

Submission form: Victoria's draft 30-year infrastructure strategy

Your details

Name:	Thurstan Williams
Organisation (if applicable):	Renolith
Position (if applicable):	Managing Director
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About you

Please tell us which best describes you:

☒ Victorian resident
☒ Victorian business owner/operator
☒ Industry professional
☐ Community organisation representative
☐ Local government representative
☐ State government representative
☐ Researcher
☐ Other (please specify): Click or tap here to enter text.

Your focus areas

Select the topics or regions you are providing feedback on (select all that apply):

Topics	Regions
☒ Across sectors	☒ Regional Victoria
☒ Circular economy	☒ Urban growth areas
☐ Cities	☒ Melbourne
☒ Climate change	
☒ Community infrastructure	
☐ Education	
☐ Energy	
☒ Freight	
☐ Health	
☐ Housing	
☒ Infrastructure for Victoria's First Peoples	
☒ Transport	
☐ Water	

Your feedback

Add as many sections as you need to provide all your feedback in this submission.

Topic/area:	Victoria has a thriving natural environment
Recommendation name:	Reduce greenhouse gas emissions from infrastructure
Recommendation number:	24
1. Do you support this topic or recommendation?	☐ Yes ☐ No ☒ In part
2. Tell us why	Re: "The government can help build more low carbon infrastructure The Victorian Government should prioritise non-build and low-build solutions. It should better use existing infrastructure or modify it before building new. When it does build, the government should use more low carbon and recycled materials. These are not used widely, making them more expensive. Government procurement practices can discourage low carbon options because they specify using certain designs and materials instead of performance outcomes. The government should work with industry to fast-track low-carbon materials. It should update standards and specifications to reflect required performance." This is an excellent synopsis of the problem and the solution in principle. Re: "Cost range, timing and funding We estimate that this draft recommendation will cost around \$1 million and can be funded through general government revenue. The cost includes working out Victoria's carbon value, developing supporting policies and updating procurement guidelines, contracts, standards and specifications." It is unlikely that \$1 million investment will make a significant impact in achieving this recommendation. BAU is too entrenched.
3. Share any supporting evidence or examples	Example: Our product (Renolith 2.0) is nanotechnology that enables vastly superior performance of road pavements compared to conventional designs. It also reduces costs and embodied GHG emissions. However, despite solid evidence and years of

	business development effort (via ecologiQ etc), this technology has yet to be adopted in any VIC infrastructure. The inertia and bureaucracy of extant government procurement practices and the vested interests of incumbent industry players tend to perpetuate BAU and are a severe impediment to adoption of superior innovations.
4. Include proposed changes and improvements	Roads/pavement infrastructure example: Problem A road network that cannot accommodate our future climate and traffic is no longer fit for purpose. Maintaining the network to current standards will perpetuate that problem. Idea Suppose new & rehabilitated pavement designs were required to meet ambitious performance and sustainability criteria. Example specification The pavement shall: • Be impermeable (ie. resilient to water damage) • Have a design life of not less than 100 years projected traffic • Accommodate Zero Emissions Heavy Vehicles (ZEHV) (Defined as: Gross Weight up to Xkg, axle loads up to Ykg, Z proportion of traffic etc) • Require zero maintenance of the base layer(s) over the design life • Consist of not less than 90% recycled materials • Be 100% recyclable at end of life • Incur an average carbon footprint over the design life of no greater than 0.5 Kg. CO₂e/m² per annum • Be self-healing Implications There are very few options available to the pavement designer that would satisfy even some of these criteria. Of the technically feasible options, most are impractical and/or prohibitively expensive. Such criteria would drive different behaviours from government, asset managers, pavement designers and industry. Perpetuating archaic and unsustainable designs would no

longer be possible. Think of it as enforced Darwinism for the roads industry – adapt or perish.

One (probably only) option that could reliably achieve all elements of such an ambitious specification is Renolith nanotechnology-enhanced cementitious stabilisation. The method is simple, practical and well proven. Further, the whole-of-life cost is only a fraction of conventional methods.

More feedback (optional)

Tell us about infrastructure challenges, gaps or opportunities not covered by the draft strategy. This can include things you think we should add to an existing recommendation, or suggestions for a new recommendation.

Please provide evidence for your suggestions. This can include data, specific examples, cost benefit analyses, surveys, or program evaluations. Also, explain how your suggestions align with the objectives of our draft strategy (see page 11 of the draft strategy).

Suggestions for new recommendations should point towards infrastructure opportunities that can deliver long-term benefits for Victorians. They should also be areas where the Victorian Government has a leading role.

Opportunity:

Victoria could radically improve the performance, resilience, sustainability and affordability of new and rehabilitated road pavement infrastructure by fast-tracking adoption of innovative technologies such as nanotechnology-enhanced cementitious stabilisation.

Evidence:

Model to reduce pavement embodied GHG emissions and enhance road network resilience.

<https://renolith.com.au/wp-content/uploads/2024/08/2024-08-13-Renolith-Net-Zero-Roads-v1.2.pdf>

Tool to estimate and compare the triple bottom line cost (\$, carbon footprint, materials usage) of various pavement rehabilitation options.

<https://renolith.com.au/wp-content/uploads/2024/08/Renolith-Triple-Bottom-Line-estimator-v1.1.xlsx>

