



# Potholes and Pitfalls

How to fix local roads

Marion Terrill, Natasha Bradshaw, and Dominic Jones

November 2023



## Grattan Institute Support

### Founding members



Australian Government



### Endowment Supporters

The Myer Foundation  
National Australia Bank  
Scanlon Foundation  
Susan McKinnon Foundation

### Affiliate Partners

Origin Energy Foundation  
Scanlon Foundation  
Susan McKinnon Foundation  
Third Link Growth Fund

### Senior Affiliates

Cuffe Family Foundation  
Medibank Private  
Trawalla Foundation  
Wesfarmers

### Affiliates

Allens  
Ashurst  
Boston Consulting Group  
Maddocks  
McKinsey & Company  
PEXA  
Urbis  
Westpac

## Grattan Institute Report No. 2023-11, November 2023

This report was written by Marion Terrill, Natasha Bradshaw, and Dominic Jones. Liam Dillon and Celene Wong contributed valuable research.

We would like to thank the numerous government and industry participants and officials for their input. We are particularly grateful to the Australian Local Government Association, the Central NSW Joint Organisation, and to those councils that responded to our survey.

The opinions in this report are those of the authors and do not necessarily represent the views of Grattan Institute's founding members, affiliates, individual board members, reference group members, or reviewers. The authors are responsible for any errors or omissions.

Grattan Institute is an independent think tank focused on Australian public policy. Our work is independent, practical, and rigorous. We aim to improve policy by engaging with decision makers and the broader community.

We acknowledge and celebrate the First Nations people on whose traditional lands we meet and work, and whose cultures are among the oldest in human history.

For further information on Grattan's programs, or to join our mailing list, please go to: [www.grattan.edu.au](http://www.grattan.edu.au). You can donate to support future Grattan reports here: [www.grattan.edu.au/donate](http://www.grattan.edu.au/donate).

This report may be cited as: Terrill, M., Bradshaw, N., and Jones, D. (2023). *Potholes and pitfalls: How to fix local roads*. Grattan Institute.

ISBN: 978-0-6457978-7-9

All material published or otherwise created by Grattan Institute is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

## Table of contents

Overview . . . . .	4
Recommendations . . . . .	5
1 People are rightly fed up with the state of our roads . . . . .	6
2 Funding for local roads needs to be much higher . . . . .	16
3 Untied funding isn't going where it is needed . . . . .	33
4 Tied funding should be less onerous for councils . . . . .	43
5 Councils need help to manage their roads better . . . . .	47
A How we estimated councils' road preservation costs . . . . .	65
B How we calculated income by Local Government Area . . . . .	69
C The National Principles of the Financial Assistance Grants . . . . .	70
D The Grattan Road Manager Survey . . . . .	71

## Overview

You don't need to drive too far on a rural road in Australia to encounter a pothole, soft edge, or other hazard. Our local roads, especially in the bush, are a dangerous disgrace. They need more funding, and the money needs to be better targeted, with cleaner lines of accountability from the funding source to the end point of better, safer roads.

More than 75 per cent of Australia's roads are managed by councils. These are the sealed and unsealed roads that link homes and businesses to the arterials, corridors, and freeways of the road network. Metropolitan councils often have the resources to manage their road networks professionally, but many remote and rural councils can't afford to properly maintain their vast stretches of road.

A gradual erosion of untied funding has been terrible for local roads, especially in rural areas. We estimate an extra \$1 billion is needed next year just to keep the roads in the same state they're in today. But many councils do not have a realistic way of raising this revenue themselves. And while budgets are tight, delay is a false economy: when a road deteriorates too far, it ends up costing much more to restore.

A \$1 billion annual funding injection from the federal government would mean an extra 25 per cent on top of what councils are currently spending on road maintenance. But that's only about 10 per cent of what the federal government spent on roads last year. Taxpayers would get better bang for their buck if the federal government spent an extra \$1 billion on improving our local roads rather than on new megaprojects in the major cities.

It's not only a matter of new money. Taxpayers would also get better value if the federal government stopped favouring the densely populated states of NSW and Victoria, to the detriment of Tasmania and the NT, and cut back the share of the funding pool it directs to metropolitan councils that are already self-sufficient.

But extra money, even if it's better targeted, won't be enough to fix the problem of local roads. A Grattan Institute survey of councils conducted for this report reveals that an extraordinary number of councils don't even know what roads they manage. A quarter of the councils we surveyed don't know exactly what roads and bridges they manage; for remote councils, it's almost half.

The problem of poorly maintained roads is largely a problem of governance and the way local government is funded more generally. To help councils better manage their roads, the federal government should establish a national road hierarchy, minimum service standards, and basic data specifications for councils to follow. State governments should provide templates to help under-resourced councils create and maintain asset management plans and long-term financial plans in a consistent way.

Better road management would help councils cut through the morass of red tape and time-wasting obligations they currently face. Councils are obliged to spend part of any Roads to Recovery grant on road signs acknowledging the federal government as the funding source, and to get the money out the door within six months; tied state grants sometimes favour projects that aren't priorities for local residents. The federal and state governments also induce councils to divert money away from roads by charging them compulsory waste and emergency services levies, and by requiring them to administer regulations without sufficient funding to cover costs.

This report maps the way to a better road network across Australia: an annual funding increase of \$1 billion for local roads, better targeting to make sure the money goes to where it is needed most, and reforms to ensure that councils have the tools and time to fix the potholes and give their communities the roads they need.

## Recommendations

### Boost funding for local roads

The federal government should:

- increase core funding to local governments with a \$600 million annual increase in the Financial Assistance Grants, and a \$400 million annual increase to Roads to Recovery funds. It should index both funds to a cost index that reflects changes in the costs that councils face, and population; and
- establish a \$200 million per year fund to assess and upgrade local roads identified as priority freight routes, in exchange for the council providing permit access to compliant heavy vehicles.

### Ensure untied funding goes where it is needed most

The federal government should fix the distribution of the Financial Assistance Grants by:

- allocating grants between and within states according to the principle that every council should have the capacity to provide a similar level of service to their community;
- reducing the minimum grant to 10 per cent of an equal-per-capita share of the Financial Assistance Grants pool;
- combining the local roads component of the Financial Assistance Grants with the general component; and
- allocating funds for Roads to Recovery and similar programs according to the same distribution used for the Financial Assistance Grants.

### Make tied funding less onerous for councils

State and federal governments should reform tied funding arrangements to reduce poorly-targeted application, compliance, and accountability requirements.

### Give councils more help to manage their roads

The federal government should:

- establish a national road hierarchy and associated minimum service level standards for local as well as state roads;
- establish a small list of essential data items attached to the road hierarchy, to enable the measurement of council's performance, in consultation with states and Local Government Associations; and
- provide funding and support to councils to acquire the necessary technology, software, and staff training to collect and use this data.

State governments, in consultation with Local Government Associations, should develop best practice templates of documents for asset management plans and long-term financial plans. These templates should be audited annually by council audit committees, and every five years by state auditors-general.

## 1 People are rightly fed up with the state of our roads

It's no secret that our roads are in a state of disrepair, and that people are fed up. Recent headlines show just how fed up they are:

State by state guide: The nightmare roads Aussies hate.<sup>1</sup>

'Diabolical' state of Victoria's roads opens up an election pothole.<sup>2</sup>

Pothole plague: rain-damaged roads trigger thousands of calls for help.<sup>3</sup>

Local councils manage 77 per cent of our roads by length, but many councils do not have the revenue, capacity, or expertise to manage them to an acceptable standard. The problem will only get worse as more frequent heatwaves and flooding cause major damage to our roads and delayed repairs lead to more costly problems down the track.

This report outlines how funding can be better directed to the roads that need it most, and how – with the right support – councils can improve their practices to maintain roads to a higher standard and get more bang for their ratepayers' buck.

### 1.1 Local roads are underfunded

Maintaining roads to a safe and acceptable standard may not make for an exciting press release, but it is an essential government service. We need adequately maintained roads to ensure trucks can stock our supermarkets, and we can all get safely and quickly to our jobs and the shops, see our friends and family, and everything in between.

---

1. Herald Sun (2023).  
2. Hatch (2022).  
3. Naylor (2022).

Local roads are funded through a combination of councils' own-source revenue, and tied and untied grants from the federal, state and territory governments.

Over the past decade, demand for local roads has increased, as has the cost of maintaining roads, but untied grants to local councils have not kept pace. The primary grants relied upon by councils are the Financial Assistance Grants from the federal government, but the indexation of these grants has not matched the cost increases faced by councils (Figure 1.1 on the following page). If indexation had kept pace with local government costs, this year's grants would be almost \$600 million, or 20 per cent, higher.

Over the same period, as councils have expanded into a wider range of services that all come with additional costs, states have imposed restrictions that reduce councils' ability to increase their own-source revenue.

These pressures mean that councils are no longer spending enough to maintain their roads. Grattan modelling suggests that councils are collectively underspending on roads by at least \$1 billion, or almost a quarter of current maintenance expenditure, every year.

We estimate this gap by using digital mapping data to calculate the sources of variation in local road maintenance costs, such as urban density and rainfall. Applying these adjustments to standardised prices for maintenance works, we compare how much each council would need to spend on annual road maintenance to prevent their roads deteriorating, against what they are currently spending. Further detail on this approach is outlined in Appendix A on page 65.

This \$1 billion underspend is only the amount required to maintain roads in their current condition, which – for many councils – is already

below the standard expected by their communities.<sup>4</sup> And that \$1 billion figure includes some councils, mostly in major cities, that are putting extra funds into improving, not simply maintaining, their roads. The councils that are underspending are underspending by \$1.3 billion each year.

Chapter 2 explains how this underfunding comes about, including requirements for additional service-delivery by local government, and state restrictions on revenue raising.

### 1.2 Regional and remote councils are in an impossible position

While there is an overall underspend, the problem is much more pronounced in regional and remote areas.<sup>5</sup>

Remote councils cover enormous areas, and have vast road networks that require maintenance (Table 1.1 on the following page). But because their populations are very small, it's difficult for remote councils to raise enough revenue to fund the maintenance of their roads.<sup>6</sup>

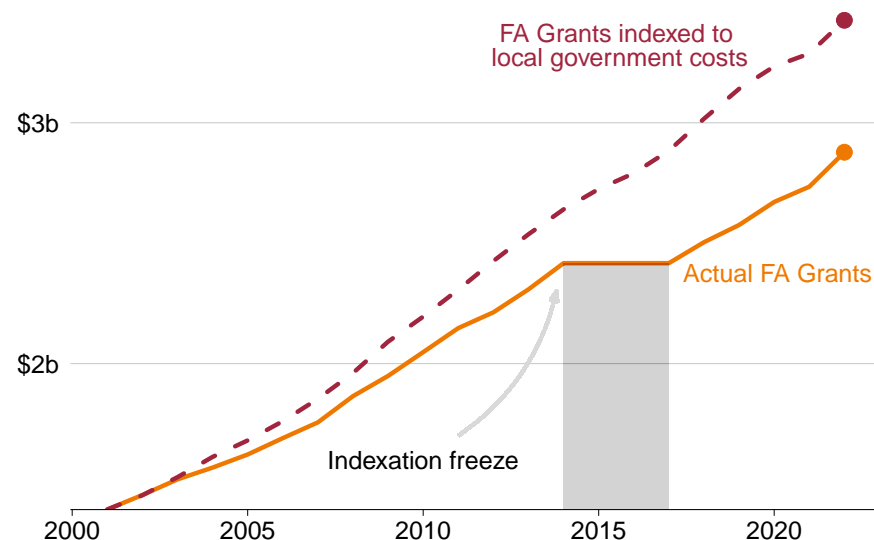
These councils have limited ability to increase their own-source revenue, and are heavily reliant on grants from federal and state governments.

As a result, the underspend on road maintenance is larger in more remote areas (Figure 1.2 on the next page). The typical regional area

4. In 2021, the Australian Local Government Association estimated that the replacement cost of roads in poor condition was \$17.8 billion (Verity 2021). In 2022, NRMA used council estimates of the cost to lift road assets to a satisfactory standard to calculate a NSW road infrastructure backlog of \$1.9 billion (NRMA 2022).
5. In this report, we use ABS Remoteness Area classifications (ABS 2021a) to class all councils as major cities, remote, or regional, based on the area in which most of their population lives.
6. ABS (2022a).

**Figure 1.1: Federal government funding for local government has not kept up with costs**

Financial Assistance Grants 2001-2022, actual value and estimated value if indexed by local government costs



Notes: Values determined by taking value of grants in 2001 and indexing annually according to (a) the method outlined in the Local Government (Financial Assistance) Act 1995 (population and growth in the Consumer Price Index), with an indexation freeze starting in 2014-15 and ending in 2016-17 (orange); (b) population and growth in the SA local government price index (red).

Sources: Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023a, The South Australian Centre for Economic Studies 2023, ABS 1999.

**Table 1.1: Typical characteristics of different council types**

Remoteness	Population	Road length (km)	Land area (km <sup>2</sup> )
<b>Major cities</b>	116,567	598	92
<b>Regional</b>	12,825	1,210	3,303
<b>Remote</b>	1,383	1,084	13,720

Note: Median values.

Sources: ALGA 2021; ABS 2022a.

underspends by 42 per cent of their current budget, and for remote areas the underspend is more than 75 per cent. This compares to less than 14 per cent for councils located in major cities.

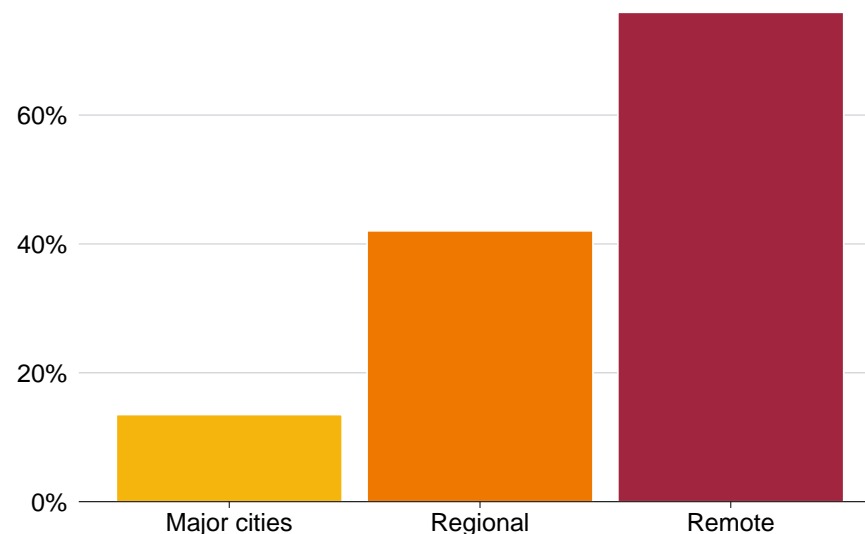
Roads in regional and remote areas are not expected to meet the same standard as more heavily-trafficked roads in densely populated areas. But we aren't even spending enough to maintain these roads in their current condition.

Chapters 3 and 4 explain why more funding is needed, and how the allocation of funding should change. Chapter 3 argues that untied funding, which the federal government provides to all councils, currently favours the more populous states and directs too large a share of the money to councils that are already self-sufficient. Chapter 4 argues that tied grants, which the federal and state governments provide to support specific national and state priorities, tend to come with too much pointless red tape, which often has unintended consequences.

But additional funding alone will not be enough to solve the problems faced by local road managers, because many councils, particularly in regional and remote areas, do not have the staff, data, or technology they need to manage their roads effectively.

**Figure 1.2: The underspend on road maintenance is much greater in regional and remote areas**

Median additional spending needed to maintain roads in current condition



Sources: Grattan Institute modelling (see Appendix A on page 65), ALGA 2021.



Despite well-established guidelines that detail how to manage roads properly,<sup>7</sup> there is still a gaping divide between best practice and what many councils are doing. In Grattan's Road Manager Survey (see Box 1), a quarter of councils reported not knowing how many bridges they managed within  $\pm 10$  per cent accuracy, and this rises to almost half for remote councils. Missing or inadequate council planning documents often fail to meet legislated requirements, let alone best practice, and councils frequently fail to consult their communities on road priorities.

But many councils can't do better because they don't have the data, technology, staff, or time. Almost 90 per cent of councils report having difficulty hiring in the past 12 months, particularly for engineers and asset managers.<sup>8</sup> Nearly half of remote councils report having no staff dedicated to asset management, despite being responsible for an average of 1,200km of roads.<sup>9</sup> Data collected to help councils benchmark their performance are riddled with errors, and the technology councils need to collect and store accurate data on their assets is often unaffordable.

Chapter 5 outlines the uphill battle councils face when it comes to managing their assets effectively, and provides a long-term plan to build capacity so that councils can determine and deliver the services that their communities value.

### Box 1: The Grattan Road Manager Survey

Councils across Australia are highly varied. Different councils do things very differently, depending on the communities they represent, their levels of funding, the skills of their staff, and their geography.

To better understand these different approaches and experiences, Grattan Institute conducted a survey in mid-2023 of council road managers. We asked 23 questions, covering how councils operate, their funding arrangements, their asset-management practices, and the challenges they face in managing their roads.

Councils within the NSW Central West Joint Organisation piloted the survey, before it was distributed to all councils via state Local Government Associations. Eighty-one councils, or about 15 per cent of all councils, responded.

For further detail of the questions and responses, see Appendix D on page 71.

- 
7. In the Grattan Road Manager Survey, councils listed the guides they used to assist them with asset management. Commonly listed guides include NAMS+ by IPWEA, the International Infrastructure Management Manual by IPWEA, the Australian Road Research Board's best practice guide, Austroads Integrated Asset Management Guide for roads, and the ISO 55001 Asset Management Standard.
  8. Grattan Road Manager Survey. See Appendix D on page 71 for further detail.
  9. ALGA (2021).

### 1.3 The problem is set to grow

While it may be tempting to put off providing additional funding for maintenance for as long as possible, doing so is often costly, for two reasons.

First, the need for maintenance is only growing as heavy rainfall and extreme heat events occur more frequently. Both cause significant damage to roads.

Second, putting off maintenance is a false economy. If you put off a low-cost preventative maintenance procedure now, the problem can grow into a much bigger one that will require a much more costly intervention down the track.

#### 1.3.1 Climate change is exacerbating road damage

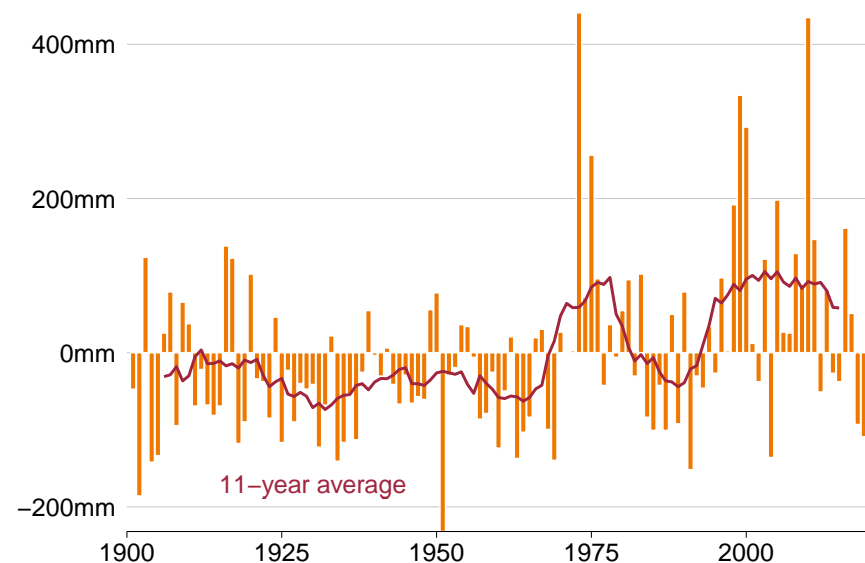
Even in the face of high uncertainty and variability, two key trends in Australia’s climate are clear: heavy rainfall and extreme heat are both on the rise.

The intensity of heavy rainfall events in Australia has increased by about 10 per cent or more in some regions in recent decades.<sup>10</sup> This is particularly evident in northern Australia, where average wet season rainfall and daily rainfall totals from thunderstorms have increased since the 1970s (Figure 1.3).

More generally, the proportion of total annual rainfall that comes from heavy rain days has increased, and current trends indicate that extreme rainfall events are likely to become more intense.<sup>11</sup>

Excess water has a very detrimental impact on roads. Heavy rainfall affects the slopes and batters of the road formation, and, in extreme

**Figure 1.3: Rainfall has increased in northern Australia**  
Difference between annual rainfall and long-term average rainfall during wet season, northern Australia, 1910 to 2020



Notes: Anomalies of October to April rainfall for northern Australia (north of 26°S inclusive). Anomalies are calculated with respect to the 1961 to 1990 average.

Source: Bureau of Meteorology 2023.

10. Bureau of Meteorology (2023).

11. Binskin et al (2020, pp. 58–62).

cases, can wash a road away entirely.<sup>12</sup> When water gets into the sub-layers of a road, it causes major damage to the pavement levels; when there is water under a road's topmost level, or seal, vehicles driving along that seal cause the water to pop up and create potholes.

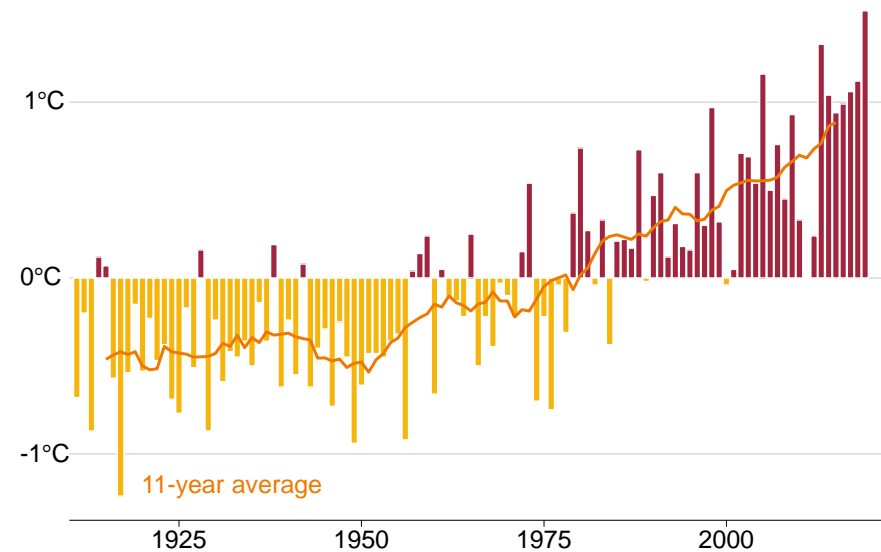
Extreme heat is also on the rise. The period from 1910 to about 1965 saw temperature variations that were usually below the long-term average annual temperature, but since then temperature anomalies in Australia have usually been above the long-term average – and are rising (Figure 1.4).

Extreme heat is also very detrimental. It effectively bakes the surface of asphalt or bitumen, drying it out so that it cracks or fails, and leaving it vulnerable to water getting into the pavement level and causing additional damage.

The impact of water damage on roads has been so pronounced that in 2023 Austroads, the body representing Australasian government road transport and traffic agencies, overhauled its technical guidance on how agencies should build or upgrade roads in light of changing hydrology.<sup>13</sup>

The Australian Local Government Association estimated that repairs to roads in NSW, Victoria, South Australia, and Queensland caused by major flood events in 2022 would cost \$3.8 billion,<sup>14</sup> more than the total annual spending on local road maintenance in those states.<sup>15</sup> Shortcomings in the current arrangements for disaster recovery

**Figure 1.4: Average temperatures are rising**  
Difference between annual mean temperature and long-term average temperatures, Australia, 1910 to 2020



Source: Department of Climate Change, Energy, the Environment and Water 2021.

12. Allan (2023, pp. 1–2).

13. Austroads based its update on Geoscience Australia's analysis of the increasing and changing effects of rainfall and run-off. Key innovations in the new Austroads guidance include a new flood peak estimation technique, and more detail of flood events that are rarer than just a 1 or 2 per cent annual probability of being exceeded. Source: Babister et al (2023, p. 4).

14. ALGA (2022).

15. ALGA (2021).

are being examined by the Senate Select Committee on Australia's Disaster Resilience, and the Independent Review of Commonwealth Disaster Funding.<sup>16</sup>

### 1.3.2 The maintenance bill will only get worse if it's delayed

Many councils are facing highly constrained budgets. This creates strong incentives to delay any repairs until a problem reaches the point where a road is unusable, as does the fact that the impacts and costs associated with delaying maintenance are not felt for some time, while political terms are relatively short.

Many councils have ended up operating under a default 'worst-first' maintenance regime, where there is a permanent backlog of rehabilitation works – and even failure of parts of the network – because of funding shortfalls.

This approach obviously creates costs to road users. But it can also result in councils spending a lot more to repair a road once its condition has become critical, and can end up costing much more over the life of the asset than more minor repairs carried out sooner.

The less costly option (in present-value terms) is known as a 'stitch-in-time' model, where repairs and rehabilitation occur at the optimal time to prevent accelerating deterioration that would require more costly interventions later (Box 2).

Many road managers find that stitch-in-time pavement strategies provide a return on investment of around two to three times better than that achieved when assets are allowed to either deteriorate in an uncontrolled manner, or to a condition where full replacement is necessary.<sup>17</sup> Full rehabilitation works are very costly, of the order of 5

#### Box 2: What do we mean by maintenance?

A new road deteriorates only gradually at first; there is very little cracking of pavement surfaces, rutting occurs only little by little, and while roughness does increase steadily over time, it tends not to be felt by drivers when the pavement is relatively new.<sup>a</sup> Over time, road users experience heightened crash risk, longer and less reliable travel times, a less pleasant ride, and higher vehicle emissions. Maintenance is intended to mitigate these effects.

Maintenance of a road involves all the actions needed to keep it as near as practicable to its original condition, or to restore it to that state. It includes:

- routine maintenance, including minor, frequent tasks such as pothole patching, crack sealing, drainage maintenance and repainting line markings;
- periodic maintenance, undertaken every few years, such as resurfacing, where a new asphalt overlay is laid; and
- urgent maintenance of unforeseen problems needing immediate attention, such as clearing landslides that block roads.

People define maintenance in a variety of ways; in this report, we include rehabilitation and renewal at the end of a road's useful life as part of road maintenance. Rehabilitation and renewal are sometimes excluded from the definition of maintenance because they are accounted for differently in council budgets.

a. D. T. Martin and Choummanivong (2015, Chapter 5).

16. Parliament of Australia (2023) and National Emergency Management Agency (2023a).

17. Toole et al (2021, p. 7).



to 10 times as much as a preventative treatment program.<sup>18</sup> Several Australian road agencies use a stitch-in-time approach, and Austroads recommends it highly.<sup>19</sup>

Early interventions also have more predictable outcomes because the nature of a road's decay once it enters a rapid deterioration phase is more variable and less well understood than earlier on, when deterioration is more gradual.<sup>20</sup>

Several case studies confirm the savings from a stitch-in-time approach. One study modelled the costs to VicRoads over a 10-year period of various optimised maintenance regimes for key non-urban Victorian highways.<sup>21</sup> The point of comparison was a business-as-usual scenario where the near-term budget was constrained, and minimum standards still had to be met. The study found that, despite higher annual budgets, each of the optimised regimes cost VicRoads less than the business-as-usual cost over the 10-year period, because delaying maintenance in favour of an initially lower-cost minimum standard increased costs in the medium and long term. In other words, the study showed that penny-pinching in the short term is a false saving.<sup>22</sup>

The Queensland roads agency made a similar finding in a study that modelled the accelerated rehabilitation of a 71km stretch of the Dawson Highway. In the model, the rehabilitation works were designed to be financed by a loan facility, with repayments to be met from future funding allocations to the Queensland roads agency and from any

savings arising from completing the works in a more cost-efficient way. The study found that accelerated rehabilitation works funded this way to be much more cost-efficient, leading to a saving of the order of 17 per cent of the normal maintenance funding.<sup>23</sup>

#### 1.4 Poor road quality hurts the community

Road maintenance may not make for an inspiring election announcement, but nothing fires up Australian drivers quite like an unfilled pothole.

In a recent survey, Victorians rated both sealed and unsealed local roads among the most important of all council services, but these were also the services where Victorians were least impressed by councils' performance (Figure 1.5 on page 15). Unsealed roads were ranked worst, and sealed roads sixth worst, out of 28 council services.

In NSW, almost 30,000 people – a record number – voted in a 2022 NRMA survey aimed at identifying the state's worst roads.<sup>24</sup> Similar surveys by insurers in Queensland, Victoria and Tasmania also received several thousand votes.<sup>25</sup> Some disgruntled drivers in Melbourne have even begun to protest their poor quality roads by planting gardens in potholes that have taken too long to be fixed.<sup>26</sup>

It's understandable that road users are upset, because the burden felt by the community from poor road maintenance is large.

Roughness and defects on the road surface increase the risk of crashes, particularly in wet conditions. It is estimated that there are more than 960,000 road crashes involving 1.7 million vehicles each year in Australia. In 2022, 1,194 people died in crashes on Australian

---

18. Toole et al (2021); and Western Australian Auditor General (2009, p. 19).

19. Toole et al (2021, p. 7). Also recommended by Western Australian Auditor General (2016, p. 13)

20. D. T. Martin and Choumanivong (2015, p. 1).

21. The Hume, Goulburn Valley, Western, and Sturt Highways, and the Princes Highway as far east as Sale, these being the National Land Transport Network roads outside Melbourne.

22. D. T. Martin et al (2018, pp. 39–41). The study was conducted by the Bureau of Infrastructure, Transport and Regional Economics.

