habitat for threatened species (Dearborn & Kark 2010), reducing energy consumption for cooling and heating (Coutts & Beringer 2007), and providing shelter from extreme weather events (Abdollahi et al. 2000).

Beyond this, urban green spaces deliver a remarkable range of human well-being benefits including reduced all-cause mortality and mortality from cardiovascular disease (Donovan et al. 2013), improved healing times (Ulrich 1984), reduced respiratory illness and allergies (Lovasi et al. 2008, Hanski et al. 2012), improved cognitive development in children (Dadvand et al 2015), reduced stress (van den Berg & Custers 2011), reduced risk of poor mental health (Mitchell 2013), improved social cohesion (Shinew et al. 2004), improved self-esteem and empowerment (Maller 2009) and improved cognitive ability (Lee et al. 2015). Indeed, you are more likely to have better general health and well-being (Maller et al. 2010, Dallimer et al. 2012) and less likely to die, period, in a city with more vegetation (Donovan et al. 2013).

An emerging body of evidence suggests that green spaces with a higher diversity of species deliver greater well-being and social benefits than less diverse spaces (eg, Fuller et al. 2007). Further motivations for *biodiverse* green spaces are that they are more likely to be more resilient to climate change (Thompson et al. 2009) and can contribute to global conservation outcomes (Dearborn & Kark 2010). Hence it's not just 'greenness', but also 'biodiversity' that should be the focus of revegetation strategies (Shwartz et al. 2014).

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