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30 January 2023

Committee Secretary

House of Representatives Standing Committee on Regional Development,
Infrastructure and Transport

PO Box 6021

Parliament House

Canberra ACT 2600

By email rdit.reps@aph.gov.au

Dear RDIT Standing Committee,

Re: House of Representatives Standing Committee on Regional Development, Infrastructure and Transport - Inquiry into the implications of severe weather events on the national regional, rural, and remote road network.

Thank you for the opportunity to have input into this important issue regarding the Nation's road network, its vulnerability to severe weather events, and the intensifying impacts of climate change.

Wodonga Council is a member of the Goulburn Murray Climate Alliance (GMCA) and as such supports their three recommendations. Wodonga Council is small geographically with a high population base when compared to many of the member councils and as such have additional items to note. These have been added in *italics* after each of the GMCA recommendations.

GMCA Recommendation 1: Support neighbouring regional councils to purchase and utilise shared innovative and modern predictive road maintenance technologies

This recommendation acknowledges the most commonly used reactive maintenance method is also the most expensive. Predictive maintenance approaches lower costs over the lifespan of roads, increases road performance, provides optimal long-term planning capability, and integrates risk management into asset maintenance planning¹. A shared predictive maintenance program requires:

- Surveys of sealed and unsealed road conditions using modern equipment such as laser-based devices and drones²
- The installation and use of predictive modelling software that is integrated with existing local government road data systems to forecast specific road

¹ Karimzadeh, A. Shoghli, O., Predictive Analytics for Roadway Maintenance: A Review of Current Models, Challenges & Opportunities, 2020, Civil Engineering Journal, Vol 6, No 3,.

² Maintaining Local Roads, Victorian Auditor-General's Report 2021



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conditions and maintenance locations, without labour-intensive manual processing

- Support of staff to build expertise and to be fully trained in the set-up, programming, and use of new technologies and data interpretation

Many local government organisations in regional areas consider the financial costs of survey equipment and modelling software out of the reach and skills of their organisations, and reactive repair work more within their remit. However a reactive approach is often more expensive and less effective in the long term, as a road will continue to deteriorate and in time requires more substantial works to raise its condition to a satisfactory level.

The Victorian Auditor General found that on average, councils spend six times more to reconstruct a road than to reseal it (p36)². A predictive approach will become more critical as climate-generated environmental events become more extreme and regular. A shared approach to own or lease equipment as collectives of councils mitigates risk through the addition of shared knowledge, skills, financial impact and the provision of access to a broader survey network when large-scale regional climate events take place.

The financial impacts of undertaking solely reactive maintenance is experienced well beyond local government organisations. The recent flooding events in regional Victoria saw many roads and bridges washed away, with others undrivable due to severe damage. Such damage cut residents and business off from townships, and producers off from customers and markets for many weeks at a critical period of the year in one of the most productive areas of Australia.

The backlog of freight has been felt through supply chains into cities, rail and ports, and the longer trips forced by the damaged roads has put both agricultural producers and transport businesses at risk financially. The increased transport routes also increased greenhouse gas emissions at a critical period following Australia's commitment to reducing emissions to net zero by 2050.

Fund annual use of the Australian Road Research Board (ARRB) Intelligent Pavement Assessment Vehicle (Ipave) or similar road inspection vehicle to inspect all regional roads and provide appropriate reporting. There would need to be a smaller version for suburban roads as a truck wouldn't access most roads within the city.



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Recommendation 2: Support a whole-of-industry shift to use of recycled road-making materials with the formal creation of regional skills-based networks to progress the national road infrastructure circular economy.

Although some recycled materials used in the making of roads have been comfortably utilised for up to 20 years by some local government organisations, despite excellent test results, many recycled materials remain unused at a level that provides confidence for those who would seek to invest in producing recycled product, and clients such as local government.

Lack of awareness and education is a key barrier to uptake, for instance the Australian Road Research Board reports “...when there is a lack of understanding or confidence in recycled products, there is no encouragement to develop new processing plants to facilitate their implementation.” (p.68)³.

2.1 Support ongoing formal regional skills-based networks of local government infrastructure and waste staff, private contractors and organisations, and research organisations, focussed on education, material life-cycle-assessments, pilots, and procurement policy and methods.

Many smaller local government organisations do not have the resources to test and transition on their own, as their knowledge-networks and staffing capacities are highly limited and subject to constant churn.

Funding support for regional, localised knowledge-sharing, inter-sectoral networking, demonstrations and field-trips in order to open doors to sector-wide uptake across public and private industry will assist large-scale changes and share responsibility, and will particularly benefit regional and rural councils, where the majority of Australia’s road-making and maintenance occurs.