---

23. Naudé et al (2008).

24. Bowring (2023).

25. RACQ (2023), RACV (2023) and RACT (2023).

26. Scriberras (2023).

roads,<sup>27</sup> and every year almost 40,000 people are hospitalised.<sup>28</sup> BITRE estimate that the social cost of road crashes – including monetised costs to individuals and their families, the health system, other drivers, workplaces, and governments – is around \$27 billion each year.<sup>29</sup>

Regional and remote areas are over-represented in road accidents, and in the serious injuries and fatalities resulting from them, due to a combination of high speeds, poorly maintained roads, a lack of roadside safety infrastructure, and limited access to health services.<sup>30</sup>

In addition to the safety risks, and higher maintenance costs later, poorly maintained roads impose other costs on road users. Rougher road surfaces increase travel times and vehicle costs, and are unpleasant to drive on. And hitting a pothole is not only dangerous, but can also cause significant damage to the wheel, axle, and suspension, often requiring a tow-truck and costly repairs.

---

27. BITRE (2023).

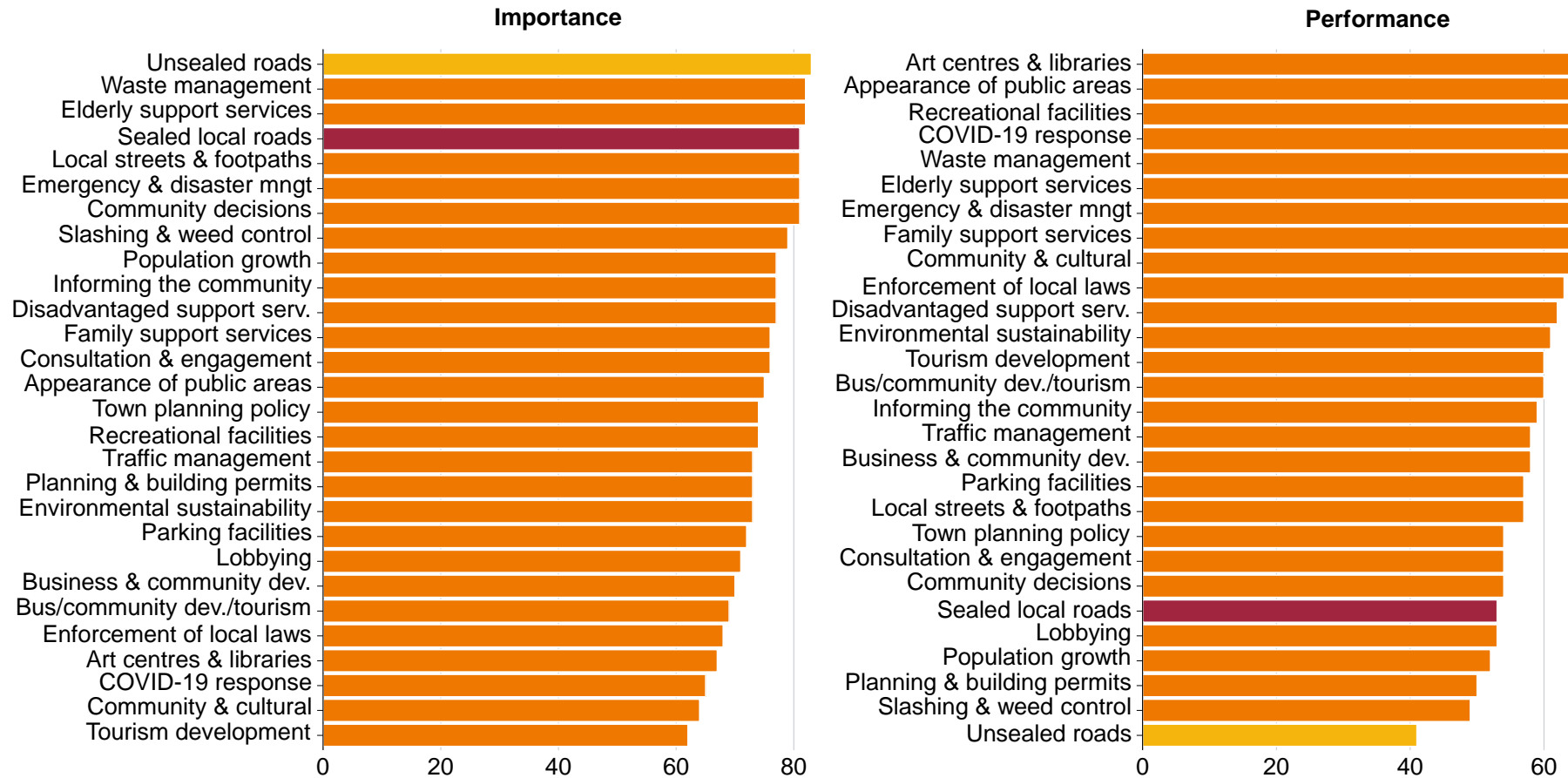
28. Ibid.

29. BITRE (2022a).

30. Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023b), Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023c) and Parliament of Australia (2022).

**Figure 1.5: Victorians rate roads as a priority, but aren't happy with councils' performance**

Community ratings of performance and importance of council services, index



Note: Respondents answered on a 5-point scale from 'not all that important' to 'extremely important'. These scores are converted to an index between 0-100.

Source: JWS research 2023.

## 2 Funding for local roads needs to be much higher

Plenty of drivers are already complaining about the state of local roads, especially country roads, and for good reason. Yet just to maintain local roads in their current – often very poor – state would require at least an additional \$1 billion of expenditure each year, and there's no current provision for that.

It's not that there is a shortage of money for roads in general. Investment in new roads has reached new heights over the past decade. But state and federal governments are much more interested in building big new roads than in maintaining the ones we already have, particularly those under local government management.

There's no agreement about who should bear the cost of maintaining local roads. While it would be ideal if local governments could fund this work themselves, that's not a realistic option for the many councils that already impose substantial rates burdens on lower-income populations. Councils are further stymied because higher levels of government induce them to divert funds away from road spending, and impose restrictions on how councils raise and spend their own revenue.

While state governments are responsible for most of the administrative and cost burdens councils face, states do not balance these cost burdens with a reliable and adequate funding stream for local roads. The difficulty for states is that they themselves rely on the federal government to partially fund their spending responsibilities. This chapter therefore argues that the federal government is best equipped to make up the shortfall in funding for the maintenance of local roads. And its incentive to do so is its interest in the road network as a whole – in ensuring that trucks and people can get to where they need to go safely and reliably, all around the country.

### 2.1 The maintenance underspend is at least \$1 billion per year

Roads matter to all sectors of the economy and all parts of society, and it's not surprising that road use has increased steadily over time (Figure 2.1 on the following page). This is particularly true for trucks, which are responsible for most of the damage to roads. Truck freight was barely affected by the recessions of the 1970s, 1980s, 1990s, the global financial crisis of 2008-09, or the response to the pandemic.

But even though roads are the arteries of the nation, road maintenance spending has barely grown. For outer regional and remote areas, maintenance expenditure has actually gone backwards over the last decade.<sup>31</sup> Grattan Institute modelling estimates that these trends – ever more road use and lagging investment in road maintenance – have led to an annual maintenance underspend of \$1 billion.<sup>32</sup> That is, simply to stop the network from deteriorating further, councils would need to collectively increase annual spending on road maintenance by almost a quarter. The cost of reconstructing and resealing roads that have reached the end of their useful life is included in our estimate of the underspend.

### 2.2 There's plenty of funding for building roads, but not for maintaining them

The past decade has been a boom time for public investment in transport infrastructure. In NSW, infrastructure spending increased from around 3 per cent of gross state product (GSP) in 2013-14 to almost 4 per cent in recent years, and the government keeps revising upwards what it expects to spend (Figure 2.2 on page 18). Other states

---

31. ALGA (2021).

32. Grattan analysis. See Appendix A on page 65 for further detail.



and the federal government are similar.

Not only has the amount of work underway reached all-time highs, so has the size of projects being built. Australian governments have gone from having only a couple of very large projects under construction at any one time to a point where most of their transport infrastructure spending is devoted to projects worth \$5 billion or more.<sup>33</sup>

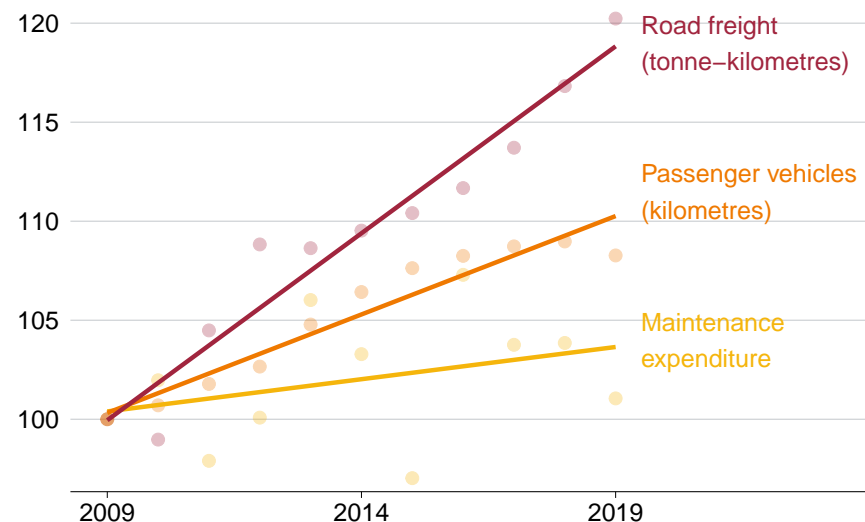
But even though spending on roads and transport is so high, it is almost all for new assets. There is a serious mismatch between new investment and the maintenance of roads we already have, and this mismatch gives rise to three problems.

First, the rising prevalence of megaprojects has drawn labour, equipment, and materials away from smaller projects, and created near-term shortages that have pushed up the prices for engineering construction work in general. This makes it particularly difficult for councils to attract and retain staff to work on local road maintenance at affordable prices.<sup>34</sup>

Second, the additional investment in new roads is brewing a problem for later. That's because construction accounts for only 20 per cent or so of the total lifetime cost of a road.<sup>35</sup> The majority of costs come from operating, maintaining, renewing, and disposing of a road. And because most of these expenses occur well past the forward estimates – and often well past the end of any given political term – the government of the day lacks incentive to worry about the long-term costs associated with the exciting new infrastructure projects it commits to. This problem is common to all levels of government, since all levels contribute to the funding of roads (Figure 2.4 on page 20).

**Figure 2.1: Maintenance expenditure on local roads has grown much more slowly than road use**

Growth in road use and maintenance expenditure, indexed relative to 2009



*Notes: Expenditures determined from all councils in the National Local Roads Data System that have data available for 2009-2019. Expenditure includes renewal and has been adjusted by the real BITRE Road Construction and Maintenance Price (RCMP). Passenger kilometres and freight tonne-kilometres refer to all roads; data for locally-managed roads are not separately reported.*

*Sources: ALGA 2021, BITRE 2022b.*

33. Terrill et al (2020).

34. Grattan road manager survey. See Appendix D for further detail.

35. Department of Infrastructure, Transport, Regional Development and Local Government (2018, p. 50).

Finally, overinvesting in megaprojects and underinvesting in maintenance shortchanges the community, because the net benefits of local roads projects are typically much higher than those of megaprojects. For instance, a small local Black Spot project is only eligible to be considered for funding if its benefits to the community outweigh its costs by two to one; by contrast, even before their costs blew out by billions of dollars, Melbourne’s West Gate Tunnel and the Inland Rail freight line both were only expected to yield one dollar of benefit for every dollar spent.<sup>36</sup>

This year, the federal government conducted a 90-day review of its \$120 billion infrastructure pipeline, and signalled a pause on projects that are at risk of cost blowouts.<sup>37</sup> The commitment to spend \$120 billion over 10 years still stands, however. Taxpayers would see greater value if some of that funding pipeline were redirected from building new assets into the maintenance of roads we already have. This would not even be particularly expensive: the increase in funding needed to deal with road maintenance is only a small fraction of what federal and state governments spend on roads overall (Figure 2.3 on the following page).

### 2.3 Governance links between councils and higher levels of government are weak

Local governments are constituted under the laws of state governments and territory governments.<sup>38</sup> They are not recognised in the Australian Constitution. One implication of this is that there is no uncontested mechanism for the federal government to transfer funds directly to councils.<sup>39</sup>

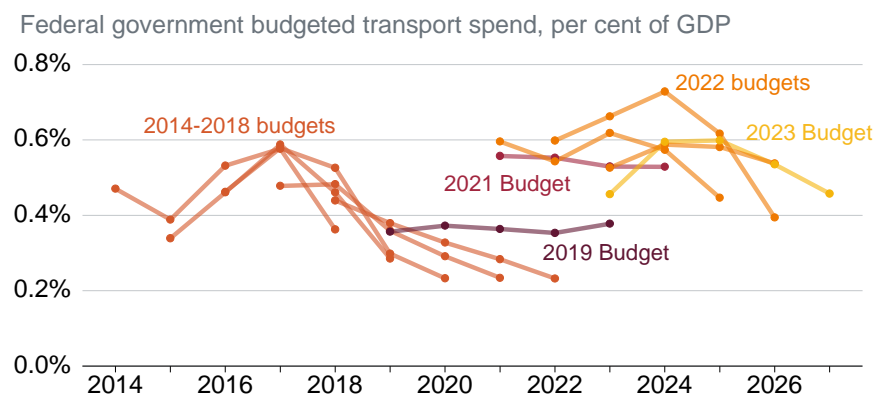
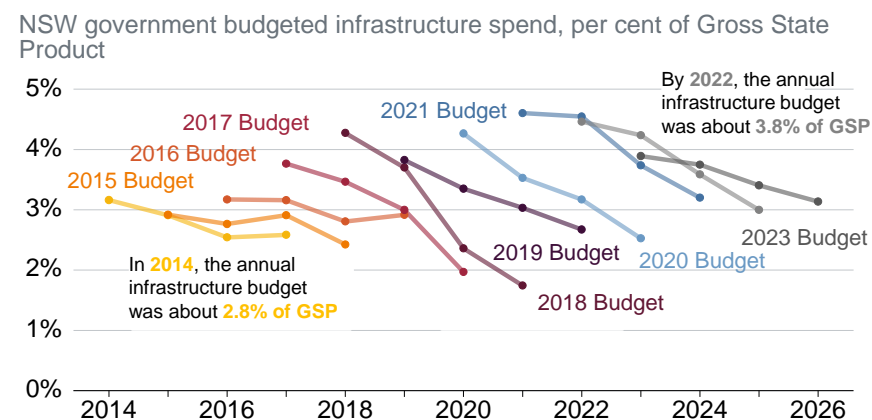
36. VAGO (2019, p. 53); and Infrastructure Australia (2016).

37. Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023d).

38. The ACT government undertakes both territory and local government functions.

39. Drew and Dollery (2015, p. 522).

**Figure 2.2: Spending on infrastructure has grown rapidly over the past decade**



Source: Grattan analysis of NSW and federal budget documents.

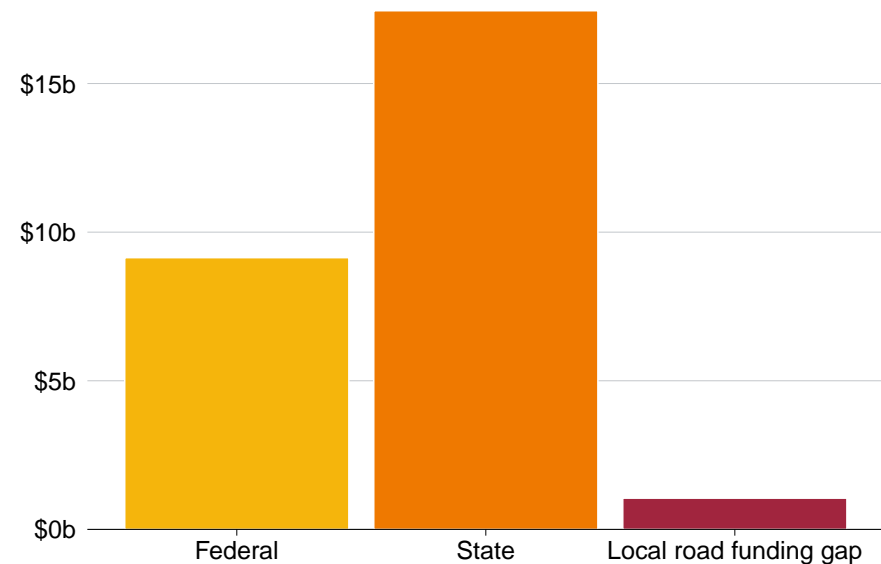
In practice, the federal government provides untied funding to local government via state grants commissions. It specifies principles to guide the distribution of the funds to councils, but it does not insist on a uniform approach, and state practices vary considerably. The federal government also provides tied grants, as do the states. The bulk of council revenue is raised by councils themselves, principally through property rates.

But the governance relationships between funding and spending bodies are weak. The delegation of authority to local government to carry out specific responsibilities is not clean or clear; the control that local governments need to carry out their delegated roles is often weak, particularly in terms of resourcing; and accountability to the level of government providing the funding is poorly designed and can at times be in tension with councils' accountability to their communities.

The upshot is that it's far from obvious which level of government should fund the \$1 billion per year gap. The following sections lay out the arguments for and against different means of funding the gap, and concludes that the federal government is the level of government that should make up the \$1 billion annual shortfall in funding for the maintenance of local roads.

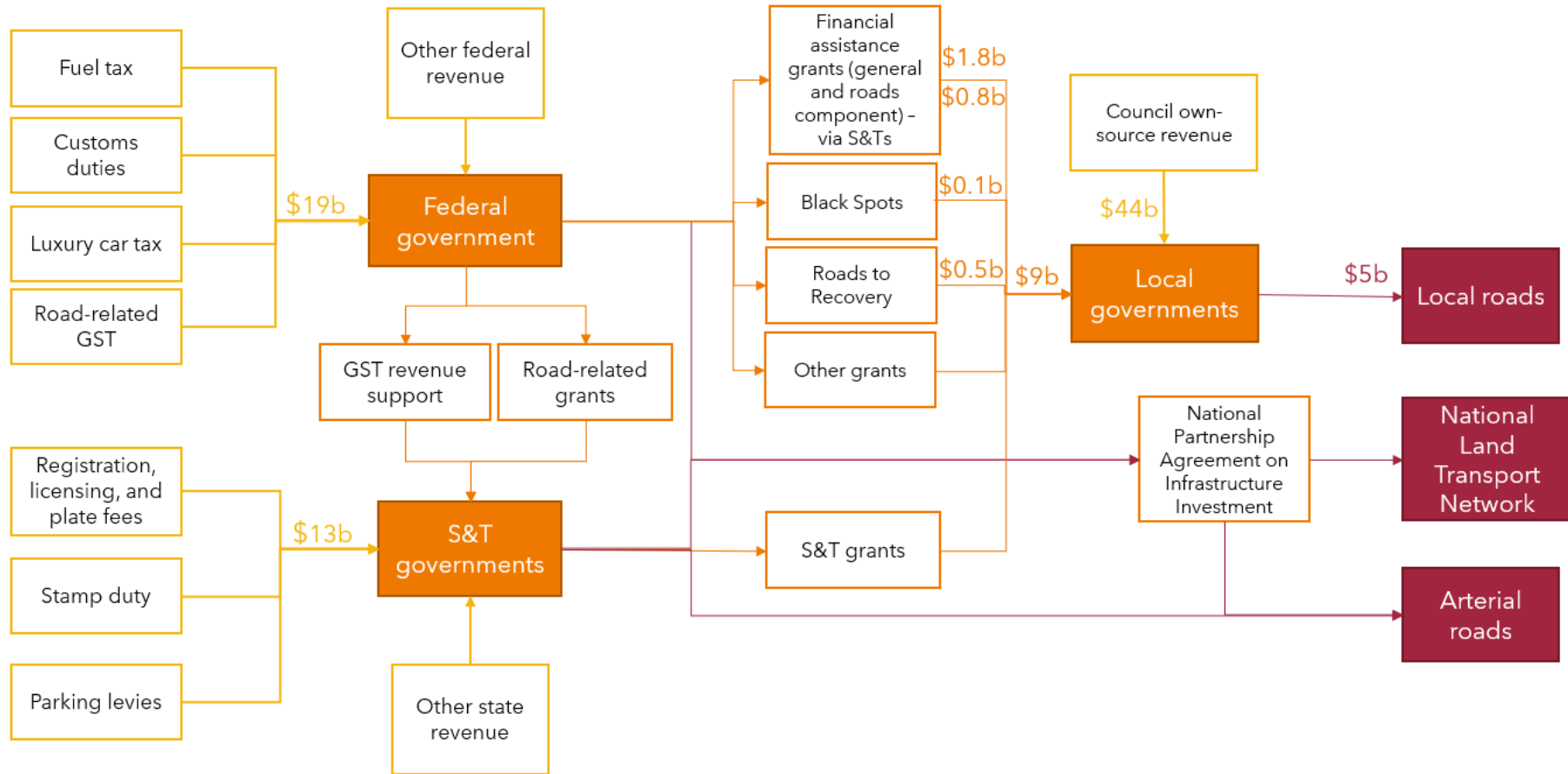
**Figure 2.3: The required increase in funding is only a small share of annual road expenditure**

Annual road expenditure by level of government, and local road funding gap, 2021



Sources: BITRE 2022b, Grattan modelling (see Appendix A).

Figure 2.4: How road funding works



Sources: BITRE 2022b; ALGA 2021.



## 2.4 Local governments are often at their limit of raising their own revenue

Local governments raise 83 per cent of their funding from their own sources.<sup>40</sup> The single largest source of council revenue is land rates. Rates are a form of land tax levied on property owners, both business and residential. Different councils have different valuation methods, payment frequency, and tax rates. Councils also raise substantial revenue from the sale of goods and services.<sup>41</sup>

Land taxes such as council rates are generally considered to be efficient taxes.<sup>42</sup> Council rates also have the benefit of being levied and spent by the same level of government, a feature that minimises the fiscal illusion that can result when the cost of service provision is masked from citizens.

Even though council rates have these attractive features, the solution to the road maintenance funding gap is not a simple matter of raising rates, for three reasons. First, the capacity to increase rates revenue is very mixed across the country; second, federal and state governments induce councils to divert funds away from roads by various means; and third, state governments restrict councils' control of their own revenue. These factors are explained in the subsections below.

### 2.4.1 Many regional and remote councils already place a high rates burden on lower-income populations

Regional and remote councils manage far larger road networks than metropolitan councils. Even though local roads in more remote areas generally don't have the traffic load of urban roads, some roads are

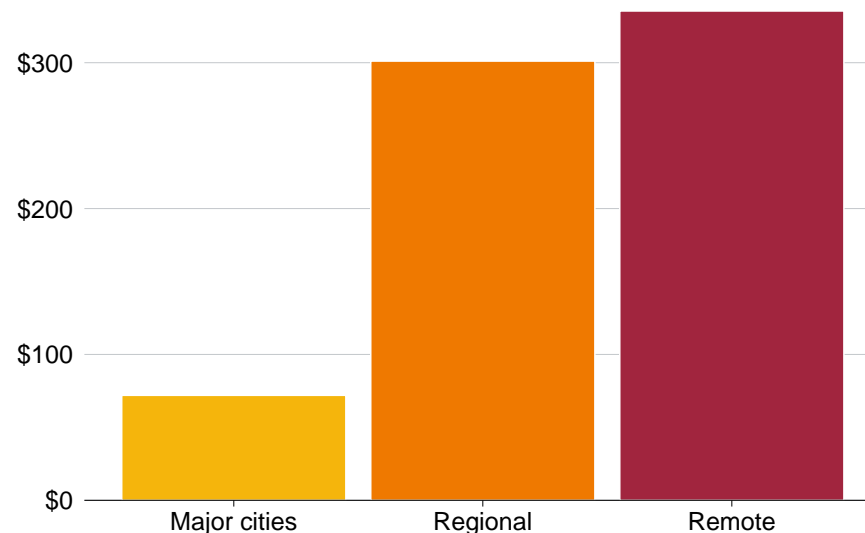
40. Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023a, p. 4).

41. Ibid (p. 5).

42. Cao et al (2015, Chapter 6).

**Figure 2.5: Regional and remote councils face higher costs per resident to maintain sealed roads**

Median estimated sealed network maintenance cost per resident, 2021



Source: Estimates determined by Grattan Institute modelling (Appendix A on page 65).

heavily trafficked, and, in any case, there is a minimum standard that councils must maintain for the safety of the driving public.

But maintaining large networks is expensive, and maintaining large networks in regional and remote areas is particularly expensive. The cost per person is much higher in regional and remote areas than in major cities (Figure 2.5).

The higher cost is partly due to remoteness, and partly due to the wide geographic area that remote councils cover. These higher costs are borne by smaller populations, and remote residents tend to have lower incomes. There's also less scope for remote and regional councils to raise revenue from sources such as parking fees. Nonetheless, remote

councils are, on average, already raising \$1,778 more in annual rates and charges per person than major city councils (Figure 2.6).

### 2.4.2 Federal and state governments induce councils to divert funds away from roads

The focus of local government has shifted over time. While roads are still a key priority, transport expenditure has fallen from almost 50 per cent of total local government expenditure in the 1960s to 21 per cent today.<sup>43</sup>

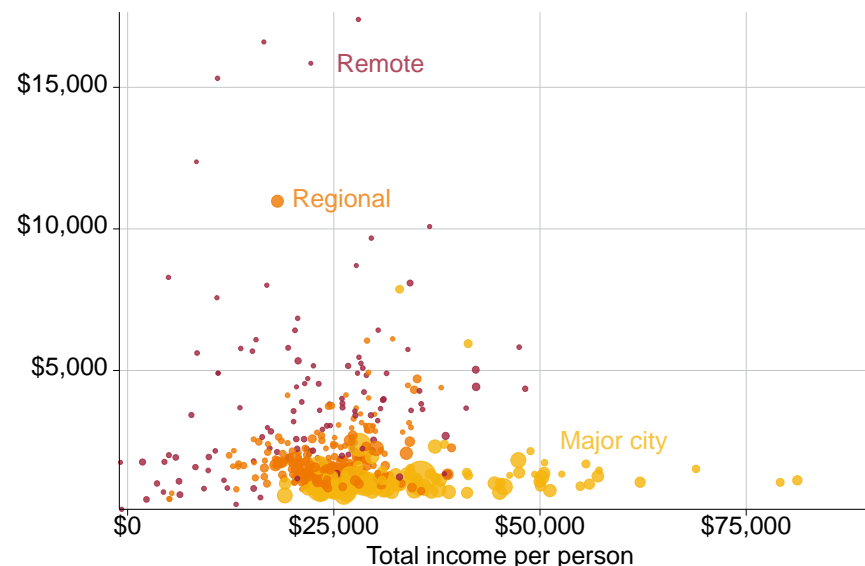
Instead, councils have focused more on the environment and human services. Child care and aged care are provided by private and not-for-profit providers in cities, but in regions they are often not viable and it falls to councils to provide services. Environmental protection was only identified as a separate area of expenditure in 2017-18, and now accounts for 15 per cent of local government expenditure (Figure 2.7 on the next page).

The changing focus of local government is sometimes attributed to cost shifting from higher levels of government. The argument is that councils curtail road expenditure because they find they must divert some of their revenue to functions and responsibilities legally required of them by other governments without sufficient funding to cover them or the capacity to raise more revenue.

Cost shifting is hard to quantify because of woolly demarcation between the roles of state and local government. For instance, one state specifies the role of a council as ‘to provide good governance in its municipal district for the benefit and wellbeing of the municipal community’;<sup>44</sup> another requires local government ‘to provide services and facilities that benefit its area, its ratepayers and residents, and

**Figure 2.6: Regional and remote Australians face a higher rates burden than people in major cities**

Average rates and charges revenue per resident, by council



Notes: Size of dots reflects population size. 2022 dollars. See Appendix B on page 69 for further detail on how we estimate income per resident by Local Government Area. Sources: ABS 2016; ABS 2022b; ABS 2021a; ABS 2022a; ABS 2020; ATO 2020a; ATO 2020b; and publicly available information from council budget documents.

43. Commonwealth Grants Commission (2001) and ABS (2023a).

44. *Local Government Act 2020* (Vic), s. 8.

visitors to its area'.<sup>45</sup> It is simply not clear in many cases whether any given service obligation can be considered a cost shift or part of the council's core business.<sup>46</sup>

Even for services that are clearly the responsibility of local government, there tends to be little clarity about required service quality. Councils determine how responsive they are to changing community needs and attitudes – for instance, whether to install women's change rooms at sports fields in order to accommodate growing numbers of women taking up football and soccer,<sup>47</sup> or to extend library opening hours to service a lower socio-demographic community.

Notwithstanding this vagueness, there are some clear cases of cost shifting. They come about in two ways.

**The federal and state governments sometimes reduce established funding**

State governments generally do not reduce road funding directly, because their contribution to local roads tends to be non-ongoing;<sup>48</sup> rather, the difficulty councils face is that reductions in funding for other services squeeze the budget for road maintenance.

Library funding in Victoria is a good example of this. In the 1970s, it was shared 50:50 between the state and local governments; today the state contributes just 17 per cent. Similarly, base funding for school crossing supervisors in Victoria is well below the 50 per cent in place

45. *Local Government Act 1999* (SA), s. 7.

