



OFFICE OF THE COMMISSIONER
FOR SUSTAINABILITY AND
THE ENVIRONMENT

Major Projects Canberra
Light Rail to Woden
Email: lightrailtowoden@act.gov.au

To whom it may concern

Re: Light Rail: City to Woden

The Commissioner for Sustainability and the Environment is an independent statutory position established by the *Commissioner for Sustainability and the Environment Act 1993*. The Office of the Commissioner for Sustainability and the Environment (OCSE) embraces transformative change for an environmentally sustainable future and encourages sound environmental practices and procedures to be adopted by the Territory and territory authorities as a basis for ecologically sustainable development.

While improvement of the public transit network is broadly to be commended, it is important that the ACT Government seeks to mitigate the environmental impacts of development and construction of the Light Rail Stage 2 project. This submission identifies potential impacts relating to carbon emissions, sediment run-off, waste generation and urban heat generation arising from this project. It also identifies potential opportunities to provide resources for wildlife.

Sustainability in construction

The construction sector is the largest consumer of materials globally.¹ Construction, including materials and all construction-related processes, is a clear hotspot for carbon-intensive goods. Steel and cement alone represent over 10% of anthropogenic carbon dioxide emissions.² Globally and in Australia, scope 3 (embodied) emissions in the construction sector are significant. In Australia in 2013, the construction sector contributed 18.1% of the total national carbon footprint, with scope 3 emissions comprising 78%, and scopes 1 and 2 the remainder.³

The construction of the next stage of the light rail from the City to Commonwealth Park will involve use of a substantial volume of concrete. The use of low carbon cement would significantly reduce the embodied emissions of this project to reduce its overall impact on the environment.

¹ Giesekam, J., Barret, J. and Taylor, P. 2016. Construction sector views on low carbon building materials, *Building Research and Information*, Vol. 44, No. 4, 423–444.

² Moran, D., Hasanbeigi, A. and Springer, C. 2018. The Carbon Loophole in Climate Policy: Quantifying the Embodied Carbon in Traded Products.

³ Teh, S. et al., 2019. Assessing Embodied Greenhouse Gas Emissions in the Built Environment, *Decarbonising the Built Environment*.

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Lower carbon cement is already being supplied to Canberra, with some public infrastructure projects already making use of the product.⁴ Many ACT concrete suppliers already have the ability to offer a low carbon concrete, mainly through replacing some of the cement with fly ash or slag. There are also suppliers who can provide advanced geopolymers. Subsequently, the specific barriers and opportunities to increase the supply of low carbon cement need to be determined to understand what can be done to promote more uptake of it in industry.⁵

Recommendation 1: *That the ACT Government choose materials, especially concrete, with the lowest possible scope 3 carbon emissions for the construction of light rail infrastructure.*

Living infrastructure

OCSE recommends that all ACT Government infrastructure projects should seek to go beyond the principles established in the *Canberra Living Infrastructure Plan: Cooling the City*,⁶ the *Urban Forest Bill 2022*, and the draft *Action Plan to Prevent Loss of Mature Native Trees*.⁷ The Light Rail Stage 2 project should embrace the following principles.

- Maximise the value of landscaping vegetation to wildlife by choosing local native species for landscape plantings, prioritising those which provide food and habitat for invertebrates and birds. Select local native species which will tolerate drought and other increasingly extreme weather conditions which are predicted as a result of climate change.
- Retain native trees growing within or adjacent to the development area, regardless of their size. Innovative and adaptive design is encouraged to enable the incorporation of existing trees into developments as far as possible.
- Maximise vegetative groundcover and minimise exposed hard surfaces, to assist with urban heat effect mitigation and improve water absorption.

Recommendation 2: *Maximise plant cover throughout the light rail corridor, and select local native species which offer co-benefits in terms of food and habitat provision for wildlife.*

Sediment and waste control measures during construction

During the construction of Light Rail Stage 1, OCSE staff frequently observed soil, debris and mulch washing off the development corridor into the stormwater network during periods of heavy rain. My Office's recent 2022 report, *State of the Lakes and Waterways in the ACT*,⁸ found that sediment from poorly managed developments is a significant contributor to poor water quality in the ACT. With the construction area for Light Rail Stage 2 being situated so close to Lake Burley Griffin, rigorous erosion and sediment control measures must be put in place to ensure that impact on the water quality of the lake is minimised.

⁴ [Boral Projects | Modernising Campbell Primary School with ENVISIA.](#)

⁵ Office of the Commissioner for Sustainability and the Environment, 2021. *Scope 3 Greenhouse Gas Emissions in the ACT*, Canberra, Australia.

⁶ ACT Government, Australian Capital Territory, Canberra 2019. https://www.environment.act.gov.au/_data/assets/pdf_file/0005/1413770/Canberras-Living-Infrastructure-Plan.pdf.

⁷ ACT Government, © Australian Capital Territory, Canberra 2021. https://hdp-au-prod-app-act-yoursay-files.s3.ap-southeast-2.amazonaws.com/2216/4809/4291/Att_A_-_Loss_of_Mature_Native_Trees_Draft_Action_Plan.pdf.

⁸ Office of the Commissioner for Sustainability and the Environment, 2022. <https://envcomm.act.gov.au/latest-from-us/acts-lakes-and-waterways/>.

Recommendation 3: Ensure that rigorous erosion and sediment control measures are implemented and effectively maintained throughout the construction process.

Waste management practices during construction can be improved in the ACT. There is a considerable lack of data to support understanding of what is occurring, however, indicators are that most construction and demolition waste is sent to landfill. This is due to waste not being sorted, contamination and lack of facilities to sort and/or capacity to remanufacture waste into reusable materials. It is estimated that the level of construction and demolition recycling in the Capital Region is around 50%, compared with the NSW average of 75% and international best practice — Germany at 92%, the Netherlands almost 100%. There is a great opportunity for improvement here.⁹

As an example, for any road surfaces being pulled up, the asphalt can be set aside to be reused in future road surfacing. Capital Asphalt, a locally owned Canberra company, is already using reclaimed asphalt in their work on the Territory's roads. They currently use up to 30% of this reclaimed product in their mix, reducing virgin material use by this percentage. This in turn saves the energy that would be required to create new asphalt. Recent projects at Ginninderry have also made use of crushed recycled asphalt as a bedding material for laying underground pipes.

Recommendation 4: Ensure that all waste produced throughout the construction process is considered for appropriate reuse or recycling.

Thank you for your consideration and please do not hesitate to contact me if you have any queries.

Yours sincerely



Dr Sophie Lewis
ACT Commissioner for Sustainability
and the Environment

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⁹ Office of the Commissioner for Sustainability and the Environment, 2021. *Scope 3 Greenhouse Gas Emissions in the ACT*, Canberra, Australia.