2.2 Create, and enhance vocational education concerning use of recycled and low impact materials for road construction aimed at local government, the waste sector, and private sector.

Extensive research has resulted in the following recycled material applications being successfully tested to replace or partially supplement applications including



asphalt, crushed rock, binder modifier, aggregate, capping, subbase, and backfill material³:

- Crushed concrete from construction and demolition;
- Crushed brick from construction and demolition;
- Crushed glass from construction, demolition, manufacturing and household waste;
- Reclaimed asphalt pavement from maintenance rehab of existing roads;
- Crumb rubber from ground end-of-life tyres and conveyor belts;
- Ground granulated blast furnace slag from steel making by-products;
- Fly ash from by-product of black coal combustion
- Bottom ash from by-product of black coal combustion and waste to energy facilities
- Recycled ballast from reconditioned fouled ballast
- Recycled plastics from commercial, industrial and municipal waste

A number of these recycled materials have been proven to outperform traditional virgin road materials in extreme conditions, and their use in roadmaking is able to divert hundreds of thousands of tonnes of waste from landfill. For example when mixed as a sand replacement with concrete Recycled Crushed Glass (RCG) is generally reported to result in an increase in compressive strength³.

The use of recycled waste concrete and brick in road construction is estimated as able to divert approximately 8000 tonnes of construction waste from landfill per kilometre of road construction.

However implementation of new materials into road construction is not a simple process. Often precise mixes between materials to avoid adverse reactions are required, and thus it is critical that every level of government support industry, contractors and staff through upskilling, and continuous skills enhancement via courses and support of ongoing knowledge-networks. This includes those in the waste sector as collection, storage and contamination are well-known barriers to the success of this initiative (p.iii)³.

³ Australian Road Research Board, 2022, Best Practice Expert Advice on the Use of Recycled Materials in Road and Rail Infrastructure: Part A Technical Review and Assessment.



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Item 2. - Investment needs to be made to upskill industry as currently we are unable to specify a lot of the recycled road pavements or concrete due to lack of industry participation.

Provide research into reduction of pavement depths by use of stabilized subgrade or geotextile material, this would significantly reduce road construction costs while also reducing greenhouse gas emissions.

Item 2.2 – provide specification documents for use of recycled materials, most of the recycled pavement materials do not meet current VicRoads grading requirements and therefore can only be used in special circumstances.

Recommendation 3: Support all councils to incorporate asset vulnerability assessments as 'business as usual' practice based on long-term climate change forecasts, and the resulting financial impacts on local government assets.

A number of Victorian Greenhouse Alliances, namely South East Councils Climate Change Alliance⁴ (SECCCA), and Goulburn Murray Climate Alliance (GMCA) have, and are currently undertaking asset vulnerability assessments with their members.

In the context of road construction, asset vulnerability assessments are focussed on a full benefit cost analysis approach and enabling climate change risk to be embedded in organisational asset planning and decision-making.

To this end climate impact financial analyses are incorporated into;

- how much extra an asset or service will cost to maintain or deliver assuming no adaptation action;
- how much extra councils can expect to pay to respond to damages or pay in insurance;
- How much would be the expected cost of making assets resilient; and
- how might income streams to councils, contractors, and ratepayers be impacted by climate change impacts to the asset/s.

⁴ <https://seccca.org.au/projects>



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The weighing up of other indirect costs, such as health impacts to employees and contractors, are also taken into account in such an assessment.

Regional local governments relies solely on grants to undertake such assessments, which although currently considered novel, should be business as usual considering the regularity of extreme environmental events impacting these municipal assets. The lack of access to financial and knowledge resources to undertake asset vulnerability assessments is an enormous barrier to most regional local governments.

It has been via the Victorian Greenhouse Alliances that the concept and implementation of Asset Vulnerability Assessments in local government, including of local roads, has emerged.

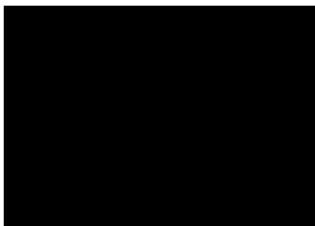
Wodonga City Council would need full support from an appropriate consultant, council does not have the expertise to complete this work in house.

When planning roads consideration should be given to being more maintenance friendly and not in areas prone to flooding.

Is there consideration to a national buy back scheme to turn all flood zones into Green space?

We look forward to reviewing the Government's response to this consultation.

Yours faithfully,



Matthew Hyde
Chief Executive Officer