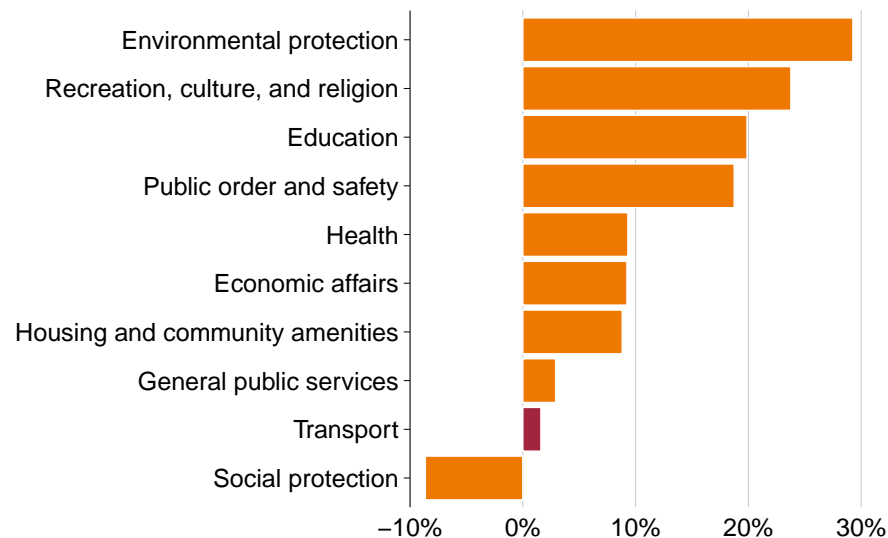
46. McCracken (2023, p. 5); and SA Productivity Commission (2019).

47. Sutton (2019, p. 3).

48. States' contribution to local roads has been highly variable over the past twenty years, but in aggregate has increased more in real terms than federal funding has (based on a comparison of three federal programs - Financial Assistance Grants, Roads to Recovery and the Local Roads and Community Infrastructure Program - with total transfers from federal and state governments to local governments).

**Figure 2.7: Spending on transport has grown much more slowly than on other areas**

Real growth in local government expenditure between 2013 and 2022, by category



Source: ABS 2023a.

in the 1970s.<sup>49</sup> Some councils argue that school crossings are a state responsibility.<sup>50</sup>

Victorian councils also pay more than they used to for costs associated with their planning function. One council noted that it must now fund the independent panel required to make recommendations on planning

49. While the 2023-24 budget increased the state's funding contribution for school crossing supervisors back to nearly 50 per cent, this top-up only lasts for one year.

50. Eddie (2022).

scheme amendments, as well as heritage advisory services and heritage studies.<sup>51</sup>

But it's the federal government that provides the primary untied ongoing funding to local councils. Its decision to freeze indexation of the Financial Assistance Grants between 2014-15 and 2016-17 was therefore most unwelcome to councils. In a related move, the federal government also removed the Local Roads Supplementary Grant to South Australia in 2014-15, before reinstating it in 2017-18.

### State governments sometimes place legal obligations on councils without funding to match

Councils administer some legislation and regulations on behalf of state governments, but these functions may come without funding to cover the costs. For instance, councils in various states manage the regulation of dogs and cats;<sup>52</sup> litter;<sup>53</sup> roof trusses;<sup>54</sup> noxious weeds and flood controls; flammable cladding on buildings;<sup>55</sup> and the auditing of food businesses under food safety regulations.<sup>56</sup> In some states councils are required provide homes with four bins by 2030.<sup>57</sup>

The rules surrounding disaster recovery are another case of obligations that exceed the funding provided to meet them. Councils are underwritten by the federal government to build back after a flood, fire or other natural disaster; however, this contribution is often limited to like-for-like replacement.

Limiting the funding to rebuilding like-for-like prevents councils from rebuilding in a way that would be more disaster resilient, or otherwise

less costly in the medium or longer term. But funding to build back better is only available under Category D, exceptional circumstance funding. The federal government's rules also include restrictions on reimbursing the use of 'day labour' and 'numerous [other] provisions to the use of the betterment provisions'.<sup>58</sup>

In many cases, betterment saves money in the long term by preventing damage in future events (Figure 2.8 on the following page). For every dollar spent on disaster risk reduction, there is an estimated \$9.60 return on investment.<sup>59</sup> A Queensland betterment fund established in 2013 has funded 531 betterment projects to date; of those, 423 projects have been subsequently affected a total of 1,173 times by 44 separate natural disaster events.

### 2.4.3 State governments restrict councils' control of their own revenue

Even though most of the revenue councils spend is raised from their own sources, in the form of council rates, fees and charges, state governments restrict councils' capacity to control their own revenue in several important ways.

The most clear-cut of these is rate capping, or rate pegging, which limits the amount of revenue a council can raise from its largest revenue source. Rate capping has been in force in NSW since 1977 and in Victoria since 2016 (Figure 2.9 on page 26).<sup>60</sup>

Whether or not states have rate capping, they place limits on council rates for certain types of property owner (Table 2.1 on page 27). Typical

---

51. O'Rourke (2017, p. 3).

52. SA Productivity Commission (2019, p. 135); and Clarence Valley Council (n.d.).

53. SA Productivity Commission (2019, p. 135).

54. Sutton (2019, p. 6).

55. Eddie (2022).

56. Sutton (2019, p. 6).

57. Eddie (2022).

58. Local Government NSW (2014, p. 5).

59. National Emergency Management Agency (2023b).

60. In NSW, the annual limits to increases in councils' general rate income are calculated by estimating the change in the costs of delivering services, less an assumed (or desired) productivity factor to ensure ratepayers share in council efficiency gains. Councils can alter categories of rates up or down, provided they stay under the overall peg. Victoria's process is similar.



examples are rebates for pensioners<sup>61</sup> and for community housing properties. In SA, the 75 per cent rebate for community housing has become a bigger burden for councils because it now applies to more properties: in recent years, the state government transferred a significant number of its properties to the not-for-profit sector. In Victoria, the state government floated a proposal in 2022 that social and affordable housing would be fully exempted from rates.

States may also restrict councils' control of their own revenue by imposing compulsory fees on them. Mandatory contributions to fund the emergency services – Fire and Rescue NSW, the NSW Rural Fire Service and the State Emergency Service – are the dominant form of cost shifting for regional councils in NSW.<sup>62</sup>

Sometimes, too, states legislate a limit on how much a council can charge for a service that is insufficient to cover the cost of provision. In NSW, for instance, the waste levy falls primarily on metropolitan and regional councils, and is estimated by the Local Government Association of NSW to cost \$305 million in a year.<sup>63</sup> SA's solid waste levy is set at a rate insufficient to cover the cost of the service, so councils pass on the remainder to ratepayers.<sup>64</sup> State legislation can also restrict councils' capacity to raise revenue through parking fines or development application fees.<sup>65</sup>

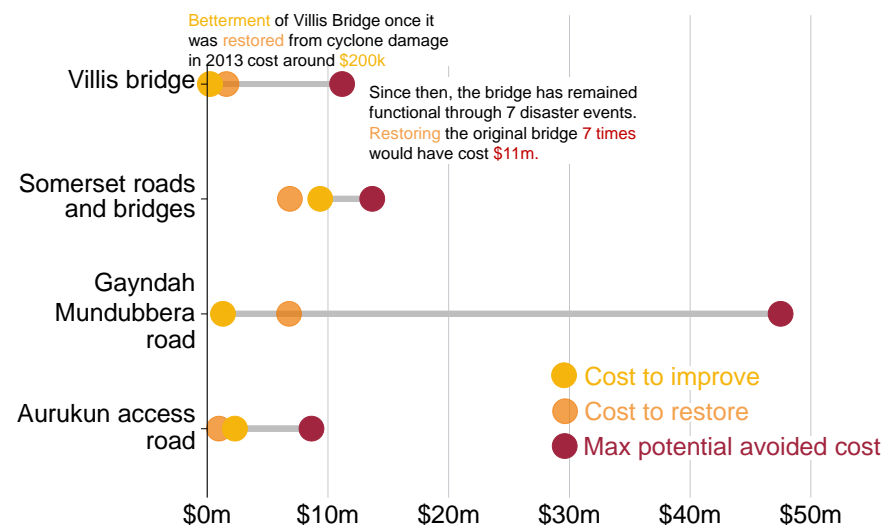
### 2.5 State governments already rely heavily on federal transfers

It is a feature of the Australian federation that states rely heavily on federal transfers, a condition known as 'vertical fiscal imbalance'. Almost since federation, the federal government has raised revenue

61. Local Government NSW (2018, p. 4).  
 62. Ibid (p. 10).  
 63. Ibid (p. 4).  
 64. Sutton (2019, p. 4).  
 65. Zbierski (2019).

**Figure 2.8: Building back better is often more cost-effective than like-for-like replacement**

Restoration, betterment, and potential avoided costs, selected projects



Notes: The maximum potential avoided cost is the cost of re-construction multiplied by the number of disaster events affecting the location of the infrastructure since the betterment project occurred.

Source: Queensland Reconstruction Authority 2023.

above its spending needs, and the states have raised revenue below theirs (Figure 2.10 on page 28). The degree of vertical fiscal imbalance has increased over time, exacerbated by the fact that the federal government has been the sole collector of income tax since 1942.<sup>66</sup>

Despite this, available data suggests that total state government funding for councils has increased relative to federal government funding.<sup>67</sup> However, the funding provided varies significantly from year to year, and is often non-ongoing and tied to specific state priorities. Because state governments rely on federal transfers, they tend to be reluctant to provide reliable ongoing funding to local government, particularly in untied form. What states should do is ensure that the administrative burden they impose on councils is proportionate and well-targeted.

## 2.6 The federal government has an interest in the road network as a whole

The federal government provides the key external source of untied funding for local government. It does this in the form of the Financial Assistance Grants. These are untied grants made to all local councils. It also provides funding tied to roads through Roads to Recovery grants and for specific road-related projects, such as safety-related upgrades under the Black Spot program.

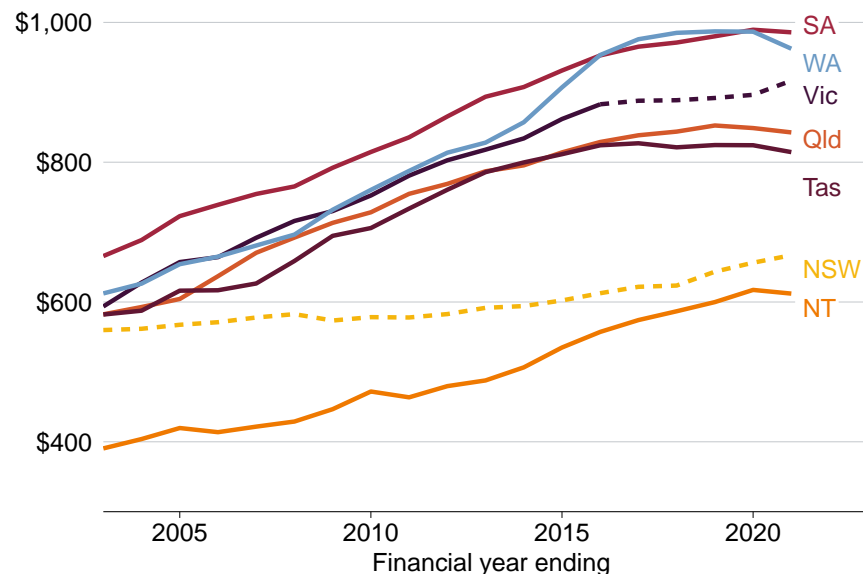
It makes sense for the federal government to contribute to local roads to some degree, for the same two reasons as it makes sense for it to contribute to state roads. One of those reasons is the spillover benefits of roads – the fact that the benefit of any given road extends beyond the boundary of the jurisdiction where it is located.

66. Drew and Dollery (2015, p. 519).

67. Total transfers to local government in comparison to major federal programs; the Financial Assistance Grants, Roads to Recovery and Local Roads and Community Infrastructure (ABS 2023c). The same trend is observed in federal and state road grants for local government (BITRE 2022b).

**Figure 2.9: Rate capping limits revenue options for NSW and Victorian councils**

Real municipal rates per resident, by state, 2003 to 2021



Notes: Dotted lines represent periods where rate capping or rate pegging is imposed on councils. 2022 dollars.

Source: ABS 2023b.

The second reason is the need for harmonisation: to ensure a minimum standard of road around the country that will enable businesses, workers and other individuals to get where they need to go.<sup>68</sup>

Roads are fundamental to the national economy. Every time a road allows an individual to get to work it contributes to that individual's ability to earn an income and so also to wider economic output. Most road freight journeys begin and end on local roads. Local roads are particularly important for primary producers to get their goods to markets.<sup>69</sup>

However, the funding provided by the federal government has not kept up with costs for councils. This is true of general federal funding, and it is also true in the sense that councils do not receive any of the revenue from heavy vehicle charges that are intended to reflect heavy vehicles' share of the cost of road construction and maintenance.

### 2.6.1 General federal funding has not kept up

Long-term, reliable funding underpins stewardship of long-term assets like roads. But even though federal funding is crucial to a significant subset of councils, it has not kept pace with costs.

One reason federal funding has fallen behind is because the federal government paused indexation of the Financial Assistance Grants for three years, between 2014 and 2017; and when it reinstated indexation, it did so from the new lower level. What's more, indexation is based on the Consumer Price Index (CPI), rather than a realistic index of costs councils actually face. The combined impact of the indexation freeze and CPI indexation has led to a funding gap in 2023 of close to \$600 million. This has occurred without any discussion of a change in responsibilities.

68. Council on Federal Financial Relations (2009, Paragraph E21).

69. Juturna Consulting (2010).

**Table 2.1: State-mandated rate exemptions**

Types of land	NT	Qld	NSW	Tas	WA	Vic	SA
Crown / State / Local council land	✓	✓	✓	✓	✓	✓	
Charitable or not-for-profit	✓	✓		✓	✓	✓	✓
Religious	✓	✓	✓		✓	✓	
Schools / Universities	✓		✓		✓		✓
National park / State forest		✓	✓	✓			
Aboriginal Land (Council)	✓	✓	✓	✓			
Hospital	✓	✓					
Mining						✓	✓
Recreation/sporting	✓	✓					
Transport (Corporations)			✓				
Museums	✓		✓				
Cemetery	✓	✓					
Agricultural / Horticulture			✓		✓		
Airport		✓					
Seabed				✓			
Hydro-Electric Corporation				✓			
Library	✓						
Community org.		✓					
Memorial for veterans						✓	
Park/playground	✓						
Conservation			✓				
Water Corporations			✓				
Youth centre	✓						
Cultivation of oysters			✓				
Showground / Horseracing		✓					
Emergency services							✓
Co-Operative Bulk Handling Ltd					✓		

Source: State and territory legislation.

There's also a problem with time-limited funding programs. For instance, the Local Roads and Community Infrastructure Program is currently in its fourth phase, offering \$750 million to councils in 2023-24, including for local roads. But the program terminates in 2025, and councils cannot rely on replacement funding beyond that date.

Stagnant or uncertain federal funding is particularly problematic in an environment where costs have increased. Cost escalation is a widespread problem for road construction and maintenance; the problems that major construction firms report are just as true for councils in regional and remote areas.

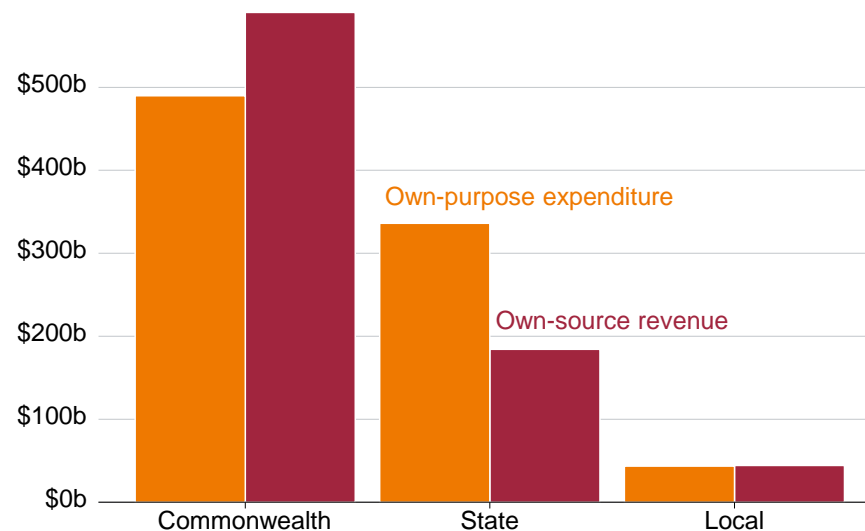
**Recommendation 1**

The federal government should increase the core funding to local governments for roads by:

- increasing the Financial Assistance Grants by \$600 million per year;
- increasing the ongoing funding for Roads to Recovery by \$400 million per year; and
- indexing both the Financial Assistance Grants and Roads to Recovery with a local government cost index that reflects changes in the costs that councils face, and population.

**Figure 2.10: States rely on the Commonwealth to fund their responsibilities**

Total own-source revenue and own-purpose expenditure by level of government



Notes: Calculated net of transfers between spheres of government. Expenses include depreciation but not net acquisition of non-financial assets. Total own-source revenue includes capital revenue.

Source: ABS 2023a.

**2.6.2 Councils are expected to provide heavy vehicle access without compensation**

Most road damage is caused by trucks (Box 3 on the following page), and truck operators pay for this through the Heavy Vehicle Road User Charge. This Charge is intended to cover the share of road construction and maintenance costs attributable to trucks; the

mechanism is a 28.8 cents per litre tax on fuel consumption, and vehicle registration fees that vary by vehicle type and state. The amount that freight operators pay is calculated based on the share of expenditure on roads that can be attributed to heavy vehicles, though the final decision on the heavy vehicle road user charge rests with the federal minister (Box 4 on the next page).

But even though local government road expenditure attributable to heavy vehicles is included in the calculation of freight charges, the federal government does not pass that revenue back to the road managers who remediate the damage.

This means that both councils and truck operators are getting a bad deal.

### 2.6.3 A raw deal for truck operators

Truck operators get a raw deal in three ways.

First, truck operators help fund major projects decided by state and federal politicians, but without much say in what investments would benefit the industry. The Australian Trucking Association has repeatedly requested that more funding be directed towards improving the productivity of freight routes, including increasing funding on local roads so that more of them can be safely and freely accessed by trucks, and adding more rest areas for trucks where there are large gaps.<sup>70</sup>

If more investment was directed to truck routes, it could boost freight productivity significantly, because much of Australia's primary inputs begin in regional areas and must travel on regional roads that were not built to carry heavy trucks. This problem is set to worsen: not only have technological improvements allowed the development of heavier and larger conventional vehicles, but electric trucks with heavy batteries will only add additional weight to the truck fleet.

---

70. Australian Trucking Association (2023).

#### Box 3: Heavy vehicles do most of the damage to roads

A sealed road is typically made up of a wearing course, on top of a base layer, on top of a sub-base, on top of the natural surface. The wearing course is a spray seal or asphalt; the base layer is usually unbound, and sometimes stabilised; and the sub-base is lower-quality aggregate, also sometimes stabilised.

The layers of a road need to be deep enough to dissipate through those layers the stress from vehicles travelling on the road, without damaging the natural surface below.

Damage to a road can show up as cracking, asphalt fatigue, or permanent deformation. The amount of damage a heavy vehicle does depends on how heavy its load is, and the number and configuration of the axles. Heavy vehicles account for 94 per cent of deep road wear, whereas light vehicles do very little damage.<sup>a</sup> In technical terms, the stress on a road from a vehicle increases in proportion to the fourth power of the load per axle; what that means in practical terms is that a car needs to travel over a section of road between 10,000 and 30,000 times to cause the same damage as a single trip by a truck.

Roads designed long ago, before high-productivity vehicles were in widespread use, are not always strong enough for the trucks in use today.

---

a. National Transport Commission (2022, p. 49).

Second, despite paying for their share of road construction and damage, many trucks are not guaranteed access to the local road network. Under Heavy Vehicle National Law, restricted access vehicles such as B-doubles and road trains must apply for access to local roads that may traverse several councils and require approval from each. Some local roads are pre-approved for some restricted access vehicles, but many require truck operators to apply each time they want to access the road, with no guarantees. And since Western Australia and the Northern Territory have not enacted the national laws, different rules also apply in these jurisdictions.

Third, truck operators face uncertainty as to the rate of the Road User Charge. Because the Charge is related to governments expenditure on roads, the large increases in expenditure over the past few years have flowed through to higher rates of the Charge.

This apparent inequity may be offset by the fact that trucks only fund a portion of those projects that do primarily benefit the freight industry, and, in fact, ministers have set the charge below the full cost-recovery amount for several years.<sup>71</sup>

#### **2.6.4 A raw deal for councils**

Councils face challenges when assessing whether to provide access to heavy vehicles because they often do not have the technology or skills to determine whether a route is safe for any given heavy vehicle to travel on, or how much damage that vehicle is likely to do to the road. Many councils, particularly in regional and remote areas, rely on rules of thumb for deciding whether to grant access, rather than an engineering assessment of a road or bridge's capacity (Figure 2.11 on the following page). Several remote and regional councils said that they rely on 'local knowledge' or 'experience' to assess claims.

---

71. For a further discussion of heavy vehicle charging, see Terrill et al 2023.

#### **Box 4: Why can't road users fund road maintenance?**

Much has been written about the most efficient way to tax road use. Most experts consider that there should be a charge for driving – because of the costs that each driver imposes on others – and that these costs should vary by vehicle mass, the distance travelled, the location, and the time of day. A charge varying with mass would mean that drivers of heavy vehicles, which do almost all of the damage to roads, would pay for the damage they cause. Those driving further would pay more, as would those driving in the most in-demand places at peak periods.

Australia is some way from a comprehensive approach to road user charging for all vehicles, due in no small part to the lack of availability of a suitable technology to implement it. A comprehensive scheme would require frequent data collection on travel throughout the network, and would therefore need an in-vehicle technology that is not reliant on roadside sensors. The most promising option would be to fit each vehicle with an on-board unit capable of receiving GPS signals, but there are privacy barriers to extending such an approach to private cars and non-commercial trips that have yet to be overcome.



And while councils do often grant access, it's generally not in their interest to do so, because they are left to foot the bill for any damage that the vehicle does to its roads. Even though most permit requests are approved within seven days, councils have expressed concern that some operators would prefer to access roads without a permit than to wait for approval.<sup>72</sup>

In addition to damage to their roads, considering access applications occupies councils' time. A welcome development is the Tasmanian government's development of an automated access system for Special Purpose Vehicles; this system reduced the number of permit applications from 700 in 2019 to just 20 in 2022.<sup>73</sup> Extending such a system to a wider set of vehicles and to the rest of the country would help reduce council red tape and boost freight productivity. Using current permit data, the National Heavy Vehicle Regulator has developed a series of key freight routes that cover local roads.<sup>74</sup> Opening access to these roads through an automated access system would benefit the freight industry, as well as reduce the administrative burden for councils. But as other states begin rolling out programs similar to the Tasmanian one, they should ensure that they also commit the necessary funding to collect the road data that would allow the system to function effectively.

Increasing trucks' ability to access local roads will, however, only worsen the funding gap for councils. Local government should not have to foot the bill for the extra damage to their roads. If councils agree to open access to these roads, the federal government should fund engineering assessments of road and bridge capacity, and, in many cases, upgrades. While today's larger trucks provide productivity benefits, many roads and bridges were not built to carry vehicles of that size and weight.

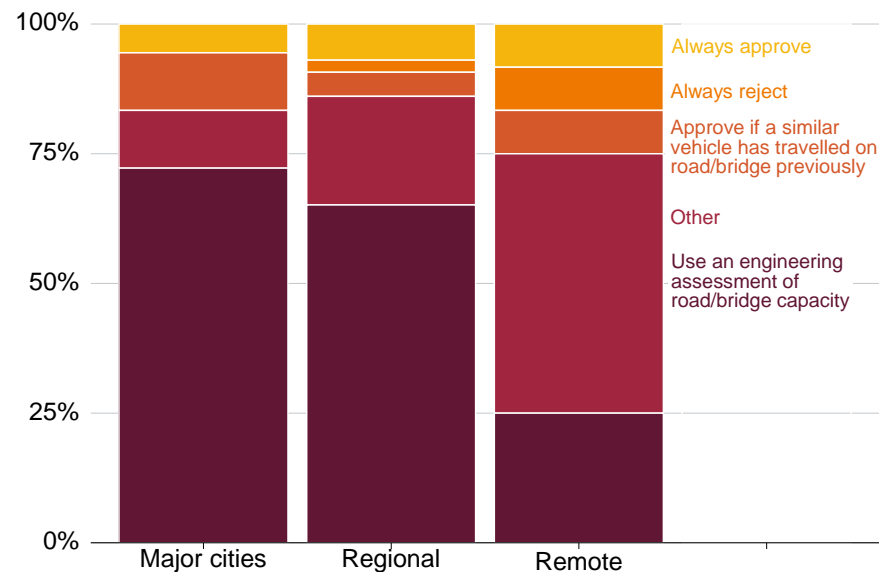
72. National Transport Commission (2019, pp. 39–42).

73. Houston Kemp (2022).

74. National Heavy Vehicle Regulator (2023).

**Figure 2.11: Many councils use rule of thumb approaches to grant heavy vehicle access**

Share of responding councils, by remoteness



Source: Grattan Road Manager Survey. See Appendix D for further detail.

**Recommendation 2**

The federal government should establish a \$200 million per year fund to assess and upgrade local roads identified as priority freight routes, in exchange for affected councils providing permit access to compliant heavy vehicles as of right.

### 3 Untied funding isn't going where it is needed

Properly funding local road maintenance requires more than just increasing the amount of money in the system. The funding should also be better allocated so that it goes primarily to the councils that need it the most.

With large road networks and limited revenue, regional and remote councils are losing the postcode lottery. Without support, some councils struggle to provide basic services like maintaining roads.

Untied funding – that is, the no-strings-attached grants designed to enable all councils to provide basic services – isn't going where it's most needed. The main source of untied grants favours more populous states and allocates too much money to councils that are self-sufficient.

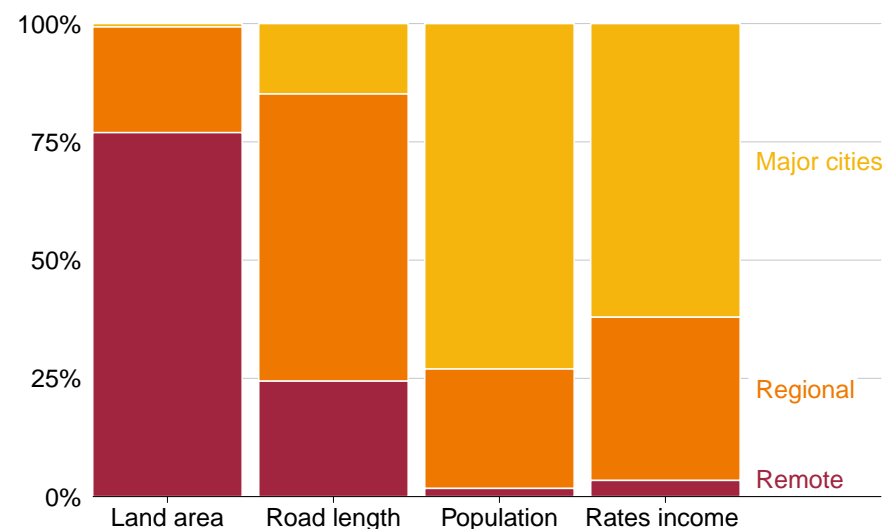
#### 3.1 Some councils need more support

Australians rely on local government for those services that are most effectively delivered at the local level. Decentralised responsibilities allow councils to be accountable and responsive to their local communities.<sup>75</sup> But decentralisation has costs. The postcode lottery means that some councils struggle to raise enough revenue to meet basic services expectations. For the national network to remain viable, these councils need support. The federal government provides untied funding to supplement the income of these councils while allowing them to remain responsive to their community in the way they spend.

When it comes to maintaining roads, though, remote and regional councils face a mismatch in responsibilities and revenue (Figure 3.1). Councils outside major cities manage 85 per cent of the national local road network with less than 40 per cent of the total income from annual rates and charges. More remote councils maintain roads

**Figure 3.1: Regional and remote councils manage vast road networks with limited scope to raise revenue**

Share of land area, road length, population, and annual rates and charges income, by remoteness



Sources: ALGA 2021; ABS 2022a, Grattan analysis of publicly available council budgets and financial statements.

75. Boadway (2004).

for populations dispersed over very large areas, have much smaller populations to tax, and are unable to raise revenue from sources like parking fees.

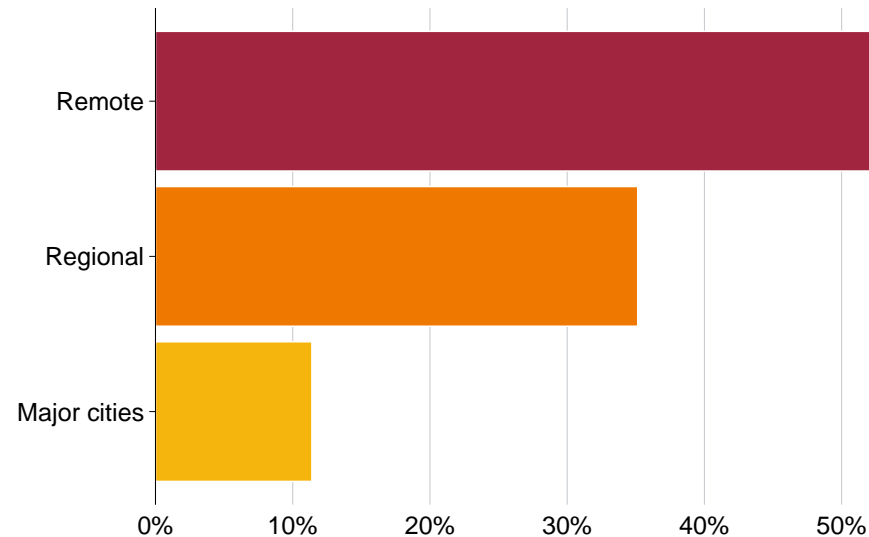
This mismatch extends to other services too. The costs per ratepayer of basic services such as waste and environmental management are higher in areas where the population is very dispersed. And since many of the private and public services that are available to most Australians are not commercially viable in remote areas,<sup>76</sup> councils become providers of last resort for services such as childcare and aged care, often running them at a loss. Considering these challenges, it is unsurprising that remote and regional councils are much more dependent than major city councils on grant funding (Figure 3.2).

In these remote and regional areas, the federal government has a responsibility to ensure that roads and other services can be maintained at least to a minimum standard. Remote and regional roads form important parts of the national network and need to be fit for purpose. A local road to a farm in regional Queensland can help provide produce for a supermarket in Adelaide.

To ensure councils can provide at least a basic minimum level of service, the federal government provides local governments with untied funding. The funding is intended to enable each council to function at a standard not significantly lower than the average of other councils, by considering differences in costs and capacity to raise revenue (Appendix C). But the federal government does not mandate how councils spend the money, just as it does not mandate how states spend their share of the GST. The rationale is to provide the capacity for a standard of service provision, but not to override the preferences of communities as expressed to their elected council representatives.

**Figure 3.2: The typical remote council is more dependent on grants for its revenue**

Grants as a percentage of total council revenue



*Notes: Median council in each remoteness area. Data is for councils in NSW and Victoria.*

*Source: Grattan analysis of publicly available council budgets and financial statements.*

76. Dollery et al (2010).

### 3.2 ... but the current distribution of funding is not working

Untied funding isn't going where it is most needed. Problems with the distribution are disadvantaging some states and causing too large a share of the funding to go to councils that can already afford to maintain their roads.

The Financial Assistance Grants are the main way the federal government gives untied funding to local government, equalling about \$2.6 billion dollars in 2020-21.<sup>77</sup> The grants are split into a general component and a local roads component, although both are untied and can be spent by councils as they see fit.

The current process of allocating the grants (Box 5 on the next page) has three significant impacts that should be reviewed. First, the general component of the Financial Assistance Grants favours densely populated states. Second, the minimum grant to all councils diverts too large a share of funding away from councils that are least able to raise their own revenue. Third, the outdated distribution of the local roads component creates large variations in outcomes for similar councils in different parts of the country, and provides too large a share of the funding to self-sufficient councils.

#### 3.2.1 Federal-to-state distribution favours densely populated states

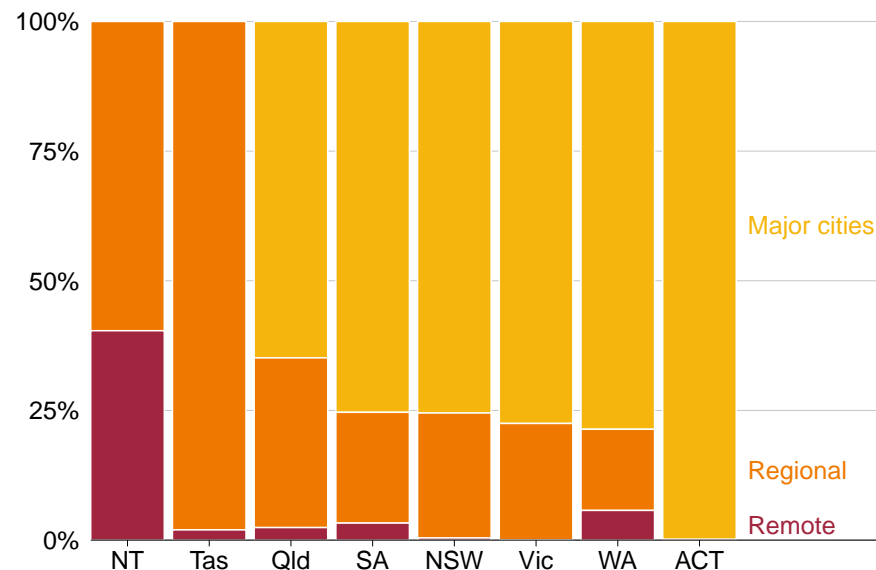
The allocation of the Financial Assistance Grants to the states does not reflect the different makeup of councils in each jurisdiction.

The general component of the grants (69 per cent of the total pool) is allocated to states based only on their population size. For this allocation to be consistent with the principle of equalisation, the costs

77. Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2022).

**Figure 3.3: The Northern Territory and Tasmania have many more remote and regional communities than other states**

Share of population by remoteness and state, 2021



Source: ABS 2021b.

and revenue capacities of councils in different states would have to be similar.

But the types of council in each state are very different. The NT and Tasmania have small populations, but are entirely made up of regional and remote councils (Figure 3.3). In contrast, the vast majority of people in NSW, Victoria, and the ACT live in major cities, with very few people living in remote areas, if any.

This leads to undesirable outcomes. States where a larger share of councils are self-sufficient have a greater capacity to distribute the grants where they are most needed. As a result, similar councils in different states end up with very different funding outcomes. Remote

### Box 5: How the Financial Assistance Grants work

Each year, the Financial Assistance Grants are distributed from one large pool of funds. First, the total size of the grants is indexed based on national growth in population and CPI. Second, the indexed funds are split into the general component (69 per cent) and local roads component (31 per cent).<sup>a</sup> Grants are then allocated to councils via the states in a two-step process.<sup>b</sup>

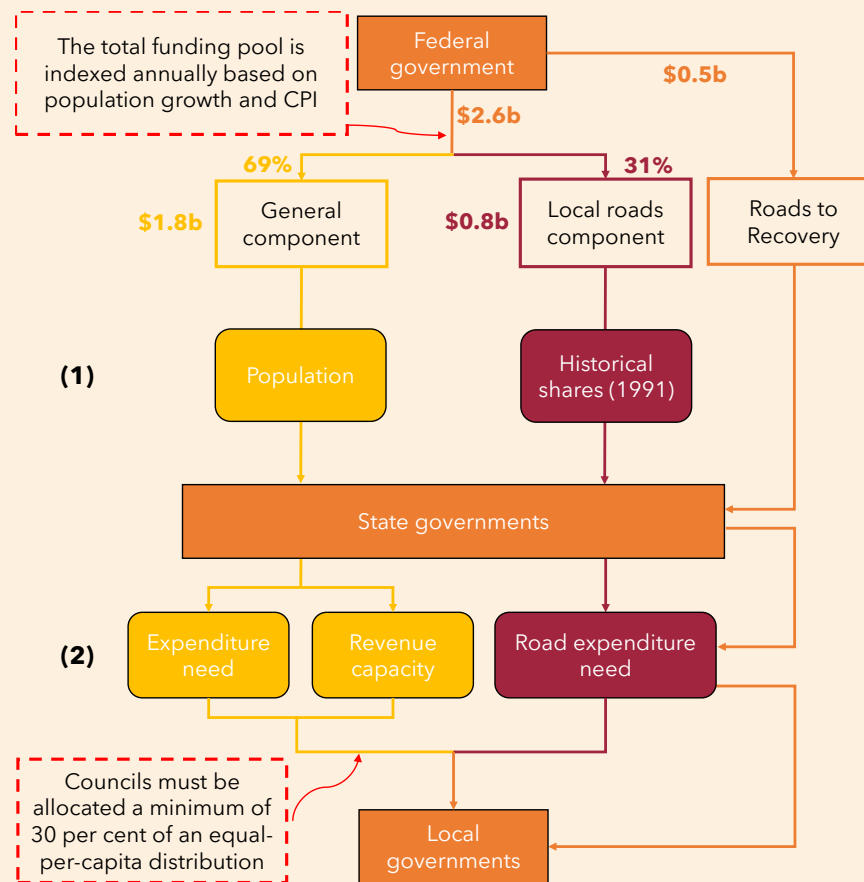
**1.** The federal-state distribution:

- The general component is allocated to each state or territory based on population size.
- The local roads component is divided according to historical shares of tied roads grants that considered the population, road length and land area of each state.<sup>c</sup>

**2.** For the state-council distribution, shares of the Financial Assistance grants are allocated according to National Principles set by the minister (Appendix C on page 70).

- For the general component, state grants commissions consider how costly it is for each council to provide standard services and their ability to raise revenue. Grants are then allocated relative to assessed need. The Act requires that every council receives a minimum grant of at least 30 per cent of an equal-per-capita distribution.
- The local roads component is required to be allocated to councils based on the relative costs of preserving their road network, but without consideration of their revenue.

a. Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2022. Roads to Recovery funding is allocated according to the same distribution as the local roads component.  
 b. *Local Government (Financial Assistance) Act 1995*.  
 c. The exact details of how the historical allocation was calculated are unknown.





councils in NSW receive over six times more Financial Assistance Grants funding per person than remote councils in the NT (Figure 3.4). In fact, the entire NT receives less funding from the general component of the Financial Assistance Grants than the City of Greater Geelong in Victoria.<sup>78</sup>

Regional and remote councils have the largest spending shortfalls in their maintenance budgets and the least ability to raise more revenue, and so are highly dependent on grants. Because these factors are not considered in the federal allocation to the states, the distribution of the general component of the Financial Assistance Grants undermines the ability of councils in less populous states to maintain their roads.

### 3.2.2 Too much funding goes to self-sufficient councils

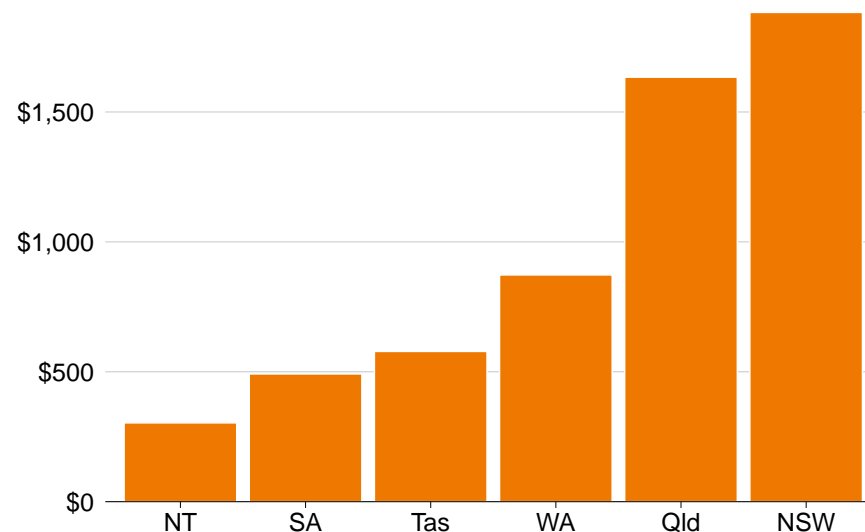
The principles that guide the distribution of the Financial assistance grants from states to councils are incongruent. The horizontal equalisation principle – that all councils should have the capacity to provide similar services to their communities – is in tension with the principle that dictates minimum grants.

The minimum grant requirement recognises that all councils contribute to the provision of government services and the functioning of the national road network, and, accordingly, ensures that every council receives at least 30 per cent of what they would have received under an equal-per-capita distribution of the Financial Assistance Grants.

But there is currently a massive disparity between the capacity of councils to serve their communities. The Western Australia Local Government Grants Commission estimates that in 2020-21, the average remote council in WA was only capable of raising 71 percent of

**Figure 3.4: Remote councils in less populous states are disadvantaged by the distribution of grants**

Financial Assistance Grants received per capita by remote councils, by state



Notes: Grants received in the 2020-21 financial year. There are no councils in Victoria with most of their population in a remote area.

Source: Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023e.

78. In the 2022-23 financial year, the NT (population: 230,000) received \$17.1 million and City of Greater Geelong (population: 270,000) received \$18.9 million (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023e).

the revenue required to provide an average standard of services, even after receiving the Financial Assistance Grants. In contrast, the average council in a major city was able to raise 142 per cent of their required revenue.<sup>79</sup>

The proportion of funding going to these self-sufficient councils is large and growing. The share of Australia's population living in councils that receive the minimum grant has increased from 31 per cent in the 2001 financial year to 48 per cent in 2021.<sup>80</sup> In turn, this has increased the amount of funding allocated to self-sufficient councils. In the 2021, these councils received \$260 million of general grant funding, or 14 per cent of the total.

Lowering the minimum grant wouldn't materially affect minimum-grant councils, but it would give an out-sized boost to smaller and more remote councils. For the typical minimum-grant council, total funding from the Financial Assistance Grants amounts to just 3 per cent of their revenue from annual rates and charges. These councils also have the greatest capacity to raise additional revenue, while still maintaining much lower rates and charges per person than those in regional and remote areas. For instance, the Northern Beaches Council in NSW raised more from parking fees alone than it received in Financial Assistance Grants in 2022.<sup>81</sup>

---

79. Data taken from the 2020-21 Balance Budget spreadsheet produced by the WA Local Government Grants Commission (Western Australian Local Government Grants Commission Annual Report 2020-21 2020). Estimates of revenue include own-source, Financial Assistance Grants, State Transport Grants and 63 per cent of Roads to Recovery funding. A council is considered equalised when assessed revenue is equal to assessed expenditure.

80. Australian National Office of Local Government (2003) and Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023a).

81. In 2021-22, Northern Beaches Council received \$10,349,000 in parking area revenue (Northern Beaches Council 2023, page 131) and \$8,358,480 in total Financial Assistance Grants (Department of Infrastructure, Transport, Regional Development, Communications and the Arts 2023e).

Financial Assistance Grants form a much larger proportion of total income for those councils that receive more than the minimum grant. The typical council in this category receives grants equal to 26 per cent of their annual rates and charges revenue. And they are less likely to be able to raise additional revenue themselves.

For these reasons, a number of independent inquiries conducted in the past two decades have recommended the reduction or removal of the minimum grant.<sup>82</sup> For as long as funding remains insufficient for all councils to be able to provide basic services, it is hard to justify its retention at the current rate of 30 per cent.

### 3.2.3 The distribution of the local roads component is outdated and inconsistent

Local roads grants are distributed to states according to a historical allocation of tied roads grants based on the population and road length of each state. These grants changed from tied to untied in 1991 and the allocations have not been updated since then.<sup>83</sup>

In the past three decades, the road network has changed significantly.<sup>84</sup> A number of jurisdictions claim the allocation between states is no longer a fair reflection of the network.<sup>85</sup>

The exact details of how road grants were originally calculated have been obscured by a flurry of change in roads grants at the time, and may date back to before 1981.<sup>86</sup> Without knowing the basis for the allocation, it is impossible to assess its appropriateness in 2023.

---

82. Parliament of Australia (2003), Henry (2009), Comrie (2013) and Sansom et al (2013).

83. Australian National Office of Local Government (2003).

84. BITRE (2017).

85. NT Grants Commission (2013) and QLD Local Government Grants Commission (2013).

86. Australian National Office of Local Government (2003) and BTE (1987).

Once states receive their share of local roads component, they allocate the funds to councils based on ‘the relative needs of each local governing body for roads expenditure and to preserve its road assets’ (Appendix C on page 70).

The concept of ‘relative need’ is vague. The National Principle states that relative need should consider the ‘length, type and usage of roads’ but makes no mention of the councils’ costs or funds. Each state grants commission estimates need differently and to a varying degree of sophistication. This leads to significant variation in how funds are distributed to similar councils in different states. And no state considers the revenue-raising ability of councils when allocating the local roads component.

The formulae used by the grants commissions matter. The local roads component was \$800 million in 2021, but programs such as Roads to Recovery and the Local Roads and Community Infrastructure Program allocate funds according to the same model. In 2021, more than \$2.8 billion in funding was allocated on the same basis as the local roads component.<sup>87</sup>

The maintenance requirements of a council’s road network are dependent on the length, type, and usage of the roads; environmental factors, such as rainfall and soil;<sup>88</sup> and location-specific labour and materials costs. In some states, these factors are treated in detail to develop a model for the specific costs each council faces to maintain its roads. At the other end of the spectrum, some states use a simple formula of road length and population to allocate funds. Table 3.1 summarises the different inclusions in the states’ formulae.

87. The local roads component of the Financial Assistance Grants equalled \$800 million in 2021; phase 1 and 2 of the Local Roads and Community Infrastructure Program were equal to a combined \$1.5 billion in the second half of 2020; and \$2.6 billion of Roads to Recovery funding will be allocated between 2018-19 and 2023-24, equalling \$520 million per year.

88. D. T. Martin et al (2023).

**Table 3.1: Factors considered by state grants commissions to allocate road funding**

	NSW	Vic	Qld	WA	Tas	SA	NT
<b>Road length</b>	✓	✓	✓	✓	✓	✓	✓
<b>Road type</b>	X	X	-	✓	✓	X	✓
<b>Population</b>	✓	X	-	X	X	✓	X
<b>Remoteness</b>	X	✓	-	✓	✓	✓	✓
<b>Traffic/freight</b>	X	✓	-	✓	✓	X	X
<b>Environment</b>	X	✓	-	✓	✓	✓	X
<b>Minimum standards</b>	X	X	X	✓	X	X	X

*Note: Queensland has recently updated its methodology and some details are not available.*

*Source: Victorian Local Government Grants Commission 2022; Tasmanian State Grants Commission 2022a; NT Grants Commission 2021; NSW Local Government Grants Commission 2021; QLD Local Government Grants Commission 2022; WA Local Government Grants Commission 2021.*

Different state methods mean similar councils get different outcomes. Analysis of the methodologies of Queensland, NSW, and Victoria showed that allocations of the local roads grants to the same council could vary by as much as 77 per cent.<sup>89</sup>

And not unlike the federal-to-state distribution of general grants, some allocations from states to councils favour more populous councils that are more likely to be able to afford road maintenance.<sup>90</sup>

To make matters worse, no state accounts for council revenue-raising ability when allocating local roads grants. The vague principle of ‘relative need’ means that funding is not in fact allocated to where it is most needed.

Both the general grant and the local roads component are untied. There is no need for the roads component to be allocated on a different basis to the general grant. Distributing funds on an equalisation basis is the best way to ensure all councils can afford to maintain their roads.

### 3.2.4 Our proposal

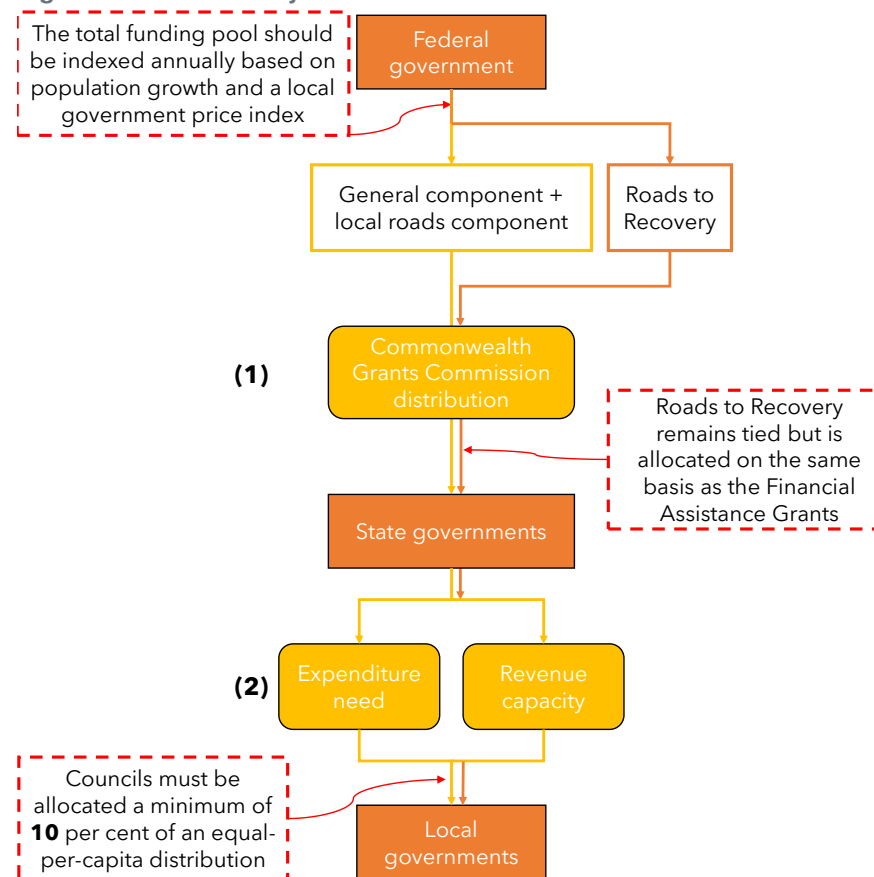
To help address the maintenance spending shortfall, funding for councils needs to go where it is needed most. The distribution of the Financial Assistance Grants should be reformed and simplified (Figure 3.5) to better ensure all councils have the capacity to provide basic services such as maintaining their roads. Our proposal to reform the allocation of the Financial Assistance Grants has four parts.

First, similar councils should get similar federal funding. To fix the allocation of general and local roads grants to the states, a new model for the entire funding pool should be implemented. The allocation should reflect the relative costs and revenue capacities of councils in different jurisdictions. The Commonwealth Grants Commission,

89. Drew and Dollery (2015).

90. Ibid.

**Figure 3.5: A better way to distribute the Financial Assistance Grants**



which recommends the states' shares of the GST, should be asked to determine a revised basis for the inter-state distribution of the Financial Assistance Grants.

It is important that the new funding model is neutral to the policies and practices of the states, including rate capping. This will ensure there are no incentives for further cost shifting from state to local governments. Similarly, the expenditure estimates for councils should not be dependent on the different council responsibilities, legislated or otherwise, in each state. Calculations should instead consider average or typical council expenditure functions across the country, and typical cost factors such as population, remoteness, and road length.

Second, the minimum grant should be reduced, from 30 to 10 per cent of an equal-per-capita share, to free up a larger share of the funds for the councils that have the least scope to raise sufficient revenue for their spending obligations.

Third, the local roads component of the Financial Assistance Grants is inconsistently allocated and ignores the different abilities of councils to raise revenue. The funding should be combined with the general grants and allocated on the same equalisation basis.

Fourth, the ongoing Roads to Recovery program and other grants, such as the Local Roads and Community Infrastructure program, are allocated the same way as the local roads component. Funding provided under these programs should instead be distributed in the same way as the general component of the Financial Assistance Grants.

Under our proposed reforms, the entirety of the Financial Assistance Grants and Roads to Recovery program would be allocated on an equalisation basis, subject to a 10 per cent minimum grant that ensures all councils receive some funding, while a greater share is distributed to where it is most needed.

**Figure 3.6: Simplifying the Financial Assistance Grants would help close the remote and regional funding gap**

Median council revenue as share of expenditure need, by remoteness, WA



*Note: Adjusted distribution is determined by lowering the minimum grant to 10% and allocating the local roads component and Roads to Recovery funding on the same basis as the general grant (Figure 3.5 on the preceding page).*

*Source: Values for revenue and expenditure need taken from WA Local Government Grants Commission calculations (2021 financial year).*

If these reforms had been in place in 2021 in WA, they would have resulted in a minor decrease in funding for major cities, and a significant boost for remote and regional councils (Figure 3.6). The typical minimum grant council would have needed to increase annual rates and charges by just 2 per cent to completely offset this change. The redistribution would have freed up \$57 million to be allocated to councils receiving more than the minimum grant.

### **Recommendation 3**

The Federal government should amend the *Local Government (Financial Assistance) Act 1995* and reform the National Principles:

- The allocation of grants to the states should be made consistent with horizontal equalisation between councils in all jurisdictions, reflecting the different expenditure needs and revenue capacities of councils in different states. The Commonwealth Grants Commission should be tasked with determining the revised basis for the inter-state distribution of the Financial Assistance Grants.
- The minimum grant should be reduced to 10 per cent of the per capita share in each state.
- The local roads component of the Financial Assistance Grants should be combined with the general grants and distributed on the same basis.
- Roads to Recovery and similar programs should be allocated according to the new general grant distribution.



## 4 Tied funding should be less onerous for councils

Tied grant funding comes with many conditions. Some are entirely reasonable, such as the requirement to acquit the money properly. But there are also obligations on recipients to erect a sign acknowledging the funding source – rules which not only specify the size of the sign and prominence of the Australian government crest, but also require the grant recipient to submit final proofs of the sign design for approval before production.

Tied grant conditions can be over the top, and they can also have unintended consequences. Restrictive grant conditions can prevent councils from timing the spending of the grant to get the best value for money. When application processes are onerous, the councils least likely to apply or be successful are often remote and rural councils. And because funding is generally for new or upgraded roads, it can skew council priorities towards acquiring additional infrastructure when they struggle to maintain what they already manage.

### 4.1 Tied grants come with many conditions

Tied grant programs run by federal and state governments often impose onerous conditions on councils, including lengthy applications, mandatory signage, submission of works schedules, frequent financial reporting, and minimum co-contributions.

Restrictive conditions on tied grants also limit the type of work that councils can use the money for. Departments usually do not allow maintenance and renewal works to be funded by tied grants.<sup>91</sup> Instead, grant programs favour proposals for new or upgraded infrastructure.

The average council spends almost three hours a week just applying for grants, on top of any time spent complying with reporting

---

91. KPMG (2017).

requirements.<sup>92</sup> In 2021, a typical Queensland council received grants under twenty different state programs, and from seven different departments, each with their own application processes and reporting requirements.<sup>93</sup> This proliferation of processes results in large-scale duplication of effort: councils must re-enter variations of the same data and most departments don't share information or make use of existing documentation – such as asset management plans – to streamline the process.<sup>94</sup>

### 4.2 Tied grant conditions are over the top

There can be good – if limited – reasons for federal and state governments to provide funding to councils in the form of tied grants for roads.<sup>95</sup>

The most important of these is that roads form a network – the importance of any given road link can extend beyond its immediate locality. The first and last miles of many freight trips occur on local roads, and an entire freight route can be compromised by a poorly performing bridge or stretch of road. Federal and state governments also share responsibility for road safety, and direct funding to fixing known crash risk zones or sites; the Black Spot program has been a broadly successful tied funding initiative that has improved the safety of the national network.<sup>96</sup>

---

92. Grattan Road Manager Survey. See Appendix D for further detail.

93. Queensland Government (2021).

94. KPMG (2017).

95. The general principle governing the carve-up of responsibilities between federal, state and local governments is that decisions should be taken by the most local level of government equipped to do so.

96. BITRE (2012).

When federal and state governments provide tied grants for identified purposes that go beyond a council's boundary, they need to ensure the funds have been spent as intended.

But many of the conditions on tied grants are over the top. For instance, grants from the Roads to Recovery program can be spent on any road construction or maintenance projects as long as they are specified in a submitted works schedule. Despite this, councils must submit quarterly reports on the progress of the works, as well as an annual financial report.<sup>97</sup> Councils must also erect a Roads to Recovery sign for any project worth more than \$10,000 – an expensive overhead that does little for accountability.

The balance isn't right. While councils face onerous application requirements for small projects, federal and state governments do not impose the same constraints on themselves. Since 2001, a third of all transport infrastructure projects valued at \$20 million or more have been committed to by state governments before the financial or regulatory requirements were in place; only one quarter of projects valued at \$500 million or more and committed to between 2017 and 2020 had an approved business case at the time of the decision to invest.<sup>98</sup>

### 4.3 Tied grant conditions often have unintended consequences

Not only are tied grant conditions unnecessarily onerous, they also can have unintended consequences. These consequences can be unnecessarily high costs, unfairly disadvantaging remote and rural councils, and skewing council priorities to favour new construction over prudent maintenance.

---

97. Department of Infrastructure, Transport, Cities and Regional Development (2019).

98. Terrill et al (2020, pp. 19, 31).

#### 4.3.1 Short timeframes cost councils more to get work done

Now is a time of high demand in engineering and construction, due in large part to the high volume of work under way by state governments. It is also a time of high demand for road repairs and upgrades by local government, especially in those areas that have been flooded or burnt over the past few years.

These high demands, coupled with constraints on the supply of materials, labour and equipment, have led to significant price escalation (Figure 4.1 on the following page).<sup>99</sup>

Despite supply constraints and cost escalation, most tied grants programs from state and federal governments require funding to be spent within short timeframes. Councils must spend Roads to Recovery grants, for example, within six months of receiving them.

Since construction costs can vary considerably from one year to another, limiting councils' flexibility about when to commence work means that projects can end up costing more than they needed to. This problem is compounded when councils receive multiple grants with overlapping deadlines.

More flexibility about project timeframes would allow councils to spend money when they have the resources, and when prices are stable. It would also allow them to bundle projects optimally for their infrastructure needs.

#### 4.3.2 Over-the-top grant conditions disadvantage rural and remote councils

Remote and rural councils have, by design, have received higher levels of funding under the Black Spot and Roads to Recovery programs since 2009 than metropolitan councils. There have been particularly

---

99. Infrastructure Australia (2022).

high allocations in geographically large council areas of western NSW, south-west Queensland, and remote WA.<sup>100</sup> The Black Spot program, designed to fund safety initiatives, considers funding applications with a history of least three casualty crashes in the past five years, and Roads to Recovery is allocated to councils according to a formula that includes the criterion of road length.

Often, though, remote and rural councils are disadvantaged in the allocation of tied grants.

Many tied grants are distributed on a competitive basis, rather than simply allocating funds to councils based on, for example, the kilometres of roads they manage. Applications for competitive grants can consume a lot of time and effort for councils, and councils that can't spare the necessary resources are less likely to apply. Application guidelines regularly require that projects are 'shovel-ready', fully planned, and, in some cases, have a comprehensive business case.<sup>101</sup> For resource-constrained councils, developing full project plans and business cases for works that might not attract funding is not prudent.

State and federal grants also often require councils to match funding that they receive.<sup>102</sup> A respondent in the Grattan road manager survey explains:

We are only a small council with limited resources and have difficulty matching funding grants so we are not able to apply.

There are also problems with the way competitive grants are selected from the pool of those councils that do manage to apply. In 2016, the

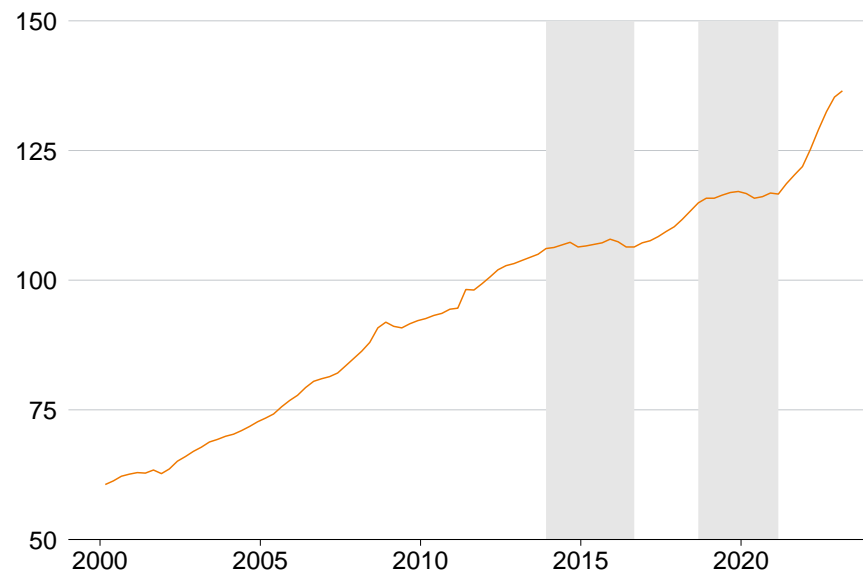
100. Terrill (2022, pp. 18–19).

101. KPMG (2017), Department of Infrastructure, Transport, Regional Development and Communications (2020a) and Department of Infrastructure, Transport, Regional Development and Communications (2020b).

102. KPMG (2017), Department of Infrastructure, Transport, Regional Development and Communications (2020a) and Department of Infrastructure, Transport, Regional Development and Communications (2020b).

**Figure 4.1: There are good times and bad times to spend money on construction**

Producer price index, road and bridge construction, Australia



Note: Grey areas reflect periods of flat PPI growth, including between 2014 and late 2016, and 2019 to early 2021.

Source: ABS 2023d.

Australian National Audit Office found that the selection of federal Bridges Renewal grants favoured large projects, despite smaller proposals having similar relative benefits.<sup>103</sup>

The same report found that the program did not consider the financial capacity of councils. Tied grants have the biggest impact when they enable projects that wouldn't otherwise be completed. Failing to take into account councils' ability to pay means funding is not going where it would have most impact.

#### 4.3.3 Restrictive grant conditions starve maintenance spending

Tied grant programs usually fund new or upgraded infrastructure rather than maintenance or renewal. But new roads add to council liabilities: the up-front cost of a road represents only about a fifth of its lifetime cost.

Several councils told us that they prioritise spending based on the availability of grant funding from the federal or state government. One council stated that it 'currently favours construction (over maintenance) because of significant grant opportunities available', while another stated that it gives priority to co-funded projects, with '100 per cent rates-funded projects given the lowest priority'.<sup>104</sup>

If councils are struggling to maintain the roads already they have, adding new ones is brewing a problem for later.

Federal and state governments should only impose application and compliance costs and restrictions that are reasonable and proportionate.

#### Recommendation 4

Federal and state governments should:

- allocate a greater share of council funding on an untied basis;
- provide councils a minimum of two years to acquit grants;
- ensure maintenance and renewal spending is eligible for tied grant funding where consistent with objective criteria (e.g improving heavy vehicle access);
- account for the ongoing costs of maintaining new investment when allocating tied grants;
- minimise duplication in grants administration by standardising and sharing application and reporting data between departments;
- by default, provide funding on an allocative rather than competitive basis; and
- minimise any co-contribution requirements, and where a business case is required, include this in the grant funding.

---

103. ANAO (2016).

104. Grattan Road Manager Survey. See Appendix D for further detail.

## 5 Councils need help to manage their roads better

Road asset management is the systematic approach to the stewardship of roads. It covers the full range of activities from design, construction, commissioning, operating, maintaining, repairing, and modifying roads, through to replacing or decommissioning them at the end of their useful lives.

There are well-established international standards for asset management, and no shortage of Australian guidance that translates these standards into practical recommendations for local government road managers.<sup>105</sup> But there is a serious mismatch between what councils are supposed to do and what they actually do.

This chapter explains the shortcomings in current road management practices: the lack of adequate data collection, missing or poor-quality asset management planning documents, and the frequent failure to consult communities on their road priorities. It then lays out the reasons for these shortcomings: the challenges in finding and retaining staff, the poor state of sector-wide data for comparative purposes, and the cost barriers some councils face to accessing road survey and predictive maintenance technology.

Federal and state governments can take practical steps to address these problems and ensure that councils can manage their roads properly. The federal government should start by establishing a national road hierarchy, together with national service level standards. Both federal and state governments will also need to support a major step-up in the quality and standardisation of road data that councils collect so that local governments can determine and deliver the service levels that their communities want and value.

---

105. Councils responding to the Grattan Road Manager Survey commonly listed at least five different Australian guides.

### 5.1 Road management practices are very poor in many councils – especially remote ones

Collectively, local governments manage almost \$600 billion in assets, and spend more than \$45 billion each year providing services to their communities, including about \$5 billion on roads.<sup>106</sup>

Managing extensive assets in a way that meets community expectations while balancing costs and risks is not easy. It requires high-quality and timely data, extensive planning in collaboration with the community, and following through with those plans.

But many councils don't even know what roads and bridges they manage, or meet legislated requirements for planning and community consultation.

#### 5.1.1 Many councils don't have even the most basic information about their roads

Despite the importance of high-quality data, one quarter of councils do not know how many bridges they are responsible for, or the number and length of roads in their jurisdiction, even within  $\pm 10$  per cent accuracy (Figure 5.1 on the next page). For remote councils, whose roads cover much larger land areas, this figure is closer to a half.

In just one five-year period, Queensland councils 'found' 44 assets valued at a total of \$1.3 billion, which had never previously been recorded in their financial statements.<sup>107</sup> It is very difficult to effectively manage an asset that you don't even know you have.

---

106. ABS (2023a).

107. Queensland Audit Office (2023a, p. 17).

More detailed information is even more scarce. Only 15 per cent of councils have accurate data on the traffic flows on their roads, and just over a third know the load capacity of their bridges (Figure 5.2 on the following page). Councils located in major cities are more likely to have accurate data, particularly more complex data on traffic flows, for instance, and the age of roads and bridges.

In addition to information about their roads and bridges, councils also need to know how much it costs to look after them. Knowing the costs of different maintenance activities – and the share of roads that may require those activities – allows councils to make trade-offs about when to perform maintenance activities. Costs are also an important input to financial planning, and decisions to invest in new roads.

But very few councils know the average cost of performing different maintenance and renewal activities, such as re-filling a pothole or re-sealing a portion of a road (Figure 5.3 on page 50). And even fewer know how much maintenance activities for different road types typically cost on an annual basis.

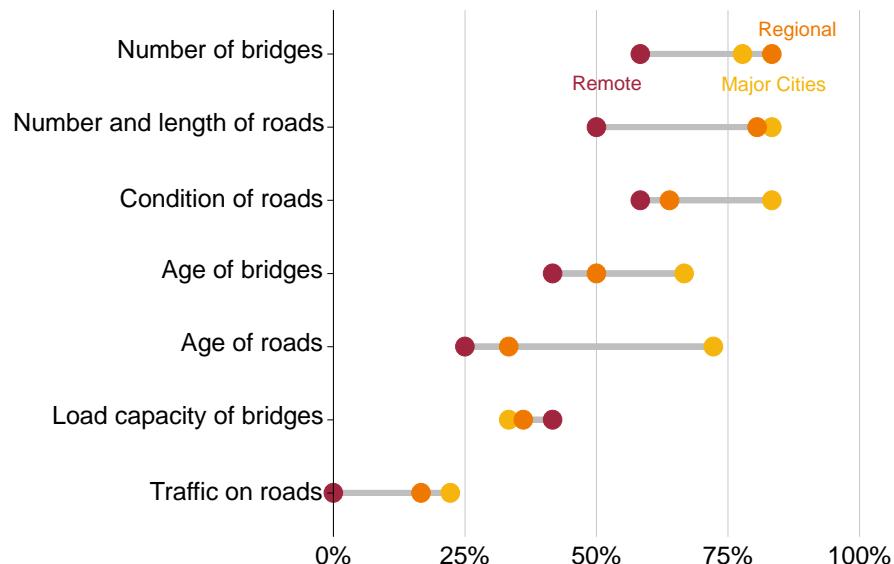
A recent audit of five Victorian councils found that none of the audited councils had information on the unit costs of reactive maintenance activities.<sup>108</sup> These councils would therefore be unable to determine whether they could save money by completing more preventative maintenance, rather than waiting for a defect to occur.

### 5.1.2 Planning documents are often out of date or non-existent

Given the extensive asset holdings of local government, long-term planning is essential to make informed decisions, ensure councils remain financially viable, and provide the best value to their communities.

**Figure 5.1: The more remote a council, the less likely it is to have data on its roads**

Share of surveyed councils with accurate asset data, by remoteness



Source: Grattan Road Manager Survey, 2023. See Appendix D for further detail.

108. VAGO (2021, pp. 29–30).



To ensure this, legislation in every state and territory requires councils to prepare planning documents. The most relevant planning documents for managing roads are asset management plans and long-term financial plans. These are a requirement in most states, and typically must cover around a 10-year time period.<sup>109</sup> These plans are usually publicly available, and can be used by council to inform, and consult with, their communities.

Asset management plans show how councils will meet the service demands of their communities within their budgets over the long term. They consider factors such as the council's asset portfolio, the levels of service they will meet, how performance will be measured, asset life-cycles, how they will manage risk, and ways of improving their assets or processes. Typically, a council will have an overarching asset strategy with asset management plans for different types of assets sitting underneath it.

Long-term financial plans help councils to balance competing spending priorities, and ensure they remain financially viable. They outline how a council will fund the upgrade or renewal of assets when required, determine affordable service level objectives, and ensure sustainable ongoing service delivery.

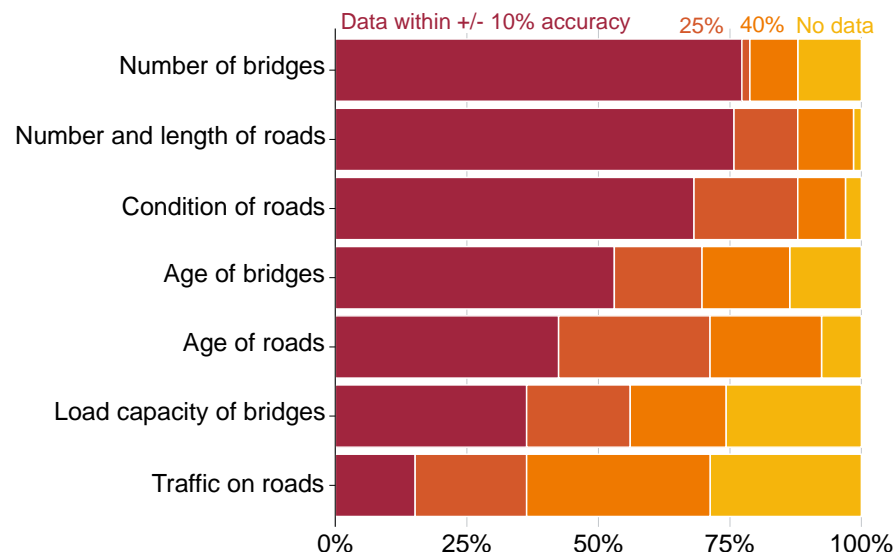
The asset management plans and long-term financial plan should be linked. Financial projections from asset management plans should be incorporated into the financial plan, and used to assess risks and trade-offs.

Despite their importance, many councils have poor quality plans, or don't have them at all. Of the councils that responded to the Grattan Road Manager Survey, 72 per cent report having an in-date asset management plan, 62 per cent have an in-date long-term financial

109. State and territory legislation. Queensland councils are no longer required to provide long-term financial plans.

**Figure 5.2: Many councils lack basic information about the roads and bridges they manage**

Share of surveyed councils



Source: Grattan Road Manager Survey, 2023. See Appendix D for further detail.

plan, and just half of councils have integrated the two plans, as is best practice.<sup>110</sup> Remote councils are least likely to have plans, but even among inner-city councils, more than one-third of those surveyed did not have integrated planning documents (Figure 5.4 on the following page).

Even when councils do have these key planning documents, they are often of low quality. This is echoed across the country: the Queensland Auditor-General found that ‘most councils plan poorly for the long term’, and that their long-term financial plans ‘lack substance and rigour’;<sup>111</sup> in 2019 the South Australian Productivity Commission found that the quality of long-term financial plans and asset management plans across the sector were ‘variable’;<sup>112</sup> and the most recent National State of the Assets report makes clear that long-term planning by local government remains at ‘unacceptable levels’.<sup>113</sup>

Non-existent or poor-quality planning exposes councils to several potential challenges.

The first challenge is that poor planning can cause councils to invest in assets that are not affordable over the long term, or to overlook the ongoing costs of new road assets when weighing up whether to invest in them.

Some councils prioritise spending on new or upgraded roads because state and federal grant funding often prioritises politically popular ‘ribbon-cutting’ projects.<sup>114</sup> But such projects often result in a large

110. In the most recent National State of the Assets report, 80 per cent of councils said they had an in-date asset management plan for roads, and 67 per cent said they had one across each of their major asset classes in 2020. This rate has been declining over time. 86 per cent report having a long-term financial plan: Verity 2021.

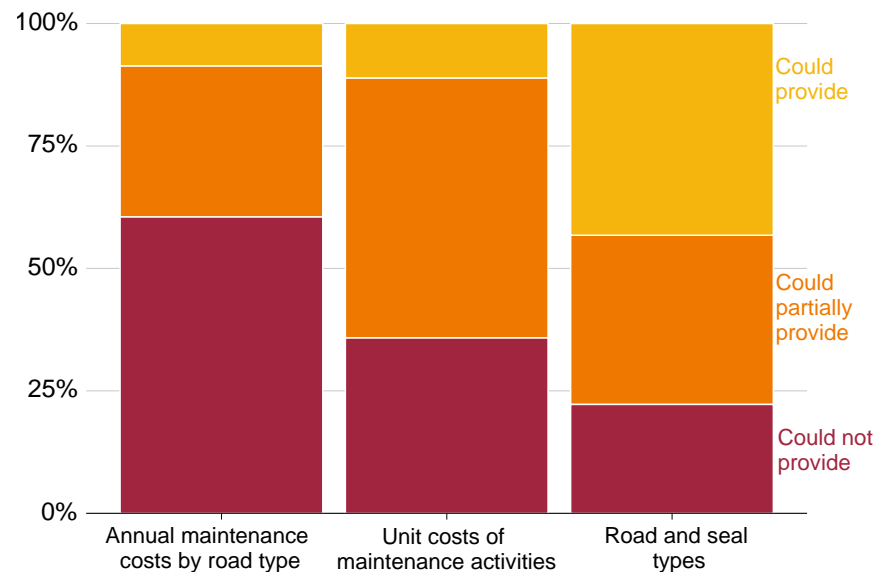
111. Queensland Audit Office (2023b, p. 3).

112. SA Productivity Commission (2019, p. 19).

113. Verity (2021, p. 79).

114. Grattan Road Manager Survey.

**Figure 5.3: Many councils don’t know the cost of maintenance activities**  
Share of surveyed councils who could provide information on maintenance costs



Source: Grattan Road Manager Survey, 2023. See Appendix D for further detail.

ongoing liability for councils since they have to fund the maintenance of that new road or bridge for years into the future.

If councils do not understand and plan for these ongoing expenses, they may find themselves in financial trouble. For example, one council in Queensland invested in a new asset only to find that the ongoing maintenance cost was five times what they had initially expected.<sup>115</sup>

High-quality financial forecasts would help councils understand the relationship between how much they spend on an asset, their debt levels, the ongoing expenses on that asset, and trade-offs with other spending options. But financial forecasts are often of low quality or not integrated with other plans, either because of poor-quality or missing data, a lack of staff resources, or because staff don't value them.

Councils can decide not to accept grant funding for new assets. But it can be very difficult to turn down any funding when budgets are constrained – and difficult also to justify such a decision to ratepayers.<sup>116</sup> Accurate financial plans may assist councils in deciding whether to accept grant funding for new projects, and to explain their decision to the community.

Similarly, when asset management plans and financial plans are inaccurate or infrequently updated, a council may make decisions based on outdated or incorrect information. Asset management plans should be 'living' documents that are continuously updated so that any investment decisions are made with the most current information. But of five councils audited in Queensland, none assess the information in their asset management plans to see if it needs updating.<sup>117</sup>

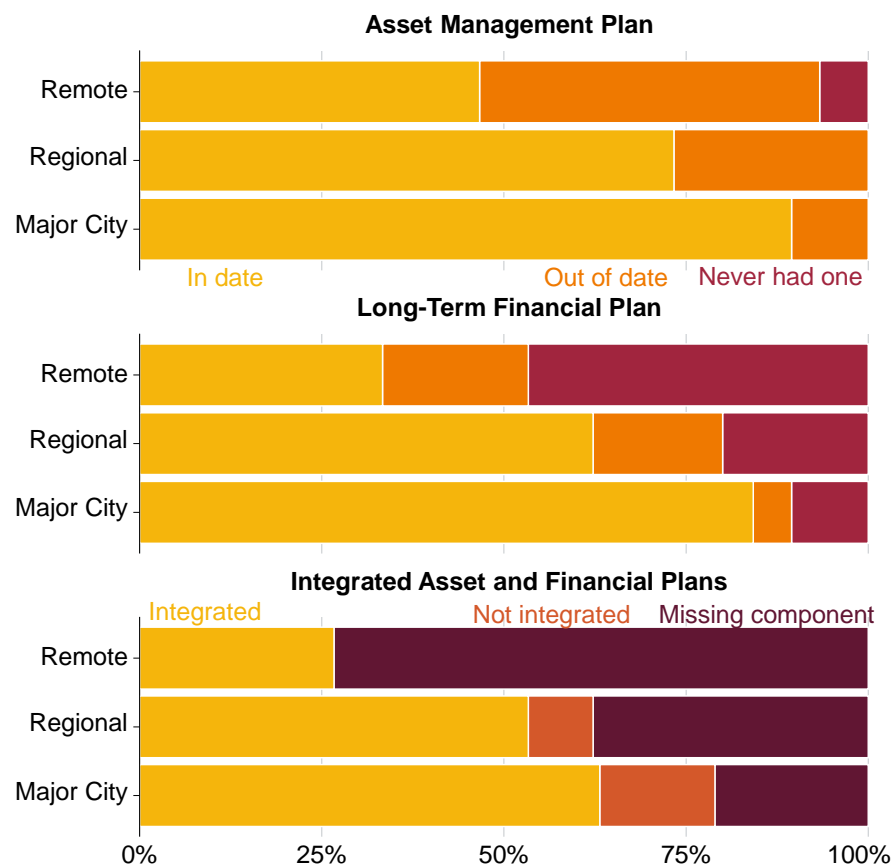
As the National State of Assets report concludes:

115. Queensland Audit Office (2023b, p. 4).

116. Grattan Road Manager Survey.

117. Verity (2021, p. 11).

**Figure 5.4: Many councils are not adequately planning**  
Share of surveyed councils with plans, by remoteness



Source: Grattan Road Manager Survey, 2023. See Appendix D for further detail.

The reliability of data inputs is unacceptably low. This indicates that there continues to be lower levels of knowledge and confidence in planning for infrastructure that meets needs now and in the future; and understanding whether local government is accommodating asset renewal and replacement needs in an optimal and cost-effective way from a timing perspective relative to the risks it is prepared to accept, and the service levels it wishes to maintain.<sup>118</sup>

A lack of sophistication when it comes to planning and forecasts leads to a second challenge for some councils: it limits their ability to use borrowing as a tool for managing their roads.

Borrowing may be used to complete maintenance works at the optimal time, so reducing the cost of maintenance over the life-cycle and improving the experience of road users. Borrowing can also be used to smooth out the cost of large infrastructure costs over time. This smoothing allows the cost of the asset to be borne by its users, rather than just those paying rates at the time of the investment.

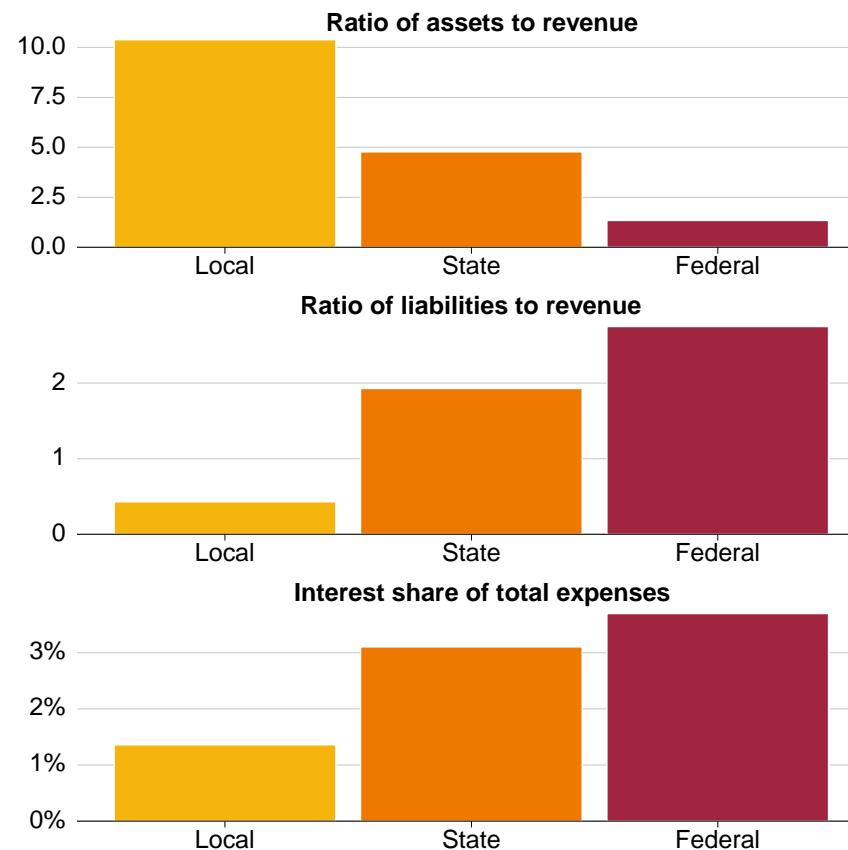
This is particularly relevant for local government, because councils have very large holdings of infrastructure assets with long lives. The local government sector has asset holdings of more than 10 times the value of its annual revenue, compared to 4.8 times for states, and 1.3 times for the federal government.

But most councils rely very little on debt. Council liabilities as a share of revenue, and their interest expenses, are much lower than for other levels of government (Figure 5.5). And on average, council debt remains well below benchmark levels. In NSW the average debt to service ratio (which measures the availability of cash to service debt) is 67.1 - dramatically above the benchmark of 2.0 or higher.<sup>119</sup>

Major-city councils, which typically have higher incomes and more sophisticated practices, have higher rates of borrowing than regional

**Figure 5.5: More sophisticated planning would allow councils to make greater use of debt**

Financial aggregates, by level of government



Source: ABS 2023a.

118. Ibid (p. 77).

119. Your Council NSW (2021).

and remote areas. City councils' liabilities as a share of their annual revenue is twice that of remote councils, and almost 20 per cent higher than regional councils.<sup>120</sup>

Improvements in planning and more sophisticated asset management would enable greater use of borrowing, and so improve the service levels councils can offer their communities within their assigned budgets. Greater certainty of funding would also increase councils' ability to safely use borrowing as part of their asset management strategy.

A third problem associated with poor planning is that it opens up councils to litigation if something goes wrong. In Victoria, for instance, it is up councils to decide whether to implement a road management plan. These documents, developed in consultation with the community, outline timeframes for collecting condition data and for responding to any defects with a road. But if a council does not adhere to its plan, it may be at risk of civil action arising from road defects. In one case, where a citizen was injured by tripping on a damaged footpath, the court decided that the council could not use in its defence compliance with a road management plan, because the council had missed the requirement to inspect a footpath every 18 months by two days.<sup>121</sup>

Despite this risk, an audit of five councils found that two missed the defect response times outlined in their plan more than 60 per cent of the time. Four had gaps in compliance, and three had inaccurate records of the days they completed inspections.<sup>122</sup>

The last problem poor planning creates is simply that when councils do not plan, they also do not consult the community on what they are doing. This prevents them from responding to the community's preferences. This is discussed in the next section.

---

120. Grattan analysis of publicly available council budget information.

121. *Kennedy v Shire of Campaspe*.

122. VAGO (2021, pp. 6–7).

### 5.1.3 Community consultation often doesn't happen

The Acts governing the role of local government in each state and territory typically mandate some services councils must provide their communities, but leave wide scope for additional discretionary service provision.

Those services that are required by state legislation can also be provided to varying service level standards, with different costs and associated risks. For example, a council could choose to re-seal a sealed road more frequently, or with a more expensive seal type, in order to enable higher speed limits, greater comfort for drivers, and less fuel consumption. But that choice would lead to an ongoing financial cost that would need to be funded either through rates or cuts to another council service.

A core – and often legislated – role of local government is to consult with the community to establish the services and service standards that are financially sustainable and at a cost and risk level that are acceptable to the community.

But an audit of five councils in Queensland found that no council could demonstrate that it 'engaged with the community on what condition level they should maintain assets to, and what that would mean for its financial sustainability.'<sup>123</sup> In Victoria, an audit concluded that 'none of the audited councils effectively engage with the community to understand their preferences around road service level'.<sup>124</sup>

And when we asked councils how they prioritise road-related maintenance and construction, and how they set service level standards for their road assets, few were able to outline a process of community consultation.

---

123. Queensland Audit Office (2023b, p. 33).

124. VAGO (2021, p. 28).

Councils stated that they set service level standards using a range of strategies, with the most commonly listed strategies being on a historical basis (34 per cent); according to available funding (31 per cent), or based on outlined plans, such as asset or road management plans (23 per cent).<sup>125</sup>

Better-resourced inner regional and city councils were more likely to report having deliberate community engagement processes, and to have publicly available service level standards outlined in their planning documents.

For example, one inner regional council in NSW stated:

‘Through our Community Strategy Plan and community engagement practices we have expected Levels of Service standards. These are currently outlined in our Asset, Road, and Infrastructure Plans.’

But more commonly, community engagement is driven by customer complaints or requests, or based on ‘assumed community expectations’. And 17 per cent of councils report having no service level standards set at all.

Remote and outer-regional councils often reported not having service level standards, or basing service levels only on a historical basis, or available funding:

‘Service levels are in councils Asset Management Plan, however due to funding levels all maintenance activities are based on customer complaints, road inspections and condition assessment.’

‘They are largely based on finances, and make little to no distinction between hierarchy, users, etc.’

---

125. Some councils do consult their communities when developing asset management plans; consultation is a requirement when developing a road management plan in Victoria.

Several councils point out that they do not have funding to meet basic service levels, and until they do there is no point having a more complex system:

‘Where pavement failure is allowing water ingress, these roads become a priority for pavement renewal and reseal which is pretty much all we have funds for.’

‘Our rural road network is not complex. Once we have basic condition of seal under control we can become more cultured in our approach to levels of service.’

Others point out that they are struggling to meet community expectations, but are unable to improve with current funding levels:

‘Staff do the best they can to manage risk within available budget. This means we often don’t get to fix things people are complaining about which makes our reputation in the community worse.’

‘We have a baseline level of service to meet budget constraints, however community expectations are higher.’

Despite these constraints, collecting information about what communities want can help councils to prioritise expenditure, and educating the community about budget constraints and the trade-offs involved in road maintenance may also help councils that are struggling to meet community expectations.

Deliberate and structured community engagement will be particularly important for councils allocated additional funding if Grattan’s funding reforms are implemented.

## 5.2 Many councils cannot improve their asset management under current arrangements

Many councils’ asset management practices are far from perfect, but a number of headwinds prevent them from doing better. A combination of



factors, including poor data quality, a lack of skill, time, technology, and funding, and a large amount of state regulation that is not backed up with support, puts councils in an impossible position.

### 5.2.1 Finding, training, and retaining staff is challenging

A lack of qualified staff, and difficulty accessing and funding training programs for staff, is a challenge for local government.

Almost 90 per cent of respondents to Grattan's survey reported having difficulty hiring in the past 12 months. More than half of responding councils had difficulty hiring engineers, with asset managers and project managers also commonly listed.

Councils give several reasons why they struggled to attract engineers. These include a limited pool of talent to draw from; high industry demand; inability to compete with private sector remuneration; lack of access to overseas talent; and a lack of regional housing availability.<sup>126</sup>

Similar challenges may make hiring asset managers difficult. In a survey of Queensland councils, 65 per cent of respondents said that it was difficult to attract and retain staff with the necessary asset management competencies.<sup>127</sup> Part of the difficulty was that councils could not compete with private sector wages for skilled and experienced asset managers.

Asset management is also a job that has become more complex over time, limiting the pool of viable candidates. Changes to state and territory legislation mean councils are now required to have detailed long-term planning documents and more extensive community consultation, and external factors such as the increasing frequency of extreme weather events has added complexity and additional risk-management competencies to the role. As the National State of

---

126. SGS Economics (2022, p. 58).

127. Queensland Audit Office (2023a, p. 20).

the Assets report puts it, asset managers now require 'not just technical expertise, but strategic and financial planning insight, and stakeholder engagement'.<sup>128</sup>

This struggle to find staff reflects the experiences of the construction industry more broadly. Infrastructure investment by federal, state, and territory governments has soared in recent years. According to Infrastructure Australia, the pipeline of major public infrastructure projects is valued at \$237 billion over the next five years, reflecting an increase of \$15 billion in the last 12 months.<sup>129</sup>

In 2019, Infrastructure Australia warned that 'while large-scale projects are becoming commonplace, they are also stretching the capacity of industry and government'.<sup>130</sup> In March 2020, the Council of Australian Governments decided that it needed to start monitoring infrastructure market conditions and capacity.<sup>131</sup> Booming demand, as well as a drop in overseas migration between 2019 and 2022 when international borders closed, has led to shortages of skilled labour in the industry, particularly for engineers, architects and scientists.<sup>132</sup> The industry also reports a 24 per cent increase in the cost of construction materials, and 17 per cent increase in labour input costs, over twelve months.<sup>133</sup>

Meanwhile, the number of people working in local government has been in decline since 2016.<sup>134</sup>

Staffing problems are particularly acute in regional and remote councils. In NSW, very remote councils on average have just 60 full-time equivalent staff members, compared to 709 in councils

---

128. Verity (2021, p. 81).

129. Infrastructure Australia (2022, p. 12).

130. Infrastructure Australia (2019, p. 208).

131. Peter Gutwein (2023).

132. Infrastructure Australia (2022).

133. SGS Economics (2022, p. 12).

134. Ibid.

located in major cities.<sup>135</sup> While these staff are servicing much smaller populations, they do not have the benefit of economies of scale, and each staff member is stretched across more functions.

Limited staffing is particularly concerning when it comes to managing roads because remote councils have large and dispersed road networks. More than half of councils in major cities have multiple full-time equivalent staff dedicated to asset management work, while just under half of regional councils, and the vast majority of remote councils, do not even have one person working full time on road management (Figure 5.6), despite the fact that they are managing much more extensive road networks.<sup>136</sup>

### 5.2.2 Sector-wide data is extremely poor

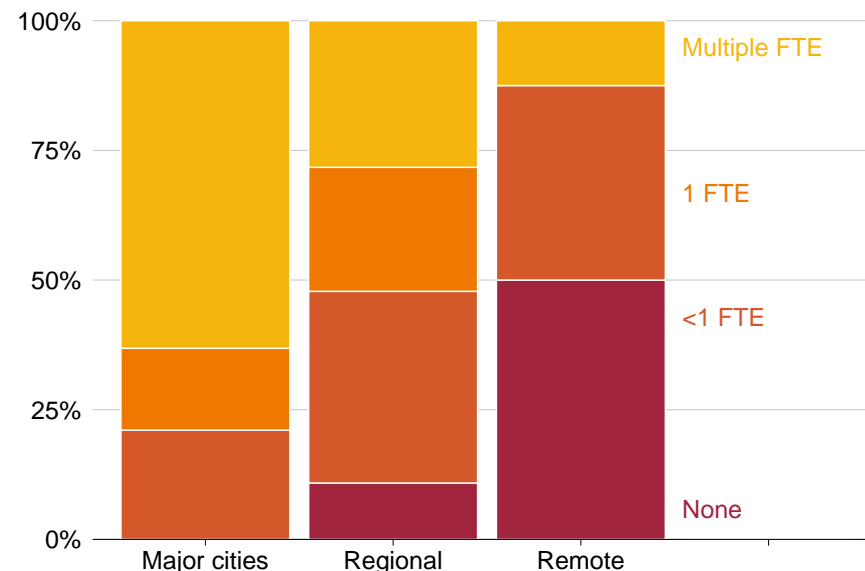
Accurate and comparable data across councils is beneficial to councils, rate-payers, the federal and state governments. It helps councils to prioritise work, manage their finances, measure and improve their performance, plan for the future, and consult their communities. It also gives ratepayers information about the performance of their council. And it helps all levels of government to understand where there are deficiencies in the road network that require intervention.

The importance of collecting data is recognised by the sector, and data collection has improved over time.

Since 2013, the Australian Local Government Association has commissioned an annual report on the state of local government

**Figure 5.6: Remote and regional councils have fewer staff dedicated to asset management**

Full-time equivalent (FTE) asset management staff by remoteness, share of surveyed councils



Source: Grattan Road Manager Survey, 2023. See Appendix D for further detail.

135. NSW Office of Local Government (2023).

136. Major city councils manage 752km of road on average, compared with 1,483km for regional councils and 1,232km for remote councils (Grattan analysis of ALGA 2021). This is a measure of road length only: capital cities are likely to have additional lanes and a greater share of sealed roads.

assets, intended to help provide information to stakeholders, policy makers and decision makers.<sup>137</sup>

And since 2005, the Australian Local Government Association and the Institute of Public Works Engineering Australia have jointly collected and compiled data for the National Local Roads Data System on council road and bridge assets, including inventory, expenditure, and financial data on replacement costs and depreciable amounts. This is an important step in understanding our road network, its costs, and where greater investment is needed.

Several states have implemented state-wide performance reporting frameworks. The most developed of these is Victoria's, which collects annual data from councils on their assets, including measures on the costs of re-sealing and re-construction costs to enable benchmarking across councils and years.<sup>138</sup> This allows communities to see how their councils are performing, and it helps councils learn from each other to find cost reductions or ways of improving service provision.

And many councils have committed to improving their own data collection and storage practices.

But while advances have been made in data collection, much of it remains unreliable, or not fit for purpose.

### There are major errors in key datasets

Several datasets collected by state authorities or the local government sector are not audited, and have major errors that limit their usefulness.

The National State of the Assets report is based on voluntary and self-reported data from councils, which – the report itself notes – have 'unacceptably low reliability'.<sup>139</sup>

---

137. Verity (2021).

138. Local Government Victoria (2023a).

139. Verity (2021, p. 77).

In the latest report, less than 20 per cent of responding councils said they base their infrastructure performance data on high-quality evidence, such as sound and current records, procedures, investigations, and analysis. Almost 60 per cent report having low confidence in data relating to whether assets are suitable for their intended purpose, or require updates, or are meeting capacity requirements.<sup>140</sup> And one fifth of councils report having low confidence in their data on the condition of their assets.<sup>141</sup>

The usefulness of the National Local Roads Data System is also limited by significant errors. For example, one council in NSW reported that their sealed roads increased from 187km in 2019 to 1,424km in 2020. Another council in Victoria reported spending just \$2,300 maintaining a network of 526km of unsealed roads in 2018.<sup>142</sup>

Such obvious errors make these datasets unreliable for decision-making because users cannot trust that the information is accurate, even when it is less obviously incorrect.

### The data that are collected are not fit for purpose

In some cases, the data that are collected are not fit for purpose.

Victoria was the first state to introduce state-wide benchmarking. Its benchmarking tool compiles all relevant data and provides an interactive dashboard interface. Benchmarking is valuable to councils because it allows them to evaluate their own performance, both over time and relative to similar councils. It can also help ratepayers to understand the performance of their council, and how their rates are being used.

---

140. Ibid (p. 27).

141. 'Low' confidence refers to data based on expert judgement or low-quality evidence. May be estimated or extrapolated. Accuracy  $\pm$  40 per cent.

142. ALGA (2021).

The Victorian benchmarking tool offers a model for other states, though further refinements could improve it in several ways.

First, the quality of the data it relies on is, at times, inaccurate, as outlined in the previous section.

Second, the dashboard should include more of the factors that make some roads more difficult or expensive to maintain, such as traffic counts or climate.<sup>143</sup>

Third, the inclusion of council targets would give context to what the council is aiming to achieve. This would require further work: a 2018 audit in NSW found that a third of councils did not have related targets for service delivery,<sup>144</sup> and a Victorian audit of five councils found that two had not adopted targets for performance reporting indicators.<sup>145</sup>

Benchmarking tools should include outcomes measures. Outcome measures would improve councils' performance reporting: without them, it is impossible to determine whether a council is delivering services effectively or is improving over time. According to the state auditor-general, Victoria's council performance benchmarking is 'not yet realising its full potential because it lacks good outcomes measures',<sup>146</sup> while in NSW 80 per cent of councils report on outputs, but only 40 per cent report on outcomes.<sup>147</sup>

Outcomes can be much more difficult to measure than outputs. For example, a council might improve its maintenance practices but a season of particularly bad weather could mean that the condition of a road deteriorates anyway. In these cases, additional context and proxy

indicators – such as community surveys assessing views of councils' performance, and the tracking of achievements against targets – can provide useful information. More detailed assessments of outcomes should also be done through regular service reviews that consider costs, community demands and satisfaction, financial sustainability, and alternatives for service provision.

### 5.2.3 Many councils cannot afford the technology that would support better practice

For best practice asset management, councils need the right technology for data collection, as well as software to store the information and inform decision-making.

The first step is to collect timely and high-quality data on the condition of the road network. But it's hard to do that when councils do not have access to, or choose not to use, the best technology for collecting data.

Data on the condition of roads is essential for councils, but it is complex to collect. Best practice guides recommend that councils survey the condition every 2-5 years, depending on the road type, and most councils (97 per cent) report having collected condition data on their road network within the past five years (Figure 5.2).

But many councils only assess the condition of their roads using visual inspections. An audit of five Victorian councils, for instance, found that three of the councils relied only on visual inspections to determine the condition of their roads.<sup>148</sup> Visually inspecting each road in a network is not only time-consuming for council staff, but provides very limited information: a road may look perfectly fine on the surface despite major problems with the underlying pavement.

Modern road survey equipment can provide a timely and accurate picture of the condition of roads that includes measures that can't

---

143. VAGO (2021, p. 4). One helpful step in Victoria is that councils can provide commentary on a given metric in a given year, with these linked to the dashboard.

144. Audit Office of New South Wales (2018).

145. VAGO (2021).

146. Ibid (p. 8).

147. SA Productivity Commission (2019).

---

148. VAGO (2021, pp. 24–25).

be observed by a visual inspection of the road. This equipment includes laser-based devices which detect the surface texture of roads; monitoring equipment, such as survey vehicles capable of collecting strength, roughness and texture data; ground-penetrating radar to estimate gravel loss from unsealed roads; and cameras affixed to garbage trucks or other council service vehicles.

But many councils say that such technology is not affordable or that they do not consider it cost-effective.<sup>149</sup> Some councils report that detailed condition data would not assist their decision-making anyway, since they can only afford to fix the absolute worst roads, and they don't need sophisticated technology to determine which ones those are.

Once councils have collected condition data, the second step is to use it to better understand their network, to prioritise maintenance activities within their budget, and conduct maintenance activities at the optimal time to minimise costs to both drivers and councils over the life of the asset.

Predictive modelling software helps councils by predicting where maintenance will be needed. It can be used to show the condition of specific roads or the overall network under different funding scenarios, and predict when roads will require maintenance to avoid deteriorating past set intervention levels. Road managers then inspect the road segment to verify whether maintenance work is required.

However, such modelling requires accurate input data on road and bridge assets and their condition, as well as technical expertise to use the software.

In the Grattan Road Manager Survey, several councils, particularly those in outer-regional and remote areas, report not using any asset management software, and a number report using spreadsheets only.

---

149. Grattan Road Manager Survey, 2023. See Appendix D for further detail.

Many of those councils that are using specialised software report problems, including consuming too much staff time, requiring manual data inputs, or only being able to model the condition of the entire network and not specific roads.

When councils were asked what technology or practices would help them manage their assets better, but were not currently affordable, the most common answers were new or upgraded asset management software, and better condition data collection and storage. Several councils also mentioned that preventative maintenance practices were not affordable.

### 5.3 A roadmap for improvement

Improving councils' performance on road management will require a long-term approach that addresses deficiencies in funding, data, technology, staff, planning, and community consultation. This new approach should be jointly driven by the federal government and local governments to ensure it is nationally consistent, is genuinely helpful for all types of local governments, and that any additional burden placed on local government provides value. It should include national standards for different types of roads, a consistent and reliable way of measuring performance against those standards, and an improvement in councils' asset management planning.

#### 5.3.1 The federal government should establish a national road hierarchy and minimum service level standards for local roads

While different parts of the road network are managed by different jurisdictions, Australian drivers use all roads – local roads, arterial roads and the freeways and other major roads of the national network – without regard to ownership or management responsibilities. The federal government has a role in ensuring the entire network meets a

minimum standard and allows people and freight to travel safely and efficiently across the country.

But Australia does not have any minimum service level standards for our road network. Instead, councils are left to determine the standard of their networks.

Not every Australian road needs to meet the same service level standards – a suburban cul-de-sac does not need to be built or maintained to the same condition as a highway. To cater for these differences, the first step in determining service level standards is to establish a road hierarchy. New Zealand, which has recently undertaken to establish a hierarchy for its road network, provides an example of how this can be done (Box 6).

While various classifications for roads exist across Australia, all local roads are typically classified in a single category. This does not acknowledge the differences between a street in the Sydney CBD, a road connecting farms to a major freight route, and a small access road to one remote property. These differences need to be considered when setting service levels, so the road hierarchy must distinguish between different types of locally managed roads.

Any standard should consider the expected benefits of additional funding for higher-quality roads, and trade these off against costs, risks, and other government objectives.<sup>150</sup>

In November 2018, infrastructure and transport ministers did agree to develop service level standards for Australian roads.<sup>151</sup> In 2020, the infrastructure department conducted a round of consultation on the design of these standards and other proposals for reforming the way

150. See Chow et al 2018 for a useful framework for measuring the benefits of road investments.

151. HVRR (2023).

### Box 6: New Zealand's road hierarchy

New Zealand is in the process of implementing a nation-wide road hierarchy.<sup>a</sup> Roads are given a classification based both on the road's 'function' as a transport corridor for vehicles, and its 'place' as a destination for people.

A road with a high ranking for 'place' might be one in an area with a high number of pedestrians, or with high-use adjacent land, such as a high-rise office building, while a high ranking for 'function' would mean the road is heavily used by many cars and freight vehicles.

There are 12 different classifications, with a separate criteria for urban and rural roads. Each classification has underlying metrics, and every council has classified their roads according to this framework. The NZ Transport Agency sponsors data collection and peer benchmarking of road performance across all local councils. This can then feed into investment decisions, business cases, asset management plans and setting speed limits.

The primary benefit of this hierarchy is that it enables the integration of land use and transport to support planning as well as more strategic and informed decision-making about road investment and maintenance. It also aligns with other government policy, such as reaching net zero, and assists councils to prioritise their spending on roads that contribute most to the local economy.

The next step will be to determine and measure the levels of service framework, and to connect the one network framework outcomes with technical measures of road quality.

a. Waka Kotahi NZ Transport Agency (2023).



heavy vehicle charges are set and invested. But standards are yet to be implemented.

**Recommendation 5**

The federal government should establish a national road hierarchy and associated minimum service level standards, which includes the local road network.

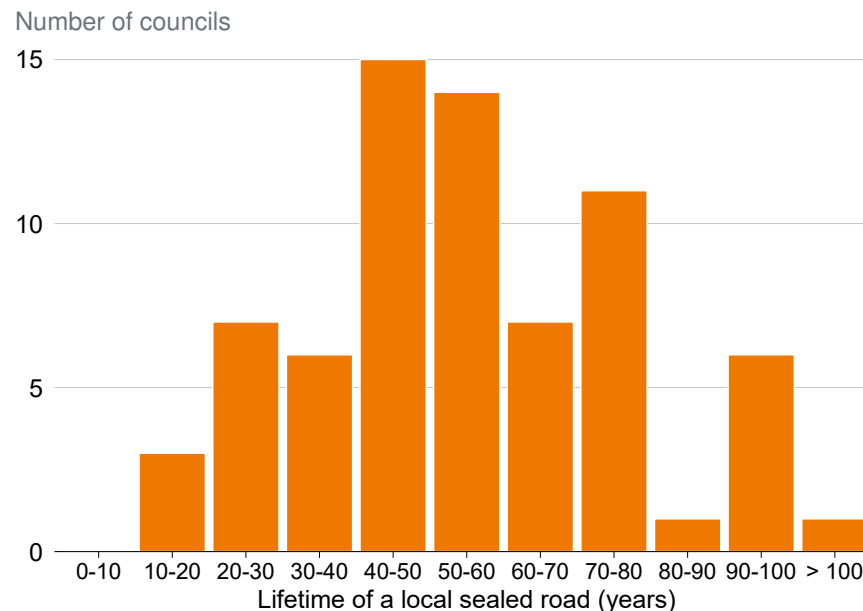
Once the hierarchy is established, the federal government, in consultation with state and local government, should set minimum standards for the condition of each road type in the hierarchy.

These service level standards should provide common language that maps technical standards, as understood by road engineers, to language that is meaningful to road users. For example, the ‘community’ level of service of a given road may relate to whether it is comfortable to drive on at its assigned speed limit, while its ‘technical’ level of service might be assessed according to a specific roughness index, or a certain score on a community satisfaction survey.

Consistent minimum standards require consistent measurement of how our roads perform against those standards. But current practices differ substantially across councils. For example, different councils report very different estimates of the useful life of a typical sealed road: for some it’s 10 years, and for others it’s more than 100 years (Figure 5.7).

This variation may reflect councils genuinely not knowing the life of an asset, or an attempt by some councils to appear more financially viable by reducing the annual depreciation expense of their road assets. A road that cost \$100 million to build would have an annual depreciation cost of \$5 million if it was expected to last 20 years, but its annual depreciation cost would be just \$1 million if it is expected to last 100

**Figure 5.7: Different councils report vastly different expected life-spans for similar roads**



Source: IPWEA NSW 2020.

years. This might make a council appear to be doing better financially than a council that reports more accurate depreciation expenses.

To ensure consistency and comparability, the federal government should establish metrics associated with each aspect of the road minimum standards, and consistent ways of measuring and reporting on these metrics. This will require close consultation with state and local governments to ensure the metrics relate to characteristics that matter to road users, can feasibly be collected, and are useful measures that are worth the additional administrative burden they may place on councils. The metrics should be specific about how measurement should occur so as to ensure consistency. This might vary across the hierarchy: roads higher in the hierarchy, for example, might require more detailed measurement.

Some attempts have already been made to create standardised datasets that could serve as a useful starting point for a national dataset. Under the Victorian government's Rural Road Support Package, for example, a common dataset was produced for 11 regional Victorian councils.<sup>152</sup> The Austroads Data Standards also contains a shortened list of key variables that all road managers should have.<sup>153</sup> These would be a useful starting point when considering which metrics to include.

---

152. Local Government Victoria (2023b).

153. T. Martin et al (2023).

### **Recommendation 6**

The federal government, in consultation with states and local councils, should establish a list of metrics attached to the road hierarchy. These metrics should:

- be measurable, with only a small list of essential data items related to roads;
- enable the measurement of achievement against the minimum standards, with technical measures mapped to community standards;
- provide a detailed explanation of how the data should be collected to ensure it is consistent across councils;
- be suitable for determining which roads require upgrades to meet minimum standards based on the road hierarchy;
- be suitable for benchmarking costs;
- include measures of the quality of services, as well as outcomes, and context that may explain differences in costs and performance.

### **5.3.2 Councils need to collect high-quality data on a nationally comparable basis**

Some councils do not have the staff time and capability, or the technology, to capture required data. The burden of collecting additional data can be large for already resource-constrained councils. In the first three years of Victoria's performance-reporting framework,

for instance, councils had an average of ten interactions per year with the team collecting the data.<sup>154</sup>

Councils will need support to collect the required data. This may involve the federal government providing direct support, such as sending a team out to councils every 2-5 years to collect the required data, providing councils with access to the technology and staff training they require to develop their own capability to collect the data, or a combination of both. This effort should be funded by the federal government, and provided in collaboration with the Australian Local Government Association. The ALGA should then audit the data to ensure it is of high quality, accurate, and reliable.

Once audited, the data should be made available to councils and the public, both in raw form, and through an interactive dashboard that allows comparison between similar councils. It should be supplemented with data on councils available from other sources, such as the Australian Bureau of Statistics. This data collection would supersede the need for state-based data collection, and any duplicative processes should be embedded in the national process.

#### **Recommendation 7**

The federal government should provide funding, and in collaboration with the ALGA, support to councils to acquire the necessary technology and software, and to train staff.

Once support measures are in place, councils should be required to collect the relevant data, and the ALGA should audit the data to ensure it is high quality and accurate.

The data should be available for councils and the community to access online.

Once timely and accurate data is available, councils would be able to use it to improve their planning, community engagement, and collaboration with other councils. Councils should set their own service level standards for their roads, depending on cost, risk, and consultation with the community. These may be set at, or above, the minimum standards set by the federal government, and should be detailed in planning documents.

These standards should be accompanied by targets for each of the metrics collected. Clear targets will allow councils, and their communities, to assess performance over time.

State guidance, such as the provision of high-quality templates for planning documents, would help councils by saving them time and ensuring they are compliant with legislation. More consistent planning documents would also make auditing and comparison simpler.<sup>155</sup>

Once plans are in place, it is important that they remain 'living' documents that are continuously updated so that councils make decisions with the most up-to-date data. And feedback should be regularly sought by the community, to ensure that council practices reflect the preferences of the people they represent.

Council asset management plans and long-term financial plans should be audited annually by council audit committees, and every five years

---

155. Some states already provide detailed guidance to help councils with their asset management. For example, the Victorian Local Government Asset Management Better Practice Guide details how councils should manage assets effectively and the benefits of doing so, including the elements required for the asset policy, strategy and plan, and what to include in each. And the South Australian Local Government Association recently had IPWEA design a template asset management plan template that aligns with requirements under the Local Government Act 1999. But several states do not have templates or detailed guides, instead leaving councils to interpret the legislation and re-invent the wheel when it comes to developing key planning documents.

---

154. SA Productivity Commission (2019).

by state attorneys-general. Audits should include an assessment of community consultation.

If some councils consistently produce poor-quality plans, or are unable to meaningfully consult with their communities, the state government should provide additional support and training to ensure all councils meet their obligations and provide value to their community.

**Recommendation 8**

State governments, in consultation with Local Government Associations, should provide up-to-date templates of best practice documents for asset management plans and long-term financial plans to councils, free of charge. These plans should incorporate the new service level standards and map the new indicators to these.

The plans should be audited annually by council audit committees, and every five years by state and territory attorneys-general. Councils with poor-quality plans should be offered training by the state government to improve their practices.

## Appendix A: How we estimated councils' road preservation costs

This appendix describes how we estimated the required maintenance and renewal costs for councils in NSW, Victoria, South Australia, and Tasmania, and how we extended these estimates to produce a national maintenance underspend of \$1 billion.

The estimates are determined by applying a regression model of the key cost factors for council roads to standard maintenance cost data. Using the outputs of our regression, we estimated the effects of urban density, population density, annual rainfall, remoteness, and state on the cost of maintaining a road network. By applying this to Tasmanian Local Government Grants Commission maintenance costs per kilometre, we were able to estimate the cost of preserving each council's network for the above states.

By comparing these preservation costs to the reported maintenance and renewal expenditure in the National Local Roads Data System<sup>156</sup> we determined a maintenance spending gap for each council.

To extend this estimate to the rest of Australia, we assumed that councils of the same Australian Statistical Geography Standard Remoteness Area underspend by the same amount relative to their reported expenditure.

The national maintenance underspend was then determined by summing the spending gap of every council in Australia that is spending less than the estimated requirement.

---

156. ALGA (2021).

### A.1 Collating data for factors that influence council maintenance costs

The key factors for maintenance and renewal costs are the length, type, and usage of the roads; environmental factors like rainfall and soil;<sup>157</sup> as well as location specific labour and materials costs.

There is limited data available for the local road network in Australia. The following variables were used to capture these cost factors:

- percentage of the network within an area of concentrated urban development;
- population density of the local government area;
- annual rainfall of the local government area;
- remoteness area of the local government area; and
- state or territory of the local government area.

#### Percentage of the network within an area of concentrated urban development

Roads in built-up areas of urban density cost more to maintain.<sup>158</sup> To estimate the percentage of each council's network that lies within an area of concentrated urban development, we used publicly available spatial road segment data from NSW, VIC, SA, and TAS,<sup>159</sup>

---

157. D. T. Martin et al (2023).

158. Tasmanian State Grants Commission (2022b) and Western Australian Local Government Grants Commission Annual Report 2020-21 (2022).

159. Department of Customer Services (2023), Department of Energy, Environment and Climate Action (2023), Department for Infrastructure and Transport (2022) and Department of Natural Resources and Environment (2018).

and Australian Bureau of Statistics *Urban Centres and Localities* boundaries.<sup>160</sup>

### Population density of the local government area

Populous councils have more high-traffic roads. Population density of a local government area was derived from total local government land area and total local government population.<sup>161</sup>

### Annual rainfall

Water damage is one of the key drivers of road deterioration.<sup>162</sup> Average annual rainfall data<sup>163</sup> was averaged over the land area of the local government boundary to return an average value for each council.

### Remoteness area and state

The state a council is located in, and the remoteness of the council, are both likely to impact the labour and materials costs of maintaining roads. Using the Australian Statistical Geography Standard (ASGS) Remoteness Areas,<sup>164</sup> we classified all councils as major-city councils, regional, or remote based on the area classification of the majority of the council population.

## A.2 Regression

To estimate the impact of the above cost factors on Australian councils, we used a linear regression model. We also included the ratio of a council’s total income to the amount received in general Financial Assistant grants in order to control for the effects of wealthy councils

160. ABS (2021c).

161. ABS (2022a).

162. Allan (2023).

163. Bureau of Meteorology (1981).

164. ABS (2021a).

**Table A.1: Results of the linear regression model**

Variable	Coefficient	P-value	Significance
Network per cent urban	5,444.28	<0.001	***
Annual rainfall	6,751.06	<0.001	***
Population density	16,380.53	<0.001	***
Income to grants ratio	26050.10	<0.001	***
Remoteness area - Remote	-1,062.19	0.011	*
Remoteness area - Regional	353.73	0.39	
State - Vic	-1,543.50	0.0049	**
State - NSW	359.46	0.42	
State - SA	-2,674.08	<0.001	***

*Note: Variables with p-value > 0.1 were not used in network cost calculations.*

being able to spend more on their roads. To determine the effects of our variables on the cost of maintaining a road network, the dependent variable for the model was maintenance and renewal expenditure per km of sealed road, as reported by each council in the National Local Roads Data System. The results of the model for a sealed road network are shown in table A.1.

## A.3 Estimating network preservation costs for councils

We established a benchmark sealed network preservation cost for Hobart City Council using standardised maintenance and renewal cost data from the Tasmanian State Grants Commission,<sup>165</sup> and spatial road segment data from the TAS LIST – Transport Segment dataset.<sup>166</sup>

Hobart was chosen (a) because the standardised cost data that was accessible was for Tasmanian councils, and (b) Hobart was assumed to have a relatively high service level. This means that benchmarking the standardised costs data to Hobart’s network costs would likely

165. Tasmanian State Grants Commission (2020).

166. Department of Natural Resources and Environment (2018).



underestimate the actual costs of the network and give an overall conservative estimate for national preservation costs. The effect of this assumption is assessed in Appendix A.5.

We then applied the linear regression model in Appendix A.2 on the preceding page to predict the cost per km of road for each council in our dataset, with Hobart City Council as the baseline. Sealed network maintenance costs for councils were then calculated by multiplying the predicted cost per km of each council by the length of sealed roads reported in the National Local Roads Data System.

The estimated maintenance spending gap for each council was then determined by calculating the difference between a council's network preservation cost and the actual maintenance and renewal expenditure reported in the National Local Roads Data System.

The costs of delaying maintenance and the minimum acceptable service level are less clear for unsealed roads. Because of this, instead of explicitly determining a preservation cost for each council's unsealed network, we assumed that the relative preservation gap between required and actual expenditure for sealed and unsealed roads was the same.

#### A.4 Extending the underspend estimate to the rest of Australia

To extend our maintenance spending gap estimates to the rest of the country, we assumed that councils of similar remoteness would have similar spending gaps relative to their reported expenditure.

The median maintenance spending gap as a percentage of actual expenditure was calculated for each remoteness area (major cities, regional, remote). Councils in WA, Qld, and the NT (not included in our road segment datasets) were then assigned maintenance spending gaps based on their reported expenditure and remoteness area. Where expenditure data was missing or inaccurate, councils were assigned a

**Table A.2: Preservation gap using other benchmark councils**

Council	National maintenance underspend
Hobart	\$1.05 billion
Dorset	\$1.09 billion
Meander Valley	\$1.40 billion
Glenorchy	\$1.51 billion
Glamorgan Spring Bay	\$1.65 billion
Southern Midlands	\$1.96 billion
<b>Average</b>	<b>\$1.44 billion</b>

*Note: Values in 2023 dollars.*

preservation gap based on the median expenditure gap per km of road network.

In 2021, the total value of the national maintenance and renewal underspend was estimated to be equal to \$1.05 billion in 2023 dollars.

#### A.5 Assessing the impact of the benchmark council

To assess the impact of choosing Hobart as our benchmark council, we repeated the calculation for five other Tasmanian councils and compared the total network preservation cost of each method. The results of this calculation are shown in Table A.2.

The variation in the estimates is driven by the degree to which the benchmark council is a 'high-cost' network. If a council chosen as the benchmark has high rainfall, high population density, and is in an urban area, most other councils are predicted by the regression model to have costs lower than the standardised data. This means that the overall maintenance underspend will be estimated to be lower. If a 'low traffic, low-cost' network is the benchmark, most councils will be estimated by the model as requiring greater expenditure per km than the standardised data. This will cause the overall estimate to be larger.

This exercise confirms that using Hobart as a benchmark leads to a conservative estimate for the national underspend, and gives confidence to the claim that Australian councils are collectively underspending by at least \$1 billion.

### A.6 Comparison to other estimates

The Western Australian Local Government Association estimates that councils in WA had a maintenance and renewal spending gap of \$246 million in the 2020-2021 financial year.<sup>167</sup> Our estimate values the maintenance underspend as at least \$190 million for WA in that year – 24 per cent lower. This is consistent with our lower bound estimate.

A soon-to-be-published report by IPWEA NSW estimates the maintenance and renewal spending gap of NSW roads to be \$769 million in 2021-2022.<sup>168</sup> Our estimate values the underspend \$288 million in 2020-2021. This large discrepancy in values is likely explained by (a) changes in costs and expenditure patterns between 2021 and 2022; and (b) key differences in methodology.

- (a) Between 2021 and 2022, construction prices have surged.<sup>169</sup> If council expenditures did not keep pace with this increase, it is likely that the maintenance spending gap increased between the year of our analysis (2020-2021) and the recent IPWEA work.
- (b) The IPWEA methodology uses council-reported unit costs and asset lifetimes to base its estimate. As discussed in Chapter 5 on page 47, most councils are unable to report this data with accuracy. This may lead to discrepancies between the IPWEA estimate and the actual costs to councils of maintaining their roads.

---

167. WALGA (2021).

168. Verity (2023).

169. ABS (2023d).

## Appendix B: How we calculated income by Local Government Area

We calculated average income by Local Government Area (LGA) by adding our estimate of net individual income, and net business income.

### Net personal income by LGA

We took personal income tax by LGA from the ABS Personal Income in Australia dataset. This dataset includes the income from anyone who completed a tax return in a given year, and so is likely to understate income for areas with more people earning below the tax-free threshold.

We took individual tax receipts by postcode from the ATO taxation statistics. We matched the postcodes to LGAs, and split the tax revenue based on the share of the postcode's population that live within each LGA. We subtracted tax from income to attain net personal income by LGA.

### Net business income by LGA

We took gross operating surplus and gross mixed income (combined), split by industry and state, from the State Accounts. The first step was to remove gross mixed income from gross operating surplus. This is because income from unincorporated businesses is included in personal income statistics, and we didn't want to count it twice.

Gross mixed income is only available at the state level in the state accounts data. We subtracted gross mixed income from gross operating surplus, applying the same percentage reduction to each industry. We took corporate income tax by industry from ATO taxation statistics, and subtracted it from our estimate of gross operating surplus. This provided a state by industry estimate of after-tax operating surplus of incorporated businesses.

The next step is to allocate these industry/state estimates to local government areas.

To do this, we used place of work counts by industry and LGA, and allocated business income to LGAs based on shares of employees' listed place of work.

An alternative way to allocate income to LGAs would be to use business locations. However, businesses often report their head office as the business location, rather than where the business is actually located.

## Appendix C: The National Principles of the Financial Assistance Grants

*The Local Government (Financial Assistance) Act 1995* requires the Minister to formulate a set of National Principles that states must adhere to when allocating grants to councils. These principles are:<sup>170</sup>

### General purpose grants

**1. Horizontal equalisation:** General purpose grants will be allocated to local governing bodies, as far as practicable, on a full horizontal equalisation basis as defined by the Act. This is a basis that ensures each local governing body in the State or Territory is able to function, by reasonable effort, at a standard not lower than the average standard of other local governing bodies in the State or Territory. It takes account of differences in the expenditure required by those local governing bodies in the performance of their functions and in the capacity of those local governing bodies to raise revenue.

**2. Effort neutrality:** An effort or policy neutral approach will be used in assessing the expenditure requirements and revenue-raising capacity of each local governing body. This means as far as practicable, that policies of individual local governing bodies in terms of expenditure and revenue effort will not affect grant determination.

**3. Minimum grant:** The minimum general purpose grant allocation for a local governing body in a year will be not less than the amount to which the local governing body would be entitled if 30 per cent of the total amount of general purpose grants to which the State or Territory is entitled under section 9 of the Act in respect of the year were allocated among local governing bodies in the State or Territory on a per capita basis.

**4. Other grant support:** Other relevant grant support provided to local governing bodies to meet any of the expenditure needs assessed should be taken into account using an inclusion approach.

**5. Aboriginal peoples and Torres Strait Islanders:** Financial assistance shall be allocated to councils in a way, which recognises the needs of Aboriginal peoples and Torres Strait Islanders within their boundaries.

**6. Council Amalgamation:** Where two or more local governing bodies are amalgamated into a single body, the general purpose grant provided to the new body for each of the four years following amalgamation should be the total of the amounts that would have been provided to the former bodies in each of those years if they had remained separate entities.

### Local road grants

**1. Identified road component:** The identified road component of the financial assistance grants should be allocated to local governing bodies as far as practicable on the basis of the relative needs of each local governing body for roads expenditure and to preserve its road assets. In assessing road needs, relevant considerations include length, type and usage of roads in each local governing area.

---

170. Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2021).

## Appendix D: The Grattan Road Manager Survey

To provide additional information about council practices, we conducted a survey of local councils, and asked questions related to their funding arrangements and asset management practices.

Councils within the NSW Central West Joint Organisation piloted the survey. We then distributed the survey to all councils via state Local Government Associations. Councils provided responses online. Councils were identified by name in the survey, but we have kept councils anonymous in our reporting.

This appendix provides further detail on the results of the survey.

### Survey response rates

The survey was optional, and 81 councils responded to the survey, out of a total of 537. The survey was not distributed to South Australian councils, who are therefore not represented in the results.

Councils were named in their responses, which allowed us to link the survey data with other available data from the councils, including their locations and remoteness areas. We received responses from councils across all remoteness levels. Counts and shares of respondents by remoteness and state are shown in Table D.1

Results in this report reflect only those councils that responded to the survey. Where possible, we have verified responses against other council surveys.

### Questions about staffing

After identifying councils, the first block of questions related to staffing, including time spent on tasks such as applying for grants, staffing levels, and recent hiring challenges.

**Table D.1: Survey coverage by remoteness and state**

	Total count	Responding count	Share
<b>Remoteness</b>			
Inner regional	133	23	17%
Major cities	134	19	14%
Outer regional	144	23	16%
Remote	59	7	12%
Very remote	75	9	12%
<b>State</b>			
NSW	131	14	11%
NT	19	5	26%
Qld	78	10	13%
Tas	29	14	48%
Vic	80	26	32%
WA	139	12	9%

**Q5 Do you have a dedicated staff member whose job is road asset management? (For example, assessing the condition of roads and bridges, developing asset management plans, prioritising maintenance tasks and minimising lifecycle costs).**

**Table D.2: Asset management staff**

	Count	Share
a) No	13	16%
b) Yes, multiple FTE	27	33%
c) Yes, one full-time equivalent (FTE) entirely dedicated to asset management	14	17%
d) Yes, one staff member but asset management is only part of their job	27	33%

**Q6 In an average week, how long would members of staff spend applying for grants related to roads and bridges, in total? If unsure, please try to provide a best approximation.**

This was asked as an open-text question with hours and minutes. Missing or nil responses were removed from analysis.

**Table D.3: Weekly time spent applying for grants, hours, by remoteness**

Group	Median	Mean
All councils	2	3.0
Major city councils	1	1.8
Regional councils	2	3.3
Remote councils	2	3.7

**Q7 In the past 12 months, has your council experienced difficulty hiring or retaining road/asset management professionals and engineers?**

**Table D.4: Difficulty hiring in past 12 months**

	Count	Share
a) No	11	13.6%
b) Yes	70	86.4%

Difficulty hiring was persistent across all states and remoteness areas.

**Q7b Which position(s) have you had difficulty hiring or retaining in the past 12 months?**

This question was only put to respondents who answered yes to Question 7. It was an open-text question.

Text analysis identified the most common stems of words listed by respondents, for single words and for bigrams. For example, the stem word for engineer is 'engin'. Common bigrams are listed in the table below.

**Table D.5: Common bigrams**

Words	Count
asset manag	17
project manag	10
asset engin	8
design engin	7
plant oper	7
asset offic	5
civil engin	5
traffic engin	5

Engineers were the most commonly listed profession that councils were having difficulty hiring. Forty-four of the surveyed councils stated that they had difficulty hiring for engineering positions in the past 12 months. Several types of engineers were listed, including, most commonly, asset, design, civil, and traffic engineers. Asset management positions and project management positions were also frequently cited as being difficult to fill.

**Q8 Has your council ever shared staff, technology or contract negotiations with another council to minimise costs or share expertise?**

**Table D.6: Councils sharing expertise, technology or contract negotiations**

	Count	Share
a) No	35	43.2%
b) Yes	45	55.6%
n/a	1	1.2%

**Q8b Please provide details on what staff, technology or contracts you have shared with other councils?**

This was an open-text question. Councils listed a wide range of ways in which they collaborated with each other. Many had shared contracts or tenders for services including road construction and rehabilitation (particularly for bordering roads), consultancy, CCTV surveys of pipelines, procurement of bitumen and other materials, line-marking, re-sealing, and waste collection contracts.

Councils reported sharing staff members, including surveyors, road safety officers, GIS officers, engineers, environmental health officers, and HR and IT staff.

Councils also reported collaborating on the provision of services, including street sweeping, animal control, and waste management. Some councils also report sharing asset management software.

Some councils have joined together on specific projects or items. Northern Territory councils report sharing information on road contracts to share parts of contracts and save on costs. Regional road groups report having joint tendering arrangements, and sharing technical expertise and project information. Councils also report collaborating on advocacy and strategic planning for regional road maintenance.

### Questions about funding

The next section of the survey asked councils questions about their funding, to help us understand councils' views on funding arrangements and constraints.

#### **Q9 Does your council have adequate funding (through grants and own source revenue) to maintain your roads to an adequate standard?**

**Table D.7: Does council have enough funding to maintain roads to an adequate standard**

	Count	Share
a) Don't know	6	7.4%
b) No	58	71.6%
c) Yes	17	21.0%

#### **Q10 How do you determine how much expenditure is required to maintain your roads to an adequate standard?**

This was asked as an open-text question, and 73 councils provided valid responses.

The most common responses included the use of asset management plans and other planning documents (29); use of condition assessments (35); modelling (14); depreciation expenses (12); and minimum service level standards or user feedback (11).

A number of councils (16) commented that they do not have sufficient budget to fund what they assess to be the required amount, and therefore any maintenance depends on budget allocations. For some councils, this included not having enough funding to match depreciation expenses. Some councils, particularly in major cities, describe sophisticated modelling approaches.

#### **Q11 Are there any technologies, software or practices that would assist your council with asset management, but are unaffordable in your current budget?** (e.g. collecting condition data and with what technology, your asset management software, preventative maintenance, data collection and storage, other).

This was an open-text question. The most common responses were for new or upgraded asset management software, and better condition assessment data collection and data storage.



Councils report being interested in more frequent condition assessments that covered a wider range of their networks, as well as more advanced technology, such as video capture, AI data collection, the use of drones, and ARRB’s iPAVE vehicle. Preventative maintenance practices were also considered to be unaffordable by several councils.

About a fifth of councils said no, primarily in major cities and inner-regional areas. Several councils also stated that they were unsure what was available.

**Q12 Does your council receive their fair share of state/territory and federal funding, when compared with the funding received by other councils?**

**Table D.8: Does council receive fair share of funding**

	Count	Share
a) No, we receive less than our fair share	38	47%
b) Yes, about the right amount	43	53%

**Q12b Please provide a reason for why you think your council receives below their fair share of state/territory or federal funding?**

This was an open-text question, which was only put to councils that answered ‘No, we receive less than our fair share’ to Q12.

Councils responded with a wide range of reasons for underfunding. A sample of de-identified responses to this question are below.

Politicisation of NSW Government grant funding. Competitive nature of all grant funding. Continued erosion of financial assistance grants. Cost shifting, such as the imposition of red fleet on Councils and the recent Emergency Services levy changes. - Regional NSW council

We have a large network of roads including bridges compared to our rate base. - Regional Tasmanian council

Our council manages 1,700km of road network across our council region (283,000sqkm) – majority of this road network is unsealed and flat blade and requires funding to resheet. Our roads do not have creek crossings and these roads are the main access roads to remote communities. - Remote Northern Territory council

We are only a small council with limited resources and have difficulty matching funding grants so we are not able to apply for everything. Limited resources also lead to difficulty in delivering. - Regional Victorian council

We are typically a safe political seat, so while we receive our fair share of funding under objectively assessed programs, we receive very little as part of funding around elections, or from subjective grant programs. - Major-city Victorian council

Rate capping, cost shifting from other levels of government, excessive administration during grant acquittal. - Major-city Victorian council

Financial assistance grant is determined based on population, length of road network and property valuations. As property valuations in our region are comparatively high there is an assumption that our Council has an ability to collect more funds through rates, which has resulted in decreasing external funding. Most external funding is for upgrades or new infrastructure only and aligned to traffic safety or productivity statistics. Regional Councils often can’t compete with larger population centres to attract funding based on these criteria. There is insufficient funding available to support maintenance and renewal of existing road assets. - Regional Victorian council

**Questions about maintenance practices**

**Q13 What asset management guidelines does your council use to guide asset management practises?**

The question contained a list of guidelines, and respondents could select multiple options. There was an ‘other’ option, and Question 13b

asked councils that selected this option to specify which guidelines. Note that the shares will not add to 100 because councils could select multiple options.

**Table D.9: Asset management manuals used by councils**

	Count	Share
NAMS+ (by IPWEA)	43	53.1%
International Infrastructure Management Manual by IPWEA	39	48.1%
ARRB best practice guidelines	31	38.3%
Austrroads Integrated Asset Management guidelines for roads	30	37.0%
ISO 55001 Asset Management Standard	24	29.6%
Local Government Asset Management Better practice guide (Local Government Victoria)	11	13.6%
Asset Management Council Asset Management Body of Knowledge (AMBoK)	6	7.4%
None	6	7.4%
National guidelines for transport	3	3.7%
System management (department of infrastructure)	3	3.7%
Australian Transport Assessment and Planning Guidelines	3	3.7%
Road Management Act	2	2.5%
Internal framework	1	1.2%
Moloney	1	1.2%
RAM	1	1.2%
WALGA: Road Visual Condition Assessment Manual (Free)	1	1.2%

**Q14 Please indicate whether your council has the following for roads and bridges?**

**Table D.10: Share of councils with asset and financial plans**

	Asset Management Plan	Long-Term Financial Plan	No information
Never had one	1.3%	22.8%	60.5%
Yes, out of date	26.6%	15.2%	35.8%
Yes	72.2%	62.0%	22.2%

**Q14b Are your asset management plan and long-term financial plan integrated?**

**Table D.11: Share of councils with integrated asset management and long-term financial plans**

	Integrated Asset and Financial Plans
Missing component	40.5%
No	8.9%
Yes	50.6%

**Q16 What software and technology does your council use for asset management?** Please include, for example, pavement management systems, asset management software, predictive modelling software, laser based devices, monitoring equipment or vehicles, tools to measure road quality, or external contractors/suppliers.

This was an open-text question. Councils listed a wide range of different software providers and technologies used to measure road condition. Around a quarter of councils also said they use external contractors. And almost 10 per cent stated they didn't use any software. Councils that didn't use software were located in remote or outer-regional areas.

A selection of de-identified responses are below.

SMEC Pavement Management System, Vaisala vehicle inspection of roads, geotechnical investigations, external contractors using vehicle laser based devices. - NSW major-city council

Many of these are useful when road condition generally is good because the distinction becomes more technical. Our road condition generally is poor so we don't need technology to pick out the worst roads to fill our program. - Remote Tasmanian council

External contractors engaged for asset inspections. Internal crews use Reflect for defect inspections and monitoring. - Regional Queensland council

Spreadsheets only – integrated AM software would be a blessing. - Regional Tasmanian council

**Q17 How does your council prioritise road-related maintenance and construction projects?** Please provide details.

This was a free text question. A selection of de-identified responses are below.

Prioritised based on successful/available grant funding. Attempt to complete Asset maintenance and renewals based on AMP. But if the money is not available, then the project is not completed. - Regional NSW council

Combination of predictive modelling, condition assessments and weighted criteria combined into a matrix and then prioritised. - NSW major-city council

Priority given to projects co funded under (WA) MRRG Rehabilitation projects, Commodity Routes, Roads to Recovery, LRCI and general grants. 100% rates funded projects are lower priority. - WA major-city council

Where pavement failure is allowing water ingress, these roads become priority for pavement renewal and reseal which is pretty much all we have funds for. - Remote Tasmanian council

**Q18 Does your council have minimum service level standards for roads? If so, how are they set** (e.g. historical basis, available funding, user preferences, user complaints, other)? Please provide details.

This was an open-text question. Common responses included decisions made on a historical basis (34 per cent of responding councils), available funding (31 per cent), community expectations, as outlined in planning documents (24 per cent), user complaints (17 per cent), and community expectations (17 per cent).

Just 15 per cent of responding councils said they had a road hierarchy with attached standards, and 17 per cent had no standards at all.

**Q19 When you receive a request for heavy vehicle access, how do you assess whether to approve or reject the request?**

**Table D.12: Methods for granting heavy vehicle access**

	Count	Share
a) Always approve	5	6.8%
b) Always reject	2	2.7%
c) Only approve if a similar-sized vehicle has traveled safely on the road/bridge previously	5	6.8%
d) Use an engineering assessment of road/bridges capacity	44	60.3%
e) Other	17	23.2%

Councils that selected 'other' were asked to specify. Several council stated they used their local knowledge or manual assessments when granting access.

**Q20 Do you have current data (collected within the past 3 years) on the following aspects of your road network?**

**Table D.13: Availability and quality of data, share of councils**

	No data	Accurate within 10%	Within 25%	Within 40%
Number and length of roads	1.5%	75.8%	12.1%	10.6%
Age of roads	7.6%	42.4%	28.8%	21.2%
Condition of roads	3.0%	68.2%	19.7%	9.1%
Traffic on roads	28.8%	15.2%	21.2%	34.8%
Number of bridges	12.1%	77.3%	1.5%	9.1%
Age of bridges	13.6%	53.0%	16.7%	16.7%
Load capacity of bridges	25.8%	36.4%	19.7%	18.2%

**Questions about costs**

We asked councils a series of questions about their road costs. The questions were as follows:

- Q21 What share of your road network is covered by: (if unknown, please put X)
  - Asphalt seal (%)
  - Spray seal (%)
  - Unsealed – gravel (%)
  - Unsealed – formed (%)
  - Unsealed – unformed (%)
- Q22 How much do the following activities cost, on average? (If unknown, put X. If you have not done the activity in 24 months, put NA).
  - Asphalt re-seal (\$/square metre)
  - Spray re-seal (\$/square metre)

- Reconstructing a sealed road in built up area (\$/square metre)
- Reconstructing a sealed road in non-built up area (\$/square metre)
- Re-sheeting of gravel road (\$/square metre)
- Reforming of natural roads (\$/square metre)
- Filling in a pothole (average amount in dollars)
- Q23 What is the annual cost of inspections and routine maintenance activities (excluding resealing, reconstruction, resheeting and reforming costs) for each type of road (per km)? Please write NA if your council does not have that type of road, and X if you don't know.
  - Sealed (\$/km)
  - Unsealed – gravel (\$/km)
  - Unsealed – formed (\$/km)
  - Unsealed – unformed (\$/km)

Table D.14 outlines the share of councils who could provide all of the information for a given question, answer at least one subsection (partial information), or couldn't provide any cost figures.

**Table D.14: Share of councils who could provide information on road types and costs**

	Could provide	Could partially provide	No information
Annual costs (Q23)	8.6%	30.9%	60.5%
Unit costs (Q22)	11.1%	53.1%	35.8%
Road types (Q21)	43.2%	34.6%	22.2%

**Q31 Is there any other relevant information you would like to provide to assist with our research, or other road maintenance challenges we should be aware of?**

This was an open-text question. Councils provided a range of responses, some with additional information or context for their responses, and some highlighting particular challenges they are facing.

## Bibliography

- ABS (1999). *National, state and territory population*. Australian Bureau of Statistics. [https://explore.data.abs.gov.au/vis?tm=quarterly%20population&pg=0&df\[ds\]=ABS\\_ABS\\_TOPICS&df\[id\]=ERP\\_Q&df\[ag\]=ABS&df\[vs\]=1.0.0&hc\[Frequency\]=Quarterly&pd=2019-Q2%2C&dq=1.3.TOT..Q&ly\[c\]=TIME\\_PERIOD&ly\[rw\]=REGION](https://explore.data.abs.gov.au/vis?tm=quarterly%20population&pg=0&df[ds]=ABS_ABS_TOPICS&df[id]=ERP_Q&df[ag]=ABS&df[vs]=1.0.0&hc[Frequency]=Quarterly&pd=2019-Q2%2C&dq=1.3.TOT..Q&ly[c]=TIME_PERIOD&ly[rw]=REGION).
- \_\_\_\_\_ (2016). *Census TableBuilder*. Australian Bureau of Statistics.
- \_\_\_\_\_ (2020). *Personal Income in Australia*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/personal-income-australia/latest-release>.
- \_\_\_\_\_ (2021a). *Remoteness Areas*. Australian Bureau of Statistics.
- \_\_\_\_\_ (2021b). *Regional Population*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/people/population/regional-population/latest-release> (visited on 08/09/2023).
- \_\_\_\_\_ (2021c). *Urban Centres and Localities*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/significant-urban-areas-urban-centres-and-localities-section-state/urban-centres-and-localities>. (visited on 24/08/2023).
- \_\_\_\_\_ (2022a). *Data by region*. en. Australian Bureau of Statistics. <https://www.abs.gov.au/methodologies/data-region-methodology/2011-22> (visited on 14/07/2023).
- \_\_\_\_\_ (2022b). *Australian National Accounts: State Account*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/latest-release> (visited on 13/09/2023).
- \_\_\_\_\_ (2023a). *Government Finance Statistics, Annual*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/economy/government/government-finance-statistics-annual/latest-release> (visited on 14/09/2023).
- \_\_\_\_\_ (2023b). *Taxation Revenue, Australia*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/economy/government/taxation-revenue-australia/latest-release> (visited on 14/09/2023).
- \_\_\_\_\_ (2023c). *Government Finance Statistics, Annual - customised data*.
- \_\_\_\_\_ (2023d). *Producer Price Indexes, Australia*. Australian Bureau of Statistics. <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/latest-release> (visited on 14/09/2023).
- ALGA (2021). *National Local Road Data System*. Australian Local Government Association.
- \_\_\_\_\_ (2022). *Building better roads will prevent another \$3.8 billion blowout*. en-AU. Australian Local Government Association. <https://alga.com.au/building-better-roads-will-prevent-another-3-8-billion-blowout/> (visited on 13/09/2023).
- Allan, G. (2023). *Witness statement to the Standing Committee on Regional Development, Infrastructure and Transport*. [https://parlinfo.aph.gov.au/parlInfo/download/committees/commrep/26518/to\\_c\\_pdf/Regional%20Development,%20Infrastructure%20and%20Transport%20Committee\\_2023\\_02\\_16\\_Official.pdf;fileType=application%2Fpdf#search=%22committees/commrep/26518/0000%22](https://parlinfo.aph.gov.au/parlInfo/download/committees/commrep/26518/to_c_pdf/Regional%20Development,%20Infrastructure%20and%20Transport%20Committee_2023_02_16_Official.pdf;fileType=application%2Fpdf#search=%22committees/commrep/26518/0000%22).
- ANAO (2016). *Design and Implementation of the First Funding Round of the Bridges Renewal Programme*. Canberra, ACT: Australian National Audit Office. [https://www.anao.gov.au/sites/default/files/ANAO\\_Report\\_2015-2016\\_17.pdf](https://www.anao.gov.au/sites/default/files/ANAO_Report_2015-2016_17.pdf) (visited on 03/07/2023).
- ATO (2020a). *Taxation Statistics, Company - Table 4*. Australian Taxation Office. [https://data.gov.au/data/dataset/taxation-statistics-2019-20/resource/dca79801-03b9-4339-932b-e0881391113d?inner\\_span=True](https://data.gov.au/data/dataset/taxation-statistics-2019-20/resource/dca79801-03b9-4339-932b-e0881391113d?inner_span=True) (visited on 13/09/2023).
- \_\_\_\_\_ (2020b). *Taxation Statistics, Individuals - Table 6*. Australian Taxation Office. [https://data.gov.au/data/dataset/taxation-statistics-2019-20/resource/3e49a39a-5b01-44b7-b67e-ce056ef6548c?inner\\_span=True](https://data.gov.au/data/dataset/taxation-statistics-2019-20/resource/3e49a39a-5b01-44b7-b67e-ce056ef6548c?inner_span=True) (visited on 13/09/2023).
- Audit Office of New South Wales (2018). *Council reporting on service delivery*. <https://www.audit.nsw.gov.au/our-work/reports/council-reporting-on-service-delivery> (visited on 18/09/2023).

- Australian National Office of Local Government (2003). *Local government national report: 2001-02 report on the operation of the Local Government (Financial Assistance) Act 1995*. OCLC: 224148573. Canberra, A.C.T. <https://nla.gov.au/nla.obj-998241323>.
- Australian Trucking Association (2023). *2022-23 Pre-Budget Submission*. [https://truck.net.au/sites/default/files/submissions/202201ATABudgetSubmission2022-23\\_0.pdf](https://truck.net.au/sites/default/files/submissions/202201ATABudgetSubmission2022-23_0.pdf) (visited on 14/09/2023).
- Babister et al (2023). Babister, M., Retallick, M. and Weeks, W. *Hydrology update to the Austroads Guide to Road Design Part 5*. AP-R683-23. Austroads. [https://austroads.com.au/publications/road-design/ap-r683-23/media/AP-R683-23\\_Update\\_to\\_the\\_Guide\\_to\\_Road\\_Design\\_Part\\_5.pdf](https://austroads.com.au/publications/road-design/ap-r683-23/media/AP-R683-23_Update_to_the_Guide_to_Road_Design_Part_5.pdf).
- Binskin et al (2020). Binskin, M., Bennett, A. and MacIntosh, A. *Report of the Royal Commission into National Natural Disaster Arrangements*. The Royal Commission into National Natural Disaster Arrangements. <https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20-%205Baccessible%5D.pdf>.
- BITRE (2012). *Evaluation of the National Black Spot Program*. Volume 1. Bureau of Infrastructure, Transport and Regional Economics. Canberra. [https://www.bitre.gov.au/sites/default/files/report\\_126\\_1.pdf](https://www.bitre.gov.au/sites/default/files/report_126_1.pdf) (visited on 21/08/2023).
- (2017). *Growth in the Australian road system*. Information Sheet 92. Bureau of Infrastructure, Transport and Regional Economics.
- (2022a). *Impact of road trauma measures to improve outcomes*. Bureau of Transport, Infrastructure and Regional Development. [https://www.bitre.gov.au/sites/default/files/report\\_140.pdf](https://www.bitre.gov.au/sites/default/files/report_140.pdf) (visited on 09/06/2023).
- (2022b). *Australian Infrastructure and Transport Statistics - Yearbook 2022*. en. Bureau of Infrastructure and Transport Research Economics. <https://www.bitre.gov.au/publications/2022/australian-infrastructure-and-transport-statistics-yearbook-2022> (visited on 13/09/2023).
- (2023). *Road Trauma Australia 2022 statistical summary*. Bureau of Infrastructure and Transport Research Economics. [https://www.bitre.gov.au/sites/default/files/documents/road\\_trauma\\_2022.pdf](https://www.bitre.gov.au/sites/default/files/documents/road_trauma_2022.pdf) (visited on 09/06/2023).
- Boadway, R. (2004). "The Theory and Practice of Equalization." *CESifo Economic Studies* 50.1. Oxford University Press USA, pp. 211–254. ISSN: 1610-241X. DOI: 10.1093/cesifo/50.1.211.
- Bowring, D. (2023). "Voters have picked the worst road in NSW. Do you know where it is?" *ABC News*. <https://www.abc.net.au/news/2023-03-08/nrma-worst-roads-in-sydney-nsw-votes/102067812> (visited on 13/09/2023).
- BTE (1987). *Assessment of the Australian road system: 1987*. 63. Bureau of Transport Economics. Canberra. [https://www.bitre.gov.au/sites/default/files/report\\_061.pdf](https://www.bitre.gov.au/sites/default/files/report_061.pdf).
- Bureau of Meteorology (1981). *Mean monthly, seasonal and annual rainfall data (base climatological data sets)*. [http://www.bom.gov.au/jsp/ncc/climate\\_averages/rainfall/index.jsp](http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall/index.jsp) (visited on 25/08/2023).
- (2023). *State of the Climate 2022*. <http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml> (visited on 13/09/2023).
- Cao et al (2015). Cao, L., Hosking, A., Kouparitsas, M., Mullaly, D., Rimmer, X., Shi, Q., Stark, W. and Wende, S. *Understanding the economy-wide efficiency and incidence of major Australian taxes*. Treasury Working Paper. Department of the Treasury. <https://treasury.gov.au/publication/understanding-the-economy-wide-efficiency-and-incidence-of-major-australian-taxes>.
- Chow et al (2018). Chow, M., Gu, H., Morrison, S. and Woodman, G. *Measuring and Reporting the Value of Road Maintenance and Renewal Works*. AP-R588-18. Austroads Ltd. [https://austroads.com.au/publications/asset-management/ap-r588-18/media/AP-R588-18\\_Measuring\\_and\\_Reporting\\_the\\_Value\\_of\\_Road\\_Maintenance\\_and\\_Renewal.pdf](https://austroads.com.au/publications/asset-management/ap-r588-18/media/AP-R588-18_Measuring_and_Reporting_the_Value_of_Road_Maintenance_and_Renewal.pdf).
- Clarence Valley Council (n.d.). *Cost shifting and its impact on council finances*. [https://ehq-production-australia.s3.ap-southeast-2.amazonaws.com/e4a9350d0515bd0aa46925e65384c16e0cdc3216/documents/attachments/000/044/611/original/cost\\_shifting.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIOR7VAOP4%2F20231027%2Fap-southeast-2%2Fs3%2Faws4\\_request&X-Amz-Date=20231027T060109Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=807e58e46d1806e72def9fdad80a3968e785dc9429d15b94f9379b58911ed4](https://ehq-production-australia.s3.ap-southeast-2.amazonaws.com/e4a9350d0515bd0aa46925e65384c16e0cdc3216/documents/attachments/000/044/611/original/cost_shifting.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIOR7VAOP4%2F20231027%2Fap-southeast-2%2Fs3%2Faws4_request&X-Amz-Date=20231027T060109Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=807e58e46d1806e72def9fdad80a3968e785dc9429d15b94f9379b58911ed4).



- Commonwealth Grants Commission (2001). *Review of The Operation of the Local Government (Financial Assistance) Act 1995 / Commonwealth Grants Commission*. Canberra, A.C.T. <https://nla.gov.au/nla.obj-1607920555/view?partId=nla.obj-1610147741#page/n0/mode/1up>.
- Comrie, J. (2013). *In our hands: strengthening local government revenue for the 21st century*. Australian Centre of Excellence for Local Government. <https://opus.lib.uts.edu.au/bitstream/10453/42057/3/Strengthening-LG-Revenues.pdf>.
- Council on Federal Financial Relations (2009). *Schedule E - National Policy and Reform Objectives - to the Intergovernmental Agreement on Federal Financial Relations*.
- Department for Infrastructure and Transport (2022). *Roads*. South Australia. <https://data.sa.gov.au/data/dataset/roads>.
- Department of Climate Change, Energy, the Environment and Water (2021). *Australia state of the environment 2021, Graphs, maps and tables, Figure 1*. <https://soe.dceew.gov.au/climate/graphs-maps-and-tables> (visited on 13/09/2023).
- Department of Customer Services (2023). *NSW Transport Theme - Road Segment*. NSW. <https://data.nsw.gov.au/data/dataset/1-66fabd8c23074ecc85883e0086419adc>.
- Department of Energy, Environment and Climate Action (2023). *Vicmap Transport - Road Line*. Victoria. <https://discover.data.vic.gov.au/dataset/vicmap-transport-road-line>.
- Department of Infrastructure, Transport, Cities and Regional Development (2019). *Roads to Recovery Funding Conditions*. [https://investment.infrastructure.gov.au/sites/default/files/documents/R2R\\_Funding\\_Conditions\\_November\\_2019.pdf](https://investment.infrastructure.gov.au/sites/default/files/documents/R2R_Funding_Conditions_November_2019.pdf) (visited on 21/08/2023).
- Department of Infrastructure, Transport, Regional Development and Communications (2020a). *Heavy Vehicle Safety and Productivity Program Round Seven Program Guidelines*. [https://investment.infrastructure.gov.au/sites/default/files/documents/HVSPP\\_R7\\_Guidelines.pdf](https://investment.infrastructure.gov.au/sites/default/files/documents/HVSPP_R7_Guidelines.pdf) (visited on 03/07/2023).
- \_\_\_\_\_ (2020b). *Bridges Renewal Program Round 5 Program Guidelines*. [https://investment.infrastructure.gov.au/sites/default/files/documents/BRP\\_R5\\_Guidelines.pdf](https://investment.infrastructure.gov.au/sites/default/files/documents/BRP_R5_Guidelines.pdf) (visited on 03/07/2023).
- Department of Infrastructure, Transport, Regional Development and Local Government (2018). *Local Government National Report 2007-8*. <https://webarchive.nla.gov.au/awa/20181010003234/http://regional.gov.au/local/publications/reports/index.aspx> (visited on 14/06/2023).
- Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2021). *National principles for the allocation of grants under the Local Government (Financial Assistance) Act 1995*. Last Modified: 2021-11-15. <https://www.infrastructure.gov.au/territories-regions-cities/local-government/financial-assistance-grant-local-government/national-principles-allocation-grants> (visited on 08/09/2023).
- \_\_\_\_\_ (2022). *Financial Assistance Grant to Local Government*. Last Modified: 2022-08-29 Publisher: Department of Infrastructure, Transport, Regional Development, Communications and the Arts. <https://www.infrastructure.gov.au/territories-regions-cities/local-government/financial-assistance-grant-local-government> (visited on 20/06/2023).
- \_\_\_\_\_ (2023a). *Local Government National Report 2020–21*. [https://www.infrastructure.gov.au/sites/default/files/documents/lgn\\_report\\_2020-21.pdf](https://www.infrastructure.gov.au/sites/default/files/documents/lgn_report_2020-21.pdf).
- \_\_\_\_\_ (2023b). *Fact sheet: Remote road safety*. <https://www.roadsafety.gov.au/nrss/fact-sheets/remote-road-safety> (visited on 18/09/2023).
- \_\_\_\_\_ (2023c). *Factsheet: Regional road safety*. <https://www.roadsafety.gov.au/nrss/fact-sheets/regional-road-safety> (visited on 18/09/2023).
- \_\_\_\_\_ (2023d). *Infrastructure Investment Program Strategic Review*. <https://investment.infrastructure.gov.au/about/budget-announcements/infrastructure-investment-program-strategic-review> (visited on 22/09/2023).
- \_\_\_\_\_ (2023e). *Financial Assistance Grant – Cash Payments (2017-18 to 2022-23)*. <https://www.infrastructure.gov.au/sites/default/files/documents/fa-grants-historical-2017-18-to-2022-23-with-subtotals-final-protectedv2.xlsx> (visited on 08/09/2023).

- Department of Natural Resources and Environment (2018). *LIST Transport Segments*. Tasmania. <https://www.thelist.tas.gov.au/app/content/data/geo-meta-data-record?detailRecordUID=1ab7e34f-811c-4521-a549-212f295acc97#:~:text=LIST%20Transport%20Segment%20data%20comprises,fall%20betwe en%20two%20Transport%20Nodes..>
- Dollery et al (2010). Dollery, B., Wallis, J. and Akimov, A. "One Size Does Not Fit All: The Special Case of Remote Small Local Councils in Outback Queensland". *Local Government Studies* 36.1, pp. 21–42. DOI: 10.1080/03003930903435716. (Visited on 15/09/2023).
- Drew, J. and Dollery, B. (2015). "Road to Ruin? Horizontal Equalisation of Road Grant Allocations in Eastern Mainland Australian States". *Public Administration Quarterly* 39.3. Publisher: SPAEF, pp. 518–546. ISSN: 0734-9149. <https://www.jstor.org/stable/24773426> (visited on 18/06/2023).
- Eddie, R. (2022). "Why councils warn they can't spare cash for pools and libraries". *The Age*. Section: Victoria. <https://www.theage.com.au/politics/victoria/why-councils-warn-they-can-t-spare-cash-for-pools-and-libraries-20220405-p5aaxc.html> (visited on 01/08/2023).
- Hatch, P. (2022). "Victorian election 2022: 'Diabolical' state of the roads open up an election pothole". <https://www.theage.com.au/politics/victoria/diabolical-state-of-victoria-s-roads-open-up-an-election-pothole-20221110-p5bxat.html> (visited on 08/06/2023).
- Henry, K. (2009). *Australia's future tax system: Part Two Detailed analysis*. volume 1. Canberra: Department of the Treasury. [https://treasury.gov.au/sites/default/files/2019-10/afts\\_final\\_report\\_part\\_2\\_vol\\_1\\_consolidated.pdf](https://treasury.gov.au/sites/default/files/2019-10/afts_final_report_part_2_vol_1_consolidated.pdf).
- Herald Sun (2023). *Australia's most dangerous roads: Full list of the worst roads*. <https://www.heraldsun.com.au/news/national/australias-most-dangerous-roads-full-list-of-the-worst-roads/news-story/37341adfd0c8128a4c1ff7f6eb6dbd86> (visited on 13/09/2023).
- Houston Kemp (2022). *Cost benefit analysis of extending the Heavy Vehicle Access Management System to Special Purpose Vehicles*. Final report for the Department of State Growth, Tasmania. [https://www.transport.tas.gov.au/\\_\\_data/assets/pdf\\_file/0012/405003/HVAMS\\_CBA\\_Final\\_Report\\_16\\_Nov\\_22.pdf](https://www.transport.tas.gov.au/__data/assets/pdf_file/0012/405003/HVAMS_CBA_Final_Report_16_Nov_22.pdf) (visited on 21/09/2023).
- HVRR (2023). *Heavy Vehicle Road Reform Consultation Paper: Proposed changes to the way heavy vehicle charges are set and invested*. Heavy Vehicle Road Reform Department of Infrastructure, Transport, Regional Development and Communications. <https://www.infrastructure.gov.au/sites/default/files/migrated/roads/heavy/files/hvrr-consultation-paper-20200904.pdf> (visited on 21/09/2023).
- Infrastructure Australia (2016). *Project Business Case Evaluation: Inland Rail*. [https://www.infrastructureaustralia.gov.au/sites/default/files/2019-08/final\\_inland\\_rail\\_project\\_evaluation\\_summary\\_0.pdf](https://www.infrastructureaustralia.gov.au/sites/default/files/2019-08/final_inland_rail_project_evaluation_summary_0.pdf) (visited on 14/07/2023).
- \_\_\_\_\_ (2019). *An Assessment of Australia's Future Infrastructure Needs - The Australian Infrastructure Audit 2019*. Infrastructure Australia. [https://www.infrastructureaustralia.gov.au/sites/default/files/2020-10/Audit%202019\\_Full%20pdf\\_Updates%20September%202020.pdf](https://www.infrastructureaustralia.gov.au/sites/default/files/2020-10/Audit%202019_Full%20pdf_Updates%20September%202020.pdf).
- \_\_\_\_\_ (2022). *2022 Infrastructure Market Capacity report*. Infrastructure Australia. [https://www.infrastructureaustralia.gov.au/sites/default/files/2023-04/2022\\_IA\\_Market-Capacity-Report\\_2.0\\_HR.pdf](https://www.infrastructureaustralia.gov.au/sites/default/files/2023-04/2022_IA_Market-Capacity-Report_2.0_HR.pdf) (visited on 30/08/2023).
- IPWEA NSW (2020). *Road Asset Benchmarking Project 2019 Road Management Report*. NSW and ACT Institute of Public Works Engineering Australasia. <https://ipweansw.org/resources/road-management-report-2019>.
- Juturna Consulting (2010). *Going Nowhere: The Rural Local Road Crisis: It's National Significance and Proposed Reforms*. en. Australian Rural Roads Group. [https://www.infrastructureaustralia.gov.au/sites/default/files/2019-06/Australian\\_Rural\\_Roads\\_Group\\_Report.pdf](https://www.infrastructureaustralia.gov.au/sites/default/files/2019-06/Australian_Rural_Roads_Group_Report.pdf).
- JWS research (2023). *2022 Local Government Community Satisfaction Survey State-wide Report*. Coordinated by the Department of Jobs, Precincts and Regions on behalf of Victorian councils. [https://www.localgovernment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0031/188419/CSS-2022-State-wide-Report-1.pdf](https://www.localgovernment.vic.gov.au/__data/assets/pdf_file/0031/188419/CSS-2022-State-wide-Report-1.pdf) (visited on 18/09/2023).
- KPMG (2017). *Review of grants to Local Government: Current and future state assessment*. Department of Infrastructure, Local Government and Planning (DILGP), Local Government Association of Queensland (LGAQ). [https://www.statedevelopment.qld.gov.au/\\_\\_data/assets/pdf\\_file/0019/46135/kpmg-report-review-of-grants-to-local-government-current-and-future-state-assessment.pdf](https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0019/46135/kpmg-report-review-of-grants-to-local-government-current-and-future-state-assessment.pdf) (visited on 13/06/2023).

- Local Government NSW (2014). *Submission to the Draft Productivity Commission Report Inquiry on Natural Disaster Funding Arrangements*. <https://www.pc.gov.au/inquiries/completed/disaster-funding/submissions/submissions-test2/submission-counter/subdr196-disaster-funding.pdf>.
- \_\_\_\_\_ (2018). *Impact of cost shifting on local government in NSW*. [https://lgnsw.org.au/common/Uploaded%20files/PDF/Cost\\_Shifting\\_Summary\\_2018.pdf](https://lgnsw.org.au/common/Uploaded%20files/PDF/Cost_Shifting_Summary_2018.pdf).
- Local Government Victoria (2023a). *Performance reporting*. <https://www.localgovernment.vic.gov.au/strengthening-councils/performance-reporting> (visited on 18/09/2023).
- \_\_\_\_\_ (2023b). *Rural Roads Support Package*. Last Modified: 2023-08-02. <https://www.localgovernment.vic.gov.au/funding-programs/rural-roads-support-package> (visited on 18/09/2023).
- Martin, D. T. and Choummanivong, L. (2015). *Interim road deterioration models during accelerated deterioration*. AP-T291-15. Austroads. [https://austroads.com.au/publications/asset-management/ap-t291-15/media/AP-T291-15\\_Interim\\_Road\\_Deterioration\\_Models\\_during\\_Accelerated\\_Deterioration.pdf](https://austroads.com.au/publications/asset-management/ap-t291-15/media/AP-T291-15_Interim_Road_Deterioration_Models_during_Accelerated_Deterioration.pdf).
- D. T. Martin et al (2018). Martin, D. T., Hassan, D. R. and Sharp, K. "Guide to Asset Management - Processes Part 7: Program Development and Implementation". *Guide to Asset Management*. Third. Level 9, 287 Elizabeth Street Sydney NSW 2000 Australia: Austroads Ltd. ISBN: 978-1-925671-46-9. [https://austroads.com.au/publications/asset-management/agam07/media/AGAM07-18\\_Processes\\_Program\\_Development\\_and\\_Implementation.pdf](https://austroads.com.au/publications/asset-management/agam07/media/AGAM07-18_Processes_Program_Development_and_Implementation.pdf).
- D. T. Martin et al (2023). Martin, D. T., Sen, R. and Song, D. Y. *Austroads Road Deterioration Model Update: Deflection*. en. Level 9, 570 George Street Sydney NSW 2000 Australia: Austroads Ltd. [https://austroads.com.au/publications/pavement/ap-t367-23/media/AP-T367-23\\_RD\\_Model\\_Deflection.pdf](https://austroads.com.au/publications/pavement/ap-t367-23/media/AP-T367-23_RD_Model_Deflection.pdf).
- T. Martin et al (2023). Martin, T., Davey, S. and Clarke, M. *Revised Priority Harmonisation Subsets (PHS) and Metrics for Data Standard for Road Maintenance and Investment*. en. Austroads. Austroads. <https://austroads.com.au/publications/asset-management/ap-r598-19> (visited on 18/09/2023).
- McCracken, J. (2023). *Inquiry on local government funding and service delivery in Victoria*.
- National Emergency Management Agency (2023a). *Independent Review of Commonwealth Disaster Funding*. <https://nema.gov.au/about-us/governance-and-reporting/reviews/Independent-Review-Disaster-Funding> (visited on 03/10/2023).
- \_\_\_\_\_ (2023b). *Disaster Ready Fund*. <https://nema.gov.au/disaster-ready-fund> (visited on 22/09/2023).
- National Heavy Vehicle Regulator (2023). *Local government priority routes*. <https://www.nhvr.gov.au/news/2023/09/12/local-government-priority-routes> (visited on 21/09/2023).
- National Transport Commission (2019). *HVNL review - Easy access to suitable routes*. <https://www.ntc.gov.au/transport-reform/ntc-projects/hvnl-review-easy-access-suitable-routes> (visited on 26/09/2023).
- \_\_\_\_\_ (2022). *Heavy vehicle charges consultation report*. <https://www.ntc.gov.au/sites/default/files/assets/files/Heavy%20vehicle%20charges%20consultation%20report%202022%E2%80%9323.pdf> (visited on 30/08/2022).
- Naudé et al (2008). Naudé, C., Tsolakis, D. and Toole, T. "An 'accelerated' approach to funding road rehabilitation". *Road and Transport Research* 17.3.
- Naylor, C. (2022). *Pothole plague: rain-damaged roads trigger thousands of calls for help*. <https://www.theage.com.au/national/nsw/pothole-plague-rain-damaged-roads-trigger-thousands-of-calls-for-help-20220721-p5b3hn.html> (visited on 08/06/2023).
- Northern Beaches Council (2023). *Delivery Program 2023-2027*. <https://www.northernbeaches.nsw.gov.au/media/57701>.
- NRMA (2022). *Fix our broken roads: NSW's road infrastructure backlog*. National Roads and Motorists' Association. <https://www.mynrma.com.au/-/media/documents/fix-our-broken-roads.pdf>.
- NSW Local Government Grants Commission (2021). *NSW Local Government Grants Commission Annual Report 2020-21*. Sydney: NSW Office of Local Government. <https://www.olg.nsw.gov.au/wp-content/uploads/2021/10/Grants-Commission-2020-21-Annual-Report.pdf>.

- NSW Office of Local Government (2023). *Your Council Report, Time Series Data*. <https://www.olg.nsw.gov.au/public/about-councils/comparative-council-information/your-council-report/> (visited on 18/09/2023).
- NT Grants Commission (2013). *Submission to the Commonwealth Grants Commission Review into Improving the Impact of the Financial Assistance Grants on Local Government Financial Sustainability*. <https://web.archive.org/web/20140308150954/https://cgc.gov.au/attachments/article/152/LG2013%20NT%20Grants%20Commission%20submission%20response%2019feb13.pdf>.
- \_\_\_\_\_ (2021). *Northern Territory Grants Commission Annual Report 2020/21*. Darwin: Northern Territory Department of the Chief Minister and Cabinet. [https://cmc.nt.gov.au/\\_\\_data/assets/pdf\\_file/0003/1094097/nt-grants-commission-annual-report-2020-21.pdf](https://cmc.nt.gov.au/__data/assets/pdf_file/0003/1094097/nt-grants-commission-annual-report-2020-21.pdf).
- O'Rourke, M. (2017). *Supplementary submission to inquiry into cost shifting impact on local government*. <https://www.aph.gov.au/DocumentStore.ashx?id=a1479849-441b-4030-b815-de21c0c7b562&subId=516139>.
- Parliament of Australia (2003). *Rates and taxes: a fair share for responsible local government*. House of Representatives Standing Committee on Economics, Finance and Public Administration. Canberra. <https://nla.gov.au/nla.obj-897092368/view?partId=nla.obj-898784549#page/n0/mode/1up>.
- \_\_\_\_\_ (2022). *Driving Reform: final report for the Inquiry into Road Safety*. Joint Select Committee on Road Safety. Canberra. [https://parlinfo.aph.gov.au/parlInfo/download/committees/reportjnt/024922/toc\\_pdf/DrivingReformfinalreportfortheInquiryintoRoadSafety.pdf;fileType=application%2Fpdf](https://parlinfo.aph.gov.au/parlInfo/download/committees/reportjnt/024922/toc_pdf/DrivingReformfinalreportfortheInquiryintoRoadSafety.pdf;fileType=application%2Fpdf).
- \_\_\_\_\_ (2023). *Senate Select Committee on Australia's Disaster Resilience*. [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Disaster\\_Resilience/DisasterResilience](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Disaster_Resilience/DisasterResilience) (visited on 03/10/2023).
- Peter Gutwein (2023). *Meeting of the Council of Australian Governments: Communiqué*. en. [https://www.premier.tas.gov.au/releases/meeting\\_of\\_the\\_council\\_of\\_australian\\_governments](https://www.premier.tas.gov.au/releases/meeting_of_the_council_of_australian_governments) (visited on 18/09/2023).
- QLD Local Government Grants Commission (2013). *Submission to the Commonwealth Grants Commission Review into Improving the Impact of the Financial Assistance Grants on Local Government Financial Sustainability*. <https://web.archive.org/web/20140308150433/https://cgc.gov.au/attachments/article/152/Queensland%20Grants%20Commission.pdf>.
- \_\_\_\_\_ (2022). *Financial assistance grant allocation methodology - Information paper*. Brisbane: State of Queensland, Department of State Development, Infrastructure, Local Government and Planning. [https://www.statedevelopment.qld.gov.au/\\_\\_data/assets/pdf\\_file/0024/74355/financial-assistance-grant-allocation-methodology-Information-paper.pdf](https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0024/74355/financial-assistance-grant-allocation-methodology-Information-paper.pdf).
- Queensland Audit Office (2023a). *Improving asset management in local government*. <https://www.qao.qld.gov.au/reports-resources/reports-parliament/improving-asset-management-local-government> (visited on 14/09/2023).
- \_\_\_\_\_ (2023b). *Forecasting long-term sustainability of local government*. <https://www.qao.qld.gov.au/reports-resources/forecasting-long-term-sustainability-local-government> (visited on 14/09/2023).
- Queensland Government (2021). *2020-21 consolidated QGIP expenditure*. <https://www.data.qld.gov.au/dataset/b102c881-2c7f-484a-a8b6-b056fe318964/resource/7efc8671-6385-4215-ba1b-e11d95a2df12/download/20-21-expenditure-data-consolidated.csv> (visited on 11/09/2023).
- Queensland Reconstruction Authority (2023). *Case studies: Betterment in action | Queensland Reconstruction Authority*. <https://www.qra.qld.gov.au/betterment/betterment-in-action> (visited on 14/09/2023).
- RACQ (2023). *Our most 'unroadworthy roads'*. <https://www.racq.com.au/articles/drive/2023/1/Our-most-unroadworthy-roads> (visited on 13/09/2023).
- RACT (2023). *Tassie's worst roads revealed*. <https://www.ract.com.au/community/related-articles/tassies-worst-roads-revealed> (visited on 13/09/2023).
- RACV (2023). *5,000 Victorians name safety concerns on Melbourne's roads*. <https://www.racv.com.au/royalauto/news/my-melbourne-road-survey-results-2023.html> (visited on 13/09/2023).
- SA Productivity Commission (2019). *Final Report: Inquiry into Local Government Costs and Efficiency*. <https://www.sapc.sa.gov.au/inquiries/inquiries/local-government-inquiry/final-report> (visited on 14/09/2023).

- Sansom et al (2013). Sansom, G., Munro, J. and Glenn, I. *Revitalising local government*. NSW Independent Local Government Review Panel. <https://www.narrabri.nsw.gov.au/files/assets/public/1.-your-council/strategic-and-corporate-plans/fit-for-the-future/other-files/revitalising-local-government-ilgrp-final-report-october-2013-rs.pdf> (visited on 26/07/2023).
- Scriberras, A. (2023). *Community members turn pothole into garden*. <https://www.9news.com.au/national/wallan-news-community-members-turn-pothole-into-garden/e97d6189-3e05-4698-b039-bdfe9aa367c7> (visited on 13/09/2023).
- SGS Economics (2022). “2022 Local Government Workforce Skills and Capability Survey”. Prepared for the Australian Local Government Association, with funding from the Federal Department of Infrastructure, Transport, Regional Development, Communications and the Arts.
- Sutton, P. (2019). *Submission to inquiry into local government cost and efficiency - methodology paper*. [https://www.sapc.sa.gov.au/\\_\\_data/assets/pdf\\_file/0003/108840/City-of-Charles-Sturt.pdf](https://www.sapc.sa.gov.au/__data/assets/pdf_file/0003/108840/City-of-Charles-Sturt.pdf).
- Tasmanian State Grants Commission (2020). *State Grants Commission 2020-21 Financial Assistance Grant Data Tables*. <https://www.treasury.tas.gov.au/Documents/State%20Grants%20Commission%202020-21%20Financial%20Assistance%20Grant%20DATA%20TABLES.pdf>.
- \_\_\_\_\_ (2022a). *Financial Assistance Grant Distribution Methodology*. Hobart: Treasury and Finance Tasmania. <https://www.treasury.tas.gov.au/Documents/Financial%20Assistance%20Grants%20Distribution%20Methodology.pdf>.
- \_\_\_\_\_ (2022b). *Road Preservation Model methodology review: changing the underlying basis of the RPM*. Discussion paper DP22-02. Tasmanian Government. <https://www.treasury.tas.gov.au/Documents/Discussion%20Paper%20DP22-02-%20Road%20Preservation%20Model%20Review.pdf>.
- Terrill, M. (2022). *Roundabouts, overpasses, and carparks: Hauling the federal government back to its proper role in transport projects*. Grattan Institute. <https://grattan.edu.au/report/roundabouts-overpasses-carparks-hauling-the-federal-government-back-to-its-proper-role-in-transport-projects/>.
- Terrill et al (2020). Terrill, M., Emslie, O. and Moran, G. *The Rise of Megaprojects: Counting the costs*. Grattan Institute. <https://grattan.edu.au/report/the-rise-of-megaprojects-counting-the-costs/>.
- Terrill et al (2023). Terrill, M., Burford, I. and Bradshaw, N. *Fuelling budget repair: How to reform fuel taxes for business*. Grattan Institute. <https://grattan.edu.au/report/fuelling-budget-repair/> (visited on 21/09/2023).
- The South Australian Centre for Economic Studies (2023). *Local Government Price Index - annual series*. <https://www.adelaide.edu.au/saces/economic-and-social-indicators/local-government-price-index#local-government-price-index-annual-series>.
- Toole et al (2021). Toole, T., Martin, D. T. and Sen, R. *Prolonging the life of road assets under increasing demand: a framework and tools for informing the development and justification of asset preservation and renewal*. AP-R649-21. Austroads. [https://austrroads.com.au/publications/asset-management/ap-r649-21/media/AP-R649-21\\_Prolonging\\_Life\\_of\\_Road\\_Assets\\_Under\\_Increasing\\_Demand.pdf](https://austrroads.com.au/publications/asset-management/ap-r649-21/media/AP-R649-21_Prolonging_Life_of_Road_Assets_Under_Increasing_Demand.pdf).
- VAGO (2019). *Market-led Proposals*. 2019–20:6. Victorian Auditor-General's Office. <https://www.audit.vic.gov.au/sites/default/files/2019-11/20191127-Market-led-Proposals-report.pdf?>
- \_\_\_\_\_ (2021). *Maintaining local roads*. 2020–21: 15. Melbourne: Victorian Auditor-General's Office. <https://www.audit.vic.gov.au/sites/default/files/2021-03/20210317-Local-Roads-report.pdf?>
- Verity, S. (2021). *Australia's Local Government 2021 National State of the Assets*. Suite 6.03 Level 6 99 Walker Street North Sydney NSW 2060: Institute of Public Works Engineering Australasia. <https://alga.com.au/app/uploads/ALGA-2021-NSoA-Technical-Report-FINAL.pdf>.
- \_\_\_\_\_ (2023). *Road Asset Benchmarking Project 2023 Road Management Report - Draft*. IPWEA NSW, LGNSW.
- Victorian Local Government Grants Commission (2022). *Annual Allocation Report 2022-23*. Melbourne: Department of Jobs, Precincts and Regions. [https://www.localgovernment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0030/189570/2022-23-VLGGC-ANNUAL-ALLOCATION-REPORT-Sept-2022.pdf](https://www.localgovernment.vic.gov.au/__data/assets/pdf_file/0030/189570/2022-23-VLGGC-ANNUAL-ALLOCATION-REPORT-Sept-2022.pdf).
- WA Local Government Grants Commission (2021). *Western Australian Local Government Grants Commission Annual Report 2020-21*. Perth: Department of Local Government, Sport and Cultural Industries. [https://www.dlgsc.wa.gov.au/docs/default-source/local-government/local-government-grants-commission/wa-local-government-grants-commission---annual-report-2021.pdf?sfvrsn=6aca480e\\_9](https://www.dlgsc.wa.gov.au/docs/default-source/local-government/local-government-grants-commission/wa-local-government-grants-commission---annual-report-2021.pdf?sfvrsn=6aca480e_9).



- Waka Kotahi NZ Transport Agency (2023). *One Network Framework* | Waka Kotahi NZ Transport Agency. <https://www.nzta.govt.nz/planning-and-investment/planning/one-network-framework/> (visited on 22/09/2023).
- WALGA (2021). *Report on Local Road Assets and Expenditure 2020-21*. Western Australian Local Government Association. <https://walga.asn.au/getattachment/Policy-Advocacy/Our-Policy-Areas/Infrastructure/Roads/Report-on-Local-Government-Road-Assets-and-Expendi/Road-Assets-and-Expenditure-Report-2020-21-website.pdf?lang=en-AU>.
- Western Australian Auditor General (2009). *Maintaining the state road network*. 6. Western Australian Auditor General. [https://audit.wa.gov.au/wp-content/uploads/2013/05/report2009\\_06.pdf](https://audit.wa.gov.au/wp-content/uploads/2013/05/report2009_06.pdf).
- (2016). *Maintaining the state road network - follow-on audit*. Western Australian Auditor General. [https://audit.wa.gov.au/wp-content/uploads/2016/06/report2016\\_13-StateRoads.pdf](https://audit.wa.gov.au/wp-content/uploads/2016/06/report2016_13-StateRoads.pdf).
- Western Australian Local Government Grants Commission Annual Report 2020-21 (2020). *2020-21 WALGGC Balance Budget*. [https://www.dlgsc.wa.gov.au/docs/default-source/local-government/financial-assistance-grants/2020-21-walggc-balance-budget.xlsx?sfvrsn=ce00692d\\_2](https://www.dlgsc.wa.gov.au/docs/default-source/local-government/financial-assistance-grants/2020-21-walggc-balance-budget.xlsx?sfvrsn=ce00692d_2) (visited on 30/08/2023).
- (2022). *The Asset Preservation Model*. [https://www.dlgsc.wa.gov.au/docs/default-source/local-government/financial-assistance-grants/walggc---asset-preservation-model---september-2022.pdf?sfvrsn=e573d811\\_2](https://www.dlgsc.wa.gov.au/docs/default-source/local-government/financial-assistance-grants/walggc---asset-preservation-model---september-2022.pdf?sfvrsn=e573d811_2).
- Your Council NSW (2021). *NSW Overview- Finances*. <https://www.yourcouncil.nsw.gov.au/nsw-overview/finances/> (visited on 14/09/2023).
- Zbierski, S. (2019). *Submission to South Australian Productivity Commission inquiry into local government costs and efficiency*. [https://www.sapc.sa.gov.au/\\_\\_data/assets/pdf\\_file/0009/108837/Campbelltown-City-Council.pdf](https://www.sapc.sa.gov.au/__data/assets/pdf_file/0009/108837/Campbelltown-City-Council.pdf).